

Town of Southington

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

318 North Main Street
Southington, Connecticut

Project Number HT212643.0000.00001

August 2016

A large orange geometric graphic consisting of a triangle and a rectangle, with a white diagonal line and a white horizontal line intersecting them.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT



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Executive Summary

Arcadis U.S., Inc. (Arcadis) was retained by the Town of Southington to conduct a Phase I Environmental Site Assessment (ESA) of a property located at 318 North Main Street in Southington, Connecticut (the "Site"). According to Town records, 318 North Main Street is located on Map 122 and Lot 007 totaling 1.65 acres. The Site is vacant and consists of a building foundation and three dilapidated storage sheds. The Site was formerly occupied by Beaton & Corbin Manufacturing Corporation (Beaton & Corbin).

The Phase I ESA was conducted in accordance with the ASTM International (ASTM) Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the Connecticut Department of Energy and Environmental Protection's (DEEP) Site Characterization Guidance Document (SCGD). The goal of the Phase I ESA was to identify recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), and historical recognized environmental conditions (HRECs) associated with the property in conformance with ASTM E1527-13. In addition, the primary goal is to identify Areas of Environmental Concern (AOCs) in accordance with the SCGD. AOCs are potential areas of concern while REC are known areas of concern and are not necessarily interchangeable terms.

The Phase I ESA included a visual inspection of the property completed on July 20, 2016, observation of adjacent properties, reviews of environmental regulatory agency records, historical documents, and facility records that were available from the client or on-site, and interviews with personnel represented to be familiar with the Site as indicated elsewhere in the report.

According to previous reports, the Site was occupied by Aetna Match Company, a match manufacturer during the late 1800s. Beaton & Corbin occupied the Site from approximately 1900 through 1989. Beaton & Corbin manufactured ceiling and floor plates and plumbing fittings and fixtures. Operations included metal machining and metal plating. Wastes formerly generated during Beaton & Corbin occupancy include metal hydroxide plating sludge, plating wastes, and degreasing and machining oils. These wastes were disposed of in two lagoons in the southwest portion of the Site. Five storage tanks which reportedly contained oil, gasoline, liquid wastes, and chemical raw materials were historically used on-site. Plating shop operations were located in the western portion of the former site building and degreasing operations were located in the southern portion of the former site building. Solvent and fuel oil storage tanks were located along the southern wall of the former site building. The north side of the former building consisted of a loading dock, transformer pad, and exhaust vents. A loading dock was also located along the southern side of the former site building. A concrete pit is reportedly located in the western portion of the Site. The concrete pit was used as a settling basin for the facility's wastewater treatment system, which ultimately discharged to the Quinnipiac River, west of the Site.

The Site consisted of a former 25,000-square-foot building that was located in the northern portion of the Site and destroyed in a 2003 fire. A building foundation currently remains on the Site as well as three small dilapidated sheds, a concrete bunker with a 10,000-gallon fuel oil tank, a 500-gallon gasoline UST, and potential former septic tank. The boiler room and boiler are the only remaining parts of the original main facility building.

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The following AOCs and RECs were determined through a combination of sources; the visual site inspection on July 20, 2016, the EDR report including historical aerial photographs, Sanborn Fire Insurance Maps, topographic maps, and city directories as well as client provided documents and documents found in the DEEP file room on July 20, 2016.

The following documents were either client provided or found in the DEEP file room and are provided in **Appendix C**:

- 1961-1978 State of Connecticut Water Resources Commission site inspection forms
- 1984 State of Connecticut vs Beaton & Corbin Manufacturing Company Order HM-168
- 1986 Beaton & Corbin National Pollutant Discharge Elimination (NPDES) Permit
- 1987-1988 correspondence between CT DEEP and Beaton & Corbin regarding the Metal Hydroxide (MOH) Lagoon Closure
- 1988 HRP Phase I Site Assessment
- 1990 Resource Conservation and Recovery Act (RCRA) Memorandum of Inventory of Chemicals and Wastes on Site at Beaton & Corbin
- 1996 CT DEEP Memorandum
- 1997 Roy F. Weston Chronological Summary Report for Beaton & Corbin
- 1998 US Environmental Protection Agency (EPA) Memorandum
- 1998 Beaton & Corbin Stipulation No. CV 94-0543672 S
- 2002 Diversified Environmental Services, Inc. (DES) Subsurface Investigation Report
- 2012 Environmental Safety Solutions, Inc. (Etech) Phase II ESA

The following documents were not available for review but are referenced in this report:

- 1987 Fuss & O'Neill Groundwater Report
- 1996 DES Site Assessment Report
- 1997 OHM Remediation Services Removal Action

Areas of Environmental Concern (AOCs)

Areas of Environmental Concern (AOCs) are areas that can represent a **potential** area of contamination. The five AOCs identified at the Site are listed as follows:

1. **Former Plating Shop Activities:** Plating shop activities, including plating vats and tanks, were located in the western and southwestern portions of the former site building. Soil boring samples have not been investigated in the interior location of the plating shop activities.
2. **Septic Tank:** According to State of Connecticut Forms, dated August 7, 1961 and June 16, 1965, a septic tank is located in the northern portion of the Site. The location of the septic tank is unknown and it has not been investigated.

3. **500-Gallon Gasoline Underground Storage Tank (UST):** A lead gasoline fuel pump was observed during the July 2016 site inspection. According to previous reports, a 500-gallon lead gasoline tank is located east of the storage sheds. The location of the gasoline UST has not been confirmed. According to a 2002 Diversified Environmental Services, Inc. (DES) report and a 2012 Environmental Safety Solutions, Inc. (Etech) report, DES analyzed soil borings in the vicinity of the 500-gallon UST in 1996 during a subsurface investigation; however, the analytical data results of this study were not available. DES sampled soil surficial borings in the vicinity of the 500-gallon UST during 2012 for volatile organic compounds (VOCs) and metals. Low levels of trichloroethene (TCE) and chromium were detected in these samples; however, they did not exceed GA Pollutant Mobility Criteria (GA PMC) standards. Extractable total petroleum hydrocarbon (ETPH) was not analyzed during the 2012 DES investigation.
4. **10,000-Gallon Fuel Oil Aboveground Storage Tank (AST):** A 10,000-gallon fuel oil AST is located in a concrete bunker in the western portion of the Site. According to a 2002 DES report and a 2012 Etech report, DES conducted a subsurface investigation in 1996 and sampled three soil borings in the vicinity of the 10,000-gallon fuel oil AST; however, these results were not available.
5. **Dilapidated Storage Sheds:** Three dilapidated storage sheds are located in the southern portion of the Site. The current contents of the storage sheds are unknown. The storage shed area has not been investigated.

Recognized Environmental Conditions (RECs)

The DEEP considers RECs as AOCs as well; therefore, there are 12 AOCs overall. A Conceptual Site Model (CSM) is included as **Table 1**, and lists all of the AOCs. The seven RECs identified at the Site are listed as follows:

1. **Metal Hydroxide (MOH) Sludge Lagoons (2):** Metal hydroxide (MOH) sludge was reportedly disposed of in two lagoons between 1974 and 1980. Chromium and nickel were the principle metals in the sludge. Approximately 42 tons of sludge was removed from the westernmost lagoon in 1987 following a clean closure plan submitted by Fuss & O'Neill in 1984. According to the 1988 HRP Associates, Inc. (HRP) Phase I, the westernmost lagoon's status of final closure was still pending and the eastern lagoon was buried in place. According to the 2012 Etech Phase II, soil samples were collected in the southern portion of the western lagoon. Elevated levels of chromium above the Groundwater Classification GA Pollutant Mobility Criteria (GA PMC) standard were detected in the soil sample. Elevated levels of chromium and TCE above the GA PMC standard were also detected in the groundwater monitoring well located downgradient of the western sludge lagoon. Therefore, it appears that that lagoon was not legally closed. Soil samples were also reportedly collected in the area of the eastern buried sludge lagoon in 1996 during a DES Phase II investigation; however, analytical results were not available for review.
2. **Interior Degreasing Area:** Degreasing activities were located in the southern portion of the former main building. According to the 2002 DES Phase III report, elevated levels of TCE and tetrachloroethylene (PCE) above GA PMC standards were found in soil borings in the interior degreasing area.

3. **Solvent, Acid, and Fuel Oil Storage Area:** A 750-gallon 1,1,1-trichloroethane (TCA) AST and a 275-gallon fuel oil AST were located along the outside southern wall of the main building. This area also served as an acid/solvent storage area. According to the 2002 DES Phase III report, elevated levels of TCE and PCE above GA PMC standards were found in soil borings in the solvent and fuel oil storage area. According to the DES 2002 Phase III, ETPH impacted soil was also detected in the vicinity of the former 275-gallon fuel oil AST during the 1996 investigation. Etech sampled soil borings in the vicinity of the solvent and fuel oil storage area in 2012 during a Phase II investigation. ETPH was not analyzed during this investigation.
4. **Wastewater Treatment Discharge Pipe Area:** Two catch basins are located west of the former site building. The larger catch basin is made of concrete and has the capacity of about 3,400 gallons. The smaller catch basin serves as a junction box for discharge pipes connecting with the drainage ditch and city storm sewer. According to the 2002 DES Phase III report, elevated levels of lead and nickel above GA PMC standards were found in soil borings in the wastewater treatment discharge pipe area.
5. **Northern Portion of Former Building:** A former loading dock, transformer pad, and exhaust vents were located along the north side of the former facility building. According to the 2002 DES Phase III report, elevated levels of ETPH, VOCs, and TCE above GA PMC standards were found in soil borings north of the main building and in the area of the former northwest loading dock.
6. **Hazardous Waste Storage Area and Former 2,500-Gallon Liquid Waste Tank:** A hazardous waste storage area and 2,500-gallon hazardous waste tank were located along the southwestern portion of the former site building. According to the 2002 DES Phase III report, elevated levels of synthetic precipitation leaching procedure (SPLP) chromium and lead above GA PMC standards were found in soil borings in the hazardous waste storage and tank area.
7. **Southeastern Loading Dock:** A loading dock was formerly located in the southeastern portion of the former main facility building. According to the 2002 DES Phase III report, elevated levels of TCE above GA PMC standards were found in a soil sample located in the vicinity of the southeastern loading dock.

Constituents of Concern (COCs)

VOCs, ETPH, and Polynuclear Aromatic Hydrocarbons (PAHs), Semi-Volatile Organic Compounds (SVOCs), Polychlorinated Biphenyls (PCBs), cyanide, chromium, lead, and nickel are constituents of concern for the Site.

Controlled Recognized Environmental Conditions (CRECs)

There no CRECS identified at the Site.

Historical Recognized Environmental Conditions (HRECs)

There were no HRECs identified at the Site.

De Minimis Conditions

De minimis conditions were not identified in connection with the Site.

Findings

According to Town records, 318 North Main Street is located on Map 122 and Lot 007 totaling 1.65 acres and is owned by Beaton & Corbin Mfg Co. The Site is currently vacant and consists of a building foundation and three dilapidated storage sheds. The Site was formerly occupied by Beaton & Corbin from approximately 1900 through 1989.

A summary of site conditions is listed as follows:

- Beaton & Corbin was listed under both 318 and 328 North Main Street through its occupancy; however, the address locations are the same.
- According to the report by Environmental Data Resources, Inc. (EDR), the Site is listed in several databases including the US Brownfields, CT Property Transfer Act, CT Manifest, Archived RCRA, and potentially responsible party databases.
- The Site generated spent halogenated solvents used in degreasing, wastewater treatment sludge from electroplating operations, spent cyanide plating bath solutions from electroplating operations, plating bath residues from the bottom of plating baths, spent stripping and cleaning bath solution, hydrazine, ethane, and 1,1,1-trichloro/methyl chloroform.
- There are 12 AOCs identified on the Site. Of the 12 AOCs, 5 areas have not been investigated at all. RAs have been identified in the remaining 7 AOCs.
- Parameters detected in RAs include: 1) VOC impacted soils are located inside the southern portion of the former building in the area of the former degreasing operations, on the southern side of the building in the area of former solvent storage area and on the western side of the building; 2) ETPH impacted soil is located on the northern side of the building in the area of the former loading dock and concrete pad, the southern side of the building in the area of the former 275-gallon fuel oil storage AST and on the western portion of the Site, and; 3) Metal impacted soils are located on the western side of the building in the area of the wastewater treatment and discharge pipe and in the buried sludge lagoons on the southern portion of the Site.
- Two groundwater plumes appeared to be originating on the northwestern and western portion of the property and are a mixture of VOCs and metals. Both plumes extend in a southwesterly direction on the Site and appear to migrate off-site.
- Several properties within the site vicinity are listed on State and Federal databases. However, based on the remediation efforts at these sites, it is Arcadis' opinion that this assessment has not revealed evidence of AOCs on a neighboring property which might impact the target property.

Observations

The site building is located at 318 North Main Street. The Site is vacant and consists of a building foundation and three dilapidated storage sheds. The Site was formerly occupied by Beaton & Corbin.

Conclusions

Based on the definition outlined in the Connecticut Transfer Act (CTA), the generation of more than 100 kilograms of hazardous waste in any one month defines the Site as a hazardous waste “establishment”. Therefore, the Site may be subject to the provisions and requirements of the Transfer Act. However, since the applicability of the CTA is a legal determination, the client should consider engaging an environmental attorney for guidance regarding the Transfer Act.

Based on the findings of this Phase I ESA, Arcadis recommends that additional investigations be conducted at this time on the current AOCs and RECs.

Material Data Gaps

Efforts were made by Arcadis to obtain user-provided information, and review all reasonably ascertainable resources to determine historical uses of the target property and surrounding properties in order to identify the possibility of AOCs or RECs in connection with the target property. Objectives are complete with the above research, although data failure may be encountered. As defined by ASTM, data failures or data gaps occur when historical research is reasonably ascertained and reviewed, but the intended objectives have not been met.

This assessment has encountered one significant data gap during the completion of this Phase I ESA.

1. Analytical data results are not available for investigations conducted by Fuss & O'Neill in 1987, DES in 1996, and Weston in 1997.

1 INTRODUCTION

Arcadis U.S., Inc. (Arcadis) was retained by the Town of Southington to conduct a Phase I Environmental Site Assessment (ESA) of the parcel located at 318 North Main Street, Southington, Connecticut (the "Site"). The Site is vacant and consists of a building foundation and three dilapidated storage sheds. The Site was formerly occupied by Beaton & Corbin Manufacturing Corporation (Beaton & Corbin). **Figure 1** presents a Site Location Map. **Figure 2** presents a Site Plan depicting pertinent site features and the proposed site boundary.

1.1 Purpose

Arcadis understands that the purpose for conducting this Phase I ESA is to assess and document the current status of environmental conditions at the Site. Information regarding the significant assumptions, limitations and exceptions, and special terms and conditions of this Phase I ESA are included in Sections 1.3 to 1.5 of this document.

1.2 Detailed Scope of Services

The Phase I ESA was conducted in accordance with the ASTM International (ASTM) E1527-13 Standard Practice for Site Assessments: Phase I Environmental Site Assessment Process. The Phase I also followed the procedures outlined in the Connecticut Department of Energy and Environmental Protection (DEEP) Site Characterization Guidance Document (SCGD), dated September 2007 (revised December 2010). The SCGD states "if the intention of the environmental professional is to demonstrate compliance with the Connecticut Remediation Standard Regulations (RSRs), Sections 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies, site characterization must be consistent with this SCGD."

The goal of the Phase I ESA was to identify recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), and historical recognized environmental conditions (HRECs) associated with the property in conformance with ASTM E1527-13. In addition, the Phase I ESA goal is also to identify areas of concern (AOCs) in accordance with the SCGD.

A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to release to the environment; 2) under conditions indicative of a release to the environment, or; 3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not RECs.

A CREC is defined as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

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An HREC is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

According to the SCGD, an AOC is defined as locations or areas at a site where hazardous waste and/or hazardous substances (including petroleum products) have been or may have been used, stored, treated, handled, disposed, spilled, and/or released to the environment.

The ASTM practice requires environmental professionals to identify data gaps following reasonable inquiry of Site and the Town of Southington personnel and Arcadis' search for "reasonably ascertainable" resources. ASTM E1527-13 defines a data gap as "a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information."

Arcadis' scope of work included:

- on-site inspection of the Site to identify environmental conditions issues as defined above;
- review of available environmental documents for the Site, including previous site assessments and investigations;
- search for environmental liens on the Site;
- interviews with persons represented to be familiar with the operation and history of the Site;
- review of property history through interviews and aerial photographs, city directories, ownership records, and historical mapping (as available);
- observation of adjacent properties and the local area to evaluate the potential for adverse environmental impact to the Site, and;
- contracting of EDR to identify sites of concern as required in the regulatory records review section of the ASTM Standard for a Phase I ESA.

The Phase I ESA did not include the collection or analysis of soil, air, water, or other samples. An Environmental Lien search was not included.

Photographs of the Site and surrounding areas were taken to document current conditions and are included in **Appendix A**.

1.3 Significant Assumptions

Arcadis has assumed that the information sources used for this investigation provided accurate information. Evaluations presented in this report are based exclusively on information provided by site personnel and observations made during the site visit. No invasive field activities were conducted and no laboratory analyses were performed.

The boundaries of the Site were described in documents provided by the Town of Southington and site personnel and by interviews with site personnel. Arcadis assumed this information was accurate.

1.4 Limitations and Exceptions

The services performed and any opinions expressed by Arcadis in this report are based upon the limits of the investigation described herein. Arcadis has relied upon the accuracy of documents, information, data, and other materials provided or made available by the Town of Southington and others. Arcadis has not independently verified such information and assumes no liability for the accuracy or completeness of such information. Arcadis makes no guarantee that site conditions do not exist, or will not exist in the future, that were undetected or that could lead to liability in connection with the Site.

Similarly, past and present activities on the Site indicating the potential for the existence of environmental concerns may not have been discovered by Arcadis. Such activities may include those that would indicate the potential for regulated hazardous substances at the Site. Likewise, site conditions or site activities that were outside the scope of the services described above, or changes to site conditions or regulatory requirements may lead to liabilities in connection with the Site that are not identified in this report. Arcadis has reviewed the information obtained in connection with the performance of the services described above, in keeping with existing applicable environmental consulting standards and enforcement practices, but cannot predict what actions any given agency may take or what standards and practices may apply in the future.

Where access to portions of the Site or to structures on the Site was unavailable or limited, Arcadis renders no opinion and accepts no responsibility for assessment of the condition of these portions of the Site, including specifically, but not limited to, the presence of hazardous substances or petroleum products at these locations. In addition, Arcadis renders no opinion concerning the presence or absence of hazardous substances or petroleum products where direct observation of any part of the Site, or structure on the Site, is limited by physical obstructions.

The conclusions and observations are based upon limited data and professional opinions, and the assessment is performed on a particular date. Site conditions and activities may change after that date. Therefore, the risk of undiscovered environmental impairment of the Site cannot be ruled out. Arcadis does not make any representations or warranties regarding the condition or value of the Site, regardless of the results of the assessment presented in this report.

Arcadis makes no guarantees, certifications, warranties, or representations of any kind whatsoever, whether expressed or implied, regarding this Phase I ESA, the condition of the Site, or the liabilities associated with the Site.

1.5 Special Terms and Conditions

No special terms and conditions were imposed on this Phase I ESA.

1.6 Reliance

It is understood that this report will be prepared for the sole use of the Town of Southington, Connecticut, the Connecticut Brownfield Land Bank and the developer Lovley Development Corporation, and the contents thereof may not be used or relied upon by any other person without the express written consent and authorization of Arcadis. Use of this report by any other party shall be at such party's sole risk and liability.

1.7 Deviations

No significant deviations from the referenced ASTM Standard occurred.

1.8 Additional Services

No additional services beyond what is outlined in ASTM E1527-13 were conducted as part of the assessment.

2 SITE LOCATION/LAND USE

2.1 Site Location

The Site is located at 318 North Main Street in Southington, Connecticut. The Site is located at Latitude 41° 36' 34.57" north and Longitude 72°52' 41.59" west and is located at an elevation of approximately 155 feet above mean sea level. The general location of the Site and physiographic features of the surrounding area are shown on **Figure 1**.

2.2 Site and Vicinity Characteristics

The site building was built in approximately the late 1800's and was vacant land prior to development. The building was destroyed in 2003 in a fire and is currently vacant. The Site is bordered by the Quinnipiac River and the Farmington Canal Heritage Trail west of the Site. Commercial and light industrial properties are located in the surrounding area. Residential properties and residential office uses also are present in the surrounding area of the site.

2.3 Current Use of the Property

The proposed site boundary is located within a 1.65-acre parcel of land located at 318 North Main Street. The parcel is currently owned by Beaton & Corbin Mfg Co. The Site is vacant and consists of a building foundation and three dilapidated storage sheds.

2.4 Description of Structures, Roads, and Other Improvements on the Site

Access to the Site is via one paved entrance along North Main Street. Paved parking is available east of the site building.

2.5 Current Uses of the Adjoining Properties

The surrounding area is a mixture of a heavily developed area of retail, light industrial, and commercial businesses. The adjoining properties include:

- North: Commercial businesses
- East: Main Street, beyond which are commercial businesses
- South: Southington Fire Department, commercial and residential buildings
- West: Quinnipiac River and Farmington Canal Heritage Trail

3 USER-PROVIDED INFORMATION

3.1 Environmental Liens

An Environmental Lien Search was not part of this Phase I Site Assessment.

3.2 Activity and Use Limitations

According to information provided by EDR and agency review, the Site is not encumbered by an activity and use limitation.

3.3 Specialized Knowledge

In accordance with ASTM Designation E1527-13 dated November 11, 2013, Arcadis requested completion of a User Questionnaire regarding the historical uses and/or other specialized knowledge of the Site. Arcadis recommends the User Questionnaire be completed by the Site owner. A user questionnaire was provided to Arcadis by Mr. Mark J. Sciota, of The Town of Southington. A copy of the User Questionnaire that was filled out by the client is provided in **Appendix B**.

3.4 Obvious Contamination Presence or Likely Presence

No obvious contamination was observed at the time of the Site assessment.

3.5 Owner, Property Manager, and Occupant Information

The parcel is currently owned by Beaton & Corbin Mfg Co. The Site is vacant and consists of a building foundation formerly occupied by Beaton & Corbin as well as three dilapidated storage sheds.

3.6 Reason for Performing Phase I ESA

The reason for performing the Phase I ESA was to evaluate current environmental conditions at the Site by evaluating the presence or likely presence of hazardous substances and/or petroleum products on or near the Site under current conditions that indicate an existing release, a past release of the material threat of a release into the structures at the Site, or into the ground, groundwater or surface water at the Site.

4 SITE HISTORY

4.1 General Information

Arcadis obtained historical information from the following sources: EDR and historical information sources including historical Sanborn maps, historical aerial photographs, historical topographic maps, and historical city directories.

The Aetna Match Company, a match manufacturing company, operated on-site during the late 1800s. Beaton & Corbin Manufacturing Company occupied the Site from approximately 1900 through 1989. Beaton & Corbin used the Site for manufacturing ceiling and floor plates and plumbing fittings and fixtures. Site operations included metal machining and metal plating. Wastes generated from these operations consisted of metal hydroxide plating sludge and other associated plating wastes that were disposed of in two lagoons on the southwestern portion of the Site as well as waste solvents and oils from degreasing and machining operations.

The State of Connecticut Order (HM-168) was issued on May 4, 1984 and required Beaton & Corbin to bring all waste handling procedures and facilities into compliance, close all surface impoundments in accordance with the State's Hazardous Waste Management Regulations and install a groundwater monitoring system. The Site is listed in the Inventory of Hazardous Waste Sites in Connecticut as having lagoons that were reportedly closed in 1980.

A National Pollutant Discharge Elimination System (NPDES) permit No CT 0001635 was issued to the Site on March 25, 1986. The permit allowed the discharge of treated metal finishing wastewater to the Quinnipiac River at an average daily flow of 20,697 gallons per day (gpd), and boiler blowdown water also discharged to the Quinnipiac River at a rate of 3 gpd.

In March 1988, HRP Associates, Inc. (HRP) conducted a Phase I ESA at the Site.

On September 5, 1990, the Site was the subject of an Emergency Action by the DEEP Oil and Chemical Spills Response Division. Several vats of chemicals which had been abandoned at the Site were removed; however, some wastes were left at the Site, including materials which had been left in the plating tanks as well as powders, solidified plating sludge, and other solids on the floor. The Site was referred to the United States Environmental Protection Agency (EPA) on February 22, 1996 as a potential Superfund removal site.

In May 1996, Diversified Environmental Services (DES) conducted a subsurface investigation on the Site.

On June 13, 1996, EPA Emergency Planning and Response Branch and Roy F. Weston, Inc., Region I Superfund Technical Assessment and Response Team (START) conducted a Preliminary Assessment/ Site Investigation at the Site in response to a referral from the DEEP as a potential federal superfund site. In August 1997, OHM Remediation Services disassembled the plating line and performed a hazardous waste removal action on behalf of the EPA.

Stipulation No. CV 94-0543672 S in CTDEEP V. Beaton & Corbin Manufacturing Co., et al. was issued in April 1998. The stipulation required that a scope of study be prepared to investigate the degree of soil, groundwater and surface water contamination at the Site and its impact on the environment and to investigate into the potential impact on the environmental to areas off-site and surrounding the Site. The Judgement also required removal of all on-site waste.

In 2003, an arson fire demolished the main facility building.

From December 2001 to March 2002 and October and November 2002, DES performed a subsurface investigation at the Site.

In March 2012 Environmental and Safety Solutions, Inc. (Etech) completed a Phase II ESA at the Site at the request of the EPA.

4.2 Historical Information Provided During Interview

No persons familiar with the Site were available for interview during the site visit.

4.3 Previous Environmental Reports

The following previous environmental reports are summarized from client provided documents as well as documents found in the DEEP file room. These documents are located in **Appendix C**.

- **1987 Fuss & O'Neill Groundwater Report:** On May 4, 1984, the State of Connecticut Order (HM-168) requested Beaton & Corbin to comply with waste handling procedures and facilities, to close all surface impoundments with the State's Hazardous Waste Management Regulations, and install a groundwater monitoring system.

Beaton & Corbin reportedly excavated contaminated soil from the westernmost sludge lagoon in compliance with the approved lagoon closure plan. Fuss & O'Neill installed a groundwater monitoring system in July 1984. Based on the analytical results, groundwater has been impacted by metals including chromium, nickel, barium, copper, and zinc. The highest concentrations were found in monitoring wells 100 (0.34 milligrams per liter (mg/l)) and 101 (0.37 mg/l), which are located downgradient of the former sludge lagoon.

Additionally through the NPDES permit, Beaton & Corbin discharged wastewater to a settling basin west of the site building, which ultimately drained to the Quinnipiac River. Fuss & O'Neill suspected that this wastewater discharge area, although west of the site building, impacted groundwater downgradient of this area through migrating leaks, overfills, and spills of the discharge pipe and basin, as seen in monitoring wells 100 and 101.

Fuss & O'Neill concluded the source of chromium contamination at monitoring wells 100 and 101 were due to a combination of sources relating to both the sludge lagoon and permitted NPDES discharge point along the western portion of the Site.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

- **1988 HRP Associates Site Assessment Report:** In March 1988, HRP completed a Phase I ESA for Beaton & Corbin. The summary of visual inspection included:
 - o A minor amount of oil stained dirt was visible at the compressor discharge outlet on the north side of the factory.
 - o Water from the brass annealing quench baths on the first floor was leaking from the baths, through the floorboards, and into the basement and basement floor.
 - o Green (nickeliferous) wastewater was observed to be leaking from the pump connected to the settling tank in the waste treatment area.
 - o Various liquids have leaked from the horizontal drums into the concrete confining area of the chemical storage crib.
 - o A green (nickeliferous) soil has occurred next to the exterior of the 2,500-gallon AST holding tank. The source of this spill was a 55-gallon overturned drum of green sludge.
 - o Minor oil stains occurred around the compressor.
 - o Green stains from the plating operations occurred on the floor of the plating shop and on the ramp leading down to the basement.
 - o The sink in the plating laboratory was reportedly connected to the sanitary sewer, and nay reagents disposed in the sink would be considered a liquid waste discharge.
 - o Ongoing discharge of effluent wastewater occurred from the treatment facility to the catch basins and finally the drainage ditch and the Quinnipiac River. Discharge was not occurring at the time of the site inspection.
 - o The area between the fence and the west end of the factory building, near the boiler room, appeared to consist of artificial fill.
 - o Air photo evidence and earlier records indicate a second lagoon immediately east of the now closed lagoon.
- **1996 Diversified Environmental Services (DES) Subsurface Investigation:** In May 1996, DES conducted a subsurface investigation on the Site that encompassed the installation of 10 shallow hand auger borings, 13 soil borings from 6 to 10 feet below ground surface (ft bgs), and the installation of 7 groundwater monitoring wells from 15-17 ft bgs. Results of the soil analytical data indicated concentrations of trichloroethene (TCE) above applicable soil standards in SB-4 on the southern side of the building around the area of the 750 gallon 1,1,1-trichloroethane (TCA) AST, as well as concentrations of total petroleum hydrocarbons (TPH) above applicable soil standards in SB-3 collected in the vicinity of the fuel oil AST.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

- **1996 Weston Solutions Preliminary Assessment/Site Investigation:** In June 1996, Roy F. Weston performed a Preliminary Assessment/Site Investigation on behalf of the EPA that entailed collection of 10 surface soil samples (S001-S010) and 1 liquid sample (W001) from a discharge basin that were submitted for analysis of VOCs, cyanide and metals. In addition, 8 samples (F01-F08) were collected from within the building and submitted for analysis of asbestos (F01 only), metals, cyanide and VOCs in the soils on the west side of the Site. Analytical data results were not available in any town or municipal file search.
- **1997 OHM Remediation Services Removal Action:** In August 1997, OHM Remediation Services disassembled the plating line and conducted a hazardous waste removal for the EPA. They removed materials such as wood flooring from the plating line, waste materials from plating vats, tanks, and floors and plating line vats. Sixty-six 55-gallon drums and 8 55-gallon drums of debris were generated and shipped off site as caustic, lead, and wastewater treatment sludge wastes.
- **2002 DES Phase III Report:** From December 2001 to March 2002, DES performed a subsurface investigation that consisted of resampling on-site monitoring wells, installation of 28 hand auger borings, and installation and sampling of seven ground water monitoring wells.

Six soil samples contained concentrations of TCE and tetrachloroethylene (PCE) above the DEEP Pollutant Mobility Standards (PMC). The VOC impacted soil was located inside the southern portion of the building in the area of the former degreasing operations, on the southern side of the building in the area of the former solvent storage area, and on the western side of the building. It was estimated that there were 650 tons of VOC impacted soil on the western and southern sides of the building, and 120 tons of VOC impacted soil inside the building under the floor and footing.

Five soil samples were submitted for analysis of RCRA 8 metals. Soil samples SB-114, SB-117, and SB-118 contained concentrations of synthetic precipitation leaching procedure (SPLP) chromium above the DEEP PMC for SPLP chromium. Soil samples SB-114 and SB-118 contained concentrations of nickel above the DEEP Residential Direct Exposure Criteria (RDEC). The metals impacted soil was located in two separate areas on the western side of the building in the area of the wastewater treatment and discharge pipe and in the buried sludge lagoon on the southern portion of the property. It was estimated that 1000 tons of metals impacted soil were on the property, including the materials in the sludge lagoon on the southern portion of the property.

The results of the groundwater analysis detected concentrations of VOCs in all of the groundwater samples collected with the exception of MW-100. TCE was detected in ten of the monitoring wells at concentrations ranging from 6 micrograms per liter (µg/l) in MW-101 to 250 µg/l in MW-202, which were all above the DEEP Groundwater Protection Criteria (GWPC) of 5 µg/l. Total chromium was detected in five groundwater samples ranging from 48 µg/l in MW-202 to 307 µg/l in MW-205, which were all above the 20 µg/l GPC for chromium. DES concluded that two groundwater plumes appeared to be originating on the northwestern and western portions of the property. The plume on the northern portion of the property contained VOC, ETPH, and metals. The plume on the western portion of the property contained VOCs and metals. Both plumes appeared to extend in a southwesterly direction on the Site and appeared to migrate off-site.

In October and November 2002, DES performed additional subsurface investigations in accordance with a DEEP approved Scope of Study, which consisted of installing seven monitoring wells, ten soil borings to 10 ft bgs, and 28 hand auger borings. Six soil boring samples were above PMC standards for VOCs and ETPH. Two soil samples were above PMC standards for SPLP chromium. Four soil samples were above PMC standards for SPLP lead and two soil samples were above the RDEC standards for lead. Nine soil samples were above the RDEC standard for arsenic. Two soil samples were above the RDEC standard for nickel. The groundwater plume was found to extend from the western and southern portions of the building, as well as potentially from the lagoon area, and contained a mixture of VOCs and metals. The plume extends in a southwesterly direction and appeared to migrate off-site. ETPH contamination of the groundwater was found in the northwest portion of the Site.

- **2012 Environmental and Safety Solutions, Inc (Etech) Phase II:** In March 2012 Etech completed a Phase II ESA at the Site at the request of the EPA. In November 2011, Etech completed 15 soil borings and 6 monitoring wells. The soil borings were sampled between 0 and 4 ft bgs and the six monitoring wells were completed between 13 and 16 ft bgs. 14 of the 15 soil borings, the newly installed six monitoring wells, and two existing monitoring wells were submitted for laboratory analysis of VOCs, SVOCs, and RCRA 8 metals. **Figure 3** depicts a Site Plan showing monitoring well and soil boring locations from historical reports.
 - o TCE was detected above the GA PMC in soil borings SB133 and SB132. Chromium was detected above Industrial/Commercial Direct Exposure Criteria (I/C DEC) in soil boring SB305. SB132 and SB133 were located south of the building foundation. SB305 was located within the former buried sludge bed in the southwest area of the Site.
 - o TCE was detected above Groundwater Protection Criteria (GWPC) in monitoring wells MW06, MW302, MW303, and MW305. Vinyl chloride was detected above the GWPC and Industrial/Commercial Volatilization Criteria (I/C VC) in MW06. Chromium was detected above the GWPC in MW302, MW303, and MW305. All monitoring wells are located on the western and southwestern side of the building foundation.
 - o Etech concluded that high levels of chromium are located within the former buried sludge bed and VOC contaminated soils are located in the southern portion of the building in the area of the former degreasing operations and on the southern side of the building in the area of the former solvent storage area. Etech concluded that groundwater has chromium contamination, and VOC and metals groundwater contamination is isolated to the western and southwestern side of the building and follows groundwater flow off-site towards the Quinnipiac River.
 - o Etech recommended additional soil sampling and groundwater collection and analysis in the vicinity of the former acid/solvent storage area and in the vicinity of the former buried sludge lagoon to further delineate the extent of the impacted soil and groundwater plume on-site as well as the installation of additional off-site monitoring wells to access a potential downgradient migrating plume. Etech also recommended the removal of the building debris located on the building foundation, the removal of the three storage sheds, and the removal of the 10,000-gallon fuel oil AST located in the concrete block house.

4.4 Evaluation of Historical Information Sources

4.4.1 Sanborn Maps

Sanborn® Fire Insurance Maps assist in the identification of historical land use and commonly indicate the existence and location of ASTs and USTs, structures, improvements and facility operations. Sanborn maps were obtained from EDR.

Sanborn Fire Insurance Maps for the years 1890, 1895, 1901, 1906, 1911, 1923, 1947, and 1965 were reviewed by Arcadis and are included in **Appendix C**.

The Sanborn Map for the year 1890 is labeled “Former Etna Match Co” and shows several structures on the Site. A long rectangular building located in the northwestern portion of the Site is labelled “vacant factory”. A small square building located south of the “vacant factory” is labeled “engine”. The “engine” building is shown with an engine equipment structure in the southwestern portion of the building. A rectangular building is shown in the central portion of the Site. Several small shed structures are located in the southern and eastern portions of the Site. A platform is located in the western portion of the Site. Two city water points are located in the center of the Site and lead to Main Street.

The 1895 Sanborn Map is similar to the 1890 Sanborn Map. The Site is labeled “Beaton and Corbin Mfg Co: no watchman; heat and power steam, 100 2” hose to connect with Hyd; city water; no lights.” The rectangular building in the northwestern portion of the Site and the engine room are shown. A small square building labeled “coal” is located southwest of the main rectangular building. The rectangular building in the center of the Site and the platform in the western portion of the Site has been removed. Several shed structures are located in the southern and eastern portion of the Site.

The 1901 Sanborn Map is similar to the 1895 Sanborn Map. The Site is labeled, “The Beaton & Corbin Mfg Co: mfrs adjustable ceiling & floor plates.” The rectangular building located in the northwestern portion of the Site is labeled “Plating & Mach Rm” in the western portion of the building and “Polishing, Buffing & Stock” in the eastern portion of the Site. The engine and coal buildings are located south of the main rectangular building and a storage shed is now shown south of the main building. Several interconnected sheds are located in the southern and eastern portions of the Site.

The 1906 Sanborn Map is similar to the 1901 Sanborn Map. The Site is labeled “No watchman, heat: steam. Fuel: coal. Lights: electricity, and city water.” The storage shed south of the main rectangular building has been expanded.

1911 Sanborn Map does not show the Site.

The 1923 Sanborn Map is similar to the 1906 Sanborn Map. The coal shed south west of the main facility building has been removed. The storage shed south of the building has been expanded and connects to the main facility building. Two small sheds are located south and southeast of the main building. The western portion of the main facility building is labeled “to be removed.” The two water points in the center of the Site are no longer shown.

The 1947 Sanborn Map is similar to the 1923 Sanborn Map. The main facility building has not been altered. The small shed south of the building has been removed and replaced with three small storage sheds in the southwestern corner of the Site.

The 1965 Sanborn Map is similar to the 1947 Sanborn Map. The main facility building has not been altered. The small shed southeast of the main building has been removed.

4.4.2 Aerial Photographs

Aerial photographs assist in the identification of site features and outdoor activities of potential environmental concern. Aerial photographs were obtained from EDR. Aerial photographs for the years 1934, 1941, 1951, 1957, 1966, 1970, 1977, 1986, 1989, 1990, 1991, 1995, 2005, 2006, 2008, 2010, and 2012 were reviewed by Arcadis and are included in **Appendix C**. The following summarizes Arcadis' interpretation of features observed on the aerial photographs.

The 1934 aerial photograph shows the Site as developed. One long rectangular building is located in the northwestern portion of the Site. Several square structures are located in the center of the Site. The Quinnipiac River and Hartford Railroad are located west of the Site. The surrounding area is mixed residential, agricultural, and undeveloped land.

The 1941 aerial photograph shows the smaller square buildings in the center of the Site replaced by one square buildings connected to the southern portion of the existing rectangular building. The surrounding area is increasingly more developed.

The 1951, 1957, and 1966 aerial photographs are similar to the 1941 aerial photograph. The surrounding area is increasingly more developed with commercial, residential, and industrial buildings.

The 1970, 1977, 1986, 1989, 1990, 1991, and 1995 aerial photographs are similar to the 1966 aerial photograph. The surrounding area is increasingly more developed.

The 2005 aerial photograph shows the site building as demolished and only the foundation of the building is shown. The surrounding area is more developed.

The 2006, 2008, 2010, and 2012 aerial photographs are similar to the 2005 aerial photograph. The surrounding area is more developed.

4.4.3 Historical Topographic Maps

Topographic maps assist in the identification of regional land and development features. Topographic maps were obtained from EDR. Topographic maps for the Site and adjoining Quad areas for the years 1892, 1893, 1906, 1946, 1953-1955, 1966-1968, 1972-1973, 1984, 1992, and 2012 were provided by EDR and reviewed by Arcadis. The topographic maps are included in **Appendix C**. The following summarizes Arcadis' interpretation of features observed on the topographic maps.

The 1892 and 1893 topographic maps show the Site as undeveloped. The Quinnipiac River and the Hartford Railroad are shown west of the Site. The surrounding area is mainly undeveloped.

The 1906 topographic map shows the Site as developed. The surrounding area is similar to the 1892 and 1893 topographic maps.

The 1946 topographic map is similar to the 1906 topographic map. Route 10 is shown east of the Site. The surrounding area is increasingly more developed.

The 1953-1955 topographic map is similar to the 1946 topographic map. The surrounding area is increasingly more developed.

The 1966-1968 topographic map is similar to the 1953-1955 topographic map. A gravel pit is shown east of the Site. The surrounding area is increasingly more developed.

The 1972-1973, 1984, and 1992 topographic maps are similar to the 1966-1968 topographic map. The surrounding area is increasingly more developed.

The 2012 topographic map does not show any structures, and only topographic contours.

4.4.4 City Directory Search

Arcadis contracted EDR to perform a City Directory search of the Site and the surrounding addresses for the Site addresses located on Newtown Road and Willow Street. EDR reviewed local sources including Price & Lee's City Directory, Cole Information Services and Johnson's City Directory. Listings for the Site and surrounding properties during the period 1961, 1967, 1973, 1979, 1986, 1992, 1995, 1999, 2003, 2008, and 2013 are summarized below. The City Directory Search Report is included in **Appendix C**.

318 North Main Street:

- 318 North Main Street was not listed in the City Directory for years 1961 through 2013.

328 North Main Street:

- 328 North Main Street was listed in the City Directory under Beaton & Corbin Mfg Co, The steamfitters specialties for the year 1961.
- 328 North Main Street was listed in the City Directory under Beaton & Corbin Mfg Co, The steamfitters supplies for the year 1967.
- 328 North Main Street was listed in the City Directory under Beaton & Corbin Mfg Co, The plumbing supplies for the years 1973 and 1979.
- 328 North Main Street was listed in the City Directory under Beaton & Corbin Manufacturing for the year 1986.
- 328 North Main Street was not listed in the City Directory for the years 1992 through 2013.

5 REGULATORY AGENCY RESEARCH

As part of this assessment, Arcadis reviewed regulatory databases and available agency files and records for the Site. Information from these sources is discussed in the following sections.

5.1 Regulatory Database Research

An environmental database report prepared by EDR was reviewed for local, state, and federal listings for properties within the site area. EDR's report includes regulatory databases reviewed by EDR for cases pertaining to leaking USTs and ASTs, hazardous waste sites, and abandoned sites within ASTM-specified radii (see table below). EDR also reviewed selected databases generated by the EPA. Explanations of the regulatory agency databases reviewed and acronyms used by EDR are presented in EDR's report in **Appendix D**. The federal and state database information provided by EDR for the Site and surrounding area is summarized in the below tables.

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Federal Database	Search Radius	On-Site	Off-Site
US Brownfields	NA	Yes	NA
National Priority List (NPL)	1 mile	No	1
Superfund Enterprise Management System (SEMS)	0.5 mile	No	2
SEMS-ARCHIVE	0.5 mile	Yes	No
Resource Conservation and Recovery Act (RCRA) (Corrective Action Activity) CORRACTS	1 mile	No	1
RCRA Large Quantity Generator (LQG)	0.25 mile	No	1
RCRA Conditionally Exempt Small Quantity Generator (CESQG)	0.25 mile	No	2
State Database	Search Radius	On-Site	Off-Site
CT Brownfields	NA	Yes	NA
CT State Hazardous Waste Sites (SHWS)	1 mile	Yes	2
CT Site Discovery and Assessment Database (SDADB)	0.5 mile	Yes	4
CT Solid Waste Facilities/ Landfill Facilities (SWF/LF)	0.5 mile	No	1
CT Leaking Underground Storage Tanks (LUST)	0.5 mile	No	4
CT Underground Storage Tank (UST)	0.25 mile	No	4
CT Engineered Control (ENG CONTROLS)	0.5 mile	No	1
CT Voluntary Remediation Program (VCP)	0.5 mile	No	2
Additional Environmental Records	Search Radius	On-Site	Off-Site
FINDS	NA	Yes	NA
Enforcement and Compliance History (ECHO)	NA	Yes	NA
RCRA Non Generator (NonGen/NLR)	0.25 mile	Yes	2
Record of Decision (ROD)	1 mile	No	1
CONSENT	1 mile	No	1
CT Contaminated or Potentially Contaminated Sites (CPCS)	0.5 mile	Yes	4
CT DRYCLEANERS	0.25 mile	No	1

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Additional Environmental Records	Search Radius	On-Site	Off-Site
CT Leachate and Waste Water (LWDS)	0.25 mile	No	2
CT Manifest	0.25 mile	Yes	13
RI Manifest	0.25 mile	Yes	1
CT Significant Environmental Hazard (SEH)	0.5 mile	No	1
EDR Historical Auto	0.125 mile	No	2

According to EDR's report, the Site is listed in the US Brownfields, FINDS, ECHO, CT Brownfields, CT Property, CT Manifest, CT SHWS, CT SDADB, CT CPCS, SEMS-Archive, RCRA NonGen/NLR, and PRP databases.

318 North Main Street:

- The Site is listed in the US Brownfields database under Beaton & Corbin 318 North Main St. The Site was granted federal funding to remediate contaminated groundwater and soil. The Brownfields database lists a Phase II conducted at the Site and the presence of VOCs.
- The Site is listed in the CT Brownfields database under Beaton & Corbin 318 North Main St for past usage of metal finishing.
- The Site is listed in the FINDS database under Beaton & Corbin 318 North Main St and registry ID: 110054146875.
- The Site is listed in the ECHO database under Beaton & Corbin 318 North Main St.

328 North Main Street:

- The Site is in the CT Property database under Beaton & Corbin Mfg Inc 328 North Main St. A Form III was filed on November 1, 1988.
- The Site is in the CT Manifest database under Beaton & Corbin Mfg Inc 328 North Main St.
 - o 3,500 gallons of hazardous waste liquid NOS was shipped from the Site in 1984.
 - o 3,036 gallons of hazardous waste liquid NOS was shipped from the Site in 1985.
 - o 110 gallons of waste trichloroethane were shipped from the Site in 1986.
 - o 49,600 pounds of hazardous waste solid, NOS was shipped from the Site in 1987.
 - o 100 gallons of waste trichloroethane were shipped from the Site in 1988.
 - o 100 gallons of waste 1,1,1-TCA was shipped from the Site in 1989.
 - o 3,214 gallons of hazardous waste liquid was shipped from the Site in 1990.
 - o 55 gallons of hazardous waste liquid NOS lube/engine oils was shipped from the Site in 1991.

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- o 20 yards of environmentally hazardous solid substances, 1,000 pounds of flammable liquid N.O.S., 310 pounds of corrosive liquid NOS, 23,660 pounds of environmentally hazardous solid substances, and 30 yards of toxic solid organic NOS were shipped from the Site in 1997.
 - o 22 tons of environmental hazardous substances, liquid, N.O.S. was shipped from the Site in 2004.
- The Site is in the SHWS, SDADB, and CPCS databases under Beaton & Corbin Mfg Co Inc 328 North Main St under waste category: metals, chlorinated VOCs, and cyanide and disposal method: lagoon. The sludge lagoon was reportedly not used since 11/19/1980 and Order HM-168 was issued in 1984. Groundwater monitoring was reportedly taking place.
- The Site is in the SEMS-Archive databases under Beaton & Corbin Mfg Co Inc 328 North Main St.
- The Site is in the RCRA NonGen/NLR databases under Beaton & Corbin Mfg Co Inc 328 North Main St for non-generators how do not presently generate hazardous waste. The Site generated spent halogenated solvents used in degreasing, wastewater treatment sludge from electroplating operations, spent cyanide plating bath solutions from electroplating operations, plating bath residues from the bottom of plating baths, spent stripping and cleaning bath solution, hydrazine, ethane, and 1,1,1-trichloro/methyl chloroform.
 - o The Site received numerous civil judicial action for compliance and/or monetary penalty violations on 11/04/1983, 02/25/1985, 11/15/1985, and 08/02/1990.
- The Site is listed in the FINDS database under Beaton & Corbin 328 North Main St and registry ID: 110003007656.
- The Site is listed in the RI Manifest database under Beaton & Corbin Mfg Co Inc 328 North Main St.
 - o 4,000 pounds of soap sludge and 400 gallons of nickel sludge were shipped from the Site in 1988.
- The Site is listed in the ECHO database under Beaton & Corbin 328 North Main St.

5.1.1 Off-Site Properties

The EDR report identified several off-site properties within the ASTM search radius. However, based on their inclusion for tracking purposes only, case closed status, distance from the Site, and/or hydraulically cross- to downgradient location with respect to groundwater flow, none of the listed facilities are anticipated to represent an environmental concern for the Site.

5.1.2 Orphan Properties

EDR identified one regulated facility that could not be located because of insufficient address information. This facility is referred to by EDR as an “orphan” facility.

Based on our knowledge of the site vicinity and our observations during the site reconnaissance, the listed property is not located in proximity to the Site, and are therefore unlikely to represent an environmental concern to the Site. Information regarding this regulated facility can be found in **Appendix D**.

5.2 Agency Research

Arcadis personnel visited the Southington municipal offices on July 20, 2016, to review site information about environmental conditions such as complaints, violations, USTs, hazardous materials incidents, and permits. The following municipal offices were visited: the Town Clerk, Tax Assessor's Office, Building Department, Fire Marshal's Office, Planning and Zoning Department, and Health Department.

Town Clerk's Office

Arcadis conducted a limited chain of title search at the Southington Town Clerk's office. The table below summarizes the limited chain of title search. A copy of the deed can be found in **Appendix E**.

Owner	Date	Book/Page
Beaton & Corbin Mfg Co	06/29/1965	198/516

Tax Assessor's Office

According to the Town of Southington Tax Assessor's Office, 318 North Main Street is identified as Map 122 and Lot 007 and is currently owned by Beaton & Corbin Mfg Co. The parcel is comprised of 1.65 acres of vacated land and consists of a building foundation.

A copy of the property cards are provided in **Appendix E**.

Building Department

There were no documents of environmental concern found in the Building Department.

Fire Marshal's Office

There were no documents of environmental concern found in the Fire Marshal's Office.

Health Department

There were no documents of environmental concern found in the Health Department.

6 ENVIRONMENTAL SETTING

6.1 Topography

According to the EDR Report, the Site is located approximately 155 feet above mean sea level. The EDR report indicates that the topography in the area of the Site has a generally north topographic gradient.

6.2 Geology

Information regarding the regional geology in the site vicinity was obtained from the Geocheck® Addendum to the EDR Radius Map Report. EDR regional data indicate that the surface soil texture in the area of the Site is soils that are fine sandy loam.

According to the Bedrock Geological Map of Connecticut (Rodgers, 1985), underlying bedrock is composed of New Haven Arkose sandstone.

Surficial Materials Map of Connecticut (Stone et al., 1992), the surficial geology at the Site is comprised of sand and gravel.

According to the Web Soil Survey, the Site is underlain by udorthents and loam.

6.3 Hydrogeology

Information regarding the regional hydrogeology of the site vicinity was obtained from the Geocheck® Addendum to the EDR Radius Map Report. No AQUIFLOW® points were located within 1 mile of the Site. According to the EDR report, the groundwater flow direction is to the north, northwest. Localized groundwater flow direction is not necessarily dependent upon topography and may vary based on several factors. A hydrogeologic investigation would be required to make a more definitive determination of the localized groundwater flow direction.

The closest surface water body to the Site is the Quinnipiac River, which is located west of the Site. The Still River is a Connecticut State designated Class B surface body of water. Class B designated uses are habitat for fish and aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply.

The DEEP Geographic Information Systems (GIS) groundwater classification layer (August 2014) classifies groundwater at the Site as GA, but does not meet current standards. Class GA designated uses are existing private and potential public or private supplies of water suitable for drinking without treatment and base flow for hydraulically-connected water bodies and is presumed not suitable for human consumption without treatment.

According to the EDR database report, there are no public water supply wells located within a one-mile radius of the Site. However, the 1988 HRP Phase I Report indicated that four public water supply wells were located within 1 mile of the subject Site. The report also suggested that one of those wells was shut down by the Town of Southington due to TCE contamination. The Town recently indicated that there are currently two public water supply well heads located within 1 mile of the Site.

Twenty-two monitoring wells are reportedly located at the Site. Several monitoring wells were located during the inspection; however, many were not identified due to the vegetation overgrowth at the Site. Due to the number of variables that potentially affect the flow and quality of groundwater, specific information on the flow characteristics and groundwater distribution is best determined by a detailed hydrogeological study, which is beyond the scope of this Phase I ESA.

6.4 Flood Zones

According to the FEMA Flood Insurance Rate Map #09003C0582F, dated September 26, 2008, the Subject Site is located in an area designated as Zone X area. Areas designated as Zone X are determined to be outside the 0.2% annual chance floodplain. Wetlands were observed northwest and west of the Site during the site walk conducted on July 20, 2016.

7 SITE RECONNAISSANCE

On July 20, 2016, Ms. Jacqueline Giblin, a representative of Arcadis, performed a reconnaissance-level assessment of the Site to observe general site conditions and indications of the possible release(s) of chemicals to the subsurface. A walkover and drive-over site reconnaissance was conducted to identify visible evidence of RECs and AOCs. Photographs taken during the site reconnaissance are included in **Appendix A**.

7.1 Methodology and Limiting Conditions

Arcadis' representative was granted full access to the Site. The methodology for the site visit included walking and driving to observe current site conditions. Weather at the time of the site inspection was sunny with temperatures of approximately 85 degrees Fahrenheit.

7.2 General Site Conditions

7.2.1 Site Observations

The Site, located at 318 North Main Street, consists of approximately 1.65 acres of vacant land, with many sections of the Site overgrown with thick vegetation. The Site consists of a 25,000-square-foot main factory building that was destroyed by a fire in 2003.

The original building of the Site was located in the northernmost rectangular footprint, which is currently covered with brick and building debris as a result of the fire. The southern portion of the main building, which was added to the original building between 1934 and 1951, is currently exposed concrete slab. Sections of concrete in the southwestern portion of the site building have blue/green staining, presumably due to the nickel and chromium solution of the plating tanks used in the plating operations.

Three dilapidated wood framed storage sheds are located in the southwestern portion of the Site. A lead gasoline fuel pump and 500-gallon UST are located east of the storage sheds. A concrete bunker with a 10,000-gallon fuel oil AST is located in the western portion of the Site. One 55-gallon drum of "investigation derived waste" was located southeast of the former site building. The label did not specify the type of waste in the drum and was not dated. Staining was not observed around this drum.

The Site is bordered to the west by the Quinnipiac River and the Farmington Canal Heritage Trail.

7.2.2 Hazardous Substances and Petroleum Products

Hazardous substances or petroleum products were not observed during the Site assessment.

7.2.3 Storage Tanks

One 10,000-gallon fuel oil AST located in a concrete bunker is located on the western portion of the Site. A lead gasoline fuel pump and UST are located east of the storage sheds in the southwestern portion of the Site.

One 1,1,1-TCA tank and one 275-gallon fuel oil tank were formerly located along the outside southern wall of the main facility building. One 2,500-gallon hazardous waste tank was located southwest of the former site building.

7.2.4 Odors

No odors that would indicate an environmental concern were noted on-site.

7.2.5 Pools of Liquid

No readily visible standing surface water, pools, or sumps containing liquids likely to be hazardous substances or petroleum products were identified during this assessment.

7.2.6 Drums

One 55-gallon drum of "investigation derived waste" was located southeast of the former site building. The label did not specify the type of waste in the drum and was not dated. Staining was not observed around this drum.

7.2.7 Unidentified Substance Containers

No opened or damaged containers with unidentified contents suspected of being hazardous substances or petroleum products were identified during this assessment. One 55-gallon drum of "investigation derived waste" was located southeast of the former site building. The drum was did not specify the type of waste in the drum and was not dated. Staining was not observed around this drum.

7.2.8 PCBs

Federal and state databases report no evidence of the handling, storage or disposal of polychlorinated biphenyls (PCBs) containing materials or wastes at the Site. Transformers were not observed at the Site during the assessment.

7.2.9 Pits, Ponds, or Lagoons

During the site visit, Arcadis' representative looked for pits, ponds, or lagoons on the Site. Arcadis' representative also looked for pits, ponds, and lagoons on adjoining properties to the extent that such features could be visually and/or physically observed from the Site or identified in the interviews or records review. Pits, ponds, or lagoons were not visible during the Site inspection due to extensive vegetation overgrowth at the Site; however, according to historical records, two lagoons are located on-site. A buried sludge lagoon and a closed metal hydroxide lagoon are located in the southern portion of the Site. The lagoons are currently covered by vegetation.

7.2.10 Stained Soil or Pavement

The southern portion of the building floor in the vicinity of historical plating operations is stained a blue/green color. The blue/color is likely due to the nickel and chromium solution of the plating tanks used in the plating operations.

7.2.11 Stressed Vegetation

During the site visit, Arcadis' representative looked for areas of stressed vegetation (other than from insufficient water). No areas of stressed vegetation were observed during this assessment.

7.2.12 Solid Waste

During the site visit, Arcadis' representative looked for areas that were apparently filled or graded by non-natural causes (or filled with material of unknown origin) that suggest the presence of trash construction debris, demolition debris, or other solid waste disposal, or mounds or depressions suggesting trash or other solid waste disposal. No such areas were observed during this assessment.

7.2.13 Wastewater

During the site visit, Arcadis' representative looked for wastewater or other liquids (including storm water) or discharges into a drain, ditch, underground injection system, or stream on or adjacent to the Site. No wastewater discharge was observed at the Site. A settling basin concrete pit is reportedly located in the western portion of the Site. The settling pit was used as a settling basin for the facilities wastewater treatment system. This area was not inspected due to thick vegetation. An NPDES permit No CT 0001635 was issued to the Site on March 25, 1986. The permit allowed the discharge of treated metal finishing wastewater to the Quinnipiac River at an average daily flow of 20,697 gpd, and boiler blowdown water also discharged to the Quinnipiac River at a rate of 3 gpd.

7.2.14 Wells

During the site visit, Arcadis' representative looked for wells, including dry wells, irrigation wells, injection wells, monitoring wells, abandoned wells, or other wells. Twenty-two monitoring wells are reportedly located on-site. Several monitoring wells were identified during the Site assessment; however, several monitoring wells were not located due to extensive vegetation at the Site. According to State of Connecticut Forms, dated August 7, 1961 and June 16, 1965, a series of septic tanks and dry well are located at the Site. A dry well was not located during the Site inspection.

7.2.15 Septic Systems

During the site visit, Arcadis' representative looked for indications of on-site septic systems or cesspools. According to State of Connecticut Forms, dated August 7, 1961 and June 16, 1965, a series of three 3,600-gallon septic tanks with a dry well are located at the Site. An on-site septic was not located at the Site. The Site is connected to sanitary sewer.

7.2.16 Heating/Cooling

Heating and cooling is not provided as the building has been destroyed by a fire.

7.2.17 Stains or Corrosion

During the site visit, Arcadis' representative looked for stained areas or corrosion. The southern portion of the building floor in the vicinity of historical plating operations is stained a blue/green color. The blue/color is likely due to the nickel and chromium solution of the plating tanks used in the plating operations.

7.2.18 Drains and Sumps

Drains and sumps were not observed during the Site reconnaissance.

7.3 Interview with Site Contacts

Arcadis' representative interviewed Mr. Mark J. Sciota of the Town of Southington prior to the Site reconnaissance.

7.4 Interview with Local Government Officials

Arcadis' representative contacted local government officials as part of our assessment. The information obtained from the government agencies through file review and telephone interviews is presented in Section 5.2.

7.5 Applicability of the Connecticut Transfer Act

The Connecticut Transfer Act (CTA), as amended with the building material amendment in 2014, governs the transfer of establishments and requires the parties to a covered transaction to file one of four forms indicating the environmental conditions on-site. An "Establishment" is defined as any real property at which or any business operation from which: on or after November 19, 1980, there was generated, except as the result of remediation of polluted soil, groundwater or sediment, more than 100 kilograms of hazardous waste in any one month; hazardous waste generated at a different location was recycled, reclaimed, reused, stored, handled, treated, transported or disposed of; the process of dry cleaning was conducted on or after May 1, 1967; furniture stripping was conducted on or after May 1, 1967; or a vehicle body repair facility was located on or after May 1, 1967.

Based on manifests and historical records provided to Arcadis from the Client and found during the file review, hazardous wastes were previously generated and stored at the Site.

Based on a review of available files at the DEEP, Federal and State environmental databases, and information obtained from site reconnaissance and interviews, the Site may appear to meet the CTA definition of a hazardous waste "establishment". However, aspects of a property's coverage under the CTA are legal issues; in the event of a transfer of a real property or business potentially triggering CTA compliance, an environmental attorney should be consulted.

8 FINDINGS

Arcadis has performed a Phase I ESA in accordance with the ASTM E1527-13 Standard Practice for Site Assessments: Phase I ESA Process and DEEP SCGD. Limitations and exceptions from this practice are described in Section 1.4 of this report. During the assessment, Arcadis employed accepted environmental inspection procedures and undertook appropriate inquiry into the previous ownership and uses of the property, consistent with good commercial and customary practices. Arcadis personnel who were experienced in recognizing both short and long-term actual and potential environmental hazards and concerns conducted the assessment.

In evaluating the potential environmental conditions at this property, Arcadis employed best and practical technical judgment within the constraints of time and scope of the assignment. Arcadis' conclusions are based upon conditions observed during the site visit on July 20, 2016. Past conditions which could not be observed were established on the basis of federal, state and municipal regulatory documents and previous reports. From the performance of this environmental site assessment, the following findings are made:

- According to EDR's report, the Site is listed in several databases including the US Brownfields, CT Property transfer Act, CT Manifest, Archived RCRA, and potentially responsible party databases.
- The Site generated spent halogenated solvents used in degreasing, wastewater treatment sludge from electroplating operations, spent cyanide plating bath solutions from electroplating operations, plating bath residues from the bottom of plating baths, spent stripping and cleaning bath solution, hydrazine, ethane, and 1,1,1-trichloro/methyl chloroform.
- There are 12 AOCs identified on the Site. Of the 12 AOCs, 5 areas have not been investigated at all. Release Areas (RAs) have been identified in the remaining 7 AOCs.
- Parameters detected in RAs include: 1) VOC impacted soils are located inside the southern portion of the former building in the area of the former degreasing operations, on the southern side of the building in the area of former solvent storage area and on the western side of the building; 2) ETPH impacted soil is located on the northern side of the building in the area of the former loading dock and concrete pad, the southern side of the building in the area of the former 275-gallon fuel oil storage AST and on the western portion of the Site, and; 3) Metal impacted soils located on the western side of the building in the area of the wastewater treatment and discharge pipe and in the buried sludge lagoons on the southern portion of the Site.
- Two groundwater plumes appeared to be originating on the northwestern and western portion of the property and is a mixture of VOCs and metals. Both plumes extend in a southwesterly direction on the Site and appear to migrate offsite.
- Several properties within the site vicinity are listed on State and Federal databases. However, based on the remediation efforts at these sites, it is Arcadis' opinion that this assessment has not revealed evidence of AOCs on a neighboring property which might impact the target property.

It is Arcadis' opinion that this assessment has revealed five AOCs and seven RECs (as defined in the SCGD) on the target property.

The findings identified by Arcadis are summarized below and discussed in greater detail in the body of the report.

8.1 Areas of Concern (AOCs)

AOCs are areas that can represent a potential area of contamination. There were five AOCs identified in connection with the Site.

1. **Former Plating Shop Activities:** Plating shop activities, including plating vats and tanks, were located in the western and southwestern portions of the former building. Soil boring samples have not been investigated in the interior location of the plating shop activities.
2. **Septic Tank:** According to State of Connecticut Forms, dated August 7, 1961 and June 16, 1965, a septic tank is located in the northern portion of the Site. The location of the septic tank is unknown and it has not been investigated.
3. **500-Gallon Gasoline Underground Storage Tank (UST):** A lead gasoline fuel pump was observed during the July 2016 site inspection. According to previous reports, a 500-gallon lead gasoline tank is located east of the storage sheds. The location of the gasoline UST has not been confirmed. According to a DES report and a 2012 Etech report, DES analyzed soil borings in the vicinity of the 500-gallon UST in 1996 during a subsurface investigation; however, the analytical data results of this study were not available. DES sampled soil surficial borings in the vicinity of the 500-gallon UST during 2012 for VOCs and metals. Low levels of TCE and chromium were detected in these samples; however, they did not exceed GA PMC standards. Extractable total ETPH was not analyzed during the 2012 DES investigation.
4. **10,000-Gallon Fuel Oil Aboveground Storage Tank (AST):** A 10,000-gallon fuel oil AST is located in a concrete bunker in the western portion of the Site. According to a 2002 DES report and a 2012 Etech report, DES conducted a subsurface investigation in 1996 and sampled three soil borings in the vicinity of the 10,000-gallon fuel oil AST; however, these results were not available.
5. **Dilapidated Storage Sheds:** Three dilapidated storage sheds are located in the southern portion of the Site. The current contents of the storage sheds are unknown. The storage shed area has not been investigated.

8.2 Recognized Environmental Conditions (RECs):

The DEEP considers RECs as AOCs as well; therefore, there are 12 AOCs overall. A Conceptual Site Model (CSM) is included as **Table 1**, and lists all of the AOCs. The seven RECs identified at the Site are listed as follows:

1. **Metal Hydroxide (MOH) Sludge Lagoons (2):** Metal hydroxide (MOH) sludge was reportedly disposed of in two lagoons between 1974 and 1980. Chromium and nickel were the principle metals in the sludge. Approximately 42 tons of sludge was removed from the westernmost lagoon in 1987 following a clean closure plan submitted by Fuss & O'Neill in 1984. According to the 1988 HRP Associates, Inc. (HRP) Phase I, the westernmost lagoon's status of final closure was still pending and the eastern lagoon was buried in place.

According to the 2012 Etech Phase II, soil samples were collected in the southern portion of the western lagoon. Elevated levels of chromium above the Groundwater Classification GA Pollutant Mobility Criteria (GA PMC) standard were detected in the soil sample. Elevated levels of chromium and TCE above the GA PMC standard were also detected in the groundwater monitoring well located downgradient of the western sludge lagoon. Therefore, it appears that that lagoon was not legally closed. Soil samples were also reportedly collected in the area of the eastern buried sludge lagoon in 1996 during a DES Phase II investigation; however, analytical results were not available for review.

2. **Interior Degreasing Area:** Degreasing activities were located in the southern portion of the former main building. According to the 2002 DES Phase III report, elevated levels of TCE and tetrachloroethylene (PCE) above GA PMC standards were found in soil borings in the interior degreasing area.
3. **Solvent, Acid, and Fuel Oil Storage Area:** A 750-gallon 1,1,1-TCA AST and a 275-gallon fuel oil AST were located along the outside southern wall of the main building. This area also served as an acid/solvent storage area. According to the 2002 DES Phase III report, elevated levels of TCE and PCE above GA PMC standards were found in soil borings in the solvent and fuel oil storage area. According to the DES 2002 Phase III, ETPH impacted soil was also detected in the vicinity of the former 275-gallon fuel oil AST during the 1996 investigation. Etech sampled soil borings in the vicinity of the solvent and fuel oil storage area in 2012 during a Phase II investigation. ETPH was not analyzed during this investigation.
4. **Wastewater Treatment Discharge Pipe Area:** Two catch basins are located west of the former site building. The larger catch basin is made of concrete and has the capacity of about 3,400 gallons. The smaller catch basin serves as a junction box for discharge pipes connecting with the drainage ditch and city storm sewer. According to the 2002 DES Phase III report, elevated levels of lead and nickel above GA PMC standards were found in soil borings in the wastewater treatment discharge pipe area.
5. **Northern Portion of Former Building:** A former loading dock, transformer pad, and exhaust vents were located along the north side of the former facility building. According to the 2002 DES Phase III report, elevated levels of ETPH, VOCs, and TCE above GA PMC standards were found in soil borings north of the main building and in the area of the former northwest loading dock.

6. **Hazardous Waste Storage Area and Former 2,500-Gallon Liquid Waste Tank:** A hazardous waste storage area and 2,500-gallon hazardous waste tank were located along the southwestern portion of the former site building. According to the 2002 DES Phase III report, elevated levels of synthetic precipitation leaching procedure (SPLP) chromium and lead above GA PMC standards were found in soil borings in the hazardous waste storage and tank area.
7. **Southeastern Loading Dock:** A loading dock was formerly located in the southeastern portion of the former main facility building. According to the 2002 DES Phase III report, elevated levels of TCE above GA PMC standards were found in a soil sample located in the vicinity of the southeastern loading dock.

8.3 Controlled Recognized Environmental Conditions (CRECs)

There were no CRECs identified at the Site.

8.4 Historical Recognized Environmental Conditions (HRECs)

There were no HRECs identified at the Site.

8.5 De Minimis Conditions

No de minimis conditions were identified in connection with the Site.

9 DATA GAPS

Efforts were made by Arcadis to obtain user-provided information, and review all reasonably ascertainable resources to determine historical uses of the target property and surrounding properties in order to identify the possibility of AOCs or RECs in connection with the target property. Objectives are complete with the above research, although data failure may be encountered. As defined by ASTM, data failures or data gaps occur when historical research is reasonably ascertained and reviewed, but the intended objectives have not been met.

This assessment has encountered one significant data gap during the completion of this Phase I ESA.

1. Analytical results are not available for investigations conducted by Fuss & O'Neill in 1987, DES in 1996, and Weston in 1997.

10 CONCLUSIONS

Arcadis has performed this Phase I ESA in conformance with the scope and limitations of ASTM E1527-13 and applicable standards of the DEEP SCGD for the Site located in Southington, Connecticut. Any exceptions to or deviations from this practice are described in Section 1 of this report.

The Site may be defined as an establishment under the CTA but may be exempt from the CTA if entered and accepted into a current brownfields program. An environmental attorney should be consulted regarding the applicability of the CTA.

- There were 12 AOCs identified at the Site, with 7 of those AOCs defined as RECs and/or Release Areas.
- The five AOCs that have not been investigated at all should be investigated to determine if a release has occurred in those areas.
- A Ground Penetrating Radar (GPR) survey should be performed to locate the former septic area and any suspected UST areas.
- A Phase III Investigation should be conducted in the seven AOCs/RECs to define the extent of the contamination that was detected in those areas.
- A complete groundwater study should be undertaken to define the extent of the two plumes, both vertically and horizontally.
- A well receptor survey should be completed in accordance with DEEP guidance to identify any potential private or public potable well locations.

11 ENVIRONMENTAL PROFESSIONAL STATEMENT

We declare that, to the best of our professional knowledge and belief, we meet the definition of environmental professional as defined in Section 312.10 of 40 CFR Section 312. We have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. Part 312. Staff Qualifications are included in **Appendix F**.



Jacqueline Giblin
Environmental Scientist



Russell J. Dirienzo, P.G., LEP
Principal

12 REFERENCES

ASTM. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E1527-13.

Persons/Offices Contacted Regarding the Site:

Site Contacts:

- Mr. Mark J. Sciota

Town of Southington

- Tax Assessor's Office
- Building Department
- Fire Marshal
- Town Clerk
- Planning & Zoning Department
- Health Department

State of Connecticut

- Department of Energy and Environmental Protection

Reports, Plans and Other Documents Reviewed:

Rodgers, J. (compiler). 1985. Bedrock Geological Map of Connecticut, Connecticut Geological and Natural Resources Atlas Series (1:125,000).

Stone, J. et al. (compilers), United States Geological Survey and Connecticut Geological and Natural History Survey (DEEP). 1992. Surficial Materials Map of Connecticut (1:24,000).

Connecticut Department of Energy and Environmental Protection. Site Characterization Guidance Document. September 2007 (Revised December 2010).

Environmental Data Resources, Inc. (EDR):

Environmental Data Resources, Inc. The EDR Historical Topographic Map Report. 318 North Main Street, Southington, Connecticut, 06489, Inquiry Number 4668929.4, dated July 8, 2016.

Environmental Data Resources, Inc. The EDR Aerial Photo Decade Package. 318 North Main Street, Southington, Connecticut, 06489, Inquiry Number 4668929.9, dated July 11, 2016.

Environmental Data Resources, Inc. Certified Sanborn® Map Report. 318 North Main Street, Southington, Connecticut, 06489, Inquiry Number 4668929.3, dated July 10, 2016.

Environmental Data Resources, Inc. The EDR Radius Map™ Report with Geocheck®. 318 North Main Street, Southington, Connecticut, 06489, Inquiry Number 4668929.2s, dated July 8, 2016.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Environmental Data Resources, Inc. The EDR-City Directory Image Report. 318 North Main Street, Southington, Connecticut, 06489, Inquiry Number 4668929.5, dated July 11, 2016.

Previous Environmental Reports:

HRP Associates, Inc., Site Assessment Report: Beaton and Corbin Mfg Company, dated November 1988.

Roy F. Weston, Inc., Chronological Summary Report for the Beaton and Corbin Manufacturing, Inc. Site Southington, Connecticut, dated December 1997.

Diversified Environmental Services, Inc., Subsurface Investigation Report: Former Beaton and Corbin, dated December 2002.

Environmental & Safety Solution, Inc., Phase II Environmental Site Assessment Former Beaton and Corbin Factory Site Southington, Connecticut, dated March 2012.



Phase II Environmental Site Assessment Former Beaton and Corbin Factory Site Southington, Connecticut

Prepared For:

United States Environmental Protection Agency

EPA Contract No: EP-W-07-098

Task Order No. 069

Issue Date: March, 2012

Prepared By:



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PHASE II ENVIRONMENTAL SITE ASSESSMENT

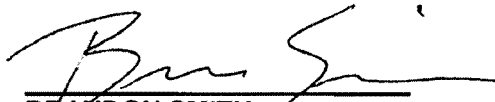
**FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT**

**EPA TARGETED BROWNFIELDS ASSESSMENT TASK ORDER NO. 069
EPA CONTRACT NUMBER EP-W-07-098
TETRA TECH PROJECT NUMBER 03599**

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LIST OF ACRONYMS

AST	above ground storage tank
BGS	below ground surface
CTDEP	Connecticut Department of Environmental Protection
DPT	direct push technology
ELUR	Environmental Land Use Restriction
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
Etech	Etech Environmental Solutions, Inc.
GA	groundwater area
GA/GAA PMC	Groundwater Classification GA/GAA Pollutant Mobility Criteria
GB PMC	Groundwater Classification GB Pollutant Mobility Criteria
GPC	Groundwater Protection Criteria
GPS	global positioning system
I/C DEC	Industrial/Commercial Direct Exposure Criteria
I/CVC	Industrial/Commercial Volatilization Criteria
ID	inner diameter
MADEP	Massachusetts Department of Environmental Protection
NPDES	National Pollutant Discharge Elimination System
OD	outer diameter
OHM	oil and hazardous materials
PCB	polychlorinated biphenyl
PID	photo-ionization detector
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RDEC	Residential Direct Exposure Criteria
RSR	Remediation Standards and Regulations
RVC	Residential Volatilization Criteria
SVOC	Semi-Volatile Organic Compound
SWPC	Surface Water Protection Criteria
TBA	Targeted Brownfields Assessment
TCA	1,1,1-trichloroethane
TCE	trichloroethene
Tetra Tech	Tetra Tech, Inc.
TPH	total petroleum hydrocarbons
USCS	Universal Soil Classification System

UST	Underground Storage Tank
VOCs	volatile organic compounds

1.0 BACKGROUND

At the request of the U.S. Environmental Protection Agency (EPA), Region I under Contract No. EP-W-07-098, Etech, Environmental and Safety Solutions, Inc. (Etech) completed a Phase II Environmental Site Assessment (ESA) at the Former Beaton and Corbin Site (the Site) located at 318 North Main Street in the town of Southington Connecticut (Figure 1-1). The Etech team, including Tetra Tech, Inc. (Tetra Tech), performed this Phase II ESA under Targeted Brownfields Assessment (TBA) Task Order No. 016. This Draft Phase II ESA Report presents a summary of the findings of the ESA field investigation, recommendations, and cost estimates for further action.

1.1 REPORT OBJECTIVES

The purpose of this ESA was to investigate the Site for the presence of oil and hazardous materials (OHM) in soils and groundwater. This Draft ESA report presents the results of the field investigation and provides recommendations and order-of-magnitude cost estimates for future actions to support the reuse of the Site for commercial development.

1.2 SITE DESCRIPTION

The Beaton & Corbin Factory Site is located at 318 North Main Street Southington, CT. The site is approximately 1.75 acres in size. It is bordered to the North by Chapman Road and to the East by Main Street. Records show that the site was used by Aetna Match Company to manufacture matches on the site during the late 1800s. The Beaton and Corbin Manufacturing Company inhabited the site around 1900 to 1989. Beaton and Corbin manufactured ceiling and floor plates and plumbing fittings and fixtures. Beaton and Corbin's operations also included metal machining and metal plating. Currently the property is abandoned with no current use.

The features on the site include the area or footprint were a 25,000 square foot main factory building that was destroyed by a fire in the early 2000s. The original building of the site was located on the northernmost rectangular footprint, which is to date covered with construction debris that presumably remains from demolition. The southern portion of the main building was added on to the original building between 1934 and 1951. Most of the addition is currently exposed concrete slab. There are 3 wood-framed buildings that are present on the site and are in very poor condition.

The area that surrounds the site is consists of residential and commercial properties. Wastes generated during the Beaton & Corbin Factory operations included metal hydroxide plating sludge, other plating wastes, and degreasing/machining oils. Reports of these waste materials said they were disposed of in

two lagoons in the southwest portion of the site. Five storage tanks were historically utilized on site. Contaminants identified above regulatory criteria during historical site assessments have included volatile organic compounds (VOCs), petroleum hydrocarbons, chromium, and nickel. The site is located in a Groundwater Area (GA). Groundwater Classification GA refers to an area designated for potential drinking water supply, fish and wildlife habitat, recreational use, or agricultural and industrial supply. Contaminants in soils could be transported via erosion through overland flow or through drainage features along the west side of property. Soil contaminants could leach into groundwater, which flows off-site to the southwest. With this comes the concern that contaminants in groundwater could migrate down gradient into the Quinnipiac River or some down gradient water supply wells.

1.3 SITE BACKGROUND

The former Beaton & Corbin Factory was occupied in 1893. Previous to this the site was the Atena Match Company which manufactured matchboxes. The Beaton & Corbin was a manufacturing facility for floor and ceiling plates, plumbers' tubular brass, tubular parts and assemblies to contract specifications. The metals used included copper, brass, carbon steel, stainless steel, and aluminum. Potential sources of contamination on the site include 2 lagoons on the property and 5 storage tanks that were historically utilized on site. Figure 1-2 shows the features and layout of the site.

During production, wastes generated during site operations included metal hydroxide plating sludge, other plating wastes, and degreasing/machining oils. These materials were reportedly disposed of in the two lagoons in the southwest portion of the site. Five storage tanks were historically utilized on site reportedly contained oil gasoline liquid wastes, chemical raw materials (bulk fluids). Contaminants identified above regulatory criteria during historical site assessments have included VOCs, petroleum hydrocarbons, chromium, and nickel. The west end of the main factory building, location of plating shop during the early years of the facility has contaminants present in soil. Interior degreasing area, southern portion of main building formerly utilized for degreasing operations. Solvent and fuel oil storage tanks were formerly located along the south wall of this wing of the building. Waste Water Treatment and Discharge Pipe Area, with associated catch basin to the west of the main building has contaminants present in soil. The north side of building, former location of loading dock, transformer pad, and exhaust vents has contaminants present in soils. The loading dock area on south side of building also has contaminants present in soil.

1.4 PREVIOUS INVESTIGATIONS

The following section details the available previous investigations conducted at the Beaton and Corbin Site.

1.4.1 1987 Fuss & O'Neill Groundwater Report

On May 4, 1984, the State of Connecticut Order (HM-168) requested Beaton & Corbin to comply with all waste handling procedures and facilities, to close all surface impoundments with the State's Hazardous Waste Management Regulations, and install a groundwater monitoring system.

A groundwater monitoring system was installed in July, 1984. A summary of the historical analytical data is shown in Table 1-1. As the attached data shows, the groundwater quality on site had been impacted by dissolved metals including chromium, nickel, barium, copper, and zinc. The highest concentrations of chromium, 0.34 mg/l and 0.37 mg/l were seen in monitoring wells 100 and 101, located downgradient from the former sludge lagoon.

In September of 1987, Fuss & O'Neill reviewed groundwater analytical data for the Beaton & Corbin site to determine the source of the chromium contamination in monitor wells 100 and 101. They concluded the contamination source may be due to the sludge the lagoon, the National Pollutant Discharge Elimination System (NPDES) discharge receiving stream which received discharge from Beaton & Corbin and other area industries, or a combination of each.

The contaminated monitoring wells were located immediately downgradient of the lagoon, which made the lagoon the most obvious source. Low concentrations of chromium reported in sludge toxicity tests indicated that the leachate produced by the sludge would travel to the monitoring wells approximately 50 feet downgradient with little to no dilution. Fuss and O'Neill concluded that it was likely that there was an additional source of chromium contamination in addition to the sludge lagoon.

The NPDES discharged a small water course which flowed past monitoring wells 100 and 101, prior to discharging to the Quinnipiac River. The flow in this water course was primarily the results of discharges from the Beaton and Corbin site and other area industries. During dry periods, this water course likely recharged the area groundwater which may have affected the water quality at monitoring wells 100 and 101.

Fuss & O'Neill concluded that the source of the chromium contamination at monitor wells 100 and 101 was most likely due to a combination of sources relating to both the sludge lagoon and the permitted NPDES discharge.

1.4.2 1988 HRP Associates Site Assessment Report

In March 1988, HRP Associates, Inc. prepared a Phase I ESA that documented the background on the Beaton & Corbin site (HRP, 1988). The summary of the visual inspection included:

- A minor amount of oil-stained dirt at the compressor discharge outlet on the north side of the factory;
- Water from the brass annealing quench baths on the first floor was leaking from the baths, through the floorboards, and into the basement and onto the basement floor;
- Green (nickeliferous) wastewater was observed to be leaking from the pump connected to the settling tank in the waste treatment area;
- Various liquids has leaked from horizontal drums into the concrete confining area of the chemical storage crib;
- A green (nickeliferous) spill has occurred next to the exterior 2,500 gallon holding tank. The source of the spill was apparently a 55 gallon drum, one quarter full of green sludge, that had overturned;
- Minor oil stains around the compressor;
- Green stains from the plating operations on the concrete floor of the plating shop. Similar stains on the ramp leading down to the basement and on the eastern portion of the basement floor;
- The sink in the plating laboratory was reportedly connected to the sanitary sewer, and any reagents disposed in the sink would be considered a liquid waste discharge;
- In the recent past, ongoing discharge of effluent waste water occurred from the treatment facility to the catch basins which discharged into drainage ditch. The drainage ditch discharged into the Quinnipiac River. Discharge was not occurring at the time of the site inspection;
- The area between the fence and the west end of the factory buildings, near the boiler room, appeared to consist of artificial fill; and
- Aerial photographs indicated a second sludge lagoon, that is buried, immediately east of the closed sludge lagoon.

1.4.3 1996 Diversified Environmental Services Subsurface Investigation

May 1996, the Diversified Environmental Services (DES) conducted a subsurface investigation on the site that encompassed the installation of 10 shallow hand auger borings, 13 solid borings from 6 to 10' deep, and installation of 7 groundwater monitoring wells from 15 to 17' deep. Results of the soil analysis indicated concentrations of trichloroethene (TCE) above applicable soil standards in SB-4 on the southern side of the manufacturing building around the area of the 750- gallon 1,1,1-trichloroethane (TCA) above

ground storage tank (AST), as well as, concentrations of total petroleum hydrocarbons (TPH) above applicable soil standards in SB-3 collected from the vicinity of the fuel oil AST (Table 1-2).

1.4.4 1996 Weston Solutions Preliminary Assessment/Site Investigation

In June 1996, Roy F. Weston performed a Preliminary Assessment/Site investigation on behalf of the USEPA that entailed collection of 10 surface soil samples (S001-S010) and 1 liquid sample (W001) from a discharge basin that were submitted for analysis of VOCs, cyanide and metals. In addition, 8 samples (F01-F08) were collected from within the building and submitted for analysis of asbestos (F01 only), metals, cyanide and VOCs (F08 only). The results of the analysis conducted revealed elevated concentrations of metals and VOCs in the soils on the west side of the site. Analytical tables and asbestos results were not located during the historical document file review.

1.4.5 1997 OHM Remediation Services Removal Action

In August 1997, OHM Remediation Services disassembled the plating line and conducted a hazardous waste removal for the USEPA. They removed materials such as wood flooring from under the plating line, waste materials from plating vats, tanks and floors and plating line vats. 66 55-gallon drums and 8 55-gallon drums of debris were generated and shipped off site as caustic, lead and wastewater treatment sludge wastes.

1.4.6 2002 Diversified Environmental Services Phase III Report

From December 2001 to March 2002, DES performed a subsurface investigation that consisted of resampling of onsite monitoring wells, installation of 28 hand auger borings, installation of seven groundwater monitoring wells and sampling of the wells.

Six soil samples contained concentrations of trichloroethylene and tetrachloroethylene above the CTDEP PMC. The VOC impacted soil was located inside the southern portion of the buildings in the area of the former degreasing operation, on the southern side of the building in the area of the former solvent storage area, and on the western side of the building. It was estimated that there was 650 tons of VOC impacted soil on the western and southern sides of the building and 120 tons of VOC impacted soil inside the building under the concrete building floor and footing.

Five soil samples were submitted for analysis of RCRA 8 metals. Soil samples SB-114, SB-117, and SB-118 contained concentrations of SPLP chromium above the CTDEP PMC for SPLP chromium. Soil samples SB-114 and SB-118 contained concentrations of nickel above the CTDEP RDEC. The metals

impacted soil was located in two separate areas on the western side of the building in the area of the wastewater treatment and discharge pipe and in the buried sludge lagoon on the southern portion of the property. It was estimated that 1000 tons of metals impacted soil was on the property, including the materials in the sludge lagoon on the southern portion of the property.

The results of the groundwater analysis detected concentrations of VOCs in all of the groundwater samples collected with the exception of MW-100. Trichloroethylene was detected in ten of the monitoring wells at concentrations ranging from 6 µg/l in MW-101 to 250 µg/l in MW-202, which were all above the CTDEP GPC of 5 µg/l. Total chromium was detected in five of the groundwater samples ranging from 48 µg/l in MW-202 to 307 µg/l in MW-205, which were all above the 20 µg/l GPC for chromium. DES concluded that two groundwater plume appeared to be originating on the northwestern and western portions of the property. The plume on the northern portion of the property contained VOC, ETPH, and metals. The plume of the western portion of the property contained VOCs and metals. Both of the plumes appeared to extend in a southwesterly direction on the site and appeared to go off-site.

1.5 AREAS OF KNOWN OR SUSPECTED CONTAMINATION

Potential sources of contamination on the site are summarized in the table below:

Former Beaton & Corbin Factory Site			
No.	Potential Source Area	Location/Description	Contaminants of Concern
1	Location of plating shop during the early years of the facility.	West end of the main factory building.	VOCs
2	Interior degreasing area	Southern portion of main building formerly utilized for degreasing operations. Solvent and fuel oil storage tanks were formerly located along the south wall of this wing of the building.	VOCs, petroleum hydrocarbons
3	Waste Water Treatment and Discharge Pipe Area	With associated catch basin to the west of the main building.	Lead, chromium, nickel
4	Former location of loading dock, transformer pad, and exhaust vents	North side of building	Petroleum hydrocarbons
5	Loading dock area	South side of building	VOCs
6	Sludge lagoons	South side of building	chromium and nickel
7	Former storage tanks	Includes 10,000-gallon fuel oil tank in west portion of site, 1,000-gallon gasoline tank near storage shed, and	VOCs, petroleum hydrocarbons

Former Beaton & Corbin Factory Site			
No.	Potential Source Area	Location/Description	Contaminants of Concern
		a 2,500-gallon "liquid waste" tank to the west of the main building.	

VOCs- Volatile Organic Compounds

1.6 OVERVIEW OF ESA ACTIVITIES

The purpose of the ESA is to determine the nature and extent of OHM at the Site. This Draft ESA report presents the results of the field investigation performed by Etech in November 2010 and provides recommendations and order-of-magnitude cost estimates for future site re-use.

2.0 FIELD INVESTIGATIONS

This section provides a summary of the field investigations performed by Etech as part of this ESA. Field investigations were performed during the period from November 28, 2011 to December 1, 2011. The purpose of the November 2011 field investigation was to determine the presence of OHM in soils and groundwater at the Site. The field investigation was performed in accordance with the EPA-approved Brownfields Program Quality Assurance Project Plan Addendum (Addendum 1) City of Southington, dated September 2011.

2.1 SOIL SAMPLING DIRECT PUSH TECHNOLOGY (DPT)

During the November 2011 field investigation, Etech advanced 15 soil borings (SB128 through SB133, SB200A, and SB301 through SB308) using DPT drilling methods to approximately 8 to 16 feet below ground surface (bgs). Six soil borings (SB304, SB307, SB306, SB305, SB308, and SB200A) were completed as 1-inch outer diameter (O.D.) monitoring wells (MW301 through MW305, and MW200A, respectively).

2.1.1 Subsurface Soil Sampling

During the November 2011 investigation soil samples were collected from 15 soil borings (SB128 through SB133, SB200A, and SB301 through SB308) at continuous 2-foot depth intervals from the ground surface to the groundwater table (encountered at approximately 6 to 10 feet bgs), using a 4-foot long 2.0-inch interior diameter (I.D.) sampler with acetate liner. Two-foot intervals were sampled below the water table for soil classification purposes only. Immediately upon collection, each soil sample was field-screened for organic vapors using the Massachusetts Department of Environmental Protection (MADEP) Jar Headspace Technique (MADEP Policy WSC-97).

Physical characteristics of all soil samples were described using the Universal Soil Classification System (USCS) and recorded on Boring Log sheets together with jar headspace readings. Boring Logs are contained in Appendix A.

One soil sample each from soil borings, with the exception of SB305, were submitted for laboratory analysis. The soil samples were selected for laboratory analysis based on jar headspace readings or, in the absence of positive headspace readings, visual/olfactory evidence of contamination. If no visual/olfactory evidence of contamination was noted, the sample intersecting the groundwater table was selected for laboratory analysis. White and green granular material was encountered in soil boring

SB305 from 2- to 3- feet bgs, and an additional sample of this material was submitted for laboratory analysis.

The selected soil samples were submitted to the laboratory for the following analyses:

- Volatile organic compounds (VOCs),
- Semi-volatile organic compounds (SVOCs), and
- RCRA 8 metals

A total of seventeen soil samples were analyzed for these constituents (including one field duplicate). Chain-of-Custody Forms are contained in Appendix B.

2.1.2 Monitoring Well Construction and Development

As part of the November 2011 field investigation, soil borings SB304, SB307, SB306, SB305, SB308, and SB200A were completed as monitoring wells MW301 through MW305, and MW200A, respectively. Monitoring wells were constructed of 1-inch O.D. Schedule 40 polyvinyl chloride (PVC) pipe. Well screens were 10-feet in length, with a slot size of 0.010-inch. All well screens were fitted with a PVC end plug. Initial determination of the depth to groundwater was made by visual observation of soil moisture content in the samples recovered from the soil borings.

A sand filter pack was placed in each borehole to a depth of approximately 2 feet above the top of the well screen. A 2-foot thick bentonite seal was placed above the filter pack. Clean sand was used to backfill the borehole around the riser pipe. MW200A and MW302 were completed as flush-mount wells with an 8-inch diameter road box and 1-foot diameter concrete surface seal. MW301 and MW303 through M305 were completed as above-ground wells with approximately 3-foot tall steel protective casings surrounded by 1-foot diameter concrete surface seals. Well risers were fitted with lockable expandable well caps. Monitoring well depth ranged from 13 feet bgs (MW-301) to 16 feet bgs (MW-302). Details pertaining to well construction for each monitoring well are documented on the monitoring well construction log sheets contained in Appendix C.

After installation, each well was developed by pumping until visually clear per the QAPP. Well development data sheets are contained in Appendix D.

2.2 MEASUREMENT OF SURFACE AND GROUNDWATER ELEVATIONS

Depth to groundwater was measured at each monitoring well during the November 2011 field investigation. Groundwater measurements were made prior to beginning groundwater sample collection.

2.3 COLLECTION OF GROUNDWATER SAMPLES

During the November 2011 field investigation, groundwater samples were collected from each of the six newly installed monitoring wells, and two existing onsite monitoring wells, MW06 and MW25, in accordance with the procedure outlined in EPA's Low Stress ("low flow") Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (EPA SOP No. GW 001).

The well purge water was containerized in a 55-gallon drum and staged on the Site pending waste characterization analysis. Groundwater samples were picked up at the site by a laboratory representative for transportation to the lab for analysis of VOCs, SVOCs, and RCRA 8 metals. Low Flow Groundwater Sample Log Sheets are contained in Appendix E. Chain of Custody Forms are contained in Appendix B.

2.4 SURVEY OF SITE FEATURES

Horizontal locations of soil borings and monitoring wells were determined using Global Positioning System (GPS) survey equipment during the November 2011 field investigation.

3.0 APPLICABLE REGULATORY STANDARDS

The CTDEP has developed risk-based numerical criteria for the remediation of polluted soil and groundwater. These criteria were promulgated in the CTDEP Remediation Standard Regulations (RSRs) (CTDEP, January 1996) and in the most recent revision of the Comprehensive List of Approved Additional Polluting Substances Criteria and Alternate Criteria list of Additional Polluting Substances (CTDEP, October 24, 2005). These criteria are numerical threshold concentrations for selected environmental contaminants (termed “polluting substances”) below which soil and groundwater are considered sufficiently remediated to be protective of human health and the environment.

3.1 RSR SOIL CRITERIA

Criteria for soils are segregated into two major categories. Direct Exposure Criteria (DEC) were developed for direct exposure to soils and have been subdivided into criteria specific for residential and industrial/commercial (I/C) site activities and uses (RDEC and I/CDEC, respectively). Pollutant Mobility Criteria (PMC) were developed to protect groundwater from substances leaching from contaminated soil and have been subdivided into criteria for GAA/GA and GB groundwater areas (GA/GAA PMC and GB PMC, respectively).

The DEC applies to accessible soil when the contaminant is a substance other than polychlorinated biphenyls (PCB). The RSRs consider inaccessible soil to be at a depth of more than 4 feet bgs if unpaved, or more than 2 feet bgs if paved with 3 or more inches of bituminous concrete or concrete. Environmentally isolated soil is that soil located beneath an existing building or other permanent structure. If soil is inaccessible or environmentally isolated due to being beneath pavement or a structure, then an Environmental Land Use Restriction (ELUR) is required to maintain the pavement, building, other structure or any conditions that maintains the soil's inaccessibility or environmental isolation.

3.2 RSR GROUNDWATER CRITERIA

Criteria for groundwater are segregated into three major categories. Groundwater Protection Criteria (GPC) have been developed for GAA, and GA groundwater. Surface Water Protection Criteria (SWPC) have been developed for discharges of contaminated groundwater plumes into surface water bodies (including rivers, lakes, ponds, streams, intermittent streams, and wetlands). Volatilization Criteria (VC) have been developed for migration of VOC vapors from contaminated groundwater into overlying buildings. The VC has been subdivided into criteria specific to residential (RVC) and industrial/commercial (I/CVC) site activities. Sites that are remediated to meet the I/CVC criteria require an ELUR that restricts the property to commercial or industrial uses.

3.3

REGULATORY CRITERIA APPLICABLE TO THE SITE

The former use of the site, and its zoning designation is for industrial/ commercial use and the I/C DEC and VC soil and groundwater criteria would apply to soil and groundwater contamination. Since groundwater in the vicinity of the Site has been rated use class GA, the GA/GAA PMC are applicable to soils. Groundwater criteria applicable to the Site include the SWPC and the I/CVC.

Alternate criteria for soil DEC and PMC and groundwater VC can be developed subject to CTDEP approval. Exemptions from VC may be obtained for parcels where no building is constructed or if CTDEP-approved indoor air monitoring program and volatile substance control measures have been implemented at a building on the parcel.

Exemption from groundwater protection criteria may be approved by CTDEP if it is technically impractical to remediate polluting substances to background or if compliance with the applicable criteria is technically impracticable as determined using the *Guidance for Evaluating the Technical Impracticability of Groundwater Restoration* USEPA Directive No. 9234.2-25 issued September 1993 (USEPA, September 1993). The presence of dense non-aqueous phase liquids (DNAPL) at a site can often render groundwater restoration technically impracticable.

4.0 FIELD INVESTIGATION RESULTS

This section presents the results of the field investigations described in Section 2.0, and provides a comparison of soil and groundwater sample laboratory analytical results to the site-applicable regulatory standards discussed in Section 3.0.

4.1 ANALYTICAL DATA VALIDATION AND VERIFICATION METHODS

Data validation procedures performed included checking chain-of-custody records for accuracy and completeness of sampling, shipping, analysis, and reporting. The Chain-of-Custody Forms and Data Validation memoranda are contained in Appendix B.

4.2 SITE GEOLOGY AND HYDROGEOLOGY

This section discusses information on Site geology and hydrogeology that was obtained during the ESA investigation.

4.2.1 Site Geology

This section discusses site geological conditions determined from review of published information and field observations.

4.2.1.1 Bedrock Geology

Bedrock beneath the site has been mapped as the New Haven Arkose, lower member. This rock unit consists of interbedded grayish-orange-pink to very pale orange conglomerate arkose and greyish red to dark-reddish-brown siltstone (HRP, 1998).

4.2.1.2 Surficial Geology

Soils on site consist primarily of brown or dark brown medium- to coarse-grained sand with medium gravel or silt in certain areas. A 2-foot layer of ash and dark soil was observed at the ground surface to the west of the main building (MW-206 area).

4.2.1.3 Field Observations

Inspection of soil samples collected from the Site during the ESA investigation indicated that majority of the subsurface soil was a brown fine to medium-grained sand with trace to some silt and grey gravel. In

the soil sample collected from soil boring SB305, at the 2- to 4-foot bgs interval, five inches of white granular material and three inches of green granular material were observed. A sample of the material was submitted for laboratory analysis. Soil boring logs are contained in Appendix A. Soil boring locations are depicted on Figure 4-1.

Jar headspace field-screening using a photoionization detector (PID) indicated low concentrations of organic vapors (less than 5.0 parts per million volume [ppmv]) in the soil samples collected from borings SB128, SB131, SB133, SB200A, SB302, SB303, SB305, SB306, SB307, and SB308. Jar headspace field-screening of soil samples collected from borings SB129, SB130, SB301, and SB304 detected low to moderate concentrations (1.2 to 61.3 ppmv) of organic vapors. Headspace screening results of soil samples are listed on the boring logs in Appendix A, and are summarized in Table 4-1.

4.2.2 Site Hydrogeology

Depths to groundwater measured in the eight on-site monitoring wells on December 1, 2011 ranged from 5.01 feet bgs at MW06 to 9.75 feet bgs at MW303. Based on limited onsite groundwater elevations, the general direction of groundwater flow was determined to be to the southwest, toward the Quinnipiac River.

4.3 SOIL SAMPLE ANALYTICAL RESULTS

Soil samples collected from borings SB128 through SB132, SB200A, and SB301 through SB308 were analyzed for VOCs, SVOCs, and RCRA 8 metals. Analytical results reported the presence of VOCs, SVOCs, and RCRA 8 metals. A summary of soil analytical results is presented in Table 4-2. OHM compounds detected in soil samples at concentrations exceeding applicable regulatory criteria are summarized in Sections 4.3.1 and 4.3.2. Soil boring locations including exceedances of CTDEP regulatory criteria are depicted on Figure 4-1.

The laboratory reporting limit for ethylene dibromide of 160 µg/kg, in the soil sample collected from boring SB301 at the 6-to 8-foot bgs depth interval exceeded the 67 µg/kg and CTDEP I/DEC criterion the 10 µg/kg CTDEP GA PMC criterion. The laboratory reporting limit for trichloroethene of 160 µg/kg, in the soil sample collected from boring SB301 at the 6-to 8-foot bgs depth interval exceeded the 100 µg/kg CTDEP GA PMC criterion. These compounds were not detected during the laboratory analysis. However the laboratory reporting limits were above the respective CTDEP criteria. Ethylene dibromide has been historically used as a gasoline additive to leaded gasoline and as a pesticide. Due to the historical operations at the site, it is unlikely that ethylene dibromide is a contaminant of concern and analysis of soil using a lower reporting limit would not likely result in exceedances of CTDEP criteria. The reporting

limit in boring SB301 for trichloroethene above the GA PMC criterion was a laboratory dilution, which resulted in a detection limit of ten times the normal detection limit. Limited data validation was performed on the laboratory samples as required in the EPA approved QAPP. A more extensive data validation would result in an analysis of laboratory dilutions and most likely the reporting limit of trichloroethene in boring SB301 would be below CTDEP criterion. Therefore, trichloroethene is not a contaminant of concern at soil boring SB301.

4.3.1 OHM Compounds Exceeding CTDEP Industrial/Commercial Direct Exposure Criteria

This section summarizes OHM compounds that were detected in one or more soil samples at concentrations exceeding the CTDEP I/C DEC. Chromium was the only contaminant detected exceeding the CTDEP I/C DEC. See Table 4-2.

4.3.1.1 Total Metals

- Total chromium in the soil sample collected from boring SB305 at the 2- to 3-foot bgs depth interval (9,700 mg/kg) exceeded the 100 mg/kg I/C DEC criterion for hexavalent chromium and was below the 15,000 mg/kg I/C DEC for trivalent chromium. CTDEP has not established I/C DEC criterion for total chromium.

4.3.2 OHM Compounds Exceeding CTDEP GA Pollutant Mobility Criteria

This section summarizes OHM compounds that were detected in one or more samples at concentrations equal to or exceeding GA PMC. These contaminants included trichloroethene only. GA PMC for metals as based on TCLP or SPLP analysis, which was not performed as part of the ESA, therefore comparison of total metals to the GA PMC is not appropriate.

4.3.2.1 Volatile Organic Compounds

- Trichloroethene, in the soil samples collected from borings SB132 at the 10-to -12-foot depth interval (470 µg/kg) and SB133 at the 0-to -2-foot bgs depth interval (130 µg/kg) exceeded the 100 µg/kg CTDEP GA PMC criterion.

4.4 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples collected from monitoring wells MW06, MW25, MW200A, and MW301 through MW305 were analyzed for VOCs, SVOCs, and RCRA 8 metals. Analytical results detected the presence

of VOCs and metals in groundwater. A summary of groundwater analytical results is presented in Table 4-3. Monitoring wells locations including exceedances of CTDEP regulatory criteria are depicted on Figure 4-2.

The laboratory reporting limit for ethylene dibromide of 1.0 µg/l, in the all groundwater samples collected exceeded the 0.05 µg/L CTDEP GPC criterion. This compound was not detected during the laboratory analysis. However the laboratory reporting limit was above the respective CTDEP criteria. Ethylene dibromide has been historically used as a gasoline additive to leaded gasoline and as a pesticide. Due to the historical operations at the site, it is unlikely that ethylene dibromide is a contaminant of concern and analysis of groundwater using a lower reporting limit would not likely result in exceedances of CTDEP criterion.

The laboratory reporting limit for hexachlorobutadiene of 4.0 µg/l, in the groundwater sample collected from monitoring well MW303 exceeded the 0.45 µg/L CTDEP GPC criterion. This compound was not detected during the laboratory analysis. However the laboratory reporting limit was above the respective CTDEP criteria. Hexachlorobutadiene is used as a solvent primarily. Previous groundwater sampling events at the site have not detected hexachlorobutadiene, therefore it is unlikely that hexachlorobutadiene is a contaminant of concern in groundwater.

The laboratory reporting limit for benzo(a)anthracene of 0.29 µg/l, in the all groundwater samples collected exceeded the 0.06 µg/L CTDEP GPC criterion. The laboratory reporting limit for benzo(b)fluoranthene of 0.29 µg/l, in the all groundwater samples collected exceeded the 0.08 µg/L CTDEP GPC criterion. The laboratory reporting limit for dibenzo(a,h)anthracene of 0.44 µg/l, in the all groundwater samples collected exceeded the 0.2 µg/L CTDEP GPC criterion. The laboratory reporting limit for indeno(1,2,3-cd)pyrene of 0.44 µg/l, in the all groundwater samples collected exceeded the 0.2 µg/L CTDEP GPC criterion. The laboratory reporting limit for phenanthrene of 0.20 µg/l, in the all groundwater samples collected exceeded the 0.077 µg/L CTDEP SWPC criterion. These polycyclic aromatic hydrocarbons (PAHs) were not detected during laboratory analysis. PAHs are lipophilic, meaning they mix more easily in oil than water. Because of these properties, PAHs in the environment are primarily found in soil, sediment, and oily substances, as opposed to groundwater. Analysis for SVOCs in groundwater with a lower reporting limit would most likely result in non-detection of these compounds. Therefore, it is unlikely that PAHs are a contaminant of concern in groundwater.

4.4.1 OHM Compounds Exceeding CTDEP Groundwater Protection Criteria

This section summarizes OHM compounds that were detected in one or more groundwater samples at concentrations exceeding the CTDEP GPC. These contaminants include VOCs and chromium. See Table 4-3.

4.4.1.1 Volatile Organic Compounds

- Trichloroethene, in the groundwater samples collected from monitoring wells MW06, MW302, MW303, and MW305 exceeded the 5 µg/l CTDEP GPC criterion.
- Vinyl chloride, in the groundwater sample collected from monitoring well MW06 exceeded the 2 µg/l CTDEP GPC criterion.

4.4.1.2 Total Metals

- Chromium, in the groundwater samples collected from monitoring wells MW302, MW303, and MW305 exceeded the 100 µg/l CTDEP GPC criterion.

4.4.2 **OHM Compounds Exceeding CTDEP Surface Water Protection Criteria**

No compounds were detected that exceeded the CTDEP SWPC.

4.4.3 **OHM Compounds Exceeding CTDEP Volatilization Criteria**

This section summarizes OHM compounds that were detected in one or more groundwater samples at concentrations exceeding the CTDEP I/CVC. These contaminants include vinyl chloride. See Table 4-3.

4.4.3.1 Volatile Organic Compounds

- Vinyl chloride, in the groundwater sample collected from monitoring well MW06 exceeded the 2 µg/l CTDEP I/CVC criterion.

5.0 SUMMARY AND CONCLUSIONS

This section summarizes the findings of the ESA investigation, and presents conclusions regarding the nature and extent of soil and groundwater contamination at the Site.

5.1 SITE BACKGROUND SUMMARY

The Beaton & Corbin Factory Site is located at 318 North Main Street Southington, CT. The site is approximately 1.75 acres in size. It is bordered to the North by Chapman Road and to the East by Main Street. Records show that the site was used by Aetna Match Company to manufacture matches on the site during the late 1800s. The Beaton and Corbin Manufacturing Company inhabited the site around 1900 to 1989. Beaton and Corbin manufactured ceiling and floor plates and plumbing fittings and fixtures. Beaton and Corbin's operations also included metal machining and metal plating. Currently the property is abandoned with no current use.

The features on the site include the area or footprint were a 25,000 square foot main factory building that was destroyed by a fire in the early 2000s. The original building of the site was located on the northernmost rectangular footprint, which is to date covered with construction debris that presumably remains from demolition. The southern portion of the main building was added on to the original building between 1934 and 1951. Most of the addition is currently exposed concrete slab. There are 3 wood-framed buildings that are present on the site and are in very poor condition.

The area that surrounds the site is consists of residential and commercial properties. Wastes generated during the Beaton & Corbin Factory operations included metal hydroxide plating sludge, other plating wastes, and degreasing/machining oils. Reports of these waste materials said they were disposed of in two lagoons in the southwest portion of the site. Five storage tanks were historically utilized on site. Contaminants identified above regulatory criteria during historical site assessments have included VOCs, petroleum hydrocarbons, chromium, and nickel. The site is located in a Groundwater Area (GA). Contaminants in soils could be transported via erosion through overland flow or through drainage features along the west side of property. Soil contaminants could leach into groundwater, which flows off-site to the southwest. With this comes the concern that contaminants in groundwater could migrate down gradient into the Quinnipiac River or some down gradient water supply wells.

The former use of the site, and its zoning designation is for industrial/ commercial use. Therefore, the I/C DEC and VC soil and groundwater criteria would apply to soil and groundwater contamination. Since groundwater in the vicinity of the Site has been rated use class GA, the GA PMC are applicable to soils. Groundwater criteria applicable to the Site include the GA GPC, SWPC and the I/CVC.

Alternate criteria for soil DEC and PMC and groundwater VC can be developed subject to CTDEP approval. Exemptions from VC may be obtained for parcels where no building is constructed or if CTDEP-approved indoor air monitoring program and volatile substance control measures have been implemented at a building on the parcel and an Environmental land use restriction is placed on the property to ensure that the appropriate land use is maintained and that any control measures remain operational.

5.2 SUMMARY OF ESA INVESTIGATION RESULTS

This section summarizes the findings of the ESA investigation, including OHM detected in sampled media, and RSR criteria that were exceeded in those media. Soil boring and monitoring well locations sampled during this investigation are depicted on Figure 4-1.

5.2.1 Soils

Inspection of soil samples collected from the Site during the ESA investigation indicated that majority of the subsurface soil was a brown fine to medium-grained sand with trace to some silt and grey gravel. In the soil sample collected from soil boring SB305, at the 2- to 4-foot bgs interval, five inches of white granular material and three inches of green granular material were observed. The green granular material coincides with high concentration of chromium detection during laboratory analysis. The green granular nature of the soil is most likely due to chromium (III) oxide. A sample of the material was submitted for laboratory analysis. Soil boring logs are contained in Appendix A. Soil boring locations and exceedances are depicted on Figure 4-1.

Jar headspace field-screening of soil samples collected from the Site indicated the following organic vapor concentrations:

- Low concentrations (less than 5 ppmv) in the soil samples collected from borings SB128, SB131, SB133, SB200A, SB302, SB303, SB305, SB306, SB307, and SB308; and
- Low to moderate concentrations (1.2 to 61.3 ppmv) in soil samples collected from borings SB129, SB130, SB301, and SB304.

Headspace screening results are summarized in Table 4-1 and are listed on the boring logs in Appendix A.

5.2.1.1 OHM Detected in “Accessible” Soils at Concentrations Exceeding RSR Criteria

The following compounds were detected in “accessible” soils (0- to 4-foot bgs depth interval) collected from the Site at concentrations that exceeded I/C DEC:

Metals:

- Chromium in boring SB305 (9700 mg/kg; I/C DEC 100 mg/kg).

The following compounds were detected in “accessible” soils at concentrations that exceeded GA PMC:

Volatile Organic Compounds:

- Trichloroethene in boring SB133 (130 µg/kg; GA PMC 100 µg/kg).

5.2.1.2 OHM Detected in “Inaccessible” Soils at Concentrations Exceeding RSR Criteria

The following were detected in “inaccessible” soils at concentrations that exceeded GA PMC:

Volatile Organic Compounds:

- Trichloroethene in boring SB132 (470 µg/kg; GA PMC 100 µg/kg).

5.2.2 Groundwater

Depths to groundwater measured in the eight on-site monitoring wells on December 1, 2011 ranged from 5.01 feet bgs at MW06 to 9.75 feet bgs at MW303. The general direction of groundwater flow is southwest, toward the Quinnipiac River based on limited onsite groundwater elevations. GA groundwater standards are applicable to the Site. Monitoring well locations and exceedances are depicted on Figure 4-2.

The following compounds were detected in groundwater at concentrations that exceeded GPC:

Volatile Organic Compounds:

- Trichloroethene in monitoring wells MW06 (38 µg/l), MW302 (78 µg/l), MW303 (160 µg/l), and MW305 (48 µg/l) (GPC 2 µg/l).
- Vinyl chloride in monitoring well MW06 (2.3 µg/l; GPC 2 µg/l).

Metals:

- Chromium in monitoring wells MW302 (510 µg/l), MW303 (190 µg/l), and MW305 (2,100 µg/l) (GPC 100 µg/l).

The following compounds were detected in groundwater at concentrations that exceeded I/CVC:

Volatile Organic Compounds:

- Vinyl chloride in monitoring well MW06 ((2.3 µg/l; GPC 2 µg/l).

5.3 CONCLUSIONS

The high concentration of chromium, detected in boring SB305, located within the former buried sludge bed in the southwest area of the site is consistent with metals contamination detected during the 2004 DES subsurface investigation. The VOC impacted soil in borings SB132 and SB133 were located south of the building foundation. The 2004 DES subsurface investigation detected VOC contamination in soil in the southern portion of the building in the area of the former degreasing operation and on the southern side of the building in the area of the former solvent storage area. This is also consistent with the ESA soil results. Borings were not advanced below the building foundation, as part of the ESA, however, based on the 2004 DES subsurface investigation; it is assumed that the VOC contaminated soil extends below the foundation. DES estimated that 1,000 tons of metals impacted soil was on the property, including the materials in the sludge lagoon on the southern portion of the property. Additional soil delineation would be required to fully quantify the extent of VOC and metals contamination.

Groundwater contamination consists of trichloroethene in monitoring wells MW06, MW302, MW303, and MW305, vinyl chloride in monitoring wells MW06, and chromium in monitoring wells MW302, MW303, and MW305. All monitoring wells are located on the western and southwestern side of the building foundation. In the 1987 Fuss & O'Neill groundwater report, they concluded that the groundwater quality on site had been impacted by dissolved metals including chromium, nickel, barium, copper, and zinc. The ESA groundwater analytical results only found exceedances for chromium in groundwater at the site.

Groundwater monitoring results in the Fuss & O'Neill report were reported while the facility was still operational, therefore, the reduction in metals concentrations may be due to natural attenuation since the closure of the facility. In the 2004 Subsurface Investigation, DES concluded that two groundwater plumes appeared to be originating on the northwestern and western portions of the property. The plume on the northern portion of the property contained VOC, ETPH, and metals. The plume of the western portion of the property contained VOCs and metals. Both of the plumes appeared to extend in a southwesterly direction on the site and appeared to go off-site. Monitoring well MW302, installed as part of the ESA, is located downgradient and off-site and contained trichloroethene at a concentration of 160 µg/l which was above the CTDEP GPC of 2 µg/l for trichloroethene and chromium at a concentration of 190 µg/l which was above the CTDEP GPC of 100 µg/l for chromium. Groundwater flow is in a southwesterly direction towards the Quinnipiac River. VOC and metals groundwater contamination appears to be isolated to the western and southwestern side of the building and following groundwater flow offsite towards the Quinnipiac River. Additional downgradient monitoring wells should be installed to assess the extent of the off-site groundwater plume and if it is impacting the Quinnipiac River.

6.0 RECOMMENDATIONS

This section presents recommendations for further actions that should be taken at the Site to facilitate its beneficial reuse. Collection of additional soil and groundwater samples from the Site is recommended to help determine the horizontal and vertical extent of contamination and quantify VOC and metals impacted soil quantities. Additional actions include removal of building debris, demolition of remaining structures, and delineation of the extent of offsite groundwater contamination. Estimates of soil quantities, building debris, and demolition quantities are estimated based on available information and should not be used for design purposes.

6.1 ADDITIONAL SOIL AND GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

The sampling and analysis of soil and groundwater performed at the site by Etech should be considered an initial investigation that is equivalent to a Phase II investigation under the CTDEP Draft Site Characterization Guidance Document (Guidance Document, CTDEP, 2000), since the level of effort required to completely evaluate the vertical and horizontal extent of soil and groundwater, which is required by the Guidance Document to demonstrate that a Site has been remediated according to the RSRs, is beyond the scope of this ESA investigation.

Etech detected soil contamination exceeding applicable RSR criteria in samples of accessible and inaccessible soil collected from soil borings SB132, SB133, SB134, SB301, and SB305. The locations of these borings are depicted on Figure 4-1. Recommended soil boring and soil sample collection and analysis are as follows:

- Three shallow (0 to 4 feet bgs) soil borings and collection of samples of accessible soils in the vicinity of the former acid/solvent storage area and soil borings SB132 and SB133. Two samples should be collected per boring. These samples should be analyzed for VOCs;
- Two deep (0 to 12 feet bgs) soil borings in the vicinity of the former acid/solvent storage area and soil boring SB132 and SB133. Four soil samples from above the water table should be analyzed for VOCs. Groundwater monitoring wells should be installed in these borings and groundwater samples collected for VOC analysis;
- Three shallow (0 to 4 feet bgs) soil borings and collection of samples of accessible soils in the vicinity of the former buried sludge lagoon and soil boring SB305. Two samples per boring should be collected. These samples should be analyzed for metals;

- Two deep (0 to 12 feet bgs) soil borings and collection of samples of accessible soils in the vicinity of soil boring SB305. Four soil samples should be collected. These samples should be analyzed for VOCs;
- Groundwater sampling round for the eight existing onsite monitoring wells for VOC, SVOC, and metals analysis.

Costs for drilling, monitoring well installation, labor and analysis associated with these recommendations are presented in Section 7.0. If this investigation does not completely delineate the extent of soil and groundwater contamination, additional investigation may be required to close data gaps.

6.2 PHASE III REPORT

The CTDEP guidance document requires that a Phase III report achieve the following objectives:

- A description of each release area
- Result in an understanding of Site environmental conditions that control migrations of substances from the release environmental receptors
- Describe the extent of soil and groundwater contamination in three dimensions
- Describe how the distribution of contamination may change with time
- Describe the effect the distribution of contamination may have on human health and the environment;
- Describe how environmental conditions associated with each release related to RSTR criteria
- Develop an understanding of the affected environmental system sufficiently to develop remedial options;
- Provide the data and rationale necessary to support conclusions.

The Phase III report should also further expand on the Conceptual Site Model developed in Phases I and II. The following elements should be incorporated into the CSM:

- Soil characterization data, including the location and nature of artificial fills and delineation of soil horizons that may affect pollution migration;
- Groundwater hydrostratigraphy and hydrogeology including delineation of vertical flow and flow along preferential pathways;
- The surface character of the site as it may affect recharge or potential migration of volatile gases;
- The groundwater regional setting and potential influenced of flow direction

- Other environmental media that may be affected by the release;
- The nature of the pollutants identified at the Site including the solubility, volatility, degradability, breakdown products, and transport mechanisms;
- Potential migration pathways cross medial transfer and preferential pathways migration
- Potential receptors including humans, biota, surface water, water supply wells and basements of buildings.

The Guidance Document requires that the Phase III report present the environmental data as a whole. The presentation should address how the data validates the hypothesis of the CSM regarding the environmental fate of the released pollutants. Typical elements of a Phase III report are as follows:

- The Environmental setting and identified releases discussed in the context of the CSM;
- A brief summary of investigation objectives activities and protocols;
- Presentation of data and identification of the extent of pollution for each release and each environmental medium including maps, cross sections and summary tables;
- Data evaluation and discussion of the consistency of data in terms of the CSDM, with identification of assumptions and rational for conclusions;
- Conclusions regarding site environmental conditions, with delineation of pollution exceeding applicable criteria and recommendations for remedial action as appropriate;
- Appendices with supporting data and field notes.

6.3 SOIL REMOVAL AND OFFSITE DISPOSAL

In the 2004 Subsurface Investigation, DES estimated that 1,000 tons of metals impacted soil was on the property, including the materials in the sludge lagoon on the southern portion of the property. Further delineation described in Section 6.1 is required to more accurately quantify this total number. As part of the soil removal, it is recommended that the catch basin and discharge line be removed and capped to prevent residual metals contamination inside from being released. Toxicity Leaching Characteristic Procedure (TCLP) samples would be required to determine if the soil is hazardous and requires disposal at a RCRA Subtitle C facility or is non-hazardous and may be disposed of offsite at a RCRA Subtitle D facility.

6.4 BUILDING DEBRIS REMOVAL AND BUILDING DEMOLITION

For the site to be redeveloped as commercial/industrial space, it is recommended that the building debris currently located on the building foundation due to the building fire (brick, concrete, wood, metal debris) be removed and disposed of offsite. An asbestos and lead paint survey of the material should be

conducted to determine if there is asbestos-containing materials (ACM) and/or lead paint present due to the age of the building. If no ACM or lead paint are present, the material may be approved for offsite disposal as construction debris. If ACM or lead paint are present, offsite at an appropriate facility (based on concentrations, quantities, etc.) will be required.

Due to the poor condition of the three storage sheds, and the concrete block house southwest of the building foundation, it is recommended that they be demolished and disposed offsite as well. The 10,000 gallon above ground fuel oil tank in the concrete block house will need to be emptied and cleaned prior to removal for offsite disposal.

6.5 OFFSITE GROUNDWATER MONITORING WELL INSTALLATION

Due to the high concentration of trichloroethene and chromium in the off-site, downgradient monitoring well MW302, two additional offsite monitoring wells should be installed. The two monitoring wells should be installed southwest of monitoring well MW302 following the southwesterly groundwater flow direction towards the Quinnipiac River. Monitoring well MW302 and the two newly installed monitoring wells should be sampled for VOCs and metals.

7.0 PRELIMINARY COST ESTIMATES

Etech developed the following preliminary “order-of-magnitude” cost estimates for implementing the recommendations presented in Section 6.0. The proposed and/or recommended investigations and associated cost estimates may change if additional information on the nature and extent of contamination at the Site becomes available. It is noted that these estimates should not be interpreted as precise costs for procuring consulting services. For order of magnitude cost estimating purposes, 1,000 tons of soil excavation and offsite disposal was used. Pricing for offsite disposal at both a RCRA Subtitle C and D facility area presented. For cost estimating purposes, 3,000 tons of building debris was used, including the demolished outbuildings. “Order-of-magnitude” estimates costs for implementing each of the considered remedial action alternatives are as follows:

Estimated Cost for Phase III Investigation and Report:	\$98,600
Estimated Cost for Soil Removal (RCRA Subtitle C):	\$482,000
Estimated Cost for Soil Removal (RCRA Subtitle D):	\$302,000
Estimated Cost for Building Demolition and Disposal (construction debris):	\$149,500
Estimated Cost for Building Demolition and Disposal (ACM/lead painting containing):	\$269,500
Estimate Cost for Offsite Monitoring Well Installation/Sampling:	\$12,200
 Total Order-of-Magnitude Cost Range:	 \$562,300 - \$862,300

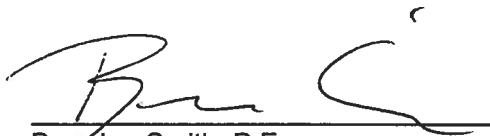
Determination if soil is hazardous (RCRA Subtitle C) or non-hazardous (RCRA Subtitle D) and if building debris contains ACM/lead paint or not will be determined by waste characterization samples and asbestos/lead paint survey. Both costs are presented above for comparison purposes. Tables 7-1 provide a more detailed summary of estimated costs for implementing the recommended additional investigation activities. Additional details to support the “order-of-magnitude” cost estimates for the recommendations are presented in Appendix F.

8.0 QUALIFICATIONS AND STATEMENT OF ENVIRONMENTAL PROFESSIONAL

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR Section 312.10.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

The Qualifications of the Environmental Professional or Professionals who conducted the Phase II Environmental Site Assessment are set out on Appendix G attached hereto.

A handwritten signature in black ink, appearing to read 'Brandon Smith', is written over a horizontal line.

Brandon Smith, P.E.
Project Manager

TABLES

TABLE 1-1
SUMMARY OF FUSS O'NEILL 1987 GROUNDWATER STUDY
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 1 OF 3

Sample Location				MW100											
Sample Collection Date				7/84	10/84	1/85	4/85	10/85	1/86	4/86	7/86	10/86	1/87	4/87	7/87
	Reporting														
Parameter	Units	GWPC	SWPC												
Metals															
Arsenic	mg/l	0.05	0.004	0.05 U	0.05 U	0.05 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	mg/l	1	NC	0.16	0.37	2.5	0.05	0.14	0.1	0.06	0.16	0.22	0.01 U	0.10 U	0.10 U
Cadmium	mg/l	0.005	0.006	0.01 U	0.02	0.003 U	0.001 U	0.001 U	0.001	0.01 U	0.01 U	0.01 U	0.01	0.01 U	0.01 U
Chromium	mg/l	0.05	0.11	0.16	0.26	0.34	0.14	0.19	0.15	0.01 U	0.02	0.01	0.04	0.13	0.05
Copper	mg/l	1.3	0.048	0.14	0.05	0.59	0.04	0.007	0.003	0.17	0.08	0.11	0.16	0.01 U	0.01
Iron	mg/l	NC	NC	0.02 U	12.4	192	0.09	0.22	0.24	0.28	0.68	2.16	0.03 U	0.03 U	0.03 U
Lead	mg/l	0.015	0.013	0.01 U	0.05	0.3	0.01 U	0.01 U	0.01 U	0.01	0.01 U	0.02	0.01 U	0.01 U	0.01
Mercury	mg/l	0.002	0.0004	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	mg/l	0.1	0.88	0.02	0.09	0.73	0.004 U	0.02	0.008	0.01 U	0.01	0.01 U	0.01	0.02	0.01 U
Silver	mg/l	0.036	0.012	0.01 U	0.003 U	0.006	0.001 U	0.001 U	0.001 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	mg/l	5	0.123	0.1	0.14	0.51	0.008	0.004	0.005	0.01 U	0.06	0.11	0.07	0.26	0.37
Cyanide	mg/l	0.2	0.052	NA	0.02	0.02	0.02	0.29	0.02	0.1	0.17	0.01 U	0.12	0.01 U	0.09

Notes:

mg/l - milligrams per liter

GWPC - CTDEP Groundwater Protection Criteria

SWPC - CTDEP Surface Water Protection Criteria

TABLE 1-1
SUMMARY OF FUSS O'NEILL 1987 GROUNDWATER STUDY
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 2 OF 3

Sample Location				MW101											
Sample Collection Date				7/84	10/84	1/85	4/85	10/85	1/86	4/86	7/86	10/86	1/87	4/87	7/87
	Reporting														
Parameter	Units	GWPC	SWPC												
Metals															
Arsenic	mg/l	0.05	0.004	0.05 U	0.05 U	NA	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	mg/l	1	NC	0.16	0.12	0.03	0.04	0.11	0.09	0.14	0.24	0.12	0.01 U	0.10 U	0.01 U
Cadmium	mg/l	0.005	0.006	0.01 U	0.001	0.003 U	0.001 U	0.001 U	0.001	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Chromium	mg/l	0.05	0.11	0.15	0.27	0.27	0.22	0.37	0.29	0.01 U	0.01 U	0.01 U	0.03	0.22	0.14
Copper	mg/l	1.3	0.048	0.1	0.04	0.08	0.01	0.01	0.002	0.32	0.16	0.17	0.28	0.01 U	0.01 U
Iron	mg/l	NC	NC	0.02 U	0.59	8.36	0.18	0.07	0.32	0.08	0.16	0.89	0.03 U	0.03 U	0.03 U
Lead	mg/l	0.015	0.013	0.01 U	0.05	0.03 U	0.01	0.01	0.01	0.06	0.01	0.03	0.01 U	0.01 U	0.01 U
Mercury	mg/l	0.002	0.0004	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002	0.001 U
Nickel	mg/l	0.1	0.88	0.01 U	0.01 U	0.02	0.005	0.01 U	0.009	0.01	0.01	0.01 U	0.01	0.01 U	0.02
Silver	mg/l	0.036	0.012	0.01 U	0.003 U	0.004 U	0.001 U	0.001 U	0.001 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02	0.01 U
Zinc	mg/l	5	0.123	0.13	0.08	0.14	0.01	0.004	0.04	0.02	0.08	0.02	0.05	0.09	0.19
Cyanide	mg/l	0.2	0.052	0.002	0.01 U	0.06	0.01 U	0.15	0.03	0.02	0.03	0.01 U	0.03	0.01 U	0.04

Notes:

mg/l - milligrams per liter

GWPC - CTDEP Groundwater Protection Criteria

SWPC - CTDEP Surface Water Protection Criteria

TABLE 1-1
SUMMARY OF FUSS O'NEILL 1987 GROUNDWATER STUDY
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 3 OF 3

Sample Location				MW102											
Sample Collection Date				7/84	10/84	1/85	4/85	10/85	1/86	4/86	7/86	10/86	1/87	4/87	7/87
	Reporting														
Parameter	Units	GWPC	SWPC												
Metals															
Arsenic	mg/l	0.05	0.004	0.05 U	0.05 U	NA	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	mg/l	1	NC	0.1	0.13	0.17	0.03	0.09	0.07	0.09	0.13	0.09	0.01 U	0.10 U	0.84
Cadmium	mg/l	0.005	0.006	0.01 U	0.001 U	0.003 U	0.001 U	0.001 U	0.001 U	0.01 U	0.01 U	0.01 U	0.01	0.01 U	0.01 U
Chromium	mg/l	0.05	0.11	0.01 U	0.02	0.27	0.006	0.004	0.002	0.01 U	0.01 U	0.03	0.03	0.01 U	0.02
Copper	mg/l	1.3	0.048	0.08	0.03	0.08	0.02	0.01	0.003	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1
Iron	mg/l	NC	NC	0.02 U	2.55	8.36	0.09	0.05	0.02	0.08	0.1	0.19	0.03 U	0.06	0.07
Lead	mg/l	0.015	0.013	0.03	0.04 U	0.03 U	0.01 U	0.01 U	0.01 U	0.01	0.01 U	0.04	0.01 U	0.01 U	0.01
Mercury	mg/l	0.002	0.0004	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	mg/l	0.1	0.88	0.01 U	0.01	0.03	0.004 U	0.01 U	0.006	0.01	0.01	0.01 U	0.01	0.01 U	0.01 U
Silver	mg/l	0.036	0.012	0.01 U	0.003 U	0.004 U	0.001 U	0.001 U	0.001 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	mg/l	5	0.123	0.03	0.07	0.02	0.02	0.01	0.02	0.06	0.11	0.09	0.03	0.06	0.11
Cyanide	mg/l	0.2	0.052	0.002	0.05	0.001 U	0.001 U	0.1	0.05	0.01 U	0.05	0.01 U	0.03	0.17	0.12

Notes:

mg/l - milligrams per liter

GWPC - CTDEP Groundwater Protection Criteria

SWPC - CTDEP Surface Water Protection Criteria

TABLE 1-2
SUMMARY OF 1996 DIVERSIFIED ENVIRONMENTAL SERVICES SUBSURFACE INVESTIGATION
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 1 OF 4

Sample ID				SB-100	SB-101	SB-102	SB-103	SB-104	SB-105	SB-106	SB-107	SB-108
Sample Interval (feet)				0-2	0-2	6-Apr	0-2	0-2	0-2	2-4	2-4	0-2
Comments												
Parameter	Reporting											
	Units	I/C DEC	GA PMC									
Volatile Organic Compounds												
Trichloroethene	mg/kg	520	0.1	0.034	0.13	0.065	0.022	0.016	NS	NS	NS	9.3
Tetrachloroethylene	mg/kg	110	0.1	0.034	0.42	1.7	0.027	0.043	NS	NS	NS	1.3
Metals												
SPLP Chromium	mg/l	NC	0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS
SPLP Lead	mg/l	NC	0.015	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

mg/Kg - milligrams per kilogram

I/C DEC - CTDEP Industrial/Commerical Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

NS - not sampled

ND - not detected

TABLE 1-2
SUMMARY OF 1996 DIVERSIFIED ENVIRONMENTAL SERVICES SUBSURFACE INVESTIGATION
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 2 OF 4

Sample ID				SB-109	SB-111	SB-112	SB-113	SB-114	SB-115	SB-116	SB-117	SB-118
Sample Interval (feet)				0-2	0-2	4-6	4-6	0-2	4-6	2-4	0-2	0-2
Comments												
Parameter	Reporting											
	Units	I/C DEC	GA PMC									
Volatile Organic Compounds												
Trichloroethene	mg/kg	520	0.1	0.071	0.11	0.15	ND	NS	NS	NS	NS	NS
Tetrachloroethylene	mg/kg	110	0.1	ND	ND	ND	ND	NS	NS	NS	NS	NS
Metals												
SPLP Chromium	mg/l	NC	0.05	NS	NS	NS	NS	0.052	0.007	0.028	0.113	0.187
SPLP Lead	mg/l	NC	0.015	NS	NS	NS	NS	0.022	ND	0.008	0.051	ND

Notes:

mg/Kg - milligrams per kilogram

I/C DEC - CTDEP Industrial/Commercial Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

NS - not sampled

ND - not detected

TABLE 1-2
SUMMARY OF 1996 DIVERSIFIED ENVIRONMENTAL SERVICES SUBSURFACE INVESTIGATION
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 3 OF 4

Sample ID				SB-119	SB-120	SB-121	SB-122	SB-123	SB-124	SB-125	SB-126	SB-127
Sample Interval (feet)				0-2	4-6	4-6	0-2	0-2	0-2	0-2	0-2	0-2
Comments												
Parameter	Reporting											
	Units	I/C DEC	GA PMC									
Volatile Organic Compounds												
Trichloroethene	mg/kg	520	0.1	NS	NS	NS	NS	NS	NS	NS	0.13	ND
Tetrachloroethylene	mg/kg	110	0.1	NS	NS	NS	NS	NS	NS	NS	ND	ND
Metals												
SPLP Chromium	mg/l	NC	0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS
SPLP Lead	mg/l	NC	0.015	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

mg/Kg - milligrams per kilogram

I/C DEC - CTDEP Industrial/Commerical Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

NS - not sampled

ND - not detected

TABLE 1-2
SUMMARY OF 1996 DIVERSIFIED ENVIRONMENTAL SERVICES SUBSURFACE INVESTIGATION
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 4 OF 4

Sample ID				MW-202	MW-206
Sample Interval (feet)				10-12	7-9
Comments					
	Reporting				
Parameter	Units	I/C DEC	GA PMC		
Volatile Organic Compounds					
Trichloroethene	mg/kg	520	0.1	0.078	0.01
Tetrachloroethylene	mg/kg	110	0.1	ND	NS
Metals					
SPLP Chromium	mg/l	NC	0.05	NS	NS
SPLP Lead	mg/l	NC	0.015	NS	NS

Notes:

mg/Kg - milligrams per kilogram

I/C DEC - CTDEP Industrial/Commerical Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

NS - not sampled

ND - not detected

TABLE 4-1
SUMMARY OF ORGANIC VAPORS DETECTED BY JAR HEADSPACE SCREENING
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

Organic Vapor Concentration (ppmv)															
Depth (bgs)	Boring SB128	Boring SB129	Boring SB130	Boring SB131	Boring SB132	Boring SB133	Boring SB200A	Boring SB301	Boring SB302	Boring SB303	Boring SB304	Boring SB305	Boring SB306	Boring SB307	Boring SB308
0-2	1.4	10.7	7.4	0.6	11.5	0.8	0.3	1.2	0.8	0.4	2.0	1.1	2.1	0.5	0.8
2-4	0.6	19.1	1.7	0.6	23.5	0.7	0.7	3.7	0.3	1.5	NR	0.6	NR	NR	0.7
4-6	NR	4.6	30	1.2	5.1	0.5	0.8	2.1	0.2	0.1	18	0.9	0.6	0.4	0.8
6-8	NR	1.6	27	NR	3.3	0.4	0.5	61.3	0.9	1.0	17	0.4	0.7	0.2	0.5
8-10	0.8	1.5	54	1.4	3.6	EOB	0.4	EOB	1.2	0.8	17.6	0.5	0.8	5.1	0.8
10-12	0.4	1.5	26	1.8	25.3		0.7		0.6	0.7	4.5	2.0	3.3	1.7	0.8
12-14	EOB	EOB	EOB	1.6	EOB		EOB		EOB	EOB	EOB	EOB	EOB	EOB	EOB
14-16				1.4											
16-18				EOB											

Notes:

bgs – below ground surface

ppmv – parts per million by volume

NR - No Recovery

EOB - End of Boring

TABLE 4-2
SOIL ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 1 OF 5

Sample ID				BC-SO-SB128-0002	BC-SO-SB129-0204	BC-SO-SBDUP01	BC-SO-SB130-0810
Sampled By							
Sample Collection Date				11/28/2011	11/28/2011	11/28/2011	11/28/2011
Sample Interval							
Comments							
	Reporting						
Parameter	Units	I/C DEC	GA PMC				
Volatile Organic Compounds							
Trichloroethene	ug/Kg	520000	100	74	5.6	3.5	31
Metals							
Chromium	mg/Kg	100	NA*	12	6	7.2	25

Notes:

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

* - GA PMC for metals is based on SPLP analysis, which was not performed as part of the ESA.

I/C DEC - CTDEP Industrial/Commercial Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

TABLE 4-2
SOIL ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 2 OF 5

Sample ID				BC-SO-SB131-1012	BC-SO-SB132-1012	BC-SO-SB133-0002	BC-SO-SB200A-0406
Sampled By							
Sample Collection Date				11/28/2011	11/28/2011	11/28/2011	11/29/2011
Sample Interval							
Comments							
	Reporting						
Parameter	Units	I/C DEC	GA PMC				
Volatile Organic Compounds							
Trichloroethene	ug/Kg	520000	100	10	470	130	< 2.6
Metals							
Chromium	mg/Kg	100	NA*	22	17	7.9	6

Notes:

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

* - GA PMC for metals is based on SPLP analysis, which was not performed as par

I/C DEC - CTDEP Industrial/Commerical Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

TABLE 4-2
SOIL ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 3 OF 5

Sample ID				BC-SO-SB301-0608	BC-SO-SB302-0810	BC-SO-SB303-0204	BC-SO-SB304-0406
Sampled By							
Sample Collection Date				11/28/2011	11/28/2011	11/28/2011	11/29/2011
Sample Interval							
Comments							
	Reporting						
Parameter	Units	I/C DEC	GA PMC				
Volatile Organic Compounds							
Trichloroethene	ug/Kg	520000	100	< 160	< 2.4	< 2.7	< 2.0
Metals							
Chromium	mg/Kg	100	NA*	16	14	9.8	44

Notes:

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

* - GA PMC for metals is based on SPLP analysis, which was not performed as par

I/C DEC - CTDEP Industrial/Commerical Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

TABLE 4-2
SOIL ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 4 OF 5

Sample ID				BC-SO-SB305-0203	BC-SO-SB305-1012	BC-SO-SB306-1012	BC-SO-SB307-0810
Sampled By							
Sample Collection Date				11/29/2011	11/29/2011	11/29/2011	11/29/2011
Sample Interval							
Comments							
	Reporting						
Parameter	Units	I/C DEC	GA PMC				
Volatile Organic Compounds							
Trichloroethene	ug/Kg	520000	100	< 3.2	< 2.2	12	10
Metals							
Chromium	mg/Kg	100	NA*	9700	79	19	36

Notes:

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

* - GA PMC for metals is based on SPLP analysis, which was not performed as per

I/C DEC - CTDEP Industrial/Commercial Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

TABLE 4-2
SOIL ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 5 OF 5

Sample ID				BC-SO-SB308-1012
Sampled By				
Sample Collection Date				11/29/2011
Sample Interval				
Comments				
	Reporting			
Parameter	Units	I/C DEC	GA PMC	
Volatile Organic Compounds				
Trichloroethene	ug/Kg	520000	100	4.9
Metals				
Chromium	mg/Kg	100	NA*	21

Notes:

mg/Kg - milligrams per kilogram

ug/Kg - micrograms per kilogram

* - GA PMC for metals is based on SPLP analysis, which was not performed as par

I/C DEC - CTDEP Industrial/Commerical Direct Exposure Criteria

GA PMC - CTDEP Groundwater Classification GA Pollutant Mobility Criteria

TABLE 4-3
GROUNDWATER ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 1 OF 3

Sample ID					BC-GW-MW06-120111	BC-GW-MWDUP01-120111	BC-GW-MW25-120111
Sample Location					MW06	MW06	MW25
Sample Collection Date					12/1/2011	12/1/2011	12/1/2011
Identifier					Field Duplicate	Field Duplicate	
	Reporting						
Parameter	Units	GWPC	SWPC	I/C VC			
Volatiles Organic Compounds							
Trichloroethene	ug/L	5	2340	540	38	32	1 U
Vinyl chloride	ug/L	2	15750	2	2.3	2	0.5 U
Metals							
Chromium	ug/L	100	NC	NC	8.9	8.5	5 U

Notes:

ug/L - micrograms per liter

NC = Criteria has not been established

GWPC - CTDEP Groundwater Protection Criteria

SWPC - CTDEP Surface Water Protection Criteria

I/C VC - CTDEP Industrial/Commerical Volitization Criteria

U - Concentration below laboratory detection limit

TABLE 4-3
GROUNDWATER ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 2 OF 3

Sample ID					BC-GW-MW200A-120111	BC-GW-MW301-120111	BC-GW-MW302-120111
Sample Location					MW200A	MW301	MW302
Sample Collection Date					12/1/2011	12/1/2011	12/1/2011
Identifier							
Parameter	Reporting Units	GWPC	SWPC	I/C VC			
Volatiles Organic Compounds							
Trichloroethene	ug/L	5	2340	540	1 U	1 U	78
Vinyl chloride	ug/L	2	15750	2	0.5 U	0.5 U	0.5 U
Metals							
Chromium	ug/L	100	NC	NC	5 U	24	510

Notes:

ug/L - micrograms per liter

NC = Criteria has not been established

GWPC - CTDEP Groundwater Protection Criteria

SWPC - CTDEP Surface Water Protection Criteria

I/C VC - CTDEP Industrial/Commerical Volitization Criteria

U - Concentration below laboratory detection limit

TABLE 4-3
GROUNDWATER ANALYTICAL RESULTS EXCEEDING CTDEP CRITERIA
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT
PAGE 3 OF 3

Sample ID					BC-GW-MW303-120111	BC-GW-MW304-120111	BC-GW-MW305-120111
Sample Location					MW303	MW304	MW305
Sample Collection Date					12/1/2011	12/1/2011	12/1/2011
Identifier							
	Reporting						
Parameter	Units	GWPC	SWPC	I/C VC			
Volatiles Organic Compounds							
Trichloroethene	ug/L	5	2340	540	160	1 U	48
Vinyl chloride	ug/L	2	15750	2	5 U	0.5 U	0.5 U
Metals							
Chromium	ug/L	100	NC	NC	190	5 U	2100

Notes:

ug/L - micrograms per liter

NC = Criteria has not been established

GWPC - CTDEP Groundwater Protection Criteria

SWPC - CTDEP Surface Water Protection Criteria

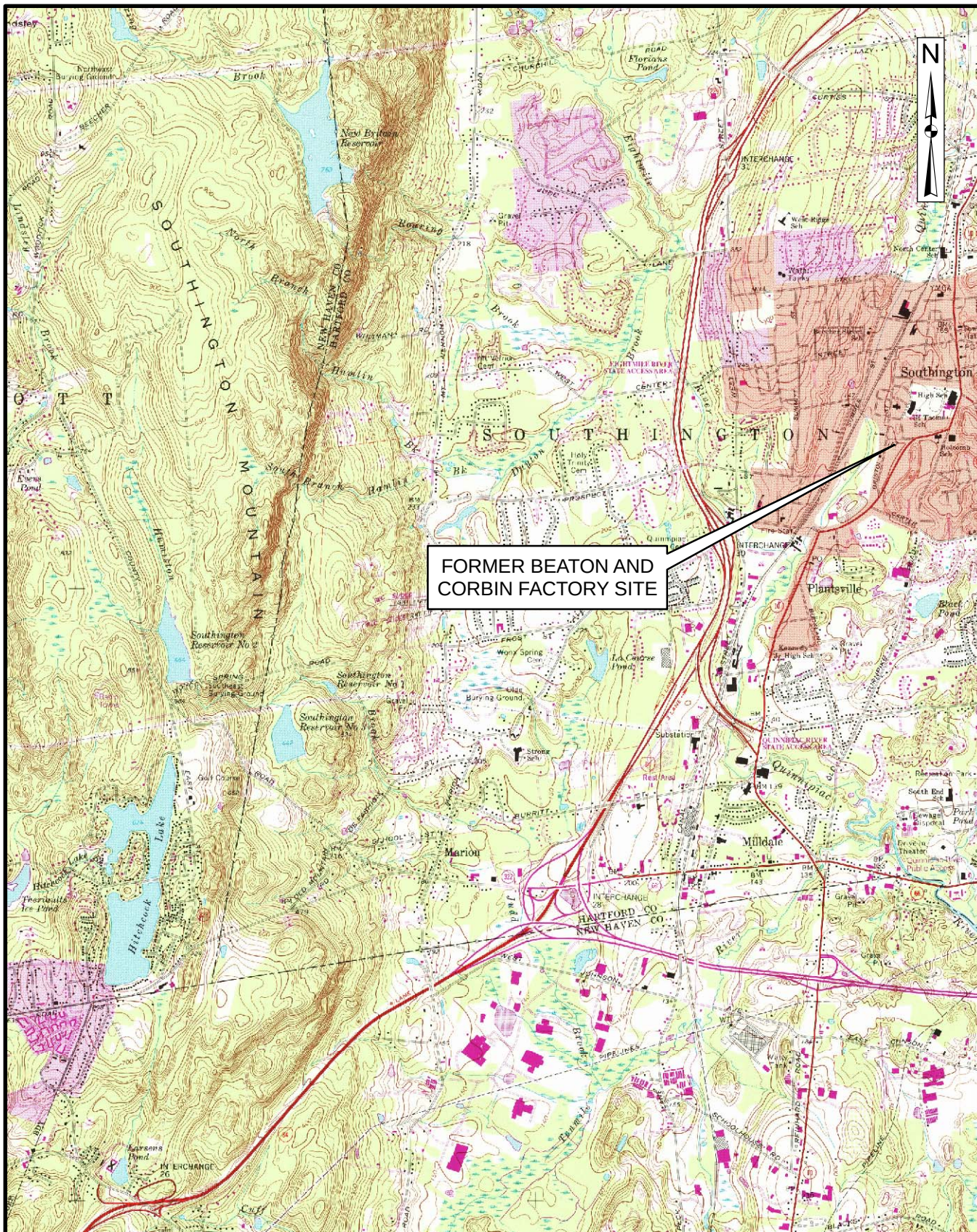
I/C VC - CTDEP Industrial/Commerical Volitization Criteria

U - Concentration below laboratory detection limit

TABLE 7-1
ORDER-OF-MAGNITUDE COST ESTIMATE
ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

COST SUMMARY TABLE - PHASE III INVESTIGATION (costs rounded to nearest \$100)	
Total Cost for Phase III Investigation	\$98,600
Total Cost for Soil Removal and Disposal (RCRA Subtitle C)	\$482,000
Total Cost for Soil Removal and Disposal (RCRA Subtitle D)	\$302,000
Total Cost for Building Debris Removal and Disposal (Construction Debris)	\$149,500
Total Cost for Building Debris Removal and Disposal (ACM/Lead Paint Containing)	\$269,500
Total Cost for Building Debris Removal and Disposal (ACM/Lead Paint Containing)	\$12,200

FIGURES



TETRA TECH

SITE LOCATION
FORMER BEATON AND CORBIN FACTORY SITE
 US EPA – BROWNFIELDS
 SOUTHINGTON, CT

SCALE
 AS NOTED

FILE

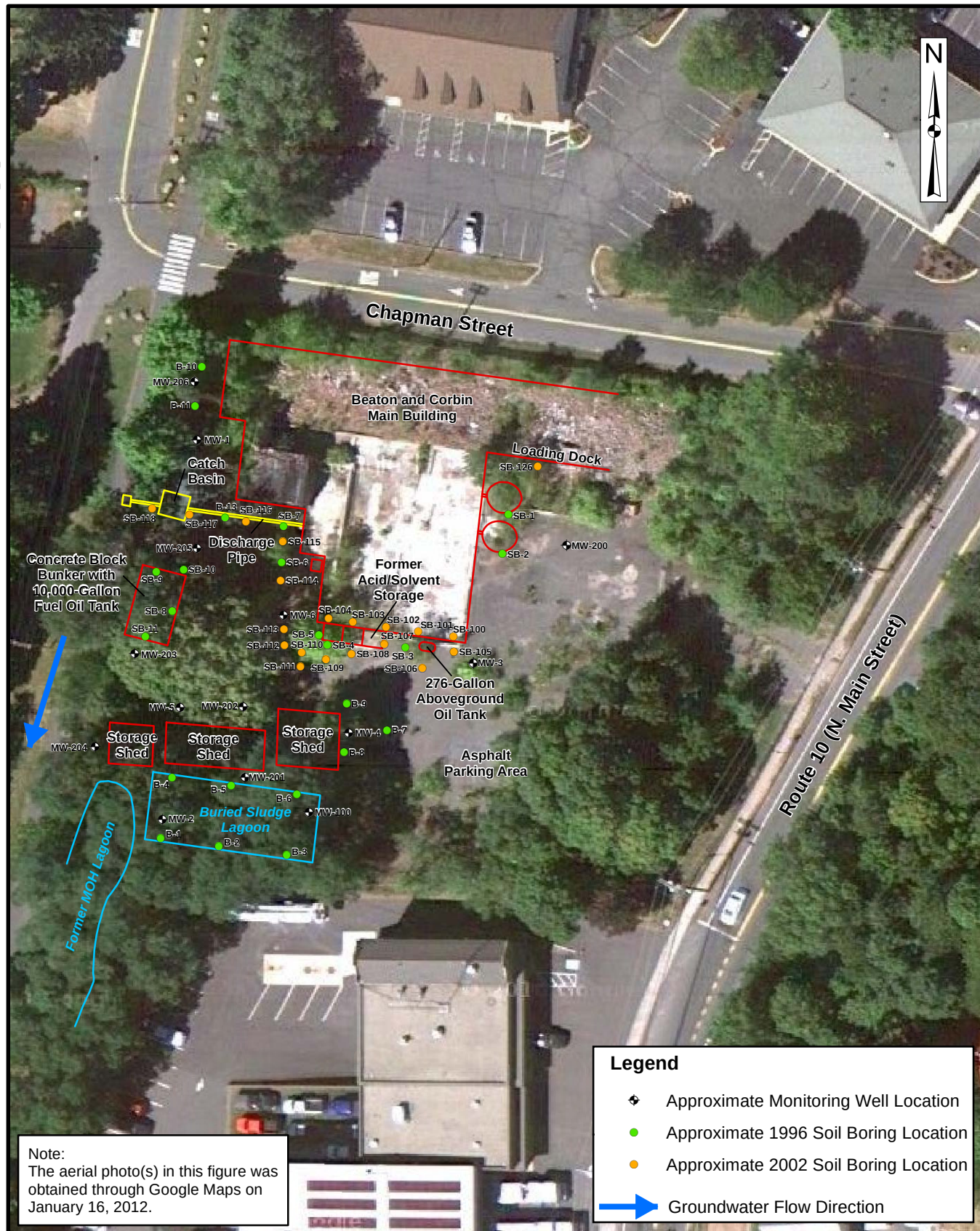
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REV DATE

0 01/16/12

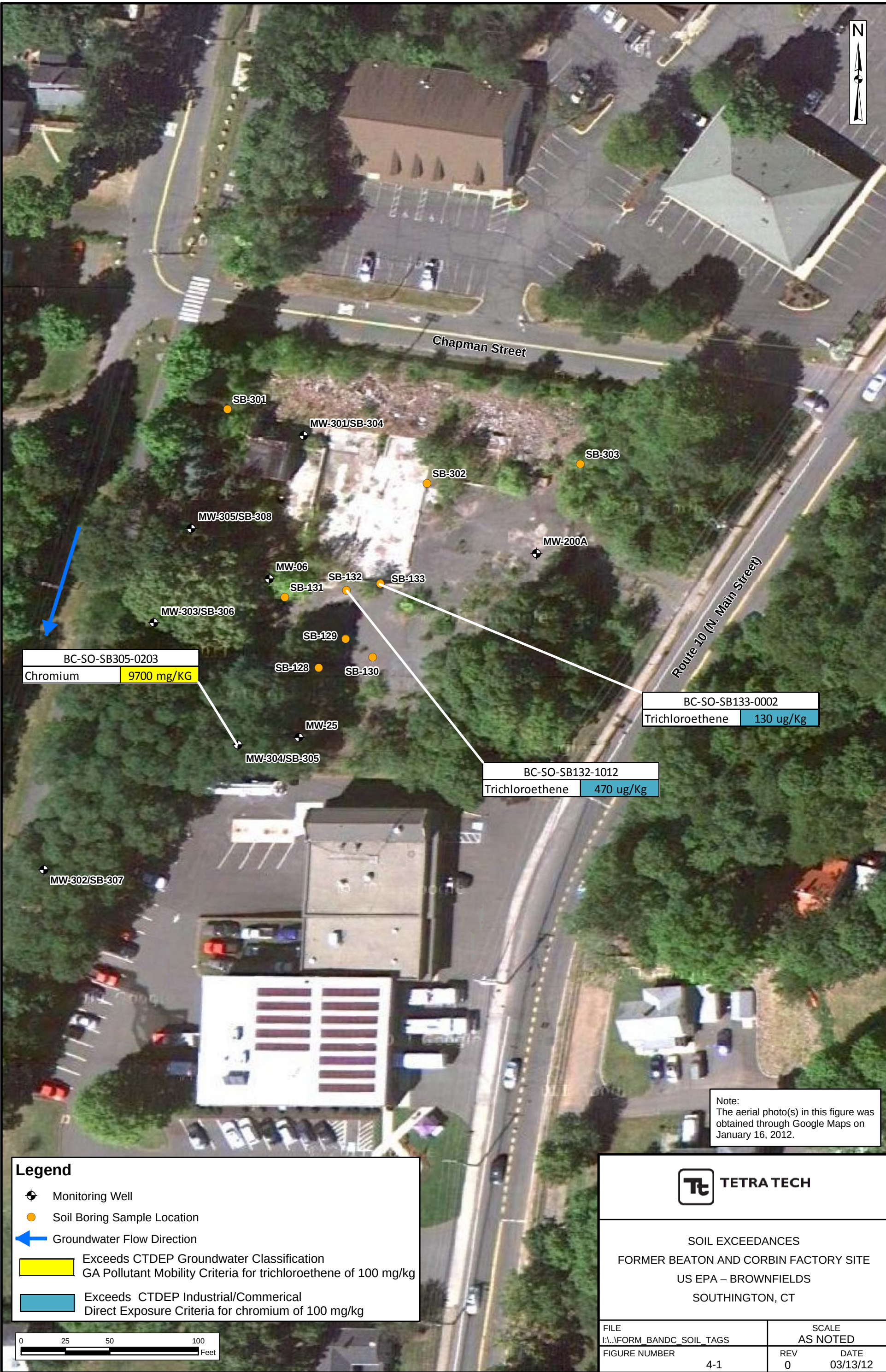
FIGURE NUMBER

1-1



HISTORICAL SAMPLE LOCATIONS
FORMER BEATON AND CORBIN FACTORY SITE
US EPA – BROWNFIELDS
SOUTHINGTON, CT

SCALE AS NOTED	
FILE I:\03559\03\FORM_BANDC_GW_FLOW.MXD	
REV 0	DATE 03/12/12
FIGURE NUMBER 1-2	



Chapman Street

Route 10 (N. Main Street)

BC-SO-SB305-0203	
Chromium	9700 mg/KG

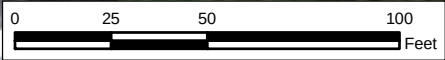
BC-SO-SB133-0002	
Trichloroethene	130 ug/Kg

BC-SO-SB132-1012	
Trichloroethene	470 ug/Kg

Note:
The aerial photo(s) in this figure was
obtained through Google Maps on
January 16, 2012.

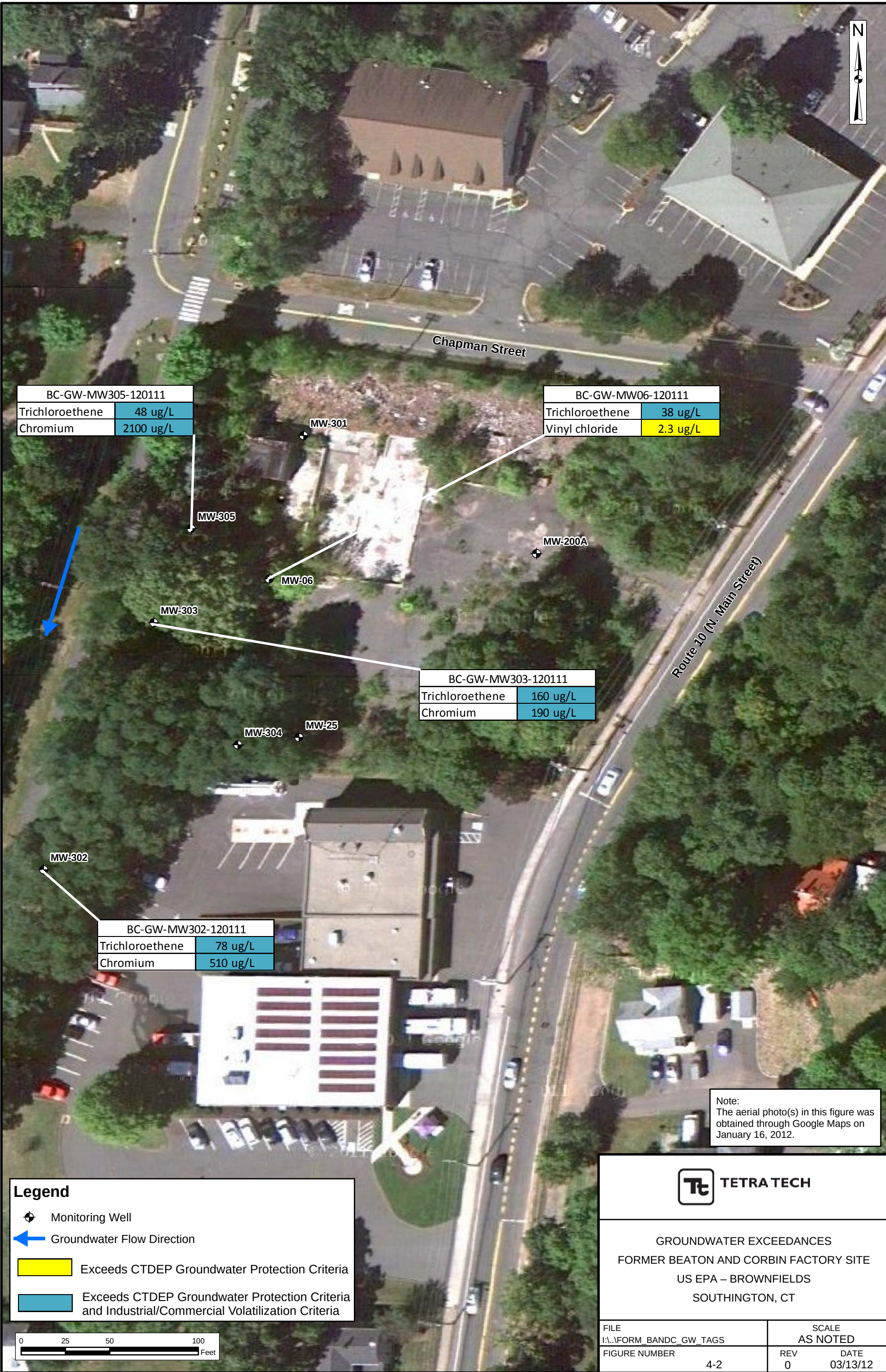
Legend

- Monitoring Well
- Soil Boring Sample Location
- Groundwater Flow Direction
- Exceeds CTDEP Groundwater Classification
GA Pollutant Mobility Criteria for trichloroethene of 100 mg/kg
- Exceeds CTDEP Industrial/Commerical
Direct Exposure Criteria for chromium of 100 mg/kg



SOIL EXCEEDANCES
FORMER BEATON AND CORBIN FACTORY SITE
US EPA – BROWNFIELDS
SOUTHINGTON, CT

FILE I:\FORM_BANDC_SOIL_TAGS	SCALE AS NOTED
FIGURE NUMBER 4-1	REV 0
	DATE 03/13/12



REFERENCES

REFERENCES

CTDEP, January 1996. Remediation Standard Regulations. Section 22a-133k-l of the Regulations of Connecticut State Agencies.

CTDEP, 2000. Draft Site Characterization Guidance Document.

CTDEP, October 24, 2005. Comprehensive List of Approved Additional Polluting Substances Criteria and Alternate Criteria list of Additional Polluting Substances.

Diversified Environmental Services (DES), May 2002. Phase III Subsurface Investigation Report, Former Beaton and Corbin, 318 North Main Street, Southington, Connecticut.

Etech, September 2011. Brownfields Program Quality Assurance Project Plan Addendum (Addendum 1), City of Southington. Former Beaton and Corbin Factory Site, Southington, CT.

Fuss and O'Neill, September 1, 1987. Beaton & Corbin Manufacturing, Southington, Connecticut Groundwater Report.

HRP Associates, Inc. (HRP), November 7, 1988. Site Assessment Report. Beaton and Corbin Manufacturing Company.

USEPA, September 1993. *Guidance for Evaluating the Technical Impracticality of Groundwater Restoration* USEPA Directive No. 9234.2-25 issued September 1993.

Roy F. Weston, Inc. (Weston), June 13, 1996. EPA Site Assessment, Beaton and Corbin Factory Site.

Weston Solutions, Inc. (Weston), June 2004. Removal Program after Action Report for the Beaton and Corbin Site, Southington, Harford County, Connecticut. 4 December 2003 through 27 April 2004.

Connecticut Brownfield Land Bank, Inc.

BID SCOPE & COST BREAKDOWN

Hazardous Building Materials Assessment

Project Name: Southington

Consultant Name:

Address:

Project Address: 318 North Main ST

Contact Name:

Telephone No.:

Task Description	Method	No. Units (#)	Unit	Unit Cost (\$)	Subtotal (\$)
Preparation of QAPP					
Pipe/tank Insulation					
Boiler insulation					
Heating system gaskets, etc.					
Ceiling tiles					
Ceiling Tile Glue Daubs					
Floor tiles					
Floor tile mastic					
Plaster					
Roof shingles					
Layered roofing, flashing, patches					
Window glazing; caulk					
Window glazing PCB Soxhlet 8082-2					
Lead Paint testing					
Mercury Lamps					
Mercury thermostat ampules					
PCB/DEHP ballasts					
smoke detectors; batteries; exit signs					
AST contents					
UST contents					
Drum contents					
Halogen bulbs					
transformers, fire alarm control panels					
wood floor cores					
concrete floor cores					
on site inspection & sample collection					
additional sample collection					
asbestos bulk sample analysis					
design costs					
Drawing costs					
AWP preparation; approval					
Community meeting					
Final report					
other					
other					
other					
PROPOSED PROJECT TOTAL					