

**DT CONSULTING SERVICES, INC.**

**REMEDIAL INVESTIGATIVE WORK PLAN  
REVISED**

**200 East Main Street  
Mount Kisco, Westchester County, New York  
10549**

**BROWNFIELD CLEANUP PROGRAM (BCP)  
SITE NUMBER C360183**

**October 29, 2021**

**DT CONSULTING SERVICES, INC.**

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## **1.0 INTRODUCTION AND PURPOSE**

This Remedial Investigation (RI) Work Plan has been prepared to satisfy the investigation requirement of the New York State Department of Environmental Conservation (NYSDEC or “Department”) Brownfield Cleanup Program (BCP). The Subject Property, located at 200 East Main Street in the Village of Mount Kisco, Westchester County, New York (heretofore referenced as the Site or Subject Property) has been accepted into the BCP Program (Site Number C360183) as volunteers. A property location map and a Site (base) plan are presented as Figures 1 and 2, respectively. Prior investigation and remedial activities have been conducted on the Site and the results of those investigations were recently submitted to the Department along with the BCP Application. An approved RI Work Plan is required prior to initiating remaining remedial investigation field activities. The expressed purpose of this work is to provide documentation on the characteristics of subsurface soil, soil gas, to document local groundwater quality conditions and direction of groundwater flow, and to provide guidance on the selection and implementation of a Remedial Action program for the Site.

This RI has been prepared to focus upon and address specific source areas of environmental conditions at the above referenced Site. The Site is the location of past chlorinated solvent and petroleum spills, identified in several NYSDEC records. As more fully described in Sections 2 - 4 of this document, chlorinated solvents and petroleum related products have been detected in the subsurface of the property as a result of historical Site use which resulted in the release of hazardous and non-hazardous substances, including volatile organic compounds (VOCs). The past release of hazardous substances at the Site has resulted in:

- A potential threat to human health associated with potential exposure to the subsurface contaminated soils, soil vapor and groundwater.
- A potential environmental threat associated with potential impacts of contaminants to the subsurface soils and groundwater.

The proposed RIWP includes soil, sub-slab soil gas, ambient indoor and outdoor air sampling for targeted compounds along with groundwater monitoring to obtain current data on subsurface conditions on-Site.

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**2.0 SITE INFORMATION**

Located on a regularly shaped 0.273-acre parcel, the Site, known as 200 East Main, LLC, is improved with a +/- 15,035-ft<sup>2</sup> two-story commercial structure which occupies almost the entire footprint of the Subject Property. The remaining portion of the Site, located in the northeastern quadrant, is improved with an approximate 2,500-ft<sup>2</sup> asphalt covered parking area. Based upon available documentation and Site surveys, the building slab is approximately 12 – 14-inches in thickness. At present, the Site houses a shopping center with eight store fronts (note that two of the store fronts are considered off-Site as they are housed outside of the approved BCP Site boundary, see Figure 2). Tenants utilizing space within the Site structure include:

<b>Occupant</b>	<b>Type of Tenant</b>	<b>Floor Location</b>
Prestige Cleaners, LLC	Dry Cleaning Establishment	First Floor
Leicht NY, LLC	Kitchen Cabinetry	First Floor
217 E. Main Street Corp. DBA Le Collage Salon	Hair salon	First Floor
Pick Up Every Stitch	Sewing, Needlework and Piece Good Store	Second Floor
Silver Bread Basket	Food service	Second Floor
Reining Cats & Dogs	Pet day care/Grooming	Second Floor
Two storefronts	Vacant	Both first and second floors

Use of the property for commercial purposes reportedly dates back to the 1970s. The facility was historically registered with the New York State Department of Environmental Conservation (NYSDEC) Petroleum Bulk Storage (PBS) Program until the facility operation was decommissioned in 2002.

The Site is currently active and is zoned for commercial use. The Site is bounded by commercial property in each cardinal direction, with a mixed use (residential/commercial) building located immediately to the north. The nearest residential area is approximately 275-ft to the east along Lundy Lane and therefore, based upon distance and knowledge of historical investigative activities, subsurface impacts detected on-Site likely do not pose a major issue of public concern. Topography is generally level across most of the Site, with a slight decline to the west. Potable water and wastewater disposal are reportedly provided by the Village/Town of Mount Kisco. No groundwater supply wells were observed by representatives of this office during Site inspections and no groundwater supply wells are known to be present or used on adjoining or nearby properties.

Several Site assessments were conducted by various contractors on behalf of historical and present property owners since 2004. As a result of such prior

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investigation activities, an area of potential environmental concern and/or recognized environmental conditions (RECs) associated with the Subject Property is the following:

- Historic Site use as both a PBS facility and a dry cleaning establishment dating back to the 1970s.

### **3.0 OBJECTIVES**

The purpose of the Remedial Investigation at the Site is to further define the extent of on-Site sub-slab soil, soil vapor and indoor air impacts and to quantify current groundwater quality conditions for the purpose of obtaining sufficient data for the selection and design of a Remedial Action Work Plan. Based upon the results of previous investigations, subsurface impacts (attributed to the historic PBS and chlorinated solvent use) have been identified on the Subject Property. Furthermore, the concentrations of detected contaminants within the soil vapor appear to warrant remediation. Existing soil, soil vapor and groundwater data (as documented above) has partially defined the principal contaminant source area, thus additional investigative activities, as described below, are proposed to characterize the complete extent of source area at this time. Anticipated Remedial Actions for the Site include at minimum diagnostic testing and installation of a Sub-slab Depressurization System (SSDS) as an Engineering Control to mitigate vapor intrusion into the Site building. Site investigation activities will consist of the following specific tasks:

- Obtain additional soil quality data from beneath the slab of the Site structure with the installation, sampling and analysis of soil borings;
- Delineate, to the extent possible, the lateral extent of sub-slab soil vapor and indoor air impacts (if present) beneath and within the Site structure;
- Obtain current groundwater quality data with the installation of additional monitoring wells and subsequent sampling and analysis of all on-Site groundwater wells; and
- Identification of specific environmental media, characterization of exposure settings, potential migration pathways and affected receptors.

#### 4.0 PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES

Numerous previous intrusive environmental investigative and remedial activities have been conducted on the Subject Property. Each of these investigations was performed to assess the environmental status of the Site by identifying existing or potential environmental conditions. Remedial activities including subsurface injections of chemical oxidants to treat concentrations of VOCs in Site soil and groundwater were conducted in July 2014. The investigative and remedial activities conducted to date can be referenced in the Site Brownfield Cleanup Program (BCP) Application, dated August 21, 2020.

##### 4.1 Phase 1 Environmental Assessment, July 14, 2004

Merritt Engineering Consultants, P.C. (Merritt) completed a Phase I Environmental Site Assessments (ESA) at the Site in July 2004. The following areas of potential environmental concern and/or "recognized environmental conditions or RECs" were identified and are associated with the Site:

1. The Site was reported as a former PBS facility while in operation as a retail gasoline station. Reportedly, a total of four gasoline underground storage tanks (USTs) were once located beneath the parking lot at the northeast section of the Site. A small (550-gallon) #2 fuel oil UST has also been documented along the rear (west side) of the building exterior. The associated tanks were reportedly decommissioned on-Site in 2002.
2. In addition to PBS, a dry cleaning operation has also been present within the Site building since approximately 1970.
3. The Site was identified on the Leaking Underground Storage Tank or LUST database (LUST # 0203967) According to the database; the spill was reported to NYSDEC on July 16, 2002 and was closed on July 26, 2002. Merritt considered the LUST listing a *Historic Recognized Environmental Condition*.

##### 4.2 Summary Letter, Focused Subsurface Investigation, December 7, 2011

Merritt completed a focused subsurface investigation at the Site in December 2011. The investigation included the collection and analysis of soil and groundwater from various locations across the Site. The primary intent of the investigation was to determine if VOCs were present in subsurface soil or groundwater at reportable or actionable levels within the subsurface environment.

According to the Summary Letter, four historical gasoline USTs that were once located beneath the parking lot at the northeast section of the Site. The ESA indicated that the USTs were removed in 2002.

#### 4.2.1 Findings

A total of three soil borings were advanced at the Site employing a direct push drill rig. A fourth soil boring was advanced using an electric hammer drill. The direct push borings were advanced to a total depth of 10 feet below grade surface (bgs). Soil and groundwater samples were collected from each of the four boring locations and analyzed for VOCs by EPA Method 8260.

Trace to undetected concentrations of Tetrachloroethylene (PCE or PERC) were reported in soil samples. No petroleum-related substances were detected in the soil samples.

The laboratory results have identified clear evidence of a PCE release to groundwater at the Site. The detected concentrations of this substance were considered reportable and actionable by MECC. In addition, VOCs were detected in the samples that are related to the breakdown of PCE over time (i.e., trans-1,2-dichloroethene, vinyl chloride, and trichloroethene). MECC recommended additional investigation with regards to chlorinated VOC impacts to groundwater.

Based on field observations and laboratory results, MECC concluded that groundwater at the Site has been impacted by gasoline-related VOCs to a moderate degree. The VOCs related to gasoline consist of benzene, ethylbenzene, and xylenes. Because the gasoline USTs had been removed, and since the bulk of the gasoline-contaminated soil was reportedly excavated, it does not appear that a major continuing source of gasoline contamination currently exists. However, because groundwater quality was not addressed during the historical UST removal projects and since MECC has confirmed that the gasoline USTs had adversely affected groundwater quality, regulatory reporting and further investigation was recommended by MECC at the time of their investigation.

#### 4.3 Groundwater Investigative Report, March 1, 2012

DT Consulting Services, Inc. (DTCS) conducted groundwater investigation at the Site in January 2012 to further evaluate the extent of chlorinated VOCs in Site groundwater. The investigation included the installation of three permeant groundwater monitoring wells set at depths ranging from 17 to 20 feet bgs and installed using a direct push drill rig. Following installation and development, the wells were gauged and sampled for VOCs by EPA Method 8260. Additionally, the well locations were surveyed for the purpose of determining the groundwater flow direction.

#### 4.3.1 Findings

Depth to groundwater was measured at depths ranging from 6.82 to 7.52 feet bgs. The water depths were used along with the surveyed well casing elevations to

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establish the local groundwater flow direction, determined to be to the north-northwest.

Analysis of Site wells indicated low-moderate concentrations of dissolved phase petroleum hydrocarbons and PCE in each well location. Of note, benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in MW-2. PCE was detected in each of the three on-Site monitoring wells at concentrations ranging from 6.4 to 38 parts per billion (ppb). DTCS recommended quarterly groundwater sampling to further evaluate dissolved phase petroleum hydrocarbons and PCE in groundwater.

### **4.4 Groundwater Monitoring Report - May 7, 2012**

DTCS conducted quarterly groundwater sampling at the Site in April 2012. The quarterly groundwater sampling event included gauging depth to water and collection of groundwater samples from three on-Site monitoring wells for laboratory analysis of VOCs.

#### **4.4.1 Findings**

Concentrations of petroleum dissolved phase VOCs were detected in MW-2 only. PCE was detected in MW-2 and MW-3 at concentrations of 10 and 8.6 ppb, respectively. PCE was not detected above laboratory reporting limits in MW-1. DTCS concluded concentrations of dissolved VOCs in groundwater appear to be on a continued downward trend and that additional quarterly groundwater sampling should be continued in accordance with NYSDEC's request for one year of quarterly groundwater sampling.

### **4.5 Groundwater Monitoring Report - August 6, 2012**

DTCS conducted quarterly groundwater sampling at the Site in July 2012. The quarterly groundwater sampling event included gauging depth to water and collection of groundwater samples from three on-Site monitoring wells for laboratory analysis of VOCs.

#### **4.5.1 Findings**

Concentrations of petroleum dissolved phase VOCs were detected in MW-3 only. PCE was detected in MW-1 and MW-2 at concentrations of 65 and 24 ppb, respectively. PCE was not detected above laboratory reporting limits in MW-3. DTCS concluded concentrations of dissolved VOCs in groundwater appear to be on a continued downward trend and that additional quarterly groundwater sampling should be continued in accordance with NYSDEC's request for one year of quarterly groundwater sampling.



#### **4.6 Groundwater Monitoring Report - October 17, 2012**

DTCS conducted quarterly groundwater sampling at the Site in October 2012. The quarterly groundwater sampling event included gauging depth to water and collection of samples from three on-Site monitoring wells for laboratory analysis of VOCs.

##### **4.6.1 Findings**

Concentrations of petroleum dissolved phase VOCs were detected in each of the three on-Site monitoring wells. PCE was detected in MW-1, MW-2 and MW-3 at concentrations of 35, 31 and 82 ppb, respectively. DTCS concluded concentrations of dissolved VOCs in groundwater appear to be on a continued downward trend based on natural attenuation. DTCS recommended spill closure from the NYSDEC with no further action.

#### **4.7 Subsurface Investigative Work Plan, October 7, 2013**

DTCS prepared a Subsurface Investigative Work Plan for the Site dated October 7, 2013. The purpose of the plan was to conduct additional soil, soil gas and groundwater investigative activities from the Site. NYSDEC requested additional investigative activities to identify potential source areas which may be acting as a continuous source of subsurface contamination. The work plan included provisions for the following investigative activities:

- Site Inspection;
- Subsurface Investigation;
- Soil Gas Point Installation;
- Monitoring Well Installations;
- Surveying & Mapping and;
- Reporting

#### **4.8 Subsurface Investigation Report, November 26, 2013**

DTCS prepared a Subsurface Investigation Report for the Site dated November 26, 2013. The Report summarizes the findings and conclusions of the subsurface investigation activities outlined in the October 7, 2013 Subsurface Investigation Work Plan approved by NYSDEC.

#### 4.8.1 Field Activities

DTCS advanced four soil borings using a direct push drill rig to depths ranging from 7 to 15-feet bgs at the Site. Soils encountered in the boring locations includes mixed fill underlain by light brown fine to medium sands. Groundwater was encountered in each boring at a depth of approximately 8-feet bgs. PID headspace readings yielded non-detect total petroleum hydrocarbons in ppm within each soil profile field screened.

One boring denoted MW-4 was completed as a permanent flush mount groundwater monitoring well. Existing on-Site monitoring wells MW-1, MW-2 and MW-3, along with the new monitoring well MW-4, were gauged with a sonic interface probe. Depth to water ranged from 7.71 to 8.52 feet bgs across the Site. Groundwater samples were collected from each on-Site well and analyzed for VOCs by EP Method 8260.

Soil vapor probes were installed in three boring locations at a depth of approximately 7-feet bgs. Each vapor point was purged prior to collection of a soil gas sample using passivated SUMMMA canisters collected for laboratory analysis by USEPA Method TO-15.

#### 4.8.2 Findings

Groundwater laboratory analysis revealed a total of 14 compounds (both petroleum VOCs and PCE) were detected in the groundwater samples collected above respective groundwater quality guidance values as referenced in NYSDEC Division of Water TOGS 1.1.1.

Soil gas sampling revealed concentrations of chlorinated VOCs ranging from 6 to 57,000  $\mu\text{g}/\text{m}^3$ . PCE was detected at concentrations ranging from 7,200 to 57,000  $\mu\text{g}/\text{m}^3$ , TCE at concentrations ranging from 82 to 2,000  $\mu\text{g}/\text{m}^3$ , and cis-1,2-DCE at concentrations ranging from 340 to 1,300  $\mu\text{g}/\text{m}^3$ . The highest chlorinated solvent VOC concentrations in soil gas were detected at SG-2 located in the northern parking lot area.

#### 4.8.3 Conclusions & Recommendations

Site use as a dry cleaning establishment has shown that chlorinated solvents utilized in historical daily operations has had an impact to the subsurface environment. DTCS concluded that vapor intrusion of PCE and its degradation products into on-Site and the off-Site building located at to the north is a potential concern. Accordingly, DTCS recommended collection of sub-slab soil gas and indoor air samples from the adjacent structure to the north of the Site.

#### **4.9 Preliminary Site Data – Adjacent Property, March 2014**

In March 2014, DTCS conducted sub-slab soil gas sampling in the basement space of the building located north of the Site. Two sub-slab soil gas samples, designated SG-1 and SG-2 were collected during the investigation.

##### **4.9.1 Findings**

Elevated concentrations of chlorinated VOCs, including PCE (maximum 15,000  $\mu\text{g}/\text{m}^3$ ), TCE (maximum 850  $\mu\text{g}/\text{m}^3$ ), vinyl chloride (maximum 2,900  $\mu\text{g}/\text{m}^3$ ), methylene chloride (maximum 2,900  $\mu\text{g}/\text{m}^3$ ) and the petroleum VOC n-hexane (maximum 60,000  $\mu\text{g}/\text{m}^3$ ) were detected in the two sub-slab soil gas samples.

#### **4.10 Groundwater Remedial Action Work Plan, June 26, 2014**

DTCS prepared a Groundwater Remedial Action Work Plan for the Site dated June 26, 2014. The purpose of the plan was to document proposed groundwater remedial actions to be implemented at the Site to address soil and groundwater VOC contamination identified in previous investigations. On-Site groundwater remediation was proposed as an alternate to the installation of a SSDS on the adjacent parcel due to the high groundwater table encountered during soil gas testing procedures (DTCS, March 2014).

DTCS proposed use of Oxygen Release Compound Advanced (ORC®) injected into the ground as slurry through direct push drill rids using a grout/chemical pressure pump. ORC provides indigenous microbes with long term oxygen supply to accelerate degradation (i.e. natural attenuation) of contaminants in soil and groundwater. A total of 28 injection points to be arrayed in a grid pattern were proposed with an injection interval of 5 to 15-feet and at a rate of approximately 10 lbs. of ORC/ foot. Post injection monitoring proposed by DTCS included collection of groundwater samples from existing on-Site monitoring wells MW-1 through MW-4 for analysis of VOCs and aquifer characteristics (pH, dissolved oxygen and ferrous iron) and summarizing the results in groundwater monitoring reports.

#### **4.11 Groundwater Remedial Site Summary Report, September 5, 2014**

DTCS prepared a Groundwater Remedial Site Summary Report for the Site dated September 5, 2014. The Report documents the groundwater remedial activities conducted in July 2014.

##### **4.11.1 Field Activities**

In July 2014, a total of 17 injection points arrayed in a grid pattern were advanced with an injection interval of 5 to 15-feet and at a rate of approximately 20 lbs. of ORC/ foot. All injection points were sealed with bentonite and the surface was repaired with asphalt. Following completion of the injection field activities,

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groundwater gauging and sapling were conducted in August 2014. Groundwater samples were collected from the four on-Site monitoring wells and submitted for laboratory analysis of VOCs by EPA Method 8260.

### **4.11.2 Findings**

Post ORC injection levels of petroleum hydrocarbons in groundwater showed a moderate reduction of contaminant mass as compared to pre-injection levels. Dissolved phase chlorinated solvents, specifically tetrachloroethylene or PERC, was shown to spike during this post-ORC monitoring event. The increase in contaminant concentration is not uncommon shortly after ORC injection. This is a result of physical disruption from ORC injection and accelerated desorption by biological surfactants associated with general growth of aquifer biomass.

### **4.11.3 Conclusions & Recommendations**

DTCS recommended an additional quarter of groundwater monitoring to track natural attenuation of dissolved phase contamination, followed by reporting and targeted compound concentration comparison.

## **4.12 Groundwater Monitoring Report – May 1, 2015**

DTCS conducted quarterly groundwater sampling at the Site in October 2014 and March 2015. The sampling events included gauging depth to water and collection of groundwater samples from four on-Site monitoring wells for laboratory analysis of VOCs.

### **4.12.1 Findings**

Based upon the results of laboratory testing in the areas noted above, DTCS concluded that targeted petroleum and chlorinated solvent dissolved phase groundwater contamination was detected within the on-Site test wells. While comparing historical concentrations of petroleum hydrocarbons to post-ORC injection levels, a moderate reduction on contaminant mass had been reported. Dissolved phase chlorinated solvents, specifically PERC, was shown to spike during the post-ORC monitoring event. DTCS concluded that the residual adsorbed contaminant mass associated with the release is contributing to long-term dissolution which may require a follow-on ORC injection. Additional monitoring events would ultimately dictate the need for an additional application of ORC.

### **4.12.2 Recommendations**

DTCS recommended two additional quarters of groundwater monitoring to track natural attenuation of dissolved phase contamination; followed by reporting and targeted compound concentration comparison.

#### **4.13 Groundwater Monitoring Report – September 28, 2015**

DTCS conducted quarterly groundwater sampling at the Site in June and September 2015. The quarterly groundwater sampling events included gauging depth to water and collection of groundwater samples from four on-Site monitoring wells for laboratory analysis of VOCs.

##### **4.13.1 Findings**

Based upon the results of laboratory testing in the areas noted above, DTCS concluded that targeted petroleum and chlorinated solvent dissolved phase groundwater contamination was detected within the on-Site test wells. While comparing historical concentrations of petroleum hydrocarbons to post-ORC injection levels, a substantial reduction on contaminant mass has been reported during the June and September 2015 monitoring periods. Dissolved phase chlorinated solvents, specifically PERC, was shown to spike during the September 2015 monitoring event within monitoring well MW-3 only. The remaining monitoring locations displayed comparable PERC concentrations when assessed to previous sampling results.

##### **4.13.2 Recommendations**

DTCS recommended three additional quarters of groundwater monitoring to track natural attenuation of dissolved phase contamination; followed by reporting and targeted compound concentration comparison.

#### **4.14 Groundwater Monitoring Report – August 2, 2016**

DTCS conducted quarterly groundwater sampling at the Site in December 2015, March 2016 and June 2016. The quarterly groundwater sampling events included gauging depth to water and collection of groundwater samples from four on-Site monitoring wells for laboratory analysis of VOCs.

##### **4.14.1 Findings**

DTCS concluded that targeted petroleum and chlorinated solvent dissolved phase groundwater contamination was detected within the on-Site test wells. While comparing historical concentrations of petroleum hydrocarbons to post-ORC injection levels, a substantial reduction on contaminant mass has been reported during the December 2015 and June 2016 monitoring periods. Dissolved phase chlorinated solvents was shown to be comparably declining sample concentrations when assessed to previous sampling results. All monitoring locations, with the exception of well MW-3 have consistently been below NYSDEC TOGS 1.1.1 groundwater quality standards for PERC since December 2015. Monitoring well MW-3 has been found to slightly exceed the PERC standard of 50 ug/L during the same sampling events (concentrations ranging

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from a low of 74 ug/L in June 2016 to a high of 190 ug/L in March 2016); although contaminant concentrations appear to be declining.

### **4.14.2 Recommendations**

Based upon historical remedial/monitoring events (i.e., ORC application and groundwater sampling), DTCS recommended spill closure and the NYSDEC closed the spill on August 2, 2016.

### **4.15 Preliminary Groundwater Data – May 28, 2019**

The NYSDEC reopened Spill No 11-10898 in November 2018, stating that additional sampling was necessary to determine if remedial action performed in 2014 was sufficient to reduce contaminant concentrations that would result in acceptable indoor air quality. To comply with Departmental requirements, DTCS conducted a Site Investigation which included soil and groundwater sampling via the installation of four monitoring wells at the Site in May 2019.

#### **4.15.1 Findings**

Soil sampling conducted at the groundwater interface found no VOCs above NYSDEC Unrestricted Use Soil Cleanup Objectives (SCOs), with the exception of o-Xylene reported in MW-2 at a concentration of 400 ug/kg. See Figure 3 for soil contaminant mapping. Targeted petroleum and chlorinated solvent dissolved phase groundwater contamination above NYSDEC TOGS 1.1.1 groundwater quality standards was detected within the on-Site test wells denoted as MW-1, MW-2 and MW-4. Attached as Figure 4 is a groundwater contaminant data map summarizing laboratory results reported during the 2019 monitoring event.

### **4.16 Preliminary Sub-slab Soil Gas/Indoor Air Quality Data – August 10, 2019**

DTCS conducted sub-slab soil gas and indoor air sampling at the Site and in the adjacent building to the north in August 2019. The sampling event included collection one interior sub-slab soil gas sample from the slab on grade portion of the dry cleaner (Site) and one exterior soil gas point on the northern adjacent parcel. Collection of an interior sub-slab soil gas sample from the basement of the adjacent Site structure was attempted, but shallow groundwater beneath the slab prevented collection of the sample into the SUMMA canister. Additionally, indoor air samples were collected from the on-Site dry cleaner and in the basement area of the adjacent property.

#### **4.16.1 Findings**

Elevated concentrations of PCE (71,000  $\mu\text{g}/\text{m}^3$ ), TCE (7,200  $\mu\text{g}/\text{m}^3$ ) and cis-1,2-DCE (1,400  $\mu\text{g}/\text{m}^3$ ) were detected SS-SG-1 collected from the on-Site dry cleaner

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space. Additional lower-level chlorinated VOCs and petroleum phase VOCs were detected in the sample.

Elevated concentrations of PCE (5,000  $\mu\text{g}/\text{m}^3$ ) and TCE (6.8  $\mu\text{g}/\text{m}^3$ ) were detected indoor air (IA-1) collected from the on-Site dry cleaner space. Concentrations of PCE (21  $\mu\text{g}/\text{m}^3$ ) and TCE (0.29  $\mu\text{g}/\text{m}^3$ ) were detected in indoor air (IA-2) collected from the basement of the adjacent property to the north. Elevated concentrations of PCE (7,500  $\mu\text{g}/\text{m}^3$ ) and TCE (27  $\mu\text{g}/\text{m}^3$ ) were detected in samples collected within exterior parking area north of the dry cleaner space. See Figure 5 for soil gas contaminant mapping.

### 4.17 Data Assessment and Needs

Based upon the results of previous investigations, subsurface impacts (attributed to the historic chlorinated solvent use and to a lesser extent petroleum bulk storage) have been identified on-Site. Although groundwater remedial activities have degraded on-Site petroleum phase compounds significantly, continued persistence of chlorinated VOCs, including PCE and TCE, in on-Site groundwater is contributing to on-Site and off-Site soil vapor intrusion concerns. Although existing soil and groundwater data can be utilized to assist in defining the principal contaminant source areas, additional investigative activities, specifically on-Site delineation of chlorinated VOCs in sub-slab soil gas, will need to be performed to define the extent of subsurface contamination while further delineating the source area(s).

## 5.0 REMEDIAL INVESTIGATION APPROACH

The scope of the sampling program is directed at providing sufficient information that will fill in the data gaps in historical Site investigations. Ultimately, the goals of this RI are to delineate on-Site impacts to soil, soil gas and groundwater. The RI objectives and methods have been developed in accordance with the *NYSDEC Brownfield Program Cleanup Guidance* (NYSDEC May 2004), and relevant provisions of Department of Environmental Remediation (DER)-10 *Technical Guidance for Site Investigation and Remediation* draft, December 2002. A Site and contaminant specific Health and Safety Plan or HASP have been prepared for the Site and has been placed in Attachment A for your reference. Figures 6 - 8 show the proposed sampling locations for this Site RIWP.

Although the scope of work as described herein provides specific locations for soil, soil gas and groundwater well installations, additional testing locations may be added or otherwise adjusted during the course of work, as warranted to define the limits of impact.

## **Soil Sampling and Analysis**

Soil samples will be collected from beneath the Site structure to identify contamination and/or source areas (to the extent feasible). A qualified environmental driller will advance three investigative borings. The on-Site geologist/engineer will screen the soil samples for environmental impacts and collect environmental samples for laboratory analysis. Site work will comply with the safety guidelines outlined in the HASP (Attachment A). The investigative borings will attempted to be advanced to the depth of 5-10 feet below sidewalk grade using manual sampling or hand auger methodology. Manual sampling will be required as the locations of the proposed soil samples are within the Site structure which will not allow the use of direct push machine. The proposed boring location plan is provided on Figures 6 & 7. Soil will be collected continuously to the boring termination depth with a Geoprobe® Manual Side Hammer in three-foot increments using guide rods and hollow stem samplers. Each sample will be screened for organic vapors with a photo-ionization detector (PID) and evaluated for visual and olfactory indications of environmental impacts. Soil descriptions will be recorded in a field log. A maximum of three soil samples will be collected from zero to two feet below the slab and three soil samples will be collected from the groundwater interface or locations that exhibit evidence of impact (two from each boring location for a total of six soil samples). Each collected soil matrix will not be composited, but will be discrete grab samples. The proposed sampling rationale is provided in Table 1.

Each soil sample collected will be analyzed for VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270), Target analyte list (TAL) metals (USEPA Various Methods), pesticides (USEPA Method 8081), polychlorinated biphenyl's or PCBs (USEPA Method 8082), Per- And Polyfluoroalkyl Substances or PFAs (USEPA Method 537.1), cyanide, and 1, 4-dioxane with reporting to be submitted in an EQUIS-ready format. All analyses will be performed by NYSDEC Analytical Services Protocol (ASP) with Category B deliverables. Field quality control measures including trip and field blanks will be collected and submitted to the chemical laboratory for analysis. These control measures are described in Section 6 of this report.

## **Sub-Slab Soil Vapor Sampling and Analysis**

A total of nine sub-slab soil vapor sampling points are proposed beneath the slab of the existing on-Site building and three sub-slab vapor points are proposed to be installed beneath the slab of a off-BCP Site location (located within the same structure on the Site). Note that sub-slab soil vapor cannot be collected in each tenanted space as four of the occupants are located within the second story of the Site structure. The additional three proposed sampling locations are considered off-Site as the parcel has a separate tax lot (206 East Main Street), although the two parcels share the same Site structure (see Figures 6 - 7). The proposed sampling rationale is provided in Table 1. The soil vapor points will be installed by core drilling a small diameter hole (5/8") completely through the slab and



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installing a brass vapor pin equipped with an airtight silicon sleeve. The pins will be recessed beneath the slab and fitted with stainless steel flush-mount threaded covers set in 1.5-inch cavities. Following installation, a MiniRae photoionization detector (which registers airflow below 0.2 liters per minute) will be attached to the vapor pin using high density polyethylene tubing and a minimum of three sample volumes will be purged from each point. Total VOC readings will be recorded for each soil vapor point and used as a basis for comparison with laboratory analytical data. The sub-slab soil vapor samples will be collected for analysis in batch clean SUMMA canisters equipped with a laboratory calibrated flow control device to facilitate the collection of the samples for a 8-hour sample duration time. As a quality assurance/quality control measure, an inert tracer gas (helium) test will be completed before and after sampling to document that the soil vapor sampling points were properly sealed preventing subsurface infiltration of ambient air into the sample chain. Following sampling, the pressure of the SUMMA canisters will be recorded. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of the soil vapor extracted, vacuum of canisters before and after the samples are collected, and chain of custody protocols. If vapor sampling is conducted outside of the heating season (November – April) an additional round of soil vapor intrusion sampling will be performed within the heating season.

The soil vapor samples will be submitted to a NYSDOH-approved laboratory for analysis of VOCs by EPA Method TO-15 with reporting to be submitted in an EQUIS-ready format. Sample collection and analysis will be in accordance with the methods described in the Quality Assurance/Quality Control (QA/QC) Plan as described in Section 6 of this report.

### **Indoor and Outdoor Ambient Air Sampling and Analysis**

A total of eight indoor and one outdoor ambient air samples will be collected concurrently during the RI and will be co-located with the sub slab soil vapor samples. The indoor air samples will be collected from each retail space of the existing Site building at breathing height. Two off-Site indoor air samples are also proposed within each tenanted space which occupy the same Site structure, but are outside of the present BCP boundary. The outdoor ambient air sample will be collected from an upwind location on the property. The proposed sampling rationale is provided in Table 1. See Figures 6 - 7 for proposed sampling locations. Prior to the survey, a building chemical inventory screening will be performed to determine potential sources of VOCs in indoor air. Each sample will be collected at a height of 3-5 feet from the ground within the approximate breathing zone. Parameters including indoor and outdoor air temperature, wind direction and relative humidity will be noted during the sampling event. The air samples will be collected for analysis in batch clean SUMMA canisters equipped with a laboratory calibrated flow control device to facilitate the collection of the samples for an 8-hour sample duration time.

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Following sampling, the pressure of the SUMMA canisters will be recorded. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, and chain of custody protocols.

The air samples will be submitted to a NYSDOH-approved laboratory for analysis of VOCs by EPA Method TO-15 with reporting to be submitted in an EQUIS-ready format. Sample collection and analysis will be in accordance with the methods described in the Quality Assurance/Quality Control (QA/QC) Plan as described in Section 6 of this report.

### **Ground Water Sampling and Analysis**

To further assess hydro-geologic conditions, two additional groundwater monitoring wells will be installed within the northeastern quadrant of the Site near the storm drain and the fence line (see Figures 6 & 7 for proposed locations). The proposed sampling rationale is provided in Table 1. The monitoring well pair will be constructed of one inch inside diameter (ID), schedule 40 PVC casing and 0.01 inch slotted PVC screen. The screened section of the first proposed well will be placed in the 10-15-ft interval and the second well screened in the 20-25-ft. interval. To complete the groundwater wells, a locking cap and a flush mounted four-inch manhole clearly marked "monitoring well" will be installed within a framed concrete pad. All monitoring wells will be developed following installation to remove fine material that may have settled in the well, remove any drilling fluids that were used during well installation, and to enhance the hydraulic communication with the surrounding formation. Monitoring wells will be allowed to set for at least two days following installation to allow the grout to cure before developing the well. Wells will be developed by surging and purging the entire screened interval at each location. The wells will be considered properly developed when a minimum of five well volumes of water have been removed or until a monitoring well has been pumped dry after surging.

All newly installed and existing Site groundwater monitoring wells will be sampled using the USEPA Low Flow method. Sampling will be conducted using the following protocol:

- Basic climatological data (e.g., temperature, precipitation, etc.) and all field observations will be recorded in the field logbook. Groundwater sampling will begin at the potentially least contaminated well (as determined from well location and/or previous data) and proceed to the potentially most contaminated well. New nitrile gloves will be worn by the sampler at each well location.
- The protective casing on the well will be unlocked, the air in the well head will be screened with the PID, and the static water level (relative to the top

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of the casing) will be measured with a decontaminated water-level meter. Polyethylene tubing will be slowly lowered until reaching two to three feet off the bottom to prevent disturbance and re-suspension of any sediment present in the bottom of the well.

- Water level measurements will be recorded to the nearest 0.01 foot prior to ground water sampling. The well would then be pumped at a rate of 200 to 500 milliliters per minute, and the water level will be measured approximately every three to five minutes to ensure that stabilization (drawdown of 0.3' or less) is achieved.
- All groundwater samples will be collected in a manner consistent with NYSDEC sample collection protocols. Each groundwater sample will be placed into, appropriately labeled, containers provided by the laboratory. All samples will be maintained at appropriate cold temperatures.
- The protective cap on the well will be replaced and locked following sampling, and the field sampling crew will move to the next most contaminated well and the process will be repeated.

One round of groundwater samples will be collected from the existing monitoring wells and will be analyzed for VOCs (USEPA Method 8260), SVOCs (USEPA Method 8270), TAL metals (USEPA Various Methods), pesticides (USEPA Method 8081), PCBs (USEPA Method 8082), PFAs (USEPA Method 537.1), cyanide, and 1, 4-dioxane with reporting to be submitted in an EQUIS-ready format. All analyses will be performed by NYSDEC Analytical Services Protocol (ASP) with Category B deliverables. Field quality control measures including trip and field blanks will be collected and submitted to the chemical laboratory for analysis. These control measures are described in Section 6 of this report.

### **Waste Handling**

All investigation-derived waste (IDW) will be contained on-Site in a secure area for appropriate characterization and disposal by DTCS. Soil cuttings, personal protective equipment, and spent disposable sampling materials will be segregated by waste type and placed in DOT-approved 55-gallon steel drums. All decontamination water, purged groundwater, and drilling water will be stored in 55-gallon drums as necessary. Field staff will maintain an inventory of all waste storage vessels. All storage vessels will be appropriately labeled with the contents, generator, location, and date.

## 6.0 QUALITY ASSURANCE PROJECT PLAN

As stated previously, the goals of this RI Work Plan are to further characterize groundwater impacts at the Site, along with the lateral extent of chlorinated VOC impacts to sub-slab soil gas within the on-Site building. Therefore, this Quality Assurance Project Plan (QAPP) has been developed to establish the procedures and protocols for collection and laboratory analysis of samples associated with the completion of the BCP RI element on-Site. Project management/organizational responsibilities will be performed under the direction of Deborah J. Thompson.

### 6.1 Quality Assurance/Quality Control (QA/QC) Objectives

The NYSDEC Analytical Services Protocol (ASP) provides levels of quality for laboratory testing as they apply to remedial investigation and construction activities. As such, the NYSDEC ASP will be followed during the course of Site investigation/remediation on the Subject Property. The overall data quality objectives of the project are:

- To ensure that samples collected are representative.
- To provide detection limits for the selected analytical methods, which are below the established cleanup objective or regulatory standards.
- To measure and document precision and accuracy using procedures established by the laboratories, the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) and U.S. Environmental Protection Agency (EPA) approved analytical methods.
- To ensure that a NYSDOH ELAP and NYSDOH ELAP CLP certified laboratory will conduct all soil vapor and groundwater analyses.

### 6.2 Analytical Methods/Quality Assurance Summary

- *Matrix type:*  
Soil, Soil vapor, ambient air and groundwater
- *Number or frequency of samples to be collected per matrix:*  
Variable, pending field conditions.
- *Number of field and trip blanks per matrix:*  
Soil, Groundwater – 1
- *Analytical parameters to be measured per matrix:*  
Soil Gas/Ambient Air – VOCs  
Soil/Groundwater - VOCs, SVOCs, TAL Metals, Pesticides, PCBs, PFAs

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- *Analytical methods to be used per matrix:*  
EPA Method TO-15 (soil vapor and ambient air)  
EPA Test Methods 8260, 8270B/N, 6010/7470/7471, 8082, 537/ 537.1  
(soil/groundwater)
- *The number/type of matrix spiked, duplicate and blank samples to be collected:*  
Dependent upon the total number of samples of each matrix to be analyzed but, there will be at least one split per matrix.

### 6.3 Field Quality Control Samples

Field quality controls for laboratory confirmation samples include the collection and analysis of field duplicate and equipment rinsate samples. The frequency of collection for the specified QC field samples is as follows:

- ✓ A trip blank will be prepared before the sample bottles are sent by the laboratory. A trip blank will be included with each shipment of samples where sampling and analysis for VOC is planned (water matrix only).
- ✓ One field blank per day for PFA sampling.
- ✓ One field duplicate sample per 20 field samples. Duplicate samples will be collected by initially collecting twice as much material as is normally collected for a sample. After mixing, the material will be apportioned into two sets of containers.
- ✓ One equipment blank (rinsate) sample per 40 samples.

### 6.4 Field Sampling Procedures

Sampling/Analytical procedures are described in detail in the RI Work Plan as outlined above and will not be reiterated in this QAPP. The Work Plan also includes Site maps and sampling diagrams as well as details for sampling implementation, decontamination, and waste management.

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**Sample Containerization**

<b>Analysis</b>	<b>Bottle Type</b>	<b>Preservative</b>	<b>Holding Time</b>
<i>Soil Vapor &amp; Ambient Air</i>			
VOCs GC/MS	1L or 6L Summa canister	None	7 days (until extraction, 40 days extracted)
<i>Soil Samples</i>			
VOCs	40 ml with septum cap	DI, MeOH	14 days
SVOCs	4 oz glass	None	7 days (until extraction, 40 days extracted)
Metals <sup>1</sup>	4 oz. glass	None	6 months Mercury, 26 days
Pesticides	4 oz. glass	None	7 days (until extraction, 40 days extracted)
PCBs	4 oz. glass	None	7 days (until extraction, 40 days extracted)
PFAs	250 mL PP <sup>2</sup>	None	14 days
<i>Groundwater Samples</i>			
VOCs	40 ml with septum cap	HCl	14 days
SVOCs	1 L glass	None	7 days (until extraction, 40 days extracted)
Metals <sup>1</sup>	1 L plastic	Nitric acid to pH <2	6 months Mercury, 26 days
Pesticides	Wide mouth glass	None	7 days (until extraction, 40 days extracted)
PCBs	1 L glass	None	7 days (until extraction, 40 days extracted)
PFAs	125 mL PP <sup>2</sup>	None	14 days

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As all bottles will contain the necessary preservatives as shown above, they need only be filled. Each VOC 40ml vial must be filled to the brim with no air bubbles. The other sample jars should be filled to within an inch from the top for liquids, and to the brim for soils and sediment. All samples will be preserved with ice during collection and shipment.

- (1) Metals referred to the 24 metals and cyanide in the Target Analyte List, Methods 6010/7470/7471.
- (2) PP is Polypropylene

### **Sample Preservation**

The samples collected for analysis will require preservation prior to shipment (as described above). Preservation of the sample ensures sample integrity and prevents or minimizes degradation or transformation of the constituents to be analyzed. Specific preservation requirements include proper handling, packaging in laboratory-supplied sample containers, and chilled to 4° Celsius (°C) for shipping to the contract analytical laboratory.

### **Documenting Field Samples**

The DTCS Field Team will use field logbooks or specific field forms to record pertinent information regarding subsurface characteristics, field screening results, and confirmatory sampling activities. Field staff will record the project name and number, date, sampling personnel on Site, other personnel present, weather conditions, and other relevant events to sampling activity in a chronological order. The field log book and/or analysis forms will be maintained in the project file.

## **6.5 Sample Custody**

### **Chain-of-Custody Forms**

Each sample will be recorded onto a chain-of-custody (COC) form. The form will include the project name and number, names of the field sampling personnel, the sample number, date and time the sample was collected, whether the sample is a composite or grab sample, sample location, number of containers per sample number, constituents to be analyzed, and pertinent comments. The form will document the date, time, and signature of person(s) relinquishing and receiving custody of the samples.

### **Sample Transportation to the Laboratory**

Samples will be shipped for analysis to the laboratory either the day the samples are collected or within 24 hours following collection, except in the case of samples that are collected on Saturday. Samples will be transported by a

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laboratory supplied carrier service. If samples are collected on a Saturday, they will be stored by field personnel during the weekend and then readied for transport on Monday. The contract analytical laboratory will be required to perform the analyses on the samples within the allowable holding time proscribed for the analyses.

### **Laboratory Sample Custody**

Upon arrival at the analytical laboratory, samples will be checked in by the sample custodian. The sample custodian will:

- Sign the COC form documenting receipt of the samples from the carrier;
- Verify that the number of samples received in the shipment agrees with the number listed on the COC form;
- Verify that the information on each bottle agrees with the information documented on the COC form; and
- Document on the COC form the integrity/condition (bottle intact, temperature, etc.) of all received samples.

In the event of any discrepancy or problems associated with the shipment of samples for chemical analysis, the analytical laboratory project manager will immediately notify the field personnel. A unique laboratory sample number will be assigned to each sample. Pertinent information from the COC form and/or sample label (e.g., sample identification, sampling location, sampling date and time, sample description, and requested analyses) together with the date of sample receipt will be entered into the analytical laboratory's data management system which will be used to record the status of samples, their storage locations, and the analytical results. The analytical laboratory will have in-house COC procedures to ensure proper security of all samples.

### **Laboratory Selection**

The laboratory chosen for the project must be certified, and maintain certification, under the NYSDOH ELAP and NYSDOH ELAP CLP for analyses of solid and hazardous waste. DTCS has contracted with York Analytical Laboratories, Inc. located in Stratford, CT to perform laboratory services for this Work Plan whom are certified for the required emerging contaminants analysis.

## **6.6 Data Reduction, Verification and Reporting**

Verification of data obtained from sampling will be performed by the Project Manager who will determine the validity of the data by comparing the actual procedures used for field measurements, sampling, and custody, as documented



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on forms and in the field log book, with those prescribed in the work plan and/or approved by the Project Manager.

### 6.7 Data Usability Summary Report

As part of this Remedial Investigation Work Plan, a Data Usability Summary Report or DUSR will be prepared to summarize the soil and groundwater sampling and analytical results for the Site. The primary objective of the DUSR is to determine whether the analytical data meets Site specific objectives for data quality and data use.

The DUSR will be prepared following the guidelines provided in Department of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, Draft, December 2002, Guidance for the Development of Data Usability Summary Reports. The complete validated analytical results and Form 1s will be provided in the DUSR during reporting of the remedial investigation.

## 7.0 HUMAN HEALTH EXPOSURE ASSESSMENT

Site data will be evaluated to determine whether human receptors, both on and off Site are potentially exposed. The purpose of the exposure assessment will be to qualitatively determine the route, intensity, frequency and duration of actual or potential exposures of human to Site-related chemicals. The assessment will also describe the nature and size of the population potentially exposed to the contaminants.

Laboratory analytical reporting on soil, groundwater, soil vapor and indoor air will be compared to applicable health-based screening criteria:

- **Soil**  
Soil analytical results will be compared to NYSDEC's Subpart 375-6: Remedial Program Unrestricted Soil Cleanup Objectives and the interim soil cleanup objective located in NYSDEC Sampling, Analysis, And Assessment of Per- AND Polyfluoroalkyl Substances (PFAS), January 2021.
- **Groundwater**  
Groundwater analytical results will be compared to NYSDEC Guidance Values as referenced in Technical Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 for class GA groundwater and the interim water sample guidance as located in NYSDEC Sampling, Analysis, And Assessment of Per- AND Polyfluoroalkyl Substances (PFAS), January 2021.

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- **Soil Vapor & Indoor Air**

The sub-slab soil vapor and indoor air sampling results will be compared to the compounds listed in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion, dated October 2006 and the revised NYSDOH Decision Matrices dated May 2017.

The comparison of analytical result to the applicable screening values will be utilized to tentatively identify contaminants of potential concern.

### **8.0 FISH AND WILDLIFE EXPOSURE ASSESSMENT**

A Fish and Wildlife Resource Evaluation (FWRIA) will be completed to provide an initial screening of potentially affected fish and wildlife resources in connection with the Site. The first step of the FWRIA process, resource characterization, will be completed as part of the Site investigation scope. Resource characterization includes the following basic steps:

- Identify fish and wildlife resources for the area within a one-half mile radius of the Site, based on NYSDEC records and knowledge of the Site area.
- Identify contaminant migration patterns that may potentially expose fish and wildlife resource to Site-related contaminants.
- Identify specific contaminants of ecological concern.
- Draw conclusions regarding potential adverse effects.

The findings of the initial FWRIA phase will be employed to determine whether it is likely that the commercial Site has a negative effect on local wildlife and related habitats.

### **9.0 REMEDIAL INVESTIGATION REPORT**

Following the completion of the proposed sampling, analysis and data evaluation, a Remedial Investigation Report will be prepared that presents the findings of the investigation. The following information will be included in the RI Report.

1. A narrative discussion of methods and results. Work completed under the approved RI Work Plan will be described, including the methods employed for sample collection and laboratory analysis.

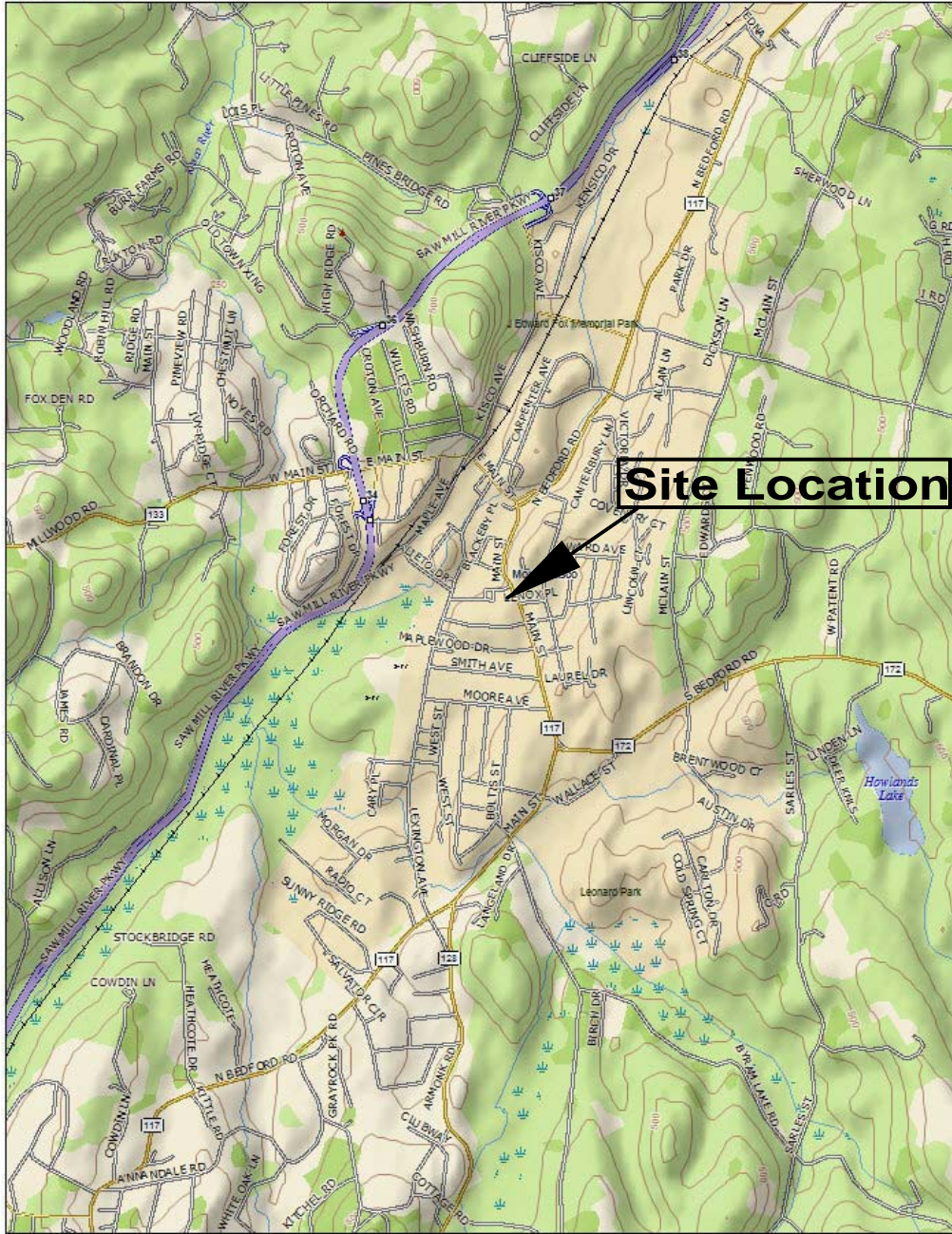
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2. This final remedial investigation will delineate impacts to interior sub-slab soil vapor to the south and east of the dry cleaner tenant space. Indoor air sampling will identify current exposures within the existing structure. Indoor air and soil vapor data will be compared to NYSDOH Vapor Intrusion Guidance Matrices to determine an appropriate mitigation design for an SSDS. Groundwater sampling and analysis will provide current cVOC groundwater concentrations and will provide data on other potential contaminants of concern not previously investigated.
3. Hydrogeologic Data. Hydrogeologic factors and their influence on the migration and distribution of contaminants will be discussed. Supporting data including groundwater elevation data and maps displaying groundwater analytical results, with text boxes depicting contaminant concentrations at each monitoring point will be prepared for the inclusion in the final RI Report.
4. Standards and guidance that pertain to the sampled Site media will be identified and listed in summary tables along with the analytical results for each medium. Any exceedances encountered above regulatory standards will be indicated on the tables and discussed in the technical overview.
5. Human Health Exposure Assessment. An assessment of potential exposure scenarios will be presented in the context of the Site's existing and future contemplated use. Exposure scenarios will be addressed both on and off-Site in the assessment.
6. Fish and Wildlife Resources. Area fish and wildlife resources will be identified and the overall habitat value for the Site will be discussed. The Site's effect on the overall habitat value for the area based on current conditions and the future anticipated use will be included the resource assessment.
7. Conclusions/Recommendations. The results of the final RI will be summarized in a written document which will identify source areas and potential exposure pathways in relation to human and environmental receptors. The RI Report will also evaluate appropriate remedial options based upon the RI results.
8. Supporting Information. To support the Site data collected during the implementation of the RI Work Plan, the following items will be appended to the RI Report:
  - Site photographs;
  - Site maps, including groundwater contour map and text box figures depicting analytical results; and
  - Laboratory analysis.

**10.0 PROJECT SCHEDULE**

The RI sampling and analysis program proposed herein will be implemented following NYSDEC and NYSDOH approval. RI field sampling work will be scheduled to begin within two - four weeks of approval. Specific public participation milestones are denoted in a separate Citizens Participation Plan. DTCS estimates that the field work will require three days to complete, and laboratory analysis will be completed within two weeks of the conclusion of field work on-Site. The RI Report and a Remedial Action Work Plan will be submitted for NYSDEC and NYSDOH review and approval within two months of the execution of this RI work plan.

**FIGURES**



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Data Zoom 13-0

<b>Client:</b> Larchmont Development LLC Sun Devil Development LLC BCA MK LLC		
<b>Site:</b> 200 East Main Street, Mt. Kisco, NY		
<b>BCP Site No.:</b> C360183	<b>Drawn by:</b> DJT	<b>Scale:</b> Graphic

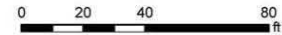
# Site Location Plan

**Figure: 1**



Tax parcel data was provided by local municipality. This map is generated as a public service to Westchester County residents for general information and planning purposes only, and should not be relied upon as a sole informational source. The County of Westchester hereby disclaims any liability from the use of this GIS mapping system by any person or entity. Tax parcel boundaries represent approximate property line location and should NOT be interpreted as or used in lieu of a survey or property boundary description. Property descriptions must be obtained from surveys or deeds. For more information please contact local municipality assessor's office.

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 148 Martine Avenue Rm 214  
 White Plains, New York 10601

DT Consulting Services, Inc.  
 1291 Old Post Road  
 Ulster Park, New York 12487  
 (845) 658-3484

Client: Larchmont Development LLC, Sun Devil Development LLC, BCA MK LLC

Location: 200 East Main Street, Mt Kisco, Westchester County, New York

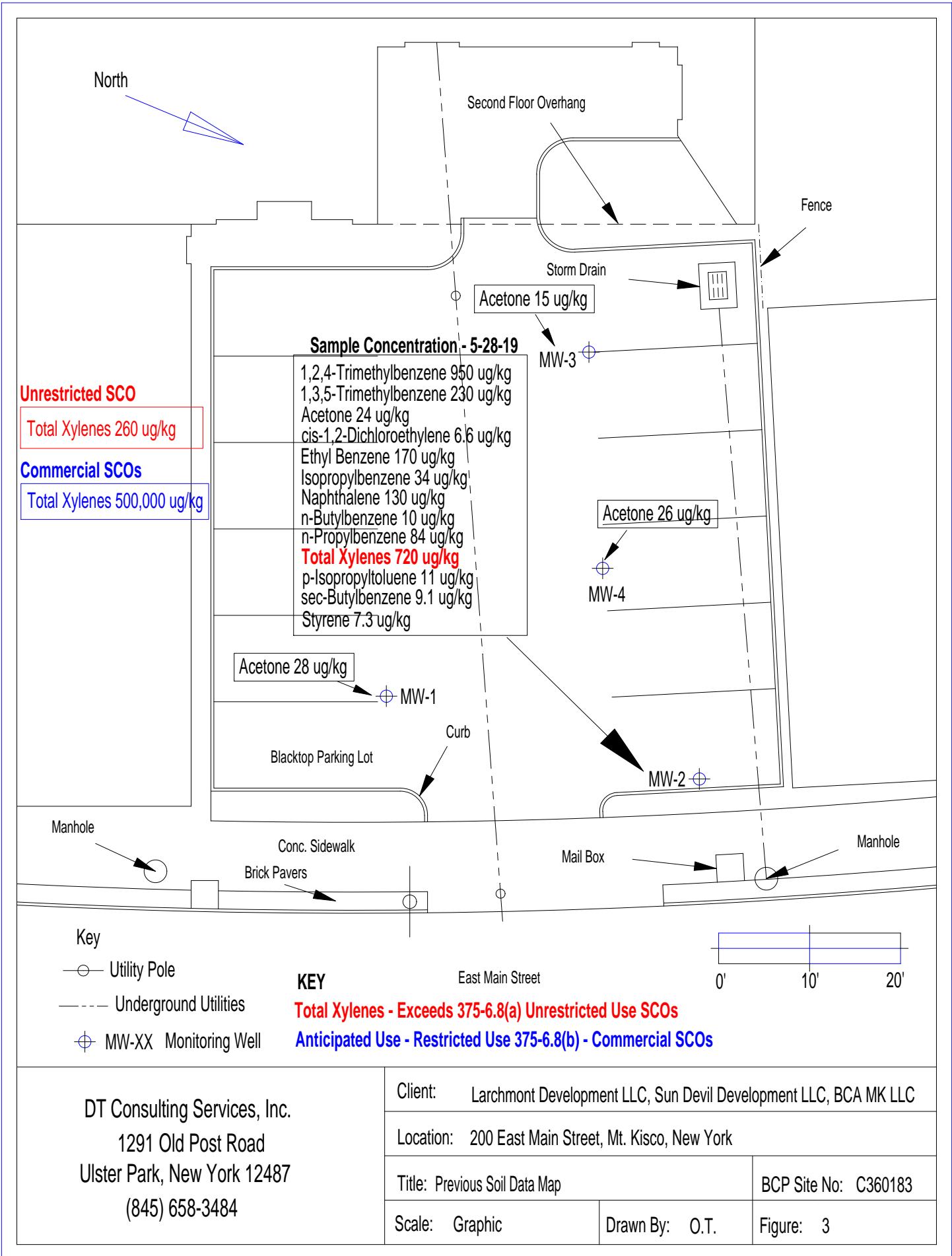
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Scale: Graphic

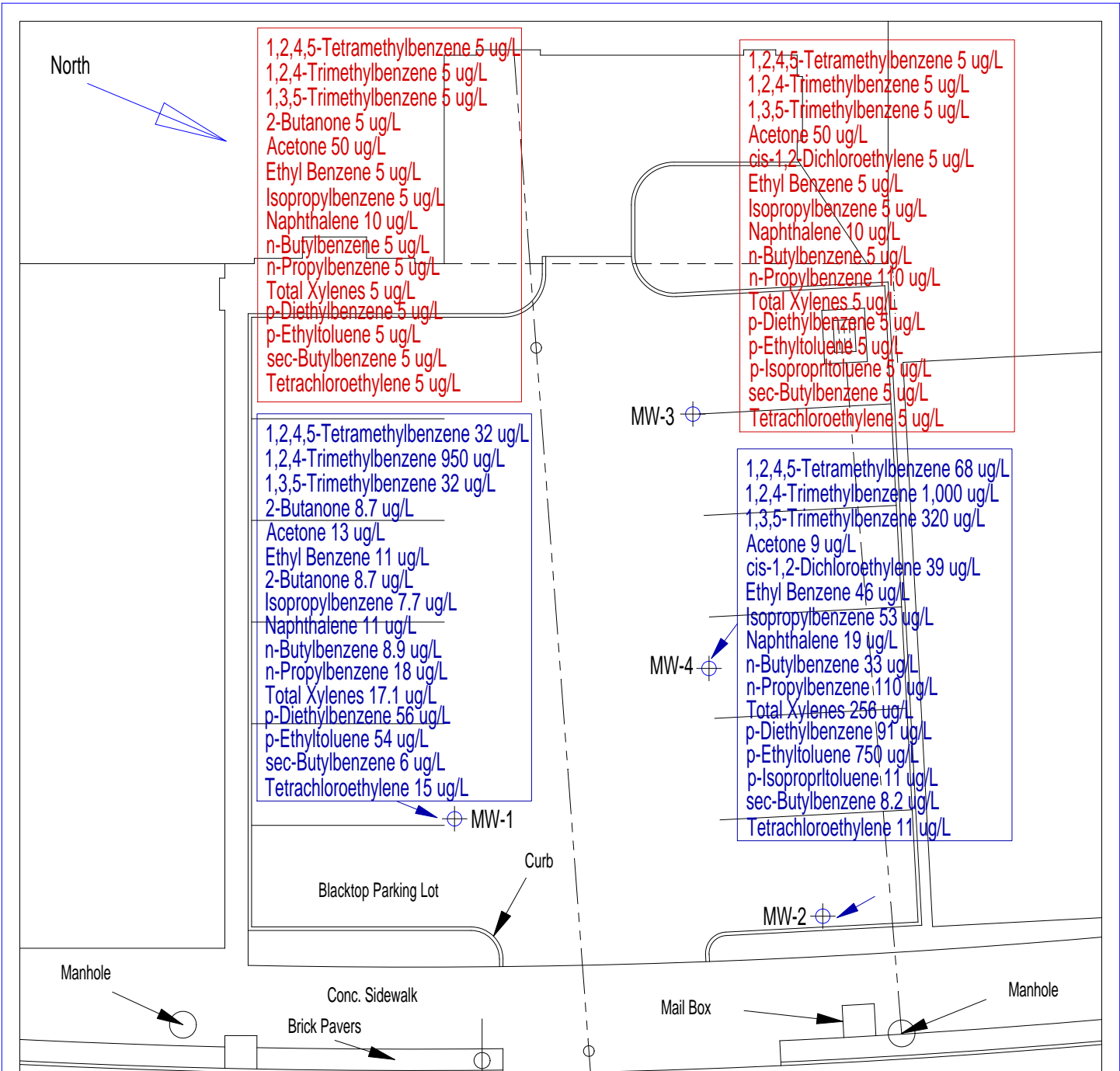
Drawn By: DT

BCP Site No: C360183

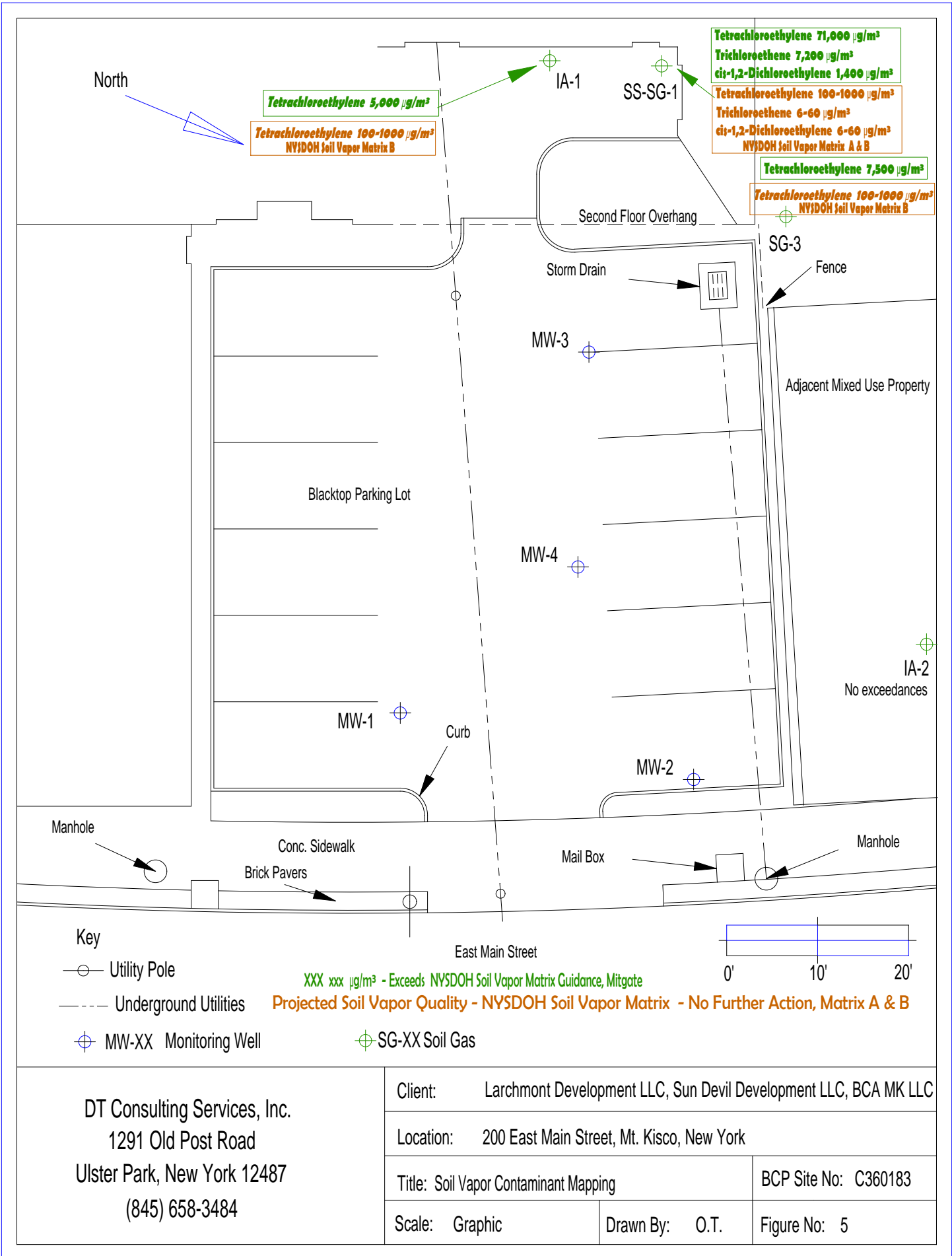
Figure No: 2







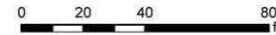
DT Consulting Services, Inc. 1291 Old Post Road Ulster Park, New York 12487 (845) 658-3484	Client: Larchmont Development LLC, Sun Devil Development LLC, BCA MK LLC		
	Location: 200-206 East Main Street, Mt. Kisco, New York		
	Title: Groundwater Contaminant Mapping		BCP Site No: C360183
Scale: Graphic	Drawn By: O.T.	Figure: 4	





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KEY

- SB - Soil Boring Location
- MW/PMW - Monitoring Well/Proposed Monitoring Well
- AI - Ambient Indoor Sampling Location
- SG - Sub-slab Soil Gas Location
- AO - Ambient Outdoor Sampling Location

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 Ulster Park, New York 12487  
 (845) 658-3484

Client: Larchmont Development LLC, Sun Devil Development LLC, BCA MK LLC

Location: 200 East Main Street, Mt Kisco, Westchester County, New York

Title: Proposed Field Work Map

Scale: Graphic

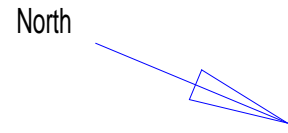
Drawn By: DT

BCP Site No: C360183

Figure No: 6

**Key**

- Utility Pole
- U.G Utilities
- #1 Prestige Cleaners
- #2 Vacant
- #3 Leicht Kitchens
- #4 Le Collage

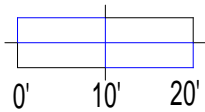
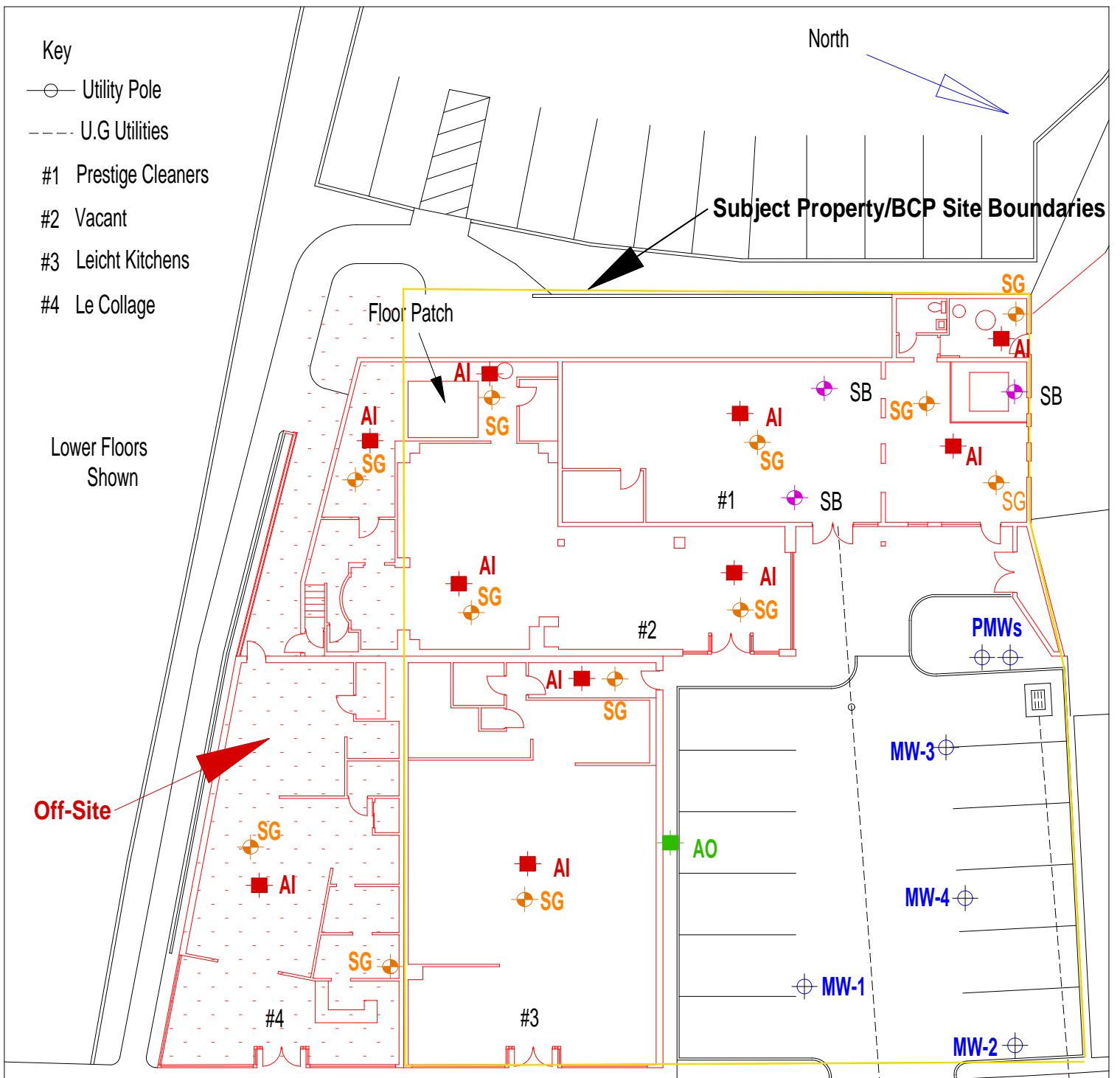


**Subject Property/BCP Site Boundaries**

Floor Patch

Lower Floors Shown

Off-Site



- KEY**
- SB - Soil Boring Location
  - ⊕ MW/Monitoring Well/PMW - Proposed Monitoring Well
  - AI - Ambient Indoor Sampling Location
  - SG - Sub-slab Soil Gas Location
  - AO - Ambient Outdoor Sampling Location

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 (845) 658-3484

Client: Larchmont Development LLC, Sun Devil Development LLC, BCA MK LLC

Location: 200 East Main Street, Mt Kisco, Westchester County, New York

Title: Floor Plan - Lower Level

BCP No: C360183

Scale: Graphic

Drawn By: O.T.

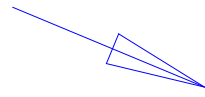
Fig.#: 7

Key

- Utility Pole
- U.G Utilities
- #3 Leicht Kitchens
- #4 Le Collage
- #5 Pick up every stitch
- #6 Vacant
- #7 Silver Bread Basket
- #8 Reining Cats & Dogs

Upper Floors  
Shown

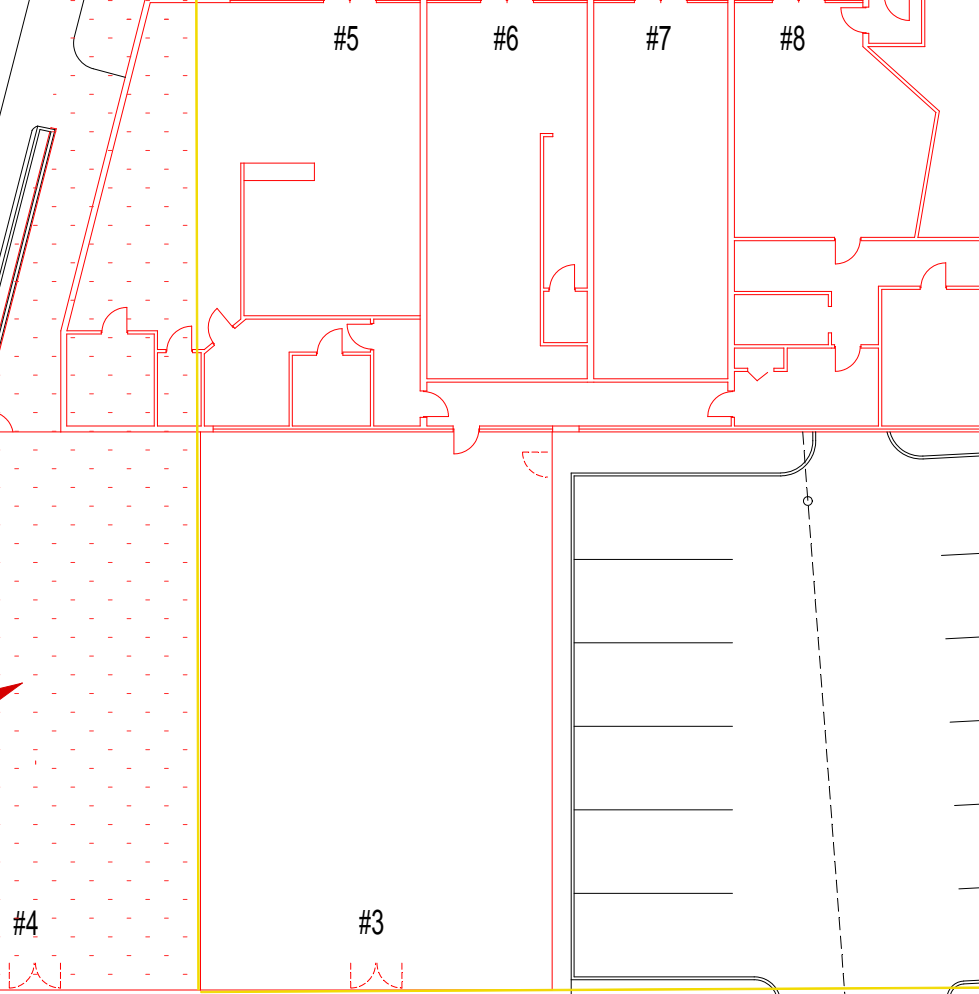
North



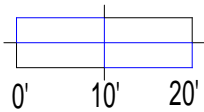
**Subject Property/BCP Site Boundaries**



**Off-Site**



East Main St



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 Ulster Park, New York 12487  
 (845) 658-3484

Client: Larchmont Development LLC, Sun Devil Development LLC, BCA MK LLC

Location: 200 East Main Street, Mt Kisco, Westchester County, New York

Title: Floor Plan - Upper Level

BCP No: C360183

Scale: Graphic

Drawn By: O.T.

Fig.#: 8

**TABLES**

**Remedial Investigation Work Plan - Revised**  
**200 East Main Street, Mount Kisco, New York**  
**Site #: C360183**

**TABLE 1 –**  
**Sample locations, Screened depths and analysis type.**

Sample Locations	Sampling Depth and/or Screened Interval (ft.)	Analysis/EPA Test Method
<i>Soil Samples</i>		
SB-1 – SB-3	Approximately 10-feet below grade surface (pending detection of groundwater). Samples will be collected at 0-2-ft below grade surface and at the groundwater interface (two samples per boring location).	VOCs (8260) SVOCs (8270) Metals <sup>1</sup> (6010/7470/7471) Pesticides (8082) PCBs (8080) PFAs (537m)
<i>Soil Vapor &amp; Ambient Air</i>		
Sub-slab Soil Vapor SG-1 – SG-12 Ambient Indoor Air AI – 1 – AI-10 Ambient Outdoor Air AO-1	14 – 16-inches (pending slab thickness) 3 – 5-feet above grade 3 – 5-feet above grade	VOCs GC/MS (TO-15)
<i>Groundwater</i>		
MW – 1 – MW – 4 (existing)	Screened interval from 4 – 14-ft. below grade surface.	VOCs (8260)
PMW – 5	Approximately 15-feet below grade surface. Screened interval at 10-15-feet below grade surface.	SVOCs (8270) Metals <sup>1</sup> (6010/7470/7471)
PMW – 6	Approximately 25-feet below grade surface. Screened interval at 20-25-feet below grade surface.	Pesticides (8082) PCBs (8080) PFAs (537m)

(1) Metals referred to the 24 metals and cyanide in the Target Analyte List

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**ATTACHMENTS**



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**ATTACHMENT A**

# **Environmental Services Health & Safety Plan**

**Job Name:** 200 East Main Street

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- 1.0 Introduction
- 2.0 Organizational Structure
  - 2.1 Safety and Health Manager
  - 2.2 Site Safety and Health Office
    - 2.2.1 Responsibilities
- 3.0 Personal Protective Equipment
  - 3.1 Protection Levels
    - 3.1.1 Level A
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    - 3.1.4 Level D
- 4.0 Work Zones
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- 5.0 Air Monitoring
- 6.0 Site Communications
- 7.0 Emergency Procedures
  - 7.1 Injury in the exclusion zone
  - 7.2 Injury in the support zone
  - 7.3 Fire or explosion
  - 7.4 Protective equipment failure
- 8.0 Standard Safety Practices
- 9.0 Daily Safety Meetings
- 10.0 Site Specific Plan
  - 10.1 Detailed Site information
  - 10.2 Contaminants on Site/Action Levels
  - 10.3 Emergency Information
    - 10.3.1 Emergency Responders
      - 10.3.1.1 Hospital
      - 10.3.1.2 Emergency telephone numbers
      - 10.3.1.3 Regulatory agencies

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10.4 First Aid

10.5 Work Zones

10.5.1 Command post

10.6 Site Communications

10.6.1 Telephone

10.6.2 Hand Signals

10.7 Environmental Monitoring

10.8 Personal Protective Equipment

10.8.1 Exclusion zone

10.8.2 Contamination reduction corridor

10.9 Decontamination

10.9.1 Decontamination Procedure

11.0 Key Personnel

12.0 Work Plan

12.1 Job objective / Detailed work plan

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## **1.0 INTRODUCTION**

DT Consulting Services, Inc. (DTCS) has designed a safety and health program to provide its employees and subcontractors with the guidelines necessary to ensure their own safety and health as well as that of the surrounding community. The goal of this plan is to minimize the risk of injury during remedial investigation procedures including the advancement and sampling of soil cores, coring for soil gas sampling, along with the monitoring of groundwater wells.

## **2.0 ORGANIZATIONAL STRUCTURE**

### **2.1 SAFETY AND HEALTH MANAGER**

It is the responsibility of the safety and health manager to develop the comprehensive safety and health plan. The safety and health manager will be appraised of any changes in the comprehensive safety and health plan as well as all Site-specific procedural determinations. The safety and health manager for this project will be Ms. Deborah Thompson.

#### **2.1.1 RESPONSIBILITIES**

- a) Initial Site evaluation
- b) Hazard identification
- c) Determination of appropriate protection levels
- d) Conduct daily safety and health meetings
- e) Supervision of Site sampling and monitoring
- f) Supervision of decontamination procedures
- g) Designate work zones to maintain Site integrity

## **3.0 PERSONAL PROTECTIVE EQUIPMENT**

The proper personal protective equipment is chosen by the Site safety and health officer in consultation with the safety and health manager. The level of protection is dependent on the hazards that are likely to be encountered on-Site.

### **3.1 PROTECTION LEVELS**

DTCS utilizes four levels of protection as set forth in the OSHA guidelines, Appendix B of 1910.120.

## **3.1.1 Level A**

Level A provides the greatest level of skin, respiratory, and eye protection with the following minimum equipment:

- Full face, self-contained breathing apparatus (SCBA) or supplied air with escape SCBA
- Fully encapsulated chemical resistant suit
- Chemical resistant boots
- Chemical resistant inner and outer gloves

## **3.1.2 Level B**

Level B provides the greatest level of respiratory protection, but a lower level of skin protection than Level A with the following minimum equipment:

- Full face SCBA or supplied air with escape SCBA
- Chemical resistant clothing
- Chemical resistant inner and out gloves
- Chemical resistant boots

## **3.1.3 Level C**

Level C provides the same level of skin protection as Level B, but a lower level of respiratory protection with the following minimum equipment:

- Full face piece air purifying respirator with appropriate cartridge. Cartridges are chosen based on knowledge of hazardous material
- Chemical resistant clothing
- Chemical resistant inner and outer gloves
- Chemical resistant boots

## **3.1.4 Level D**

Level D provides the lowest level of skin protection and no respiratory protection with the following minimum equipment:

- Coveralls
- Safety boots
- Gloves
- Safety glasses or splash goggles

## **4.0 WORK ZONES**

DTCS utilizes the standard three-zone approach to Site control. These zones are the exclusion zone, the contamination reduction zone and the support zone. Movement of personnel and equipment through these zones shall be strictly regulated in order to prevent contamination of clean environments and to protect workers in the support zone from possible exposure.

### **4.1 EXCLUSION ZONE**

The exclusion zone is the area of highest contamination. All personnel entering this zone must wear the appropriate level of protection as prescribed in the Site specific safety plan. The outer boundary of the exclusion zone, referred to as the Hotline, shall be determined based upon such considerations as; extent of surface contamination, safe distance in the case of fire or explosion, physical area necessary for workers to conduct operations in a safe manner and safe distance in the event of vapor or gas emissions. Upon determination, the Hotline shall be visibly marked and secured to prevent accidental entry by unauthorized personnel.

### **4.2 CONTAMINATION REDUCTION ZONE**

The Contamination Reduction Zone is the area between the exclusion zone and the support zone. Its purpose is to protect the clean environment from contamination as workers enter and exit the exclusion zone. The outer boundary of this zone is referred to as the Coldline and shall be clearly marked. Decontamination stations shall be set up in this zone in a line known as the contamination reduction corridor. All personnel exiting the exclusion zone must follow the steps as prescribed in the decontamination procedures prior to re-entering the support zone.

### **4.3 SUPPORT ZONE**

The support zone is the area furthest away from the exclusion zone. It is considered a clean, non-contaminated area where workers need not wear any protective equipment. The command post, equipment trailer, first aid station and lavatory facilities are all located in this area. This area is not, however, open to traffic. Only authorized personnel may enter.

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## **5.0 AIR MONITORING**

As the initial Site evaluation work plan entails minimal Site intrusive activities, specific air monitoring procedures would include only the periodic recording of total volatile organic compound or VOC concentrations with a Photoionization Detector (PID) or equivalent during Site activities.

## **6.0 SITE COMMUNICATIONS**

Various methods of communication will be employed based upon Site conditions and work zones. Regardless of method of communication, personnel working in the exclusion zone will remain within constant view of support crews.

DTCS has a network of devices to aid in communications. All or some of the following devices may be used depending upon job Site requirements; hand held radios, headset transistor walkie-talkies and cellular telephones.

The following hand signals shall be standardized for use in emergencies and in event of radio communication breakdown.

Hand gripping throat - out of air, can't breathe  
Grip partner's wrist - leave area immediately  
Hands on top of head - need assistance  
Thumbs up - I am all right, okay  
Thumbs down - no, negative

Horn blasts may be used to gain the immediate attention of crews to indicate that dangerous conditions exist.

## **7.0 EMERGENCY PROCEDURES**

The following procedures shall be followed by all Site personnel in the event of an emergency. Any changes to this procedure shall be noted in the Site-specific plan. In all situations where there has been an evacuation of exclusion zone, reentry shall not be permitted until the following conditions have been met; the cause of the emergency has been determined and corrected, the Site hazards have been reassessed, the safety plan has been reviewed and all personnel have been apprised of any changes.



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## **7.1 INJURY IN THE EXCLUSION ZONE**

In the event of an injury in the exclusion zone, the emergency signal shall be sounded. All personnel in the exclusion zone will assemble at the contamination reduction corridor. First aid procedures will begin on-Site and if necessary, an ambulance will be called. No personnel will be allowed to re-enter the exclusion zone until the exact nature and cause of the injury has been determined.

## **7.2 INJURY IN THE SUPPORT ZONE**

In the event of an injury in the support zone, on-Site first aid procedures will begin immediately and an ambulance called if necessary. The Site safety and health officer shall determine if the nature and cause of the injury or loss of the injured person will jeopardize the smooth running of the operations. If so, the emergency signal will be sounded and all personnel will follow the same procedure as outline above.

## **7.3 FIRE OR EXPLOSION**

In the event of fire or explosion, the emergency signal shall be sounded and all personnel will assemble at the contamination reduction corridor. The fire department will be called and all personnel will be evacuated to a safe distance.

## **7.4 PROTECTIVE EQUIPMENT FAILURE**

In the event of protective equipment failure, the affected worker and his/her buddy will leave the exclusion zone immediately. In the event of any other equipment failure, the Site safety and health officer will determine if this failure affects the operation. If so, the emergency signal will be sounded and all personnel will leave the exclusion zone until such time as it is deemed safe.

## **8.0 STANDARD SAFETY PRACTICES**

The following guidelines will be followed by all personnel at all times; any changes must be approved by the safety and health manager.

- All employees will attend the daily safety meetings prior to Site entry.

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- The buddy system will be utilized at all times.
- There will be no eating, drinking, smoking, or use of smoking material (i.e. matches) within the work area(s).
- Only authorized personnel will be allowed in designated work zones and will wear the proper personal protective clothing and equipment as prescribed in the Site safety plan.
- The Site safety and health officer will be appraised of any unusual circumstances immediately.

Such circumstances include but are not limited to the following; unusual odors, emissions, signs of chemical reaction, and discovery of conditions or substances not mentioned in the Site safety plan. The Site safety officer will then determine if these conditions warrant a shut down of operations.

## **9.0 DAILY SAFETY MEETINGS**

Daily safety meetings will be conducted by the Site safety and health officer prior to commencement of work. All personnel, regardless of job classification are required to attend.

### **9.1 DISCUSSIONS**

1. Overview of safety and health plan.
2. Detailed discussion of substances of concern with emphasis on exposure limits, exposure symptoms and exposure hazards.
3. Review of standard safety precautions and work practices.
4. Review of work plan.
5. Review of hand signals and emergency signals.

Personnel will sign a daily attendance sheet, which shall include an overview of the topics discussed.

## **10.0 SITE SPECIFIC PLAN**

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## 10.1 DETAILED SITE INFORMATION

- **Plan Date** TBA
- **Job Name** 200 East Main
- **Client** Larchmont Development LLC  
Anthony Coschigano III  
48 Grand Street  
New Rochelle, NY 10801  
  
Sun Devil Development LLC  
Frank Granito, III  
99 Woodridge Drive  
New Canaan, CT 06840  
  
BCA MK LLC  
David L. Tohir  
52 Reeder Lane  
New Canaan, CT 06840
- **Client Contact/Phone No.** Anthony Coschigano III  
914-906-0700
- **Site Address** 200 East Main Street  
Mount Kisco, New York 10549
- **Cross Street** Lundy Lane
- **Site Access** Direct

## 10.2 CONTAMINANTS ON SITE/ACTION LEVELS

The following substances are known or suspected to be on Site, primarily in Site wastes. The primary hazards of each are identified, associated primarily with direct skin contact and inhalation.

SUBSTANCE	PRIMARY HAZARDS
<i>Volatile Organics</i>	
Trichloroethene (TCE) Tetrachloroethene (PCE)	Eye, skin and respiratory irritation. Nausea, vomiting, headache
Cis-1,2-Dichloroethylene	Skin irritation, gastrointestinal or respiratory tract irritation.

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## Action Levels

Action levels shall be determined by monitoring of work zone breathing space with a portable Photoionization detector (PID) or comparable instrument. Measurement of a sustained concentration above ambient (background) conditions shall initiate action. The following criteria shall be used to determine appropriate action:

<b>VOCs in Breathing Zone (sustained and above background)</b>	<b>Level of Respiratory Protection</b>
0 – 5 ppm	Level D
5 – 200 ppm	Level C
200 – 1000 ppm	Level B - air line
1000+ ppm	Level B - SCBA

If the above criteria indicate the need to increase from Level D to a higher level of personal protection, all work in that particular Site area will be immediately suspended until the required protective equipment is made available, or until Level D conditions return.

## 10.3 EMERGENCY INFORMATION

### 10.3.1 EMERGENCY RESPONDERS

#### 10.3.1.1 HOSPITAL

**Name:** Northern Westchester Hospital

**Address & Telephone Number:**

400 East Main St, Mount Kisco, NY 10549  
(914) 666-1200

**Distance from Site:** 0.5 Miles

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## 10.3.1.2 EMERGENCY TELEPHONE NUMBERS

<b>Police</b>	<u>911 on Cellular Phone</u>
<b>Fire</b>	<u>911 on Cellular Phone</u>
<b>Ambulance</b>	<u>911 on Cellular Phone</u>

## 10.3.1.3 REGULATORY AGENCIES

<b>EPA Telephone Number</b>	1-800-424-8802
<b>NYSDEC Spills Hotline</b>	1-800-457-7362

## 10.4 FIRST AID

First Aid available at the following stations:

First Aid Kit TRUCK  
Emergency Eye Wash TRUCK & ON SITE

## 10.5 WORK ZONES

### 10.5.1 COMMAND POST

Command post will be mobile.

## 10.6 SITE COMMUNICATIONS

### 10.6.1 TELEPHONE

Command Post Telephone - Cellular Phone  
Number (845)943-0159

### 10.6.2 HAND SIGNALS

See Section 6.0

## 10.7 ENVIRONMENTAL MONITORING

### 10.7.1 MONITORING EQUIPMENT

Refer to RI Work Plan

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## 10.8 PERSONAL PROTECTIVE EQUIPMENT

### 10.8.1 EXCLUSION ZONE, PROTECTION LEVEL

<b>PROTECTIVE EQUIPMENT:</b>	Level D
<b>RESPIRATORY</b>	None
<b>HANDS</b>	Nitrile or Leather
<b>FEET</b>	Steel Toed Boots
<b>SUIT</b>	None

### 10.8.2 CONTAMINATION REDUCTION CORRIDOR (DECON LINE)

<b>PROTECTIVE EQUIPMENT:</b>	Level D
<b>RESPIRATORY</b>	None
<b>HANDS</b>	Nitrile or Leather
<b>FEET</b>	Steel Toed
<b>SUIT</b>	None

## 10.9 DECONTAMINATION

### 10.9.1 DECONTAMINATION PROCEDURE

STATION 1 SOAPY WATER

STATION 2 WATER

## 11.0 KEY PERSONNEL

### SAFETY AND HEALTH MANAGER / ON-SITE SUPERVISOR

Deborah J. Thompson

### FOREMEN

TBA

### FIELD PERSONNEL

Will Vary

**12.0 WORK PLAN**

**12.1 JOB OBJECTIVE**

The objective is to execute a Remedial Investigation Work Plan (RIWP) which includes soil, soil gas and groundwater sampling to further characterize the extent of historical contamination identified on-Site under the BCP. Upon completion of field work, a Remedial Action Plan or RAP will be generated to address documented contamination.