

**384 BRIDGE STREET**  
Brooklyn, New York  
C224134

## **Supplemental Remedial Investigation Work Plan**

**Prepared For:**  
Stahl Real Estate Company Inc.  
277 Park Ave  
New York, NY 10172

**Fleming-Lee Shue Project Number: 10149-001-4**

**Prepared by:**  
Arnold F. Fleming, P.E.  
Fleming-Lee Shue, Inc.  
158 West 29<sup>th</sup> Street, 9<sup>th</sup> Floor  
New York, New York 10001  
<http://www.flemingleeshue.com>



*Environmental Management & Consulting*

**Revised August 2009**

**TABLE OF CONTENTS**

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Purpose	1
1.2	Scope	1
<b>2.0</b>	<b>SITE BACKGROUND</b>	<b>3</b>
2.1	Geology	3
2.2	Hydrogeology	3
2.3	Previous Investigations	3
<b>3.0</b>	<b>SAMPLING METHODOLOGY</b>	<b>6</b>
3.1	Monitoring Well Installation	6
3.2	Soil Sampling	7
3.3	Soil Sample Collection	7
3.4	Groundwater Sample Collection	8
3.5	Hydraulic Conductivity Testing, and Groundwater Flow	9
3.6	Investigation Derived Waste (IDW) Management	9
3.7	Soil Vapor Sampling	9
<b>4.0</b>	<b>QUALITY ASSURANCE/QUALITY CONTROL</b>	<b>11</b>
4.1	Laboratory Methods	11
4.2	Field Decontamination Procedures	11
4.3	Chain of Custody	12
<b>5.0</b>	<b>REPORT</b>	<b>14</b>

**FIGURES**

FIGURE 1 – Site Location Map

FIGURE 2 – Site Layout

FIGURE 3 – Groundwater Flow direction Map

FIGURE 4 – Proposed Soil, Soil Vapors, and Groundwater Sampling Locations

## **1.0 INTRODUCTION**

This Supplemental Remedial Investigation Work Plan (SRIWP) was prepared by Arnold F. Fleming, P.E. and FLS for Stahl Realty (Stahl) for the property at 384 Bridge Street (the Site) in Brooklyn, New York. The property is identified as Tax Block 152 and Lots 37 and 118. The Site is currently under construction, the former building has been demolished and the parcel has been excavated to 25 feet below grade (ft-bg). Currently, at the request of the New York City Department of Buildings (NYCDOB), the Site is being filled in to sidewalk grade with clean fill.

The Site (Figure 1 and 2) is bordered to the east by Bridge Street, to the west by Lawrence Street, and is situated between Willoughby and Fulton Streets. The Site consists of two lots, Lot 118 on Lawrence Street and Lot 37 on Bridge Street. Lot 118 measures about 110 feet by 60 feet along Lawrence Street and Lot 37 measures about 110 feet by 125 feet along Bridge Street. The Site has historically been used for both residential and commercial purposes. An application for the Site has been submitted to the New York State Department of Environmental Conservation (NYSDEC) for acceptance into the New York State Brownfield Cleanup Program (BCP). NYSDEC spill #0801499 was opened for the Site during excavation of fuel oil underground storage tanks (USTs) in 2008.

Previous Site investigations were performed to investigate the subsurface soils and groundwater in areas where historic on-Site and/or off-site dry cleaning operations may have impacted the Site and to determine if there were any soil gas impacts beneath the Catholic High School located north of the Site. Results were summarized in the FLS Subsurface Investigation Report (SIR) submitted to NYSDEC in March 2009.

### **1.1 Purpose**

This remedial investigation has been designed to supplement the SIR and provide additional information to be used for development of the Remedial Action Work Plan (RAWP). Groundwater monitoring wells will be installed and sampled to provide more data on the groundwater geochemical characteristics and to establish groundwater flow direction. Soil and groundwater sampling will be done for use in developing the remedial plan for the Site. Additionally, soil vapor sampling will be performed to further delineate the vertical extent of the soil vapors at the area of the former dry cleaner. All investigations on the Site will be performed in accordance with the site-specific Health and Safety provided in the SIR.

### **1.2 Scope**

The investigation focuses on collecting information to complete site characterization in order to develop a remedial plan. The investigation will include installation and sampling of groundwater monitoring wells, including one deep aquifer monitoring well. All Site wells will be surveyed and depth to water measurements taken to provide a more accurate groundwater flow direction. Slug tests will be performed to obtain hydraulic

conductivity and groundwater velocity data. Vertical soil vapor delineation will be done at two locations where high volatile organic compound (VOC) concentrations were detected in the previous subsurface investigation. Soil and groundwater samples will be collected to provide data which will be used in selecting a remedial plan.

## **2.0 SITE BACKGROUND**

Based on reports compiled by the U.S. Geological Survey, the property lies at an elevation of approximately 45 feet above mean sea level (msl), and slopes down slightly to the east, towards the Brooklyn Navy Yard. The eastern portion of the site along Bridge Street was excavated to the depth of 25 feet below grade to accommodate sub-cellars for the proposed building. However, due to delays in construction, the NYCDOB requested that the Site be filled in temporarily to sidewalk grade. This is currently underway and will be completed in July 2009.

The Site will be developed with a 50-story residential building with multiple cellar levels located on Bridge Street, extending to Lawrence Street between Willoughby and Fulton Streets. The building will have a total of 349 residential units.

### **2.1 Geology**

Brown coarse sand intermixed with boulders and cobbles along with fill material was present in soil borings from just below the sidewalk at 381 Bridge Street. Since the Site was excavated to 25 feet below sidewalk grade, little fill material was encountered below that depth. Native soils consist of medium to fine sand intermixed with coarse gravel and many cobbles and boulders (glacial till). Very little fines (silt or clay) were present in the soils below the Site.

### **2.2 Hydrogeology**

Groundwater was encountered at depths ranging from approximately 43 to 45 feet below sidewalk grade. The local groundwater was assumed to flow south/southwest toward the East River; however, based on five monitoring periods conducted over four months, the groundwater flow at the Site was determined to be flowing to the northeast. A groundwater flow map is presented as Figure 3. The scope of this investigation includes installation of additional wells and further study to confirm the previously observed groundwater flow direction.

### **2.3 Previous Investigations**

A Phase I Environmental Site Assessment was conducted by EMTEQUE Corporation in February 2007. EMTEQUE determined that a dry cleaning facility existed on-Site as early as 1950 until 1993. From 1995 on, the Site was developed with stores on the first floor and a parking garage on the second floor.

The surrounding properties are depicted on all of the Sanborn maps as mixed residential and commercial. In 1997, a drycleaner operation started across the street (northeast of the Site) on the property located at 381 Bridge Street. Department of Building (DOB) records indicate that as of 2004, the aforementioned drycleaner no longer occupies the 381 Bridge Street address. In 1984 Bridge Cleaners, also a drycleaner operation, opened across the street to the south of the Site at 403 Bridge Street. As of early 2008, Bridge Cleaners relocated approximately 942 feet to the south of its previous location. Bridge Cleaners is currently located at 204 Livingston Street.

Meuser Rutledge Consulting Engineers performed a subsurface geotechnical investigation in May 2007 to characterize subsurface conditions and provide a foundation design. They found that the site had between 3 and 17 feet of fill, underlain by sand and gravelly sand.

EMTEQUE subsequently assessed Site subsurface conditions during the following investigations/sampling programs:

- Limited Subsurface Investigation, February 2007
- Limited Phase II Subsurface Investigation, March 2007
- Remedial Action Plan, March 2007
- Post-Excavation Soil Sampling and Soil Vapor Sampling, September 2008.

The following is a summary of the EMTEQUE investigations and their findings.

Soil sampling performed by EMTEQUE demonstrated that petroleum-related VOCs, semivolatile organic compounds (SVOCs), and priority pollutant metals (PP Metals) contamination were present at levels exceeding NYSDEC Technical and Administrative Guidance Memorandum #4046 (TAGM 4046) Recommended Soil Cleanup Objectives (RSCOs). In order to satisfy “e” designation requirements, EMTEQUE developed a Remedial Action Plan (RAP) designed for managing on-site petroleum-contaminated soil and removing all petroleum storage tanks in accordance with applicable federal, state and local regulations. The RAP was approved by NYCDEP and a “Notice to Proceed” letter was issued on May 07, 2008.

In May and June of 2008, on-Site fuel oil tanks were removed. During their removal, petroleum contamination was found and a NYSDEC spill #0801499 was opened. The Site was excavated to 25 ft-bg and all visible petroleum contamination was removed. Following the soil excavation, EMTEQUE conducted endpoint sampling. The sampling was performed in a grid pattern with one sample collected every 20 feet across the excavation and along the side walls. No soil contamination was found.

In September 2008, EMTEQUE conducted additional sampling in order to determine if petroleum contamination impacted groundwater under the Site. EMTEQUE installed three wells (W1 through W3), shown on Figure 4. No petroleum-related contamination was detected. However, organic solvent contamination was detected in the groundwater samples collected from the northeast quadrant of the site in the vicinity of the former USTs and the historic on-site drycleaner.

Subsequently, soil vapor sampling was performed by EMTEQUE in September 2008 in the areas of the former drycleaner and the former USTs. Soil vapor sampling results from six locations revealed exceedences of the New York State Department of Health (NYSDOH) guidance for acetone, 2-butanone, cis-1, 2-dichloroethene and tetrachloroethene (PCE).

Based on the data collected from the previous investigations at the Site and subsequent discussions with NYSDEC, FLS recommended that additional subsurface investigations be conducted at the Site, including soil, soil vapor, and groundwater sampling. The investigation was performed in October and November 2008. The purpose was to evaluate whether the previously detected soil vapor, soil and groundwater contamination in the northeast quadrant of the Site is due to the historic on-site dry cleaning operations or the off-site dry cleaners. This investigation was also aimed to investigate whether soil vapor contamination exists near the Catholic High School located north of the Site.

The investigation consisted of installation of ten soil borings and collection of soil samples; installation and sampling of four groundwater monitoring wells (two along the sidewalk in front of the Site on Bridge Street, one along the sidewalk in the vicinity of the former off-site drycleaner located at 381 Bridge Street, and one on the southwest area of the Site); and collection of soil vapor samples from two locations: the sidewalk area adjacent to the Catholic School at the school basement depth (approximately 10 fbg) and 3 feet above the soil/groundwater interface (13 fbg) in the northeast section of the Site in the vicinity of the former on-Site drycleaner. Soil boring and monitoring well locations are shown on Figure 4.

The investigation revealed the following environmental conditions in connection with the property:

- Chlorinated solvent contamination was detected in all four groundwater samples, most notably, tetrachloroethene (PCE) with a concentration range between 143 to 988 ppb exceeding the Class GA Standard of 5 ppb. The elevated PCE levels detected in the on-site groundwater may be potentially associated with the former on-Site drycleaner. The groundwater sampling proposed in this work plan will provide additional information about groundwater conditions.
- Concentrations of PCE and its daughter compounds TCE, DCE and vinyl chloride above the NYSDOH Guidelines were detected in both soil vapor samples. These organic vapor elevated concentrations may potentially be related to the former usage of the site as a drycleaner.

### 3.0 SAMPLING METHODOLOGY

This SRI will include installation of soil borings and monitoring wells; soil, soil vapor and groundwater sampling; monitoring well elevation and location survey; collection of a full round of depth to water levels from all existing wells; and performance of slug tests.

#### 3.1 Monitoring Well Installation

One deep and three shallow monitoring wells will be advanced on-Site, as shown on Figure 4. One shallow/deep well pair will be installed near the location of EMTEQUE's former well W3. The remaining two shallow wells will be installed in the southeastern corner of the site and in the Lawrence Street sidewalk. The shallow wells will be screened across the water table, with ten feet of well screen below the water table. The deep well will be screened from 20 to 30 feet below the water table.

The monitoring wells will be installed with a hollow-stem auger (HSA) and/or air rotary drill rigs. The on-site shallow wells will be 4-inch diameter while the sidewalk shallow well will be 2-inch diameter. Shallow wells will be constructed using 15 feet of 20-slot well screen, with 10 feet of well screen below the water table. The deep well will be 4-inch diameter and constructed using 10 feet of 20-slot well screen. Clean silica sand, Morie No. 2, or equivalent, will be placed a minimum of one foot above the top of the well screen, two feet being optimal. A two-foot-thick bentonite seal will then be placed above the sand pack and wetted with potable water a minimum of 45 minutes before backfilling the remaining space with a cement-bentonite grout. If warranted by depth, backfilling will be completed using a tremie pipe placed below the surface of the grout. A stick-up protective casing with a locking watertight well cap and/or stick-up protective steel casing will then be installed and a measuring point marked on each well riser. Well construction diagrams will be prepared for each well.

The well will be developed by pumping on the same day after it is drilled. Dedicated PVC tubing will be used. The well will be developed until the turbidity of the water sample, as measured by a nephelometer, reaches less than 50 nephelometric turbidity units (NTUs) or at least 5 well volumes of groundwater have been pumped out.

The monitoring wells will be purged and sampled one week after development. Prior to purging, an electronic interface meter will be used to measure the water level and thickness of free product, if any. A low flow pump (a bladder pump) will be used in the groundwater purging and sampling.

Groundwater samples will not be taken until the field parameters list in section 3.4 are stabilized, or until at least 3 well volumes are purged.

Newly installed and existing groundwater wells will be surveyed by a New York State licensed surveyor to obtain groundwater elevations. A full round of depth to water levels will be taken in all on-Site wells and a groundwater contour map will be developed to determine the groundwater flow direction under the site.

### 3.2 Soil Sampling

During installation of the well pair, one shallow soil boring will be installed. The soil boring will be advanced to the water table, approximately 40 feet below sidewalk grade. The boring will be advanced using the HSA rig. Soil will be sampled every 5 feet from 25 to 40 ft below sidewalk grade. Soil samples will be collected using two-foot-long stainless-steel split-spoon samplers.

Augers with a minimum inside diameter (id) of 4.25 inches for the 2-inch wells and 6.25 inches for the 4-inch wells shall be used for drilling. Augers will be equipped with center plugs and/or inert “knock-out” plates to control sub-water table sediments from rising inside the auger flights and hampering collection of representative soil samples.

Soil boring logs will document the soil types, soil variations, field screen results, and relevant observations. The soil logs will also note soil color, moisture, density, consistency, and grain size.

### 3.3 Soil Sample Collection

The sample in each split spoon sampler will be screened using a photo-ionization detector (PID) to detect possible organic vapors. Soils will be screened for organic vapors by opening the split spoon, making a small slice in the soil column with a clean knife or sampling tool, inserting the PID probe and pushing the slice closed, and monitoring the soil for approximately 5 to 10 seconds. This procedure will be repeated at intervals along the split spoon soil column at the field geologist’s discretion.

Soil samples will be examined for staining, NAPL, discoloration, odors, and debris indicative of contamination: ash, coal fragments, wood chips, cinders, petroleum staining, etc. Shake tests may also be used depending on the field geologist’s discretion.

Samples for laboratory analysis will be collected from the split spoon, from any six-inch interval exhibiting contamination, based on PID readings, discoloration, staining, and the field geologist’s judgment. Sample intervals greater than six inches may be necessary in order to collect sufficient volume, depending on recovery. Some samples may be collected below these areas to characterize where contamination ends or to establish concentration gradients. If no indications of soil contamination are observed, a sample will be collected from the 6-inch interval just at the water table.

Soil samples collected from the shallow well location MW-6s from intervals 30-32 feet, 35-37 feet, and 40-42 feet will be analyzed for TCL VOCs. Soil samples collected from other proposed boring locations will be selected for laboratory analysis as described in the above procedure.

Soil samples will be collected by cutting the soil in two places with decontaminated steel, stainless steel, or aluminum trowel, spoon, or knife and a VOC sample will be collected directly into the sample container. Samplers will wear phthalate-free gloves such as nitrile (no latex will be used) and will avoid touching the sample with gloves. Only clean instruments will be allowed to touch the sample. If there is insufficient soil volume in the sampler, then this will be made up by attempting a second sample at the same depth. If there is no recovery, then the sample from this depth will be skipped, and drilling will progress to the next sampling interval

Soil samples will be analyzed for TCL-VOCs by EPA Method 8260 and total organic carbon (TOC). One trip blank, one equipment blank and one duplicate sample will be collected and analyzed for TCL VOCs. In addition, a laboratory prepared trip blank will be analyzed for TCL VOCs. Soil samples will be containerized in laboratory-prepared jars, labeled, sealed, and placed in a chilled cooler for shipment to the laboratory. Soil samples will be analyzed by an ELAP-certified laboratory approved by the NYSDOH.

### **3.4 Groundwater Sample Collection**

The newly installed and existing (installed in October 2008) monitoring wells will be purged and sampled. Field measurements of the geochemical parameter will be recorded during and after purging, and before sampling. A low-flow sampling pump (a bladder pump) will be used to purge and sample each monitoring well to minimize chemical and hydrological disturbances in and around the well. In order to determine the geochemical characteristics of groundwater to select a remedy for the PCE contamination, the following geochemical parameters will be collected in the field through an overflow cell at the well head and/or using direct reading meters:

1. Dissolved oxygen and hydrogen
2. pH, conductivity, and temperature
3. Oxidation-reduction potential (ORP)
4. Iron (II)

Prior to sampling the well will be purged until field parameters listed are stabilized, or until at least 3 well volumes are purged. During purging, FLS will actively monitor and track the volume of water purged and the field parameter readings. Data will be recorded in the field logbook.

The groundwater samples will be analyzed for TCL-VOCs by EPA Method 8260, nitrate, sulfate, dissolved organic carbon (DOC). One equipment blank and one duplicate sample will be collected and analyzed for TCL VOCs. In addition, a laboratory prepared trip blank will be analyzed for TCL VOCs.

Groundwater samples will be containerized in laboratory-prepared pre-preserved jars, labeled, sealed, and placed in a chilled cooler for shipment to the laboratory.

Groundwater samples will be analyzed by an ELAP-certified laboratory approved by the NYSDOH.

### **3.5 Hydraulic Conductivity Testing, and Groundwater Flow**

Slug tests will be completed in two of the newly installed 4-inch shallow wells to estimate hydraulic conductivity. Depending on the findings of the groundwater sampling, slug tests will also be done in the deep groundwater monitoring well. First, the water level in a well will be measured and a pressure transducer lowered into the well. Then a sand-filled PVC slug of known volume will be lowered into a well and the water level allowed to equilibrate. After equilibration, the water level will again be measured and the slug rapidly withdrawn and the water level changes recorded by the pressure transducer. The data will be reduced using Aqtesolve<sup>®</sup> software and the Bouwer and Rice Method of analysis.

### **3.6 Investigation Derived Waste (IDW) Management**

Soil cuttings generated during drilling will be stockpiled on plastic prior to backfilling. Soil will be backfilled into boreholes where drill cuttings are visibly clean, free of petroleum product, sheen, odors, and elevated PID readings, or otherwise pose no threat of contamination. Where cuttings fail to meet all these conditions, they will be placed in DOT-approved 55-gallon drums and stored at the on-site drum storage location for testing and disposal.

Well development and purge water will be staged in 55-gallon drums for disposal, if required. FLS will label each drum with the contents and date when waste accumulation began. The disposition of the water will depend on the results of the analytical program.

Water and other waste materials generated from steam cleaning of equipment will also be drummed for subsequent disposal. The disposition of the waste will depend on the results of the analytical program. Equipment decontamination water will be staged in 55-gallon drums for disposal. All drums will be labeled and dated with the message "Analysis Pending."

### **3.7 Soil Vapor Sampling**

Soil vapor sampling will be done in the vicinity of former sample SV-2 and near former well W-3 and the newly installed shallow/deep monitoring well pair. The locations are shown on Figure 4. The soil vapor sampling is intended as a screening procedure to get a quantitative indication of the presence of volatile organic compounds in soils and to vertically delineate previous soil vapor sampling results. Samples will be collected using a 5/8-inch diameter retractable stainless steel sampling probe. The sampling probe consists of a 1.5-inch long hardened point and a 2-inches long perforated vapor intake.

Three samples will be collected at each location, from 25 to 30, 30 to 35 and 35 to 40 feet below sidewalk grade. If a geoprobe unit is used, the soil gas probe similar to the probe describe above will be pushed to the desired depths. Once the soil gas sampling probe has

been driven to the desired depth, the outer protective casing will then be retracted to obtain the soil vapors sample through a ¼-inch polyethylene tube attached to the sampling probe. The borehole above the sampling probe at grade will be sealed using an inert sealant such as modeling clay to prevent ambient air mixing with the soil vapors. Ambient air will be purged from the boring hole by attaching the surface end of the ¼ polyethylene tube to an air valve then to a vacuum pump. The vacuum pump will remove one to three volumes of air (volume of the sample probe and tube) prior to sample collection. The flow rate for both purging and collecting samples will not exceed 0.2 liter per minute.

The soil vapors sample will be first tested using a PID. The sample will then be collected in a six liter SUMMA canister. The SUMMA canister will be directly attached to the tubing and the valve will be opened to collect the sample. A one-hour regulator will be used along with a laboratory individually cleaned SUMMA canister for the collection of soil vapors sample. The soil vapors sample will be analyzed for VOCs by using EPA Method TO-15 by a New York State ELAP-approved laboratory. For QA/QC purposes a trip blank will be utilized. The reporting limit for the soil gas sampling analysis will not exceed one microgram per cubic meter (1 ug/m<sup>3</sup>).

Once the soil vapor sample is collected from the depth of 25 -30 feet, the sampling probe will be withdrawn, cleaned and decontaminated. The sampling location will be filled and sealed. The geoprobe unit will be moved at least two feet in the vicinity of the first location and the sampling probe will be pushed from the surface to the depth of 30-35 feet to collect the second soil vapor sample. The sampling procedure described above will be repeated to collect the third soil vapor sample from the depth of 35-40 feet.

#### 4.0 QUALITY ASSURANCE/QUALITY CONTROL

The following procedures will be used to ensure that samples are collected and handled in accordance with NYSDEC and NYCDEP protocols.

#### 4.1 Laboratory Methods

Table 1 summarizes the laboratory methods that will be used to analyze the soil and groundwater samples. Sample analysis will be performed by an NYSDOH-ELAP certified laboratory.

**Table 1: Laboratory Analytical Methods for Soil and Groundwater Samples**

Matrix	Quantity	Analysis	Method or Technique	Preservative
SOIL	8*	TCL VOCs	EPA 8260	None
	4	TOC	EPA SW 9060	None
WATER	9*	TCL VOCs	EPA 8260	HCl
	7	Nitrate	EPA 353.2/SM4500NO2B	
	7	Sulfate	EPA300/SWS846 9056	
	7	Dissolved Organic Carbon	EPA SW 9060	
SOIL VAPOR	7	VOCs	EPA Method TO-15	None

\* Including field and trip blanks

A New York State ELAP-certified laboratory will be used for all laboratory analysis. The laboratory will operate a Quality Assurance/Quality Control (QA/QC) program that will consist of proper laboratory practices (including the required chain-of-custody), an internal quality control program, and external quality control audits by New York State Department of Health (NYSDOH).

A trip blank and field blank will be included in each batch of samples, or 1 for each 20 samples, whichever is greater in frequency. Trip blanks and field blanks will be analyzed for the parameters specified in Table 1 to check for contamination due to transport and sampling procedures.

#### 4.2 Field Decontamination Procedures

To avoid contamination and cross-contamination of samples, all sampling equipment will be cleaned before collection of each sample. The procedure to be used is taken directly from the document entitled "RCRA Quality Assurance, Project Plan Guidance", published by the NYS Department of Environmental Conservation, Division of Hazardous Substances Regulation in 1991.

The following procedure will be followed for all samples:

- Step 1: Scrub with tap water and non-phosphate detergent.
- Step 2: Rinse with tap water.
- Step 3: Rinse with 0.1% HNO<sub>3</sub>,
- Step 4: Rinse with tap water.
- Step 5: Rinse with methanol.
- Step 6: Rinse with methanol.
- Step 7: Rinse with deionized water.
- Step 8: Air dry the equipment.
- Step 9: Wrap in aluminum foil.

### 4.3 Chain of Custody

To ensure the integrity of samples taken, a strict chain of custody record must be maintained on each sample. This begins after sampling with the entry in the sampler's field book of the sampling details:

- Date and time of sampling.
- Sample location (as specific as possible).
- The unique sample number, size, and containers used.
- Sample description.
- Weather conditions (if applicable).
- Any additional comments.

In addition, a record must be kept of the sample's progress from the sample site to the laboratory where it will be analyzed. This is the chain-of-custody form. The form must include:

- The sample number.
- The sampler's name.
- Date and time of sampling.
- Location at which the sample was taken, including the address, if possible.
- A description of the sample, as best known.
- Signatures of people involved in the chain of possession.
- Inclusive dates of possession of each person in the chain.

The chain-of-custody form must accompany the sample throughout its trip to the laboratory. If the samples must be shipped to a laboratory, most shipping agents will refuse to sign or separately carry the chain-of-custody form. In this one case, it is permissible to put the chain-of-custody form into the box with the sample and then seal the box. The recipient of the box, the laboratory's sample custodian, can then attest to the box's arrival still sealed and unopened.

Accompanying the chain-of-custody record, or included in it, must be a request to the laboratory for sample analysis. Information required includes:

- Name of person receiving the sample.
- Laboratory sample number.
- Date of sample receipt.

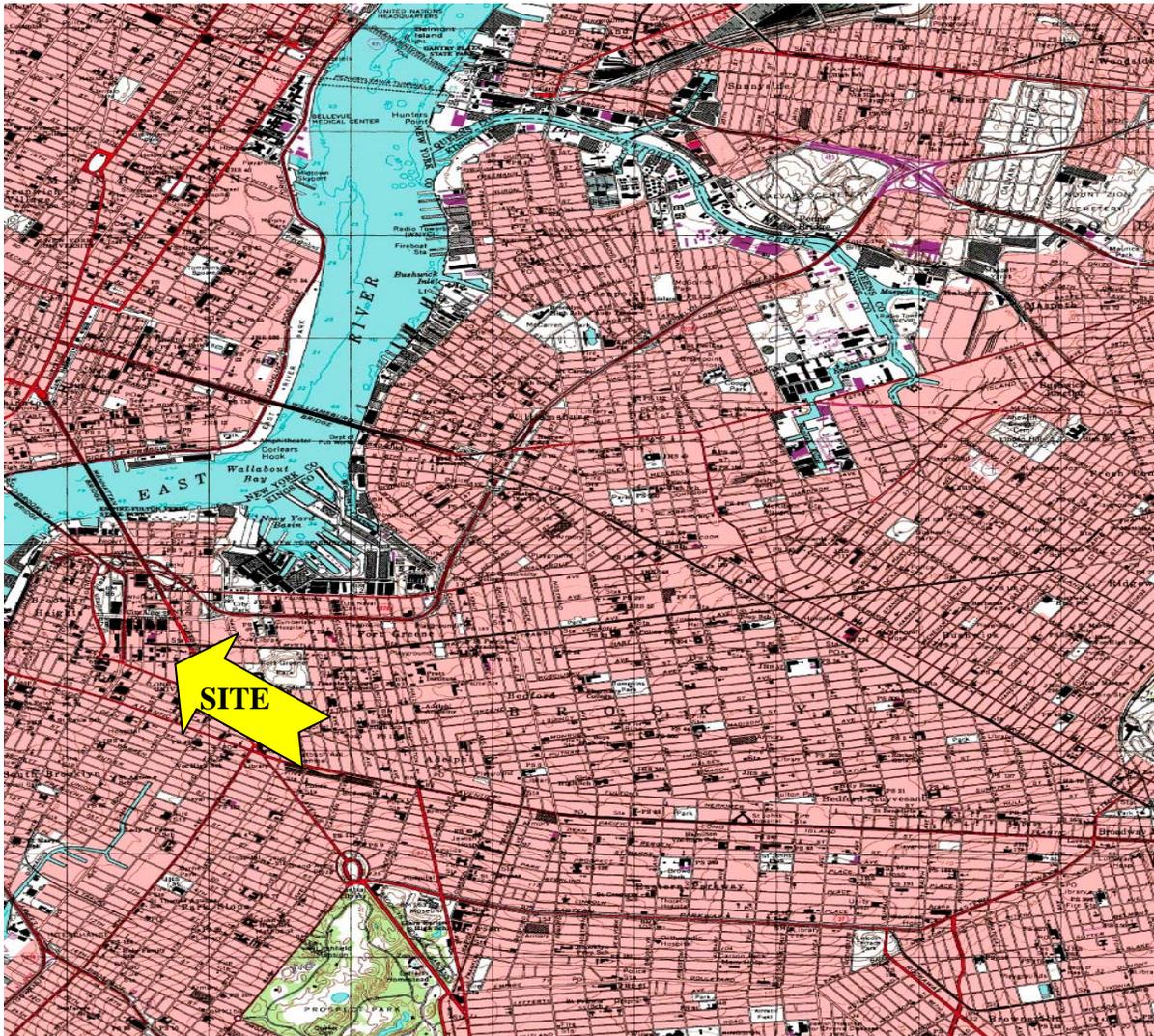
- Sample allocation.
- Analysis to be performed.

Finally, on arrival at the laboratory, the sample custodian must enter the sample in the laboratory's sample logbook. The chain-of-custody should be kept on file at the laboratory.

## **5.0 REPORT**

A Supplemental Remedial Investigation Report will include a narrative of the field activities; laboratory data comparison of soil, soil vapor and groundwater analytical results to appropriate state and federal regulatory levels (i.e., unrestricted use soil cleanup objectives as listed in Table 375-6.8(a) of 6NYCRR Part 375, Subparts 375-1 to 375-4 & 375-6); updated site plans depicting surveyed well locations; boring and well logs; and results of the hydraulic conductivity study. The data will be used for remedial design and subsequently, a Remedial Action Work Plan will be prepared.

# FIGURES



Site: *Brooklyn Quadrangle USGS Topographic Map (79287)*  
Obtained from United States Geological Survey topography compiled 1961



### FIGURE 1: SITE LOCATION MAP

SITE: 384 Bridge Street  
Brooklyn, New York



Environmental Management & Consulting

158 West 29th Street, 9th Fl.  
New York, NY 10001

384 Bridge Street  
Brooklyn, NY

### FIGURE 2

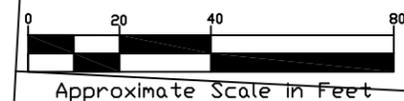
## SITE PLAN

Date  
**June 2009**

Project Number  
**10149-001-1**

### LEGEND

- 384** Site Address
-  Site Boundary





Environmental Management & Consulting

158 West 29th Street, 9th Fl.  
New York, NY 10001

384 Bridge Street  
Brooklyn, NY

### FIGURE 3

## GROUNDWATER FLOW DIRECTION

Date  
**June 2009**

Project Number  
**10149-001-1**

### LEGEND

- 384** Site Address
- Site Boundary
- FLS Monitoring Well Location/Groundwater Elevation



Scale 1" = 25'

10 Story  
Catholic School  
Building

**381**

Former Dry Cleaning Facility

Former Dry Cleaning Facility

MW-1  
56.74'

MW-3  
56.49'

MW-2  
56.86'

MW-4  
56.92'

Lot 118

Lot 37

**384**

Bridge St.



Elevations are site-specific, based on an elevation of  
100.0' for MW3.



Environmental Management & Consulting

158 West 29th Street, 9th Fl.  
New York, NY 10001

384 Bridge Street  
Brooklyn, NY

### FIGURE 4

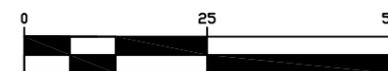
## PROPOSED SOIL, SOIL VAPOR AND GROUNDWATER SAMPLING LOCATIONS

Date  
**June 2009**

Project Number  
**10149-001-1**

### LEGEND

- SV-3  Proposed Soil Vapor Sampling Location
- MW-6 (S/D)  Proposed Monitoring Wells
- MW-1  October 2008 Monitoring Wells
- W-1  Enteque Groundwater Sampling Location - 9.16.08



Scale 1" = 25'

