

**386 AND 388 WALLABOUT STREET  
BROOKLYN, NEW YORK**

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**Remedial Investigation Report**

**NYC BCP Site Number: 12CBCP025K**

**Prepared for:**

Wallabout Throop Realty, LLC  
329 Hewes Avenue  
Brooklyn, NY 11211

**Prepared by:**



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August 2011

# REMEDIAL INVESTIGATION REPORT

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## LIST OF ACRONYMS

<b>Acronym</b>	<b>Definition</b>
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC BCP	New York City Brownfield Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

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## CERTIFICATION

I, Charles Sosik, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation for the 454 Driggs Avenue Site, (NYC BCP Site No. 12CBCP024K). I am responsible for the content of this Remedial Investigation Report (RIR), have reviewed its contents and certify that this RIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

Charles B. Sosik, P.G.

8/7/11



Qualified Environmental Professional

Date

Signature

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## **EXECUTIVE SUMMARY**

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The remedial investigation (RI) described in this document is consistent with applicable guidance.

### **Site Location and Current Usage**

The Site is located at 386-388 Wallabout Street in the Williamsburg section of Brooklyn, New York and is identified as Block 2266 and Lots 19 and 20 on the New York City Tax Map. Figure 1 shows the Site location. The two adjacent lots are located on the south side of Wallabout Street, between Harrison Avenue and Throop Street. Both lots have 25 feet of street frontage on Wallabout Street and both are 100 feet deep for a total square footage of 5,000 square feet (0.11 acres).

An 8 foot high chain link fence surrounded the front, rear and west sides of the site. The east side of the site was open to Lots 21 and 22 to the east, making the site appear larger. Several large box trucks and metal shipping containers were parked/stored on the lot. The Site is bounded by Wallabout Street to the north, an undeveloped residential zoned lot to the south, an undeveloped residential zoned lot to the east, and an undeveloped residential zoned lot to the west. A map of the site boundary is shown in Figure 2.

### **Summary of Proposed Redevelopment Plan**

The proposed future use of the Site will consist of multi-family residential. The layout of the proposed site development is presented in Figure 3. The current zoning designation is R-7A residential. The proposed use is consistent with existing zoning for the property.

Redevelopment plans for the two subject lots include the construction of a new multi-family residential building with an 8 foot basement level.

### **Summary of Past Uses of Site and Areas of Concern**

The site was developed prior to 1887 with a 3-story dwelling and a two story building utilized by “Brooklyn Pottery”. The 2-story pottery building was replaced prior to 1904 with a 3-story residential building with first floor commercial space. From 1918 to 1950, a pipe store and a small office were setup in the first floor commercial space of 388 Wallabout Street. In the 1960’s the 3-story building at 388 Wallabout Street was demolished, and in the 1970’s the building at 386 Wallabout Street was demolished. Both lots have remained vacant lots since the buildings were demolished.

### **Summary of the Work Performed under the Remedial Investigation**

Wallabout Throop LLC performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 5 soil borings across the entire project Site, and collected 10 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 3 groundwater monitoring wells throughout the Site to establish groundwater flow and collected 3 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 6 soil vapor probes around Site perimeter and collected 6 samples for chemical analysis.

### **Summary of Environmental Findings**

1. Elevation of the property is 14 feet.
2. Depth to groundwater ranges from 8 to 9 feet at the Site.
3. Groundwater flow is generally from east to west beneath the Site
4. The stratigraphy of the site, from the surface down, consists of 5 feet of fill material underlain by native silty clay grading to silty sands and medium sands.
5. Soil/fill samples collected during the RI showed elevated levels of metals.
6. Groundwater samples collected during the RI showed elevated levels of chlorinated solvents
7. Soil vapor samples collected during the RI showed detections of VOC and chlorinated VOCs.

# **REMEDIAL INVESTIGATION REPORT**

## **1.0 SITE BACKGROUND**

Wallabout Throop LLC has applied to be enrolled in the New York City Brownfield Cleanup Program (NYC BCP) to investigate and remediate a 0.11-acre site located at 386-388 Wallabout Street in the Williamsburg section of Brooklyn, New York. Residential use, mixed commercial residential use is proposed for the property. The RI investigation was performed between June 10 and July 17, 2011. This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f).

## **1.1 SITE LOCATION AND CURRENT USAGE**

The Site is located at 386-388 Wallabout Street in the Williamsburg section of Brooklyn, New York and is identified as Block 2266 and Lots 19 and 20 on the New York City Tax Map. Figure 1 shows the Site location. The two adjacent lots are located on the south side of Wallabout Street, between Harrison Avenue and Throop Street. Both lots have 25 feet of street frontage on Wallabout Street and both are 100 feet deep for a total square footage of 5,000 square feet (0.11 acres).

An 8 foot high chain link fence surrounded the front, rear and west sides of the site. The east side of the site was open to Lots 21 and 22 to the east, making the site appear larger. Several large box trucks and metal shipping containers were parked/stored on the lot. The Site is bounded by Wallabout Street to the north, an undeveloped residential zoned lot to the south, an undeveloped residential zoned lot to the east, and an undeveloped residential zoned lot to the west. A map of the site boundary is shown in Figure 2.

## 1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of multi-family residential. The layout of the proposed site development is presented in Figure 3. The current zoning designation is R-7A residential. The proposed use is consistent with existing zoning for the property.

Redevelopment plans for the two subject lots include the construction of a new multi-family residential building with an 8 foot basement level and a small backyard area.

## 1.3 DESCRIPTION OF SURROUNDING PROPERTY

The area surrounding the subject property consists of a mix of residential and commercial properties. Each of the adjacent properties is described in detail in the table provided below:

Direction	Property Description
<b>North</b> – Opposite side of Wallabout Street	<p><u>Block 2250, Lot 41</u> (295 Wallabout Street) – Developed with a 1-story brick industrial/manufacturing building. Built between 1950 and 1965. Tenants of the building have been identified as Greenfeld’s Foods, Mendel’s Jewelers, and VM Foreign Trade. The property is owned by A. Holding.</p> <p><u>Block 2250, Lot 40</u> (305 Wallabout Street) – Developed with a 1-story brick industrial/manufacturing building located on Lot 41. Built in 1993. Tenants of the building have been identified as AGM Décor, Inc. The property is owned by A. Holding.</p>
<b>South</b> – Adjacent properties	<p><u>Block 2266, Lot 46</u> (73 to 85 Gerry Street) – The large lot has 200 feet of street frontage on Gerry Street. The entire lot is vacant with the exception of a groundwater remediation system installed against the rear property boundary. The property is owned by Pfizer Inc.</p> <p><u>Block 2266, Lot 41</u> (No # Gerry Street) – A small 25ft wide vacant lot, fenced in as a single larger lot along with Lot 46. The property is owned by Pfizer Inc.</p>
<b>East</b> – Adjacent properties	<p><u>Block 2266, Lot 21</u> (390 Wallabout Street) – An undeveloped 1,575 square foot lot (25’ x 63’) utilized for parking and storage of rental vehicles trucks. The property is owned by Sam Rosenberg.</p> <p><u>Block 2266, Lot 22</u> (392 Wallabout Street) – An undeveloped 3,425 square foot lot utilized for parking and storage rental vehicles and trucks. The property is owned by Sam Rosenberg. A mobile office trailer is set up for vehicle rentals.</p>
<b>West</b> – Adjacent properties	<p><u>Block 2266, Lot 18</u> (384 Wallabout Street) – Vacant 2,500 square foot lot owned by the New York City Department of Housing Preservation and Development. Several large tour buses and pieces of machinery were parked/stored on the lot.</p>

Figure 4 shows the surrounding land usage.

## **2.0 SITE HISTORY**

### **2.1 PAST USES AND OWNERSHIP**

The site was developed prior to 1887 with a 3-story dwelling and a two story building utilized by “Brooklyn Pottery”. The 2-story pottery building was replaced prior to 1904 with a 3-story residential building with first floor commercial space. From 1918 to 1950, a pipe store and a small office were setup in the first floor commercial space of 388 Wallabout Street. In the 1960’s the 3-story building at 388 Wallabout Street was demolished, and in the 1970’s the building at 386 Wallabout Street was demolished. Both lots have remained vacant lots since the buildings were demolished.

### **2.2 PREVIOUS INVESTIGATIONS**

A Phase I Environmental Site Assessment (ESA) was completed by Environmental Business Consultants, in May of 2011 for the site.

The Phase I concluded that based upon reconnaissance of the subject and surrounding properties, interviews and review of historical records and regulatory agency databases, the following recognized environmental condition was noted for the site:

- A bulk spill of trichloroethylene to subsurface soil occurred at 398 Wallabout Street. The spill site is located within a short distance of the subject site (~150 feet to the east) and is considered to be located at an up gradient groundwater flow location.
- Numerous spill numbers were listed for the Pfizer Inc. – Brooklyn Plant located at 73-87 Gerry Street, which is an adjacent property located to the south. In addition, a groundwater treatment system was identified on the Pfizer Inc. – Brooklyn Plant property up against the southern property line of the subject site.

The Phase I recommended performing a Phase II Subsurface Investigation at the subject site to include the collection and laboratory analysis of subsurface soil samples and groundwater

samples. The Phase I noted that since the site had a Hazmat “E” for the site, the Phase II Subsurface Investigation should also include the typical Phase II requirements of NYCOER.

### **2.3 SITE INSPECTION**

At the time of the inspection, both adjacent lots were vacant. An 8 foot high chain link fence surrounded the two lots. Several large tour buses and pieces of heavy machinery were parked on the site. The ground cover consisted of some concrete near the gate entrance, and a gravel/soil mixture throughout the remaining areas. Through the rear fence of the property, facing south towards 73 to 87 Gerry Street, a groundwater remediation system was observed. The system consisted of a metal shipping container with numerous PVC pipes/fittings extruding from the sides of the container. Four steel 55-gallon drums were stored near the system. A non-hazardous label was affixed to the side of each of the drums. EBC also noted a flush-mount steel monitoring well cover in the sidewalk immediately in front of the adjacent lots located to the west on Wallabout Street. A walk was conducted around the entire block, and several additional monitoring wells were noted in the sidewalk along Harrison Avenue and further west on Wallabout Street. The wells are likely associated with the Pfizer property which borders the subject Site to the east.

### **2.4 AREAS OF CONCERN**

- No areas of concern were identified in the Phase I report or the site inspection.
- RI identified historic fill to the depths of 5 feet below grade.

Historical information on neighborhood properties identified:

- Soil vapor on the nearby Pfizer property under NYS Voluntary Cleanup Program containing concentrations of PCE and TCE above the NYSDOH AGVs.
- Groundwater on the southeastern portion of the nearby Pfizer property contains concentrations of benzene, vinyl chloride, and cis-1,2-DCE above the AWQS/GV.

### **3.0 PROJECT MANAGEMENT**

#### **3.1 PROJECT ORGANIZATION**

The Qualified Environmental Profession (QEP) responsible for preparation of this RIR is Charles B. Sosik, P.G.

#### **3.2 HEALTH AND SAFETY**

All work described in this RIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

#### **3.3 MATERIALS MANAGEMENT**

All material encountered during the RI was managed in accordance with applicable laws and regulations.

## **4.0 REMEDIAL INVESTIGATION ACTIVITIES**

Wallabout Throop LLC performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 5 soil borings across the entire project Site, and collected 10 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 3 groundwater monitoring wells throughout the Site to establish groundwater flow and collected 3 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 6 soil vapor probes around Site perimeter and collected 6 samples for chemical analysis.

### **4.1 GEOPHYSICAL INVESTIGATION**

Based on the results of the Phase I and Site inspection, a geophysical investigation was not recommended and was not included as part of this RIR.

### **4.2 BORINGS AND MONITORING WELLS**

#### **Drilling and Soil Logging**

A total of five soil borings (B1-B5) were advanced at the site on June 10, 2011. Each of the five soil boring locations was chosen to gain representative soil and groundwater quality information across the site (Figure 5).

For each of the five soil borings, soil samples were collected continuously from grade to a final depth of 15 feet below existing grade using a five-foot steel macro-core sampler with acetate liners and Geoprobe direct-push equipment. Soil cores were field screened for the presence of VOCs with a photo-ionization detector (PID) and visually inspected for evidence of contamination by a qualified environmental professional. No elevated PID readings or olfactory evidence of soil contamination was noted for any of the soil samples recovered from the soil borings.

In general, subsurface soils at the property consisted of an urban fill layer approximately 5 to 6 feet below grade, followed by a grey or brown fine to medium sand. Wet sand was encountered at each boring at approximately 10 feet below grade.

Boring logs, prepared by an experienced geologist are attached in Appendix A. A map showing the location of soil borings and monitor wells is shown in Figure 5 .

### **Groundwater Monitoring Well Construction**

A 1-inch diameter pvc well with 10 feet of 0.010 slot screen was installed at borings B1, B2, and B4, and set to intersect the water table. Since wet soil was encountered for all borings at approximately 9 to 10 feet, the well was installed to a depth of approximately 15 feet below grade. Monitor well locations are shown in Figure 5.

## **4.3 SAMPLE COLLECTION AND CHEMICAL ANALYSIS**

Sampling performed as part of the field investigation was conducted for all Areas of Concern and also considered other means for bias of sampling based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. All media including soil, groundwater and soil vapor have been sampled and evaluated in the RIR. Discrete (grab) samples have been used for final delineation of the nature and extent of contamination and to determine the impact of contaminants on public health and the environment. The sampling performed and presented in this RIR provides sufficient basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy.

### **Soil Sampling**

10 soil samples were collected for chemical analysis during this RI. A shallow soil sample was retained for laboratory analysis from each soil boring from approximately 0 to 2 feet below grade. In addition, a deep soil sample was retained for laboratory analysis from the approximate interval of 12 to 14 feet below grade.

All soil samples were collected in pre-cleaned, laboratory supplied glassware, stored in a cooler with ice and submitted for analysis to Analytical Laboratory Services, Inc. All soil samples were analyzed for the presence of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, pesticides/PCBs by EPA Methods 8081/8082 and target analyte list (TAL) metals.

Data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Tables 2-5. Figure 5 shows the location of samples collected in this investigation.

### **Groundwater Sampling**

Three groundwater samples were collected for chemical analysis during this RI. A groundwater sample was collected from three of the five soil boring locations. A groundwater sample was collected from each temporary well location utilizing disposable polyethylene tubing and a peristaltic pump.

All groundwater samples were collected in pre-cleaned, laboratory supplied glassware, stored in a cooler with ice and submitted for analysis to Analytical Laboratory Services, Inc. The groundwater samples were analyzed for the presence of VOCs by EPA Method 8260, SVOCs-BN by EPA Method 8270, pesticides/PCBs by EPA Methods 8081/8082, and TAL dissolved metals.

Groundwater sample collection data is reported in Tables 6-9. Sampling logs with information on purging and sampling of groundwater monitoring wells is included in Appendix B. Figure 5 shows the location of groundwater sampling.

### **Soil Vapor Sampling**

Six soil vapor probes were installed and six soil vapor samples were collected for chemical analysis during this RI. The soil gas sampling locations were selected to be representative of conditions across the subject property.

Vapor implants were installed on July 19, 2011, using Geoprobe™ equipment and tooling. The vapor implants that were installed were the Geoprobe™ Model AT86 series, which are constructed of a 6-inch length of double woven stainless steel wire. The implants were installed to a depth of 7 feet below grade at all locations. Each implant was attached to ¼ inch polyethylene tubing which extended approximately 18 inches beyond that needed to reach the surface. The tubing was capped with a ¼ inch plastic end to prevent the infiltration of foreign particles into the tube. Coarse sand was placed around the vapor implant to a height of approximately 1 foot above the bottom of the implant. The remainder of the borehole was sealed with a bentonite slurry to the surface.

Prior to collecting the sample, one to three volumes (i.e., the volume of the sample probe and tube) of air was purged from the implant using a calibrated vacuum pump. After purging, a 6-liter Summa® canister, fitted with a 2-hour flow regulator, was attached to the surface tube of each of the six vapor implants. Sample identification, date, start time, start vacuum, end time and end vacuum were recorded on tags attached to each canister and on a sample log sheet (Appendix C). Samples were submitted to Analytical Laboratory Services, Inc. for laboratory analysis of VOCs EPA Method TO-15.

Soil vapor sampling locations are shown in Figure 5. Soil vapor sample collection data is reported in Table 10. Soil vapor sampling logs are included in Appendix C. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006*.

### **Chemical Analysis**

Chemical analytical work presented in this RIR has been performed in the following manner:

<b>Factor</b>	<b>Description</b>
Quality Assurance Officer	The chemical analytical quality assurance is directed by ALS Analytical Laboratories.
Chemical Analytical	Chemical analytical laboratory(s) used in the RI is NYS ELAP

Laboratory	certified and were ALS Analytical Laboratories.
Chemical Analytical Methods	<p>Soil analytical methods:</p> <ul style="list-style-type: none"><li>• TAL Metals by EPA Method 6010C (rev. 2007);</li><li>• VOCs by EPA Method 8260C (rev. 2006);</li><li>• SVOCs by EPA Method 8270D (rev. 2007);</li><li>• Pesticides by EPA Method 8081B (rev. 2000);</li><li>• PCBs by EPA Method 8082A (rev. 2000);</li></ul> <p>Groundwater analytical methods:</p> <ul style="list-style-type: none"><li>• TAL Metals by EPA Method 6010C (rev. 2007);</li><li>• VOCs by EPA Method 8260C (rev. 2006);</li><li>• SVOCs by EPA Method 8270D (rev. 2007);</li><li>• Pesticides by EPA Method 8081B (rev. 2000);</li><li>• PCBs by EPA Method 8082A (rev. 2000);</li></ul> <p>Soil vapor analytical methods:</p> <ul style="list-style-type: none"><li>• VOCs by TO-15 VOC parameters..</li></ul>

### Results of Chemical Analyses

Laboratory data for soil, groundwater and soil vapor are summarized in Tables 2-10 , respectively. Laboratory data deliverables for all samples evaluated in this RIR are provided in digital form in Appendix D.

## **5.0 ENVIRONMENTAL EVALUATION**

### **5.1 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS**

#### **Stratigraphy**

Subsurface soils at the site are primarily made up of a historic fill material to an approximate depth of 5 to 6 feet below grade, followed by a native brown medium to fine sand.

#### **Hydrogeology**

The average depth to groundwater is 9 feet below the surface and the range in depth is 8 to 9 feet. A map of groundwater level elevations with groundwater contours and inferred flow lines is shown in Figure 6. Groundwater flow is from east to west.

### **5.2 SOIL ANALYTICAL RESULTS**

Soil sample results were compared to the NYSDEC Track 1 Unrestricted Use Soil Cleanup Objectives (Part 375.6). Analytical data for the soil samples are summarized in **Tables 2** through **5**, and a copy of the laboratory analytical report is included in **Appendix D**. Field screening of soil in all borings found urban fill materials to a depth of 4 to 5 feet below grade. This was evident as pieces of bricks and debris.

#### *VOCs*

Acetone was detected in all shallow samples and methylene chloride were detected within all ten soil samples submitted for laboratory analysis. These compounds are often used for sample extraction, and due to the relatively low concentrations detected within the samples, should not be considered site contaminants. No other VOCs were detected at a concentration above UUSCOs within any of the soil samples. However, several low level detections of benzene (13.9 ppb), toluene (2.8 ppb), tetrachloroethylene (2.5 ppb), and m&p-xylenes (6.5 ppb) were observed within B4 0-2', but their concentrations were all well below NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives (UUSCOs).

### *SVOCs*

Several SVOCs were detected within two of the shallow soil samples (B4 0-2' and B5 0-2') above Track I as well as above Track II residential SCOs. The SVOCs detected within the two shallow soil samples above UUSCOs include Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, and Dibenzo(a,h)anthracene. One or more of these compounds were also detected with the three other shallow soil samples, but all at a concentration below UUSCOs. The concentrations detected in the shallow soil samples reflect typical historic fill values and would not be indicative of a spill or release.

### *Pesticides / PCBs*

The pesticides 4,4,4-DDE and 4,4,4-DDT were detected within three of the shallow soil samples (B2 0-2', B3 0-2', B5 0-2') at a concentration above UUSCOs. All these concentrations were below Track 2 SCOs. No other pesticides or PCBs were detected within any of the soil samples at a concentration above SCOs.

### *Metals*

Laboratory analysis indicated that six metals in shallow soil of historical fill (0-2 feet depth) exceeded Track 1 SCOs, that included Barium, Cadmium, Copper, Lead, Mercury and Zinc. Of these, barium, cadmium, lead, and mercury also exceeded Track 2 Residential SCOs. All SCO exceedences were limited to shallow (0-2 foot) samples.

The exceedences of each soil sample are listed below.

B1(0-2) – cadmium (2.7 ppm), copper (187 ppm), lead (618 ppm), mercury (1.5 ppm) and zinc (451 ppm);

B2(0-2) – barium (492 ppm), lead (326 ppm), mercury (0.36 ppm), and zinc (588 ppm);

B3(0-2) – mercury (0.23 ppm);

B4(0-2) – lead (220 ppm), mercury (0.35 ppm);

B5(0-2) – chromium (107 ppm), copper (59.4 ppm), lead (554 ppm), mercury (0.71 ppm), and zinc (417 ppm).

All deeper soil samples (6-10 feet) achieved Track 1 criteria. The type of metals detected, and their relatively low concentrations are typical for historic fill, which was encountered to a depth of approximately 5 to 6 feet below grade at the site.

The observed SVOC and metals compounds detected in the shallow soil reflects the historical fill AOC. Removal of the upper 5 feet of soil for the new construction will provide sufficient remediation to meet 6NYCRR Part 375-6.8 Track 1 Soil Cleanup Objectives. Removal of the upper 4 to 5 feet of soil in the backyard area will also achieve Track 1 SCOs.

Data collected during the RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site. A summary table of data for chemical analyses performed on soil samples is included in Tables 2-5. Figure 7 shows the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 1 Soil Cleanup Objectives.

### **5.3 GROUNDWATER ANALYTICAL RESULTS**

Groundwater sample results were compared to the water quality standards specified in NYSDEC Groundwater Quality Standards (GQSs). Analytical data for the groundwater samples are summarized in **Tables 6** through **9**, and a copy of the laboratory analytical report is included in **Appendix D**.

#### *VOCs*

No petroleum related VOCs were detected in any of the groundwater samples collected from the site. However, several chlorinated volatile organic compounds (CVOCs) were detected within all of the three of the groundwater samples. The CVOCs detected and their highest concentrations are cis-1,2-trichloroethylene (83.4 ppb), tetrachloroethylene (20.7 ppb), trichloroethylene (13.0 ppb) and vinyl chloride (3.3 ppb);

#### *SVOCs*

No SVOCs were detected at a concentration above NYSDEC GQSs in any of the groundwater samples submitted for analysis.

### *Pesticides / PCBs*

No Pesticides or PCBs were detected at a concentration above NYSDEC GQSs in the groundwater samples submitted for analysis.

### *Metals*

The metals manganese, magnesium, and sodium were all detected above NYSDEC GQSs. No other metals were detected at a concentration above NYSDEC GQSs within groundwater samples submitted for analysis.

Groundwater upgradient and side gradient of this site is known to be contaminated with VOCs from nearby Pfizer site.

Data collected during the RI is sufficient to delineate the distribution of contaminants in groundwater at the Site. A summary table of data for chemical analyses performed on groundwater samples is included in Tables 6-9. Exceedence of applicable groundwater standards are shown.

Figure 8 shows the location and posts the values for groundwater that exceed the New York State 6NYCRR Part 703.5 Class GA groundwater standards.

## **5.4 SOIL VAPOR ANALYTICAL RESULTS**

Soil vapor samples collected during the RI showed a wide variety of VOCs, consisting mainly of Chlorinated VOCs (CVOCs) including tetrachloroethylene (PCE) and /or trichloroethylene (TCE) were reported in 5 of the 6 sampling locations. PCE was reported in 5 locations with concentrations ranging from 30 ug/m<sup>3</sup> (SG2) to 100 ug/m<sup>3</sup> (SG5). TCE was reported in 3 locations with concentrations ranging from 29 ug/m<sup>3</sup> (SG3) to 53 ug/m<sup>3</sup> (SG5). Concentrations of acetone range as high as 3,400 ug/m<sup>3</sup>. Similar to BTEX compounds, PCE and TCE were not detected onsite and past uses of the property do not suggest the potential for onsite source areas.

Based on the presence of VOCs coming from adjacent offsite sources, the installation of a vapor barrier to protect residents is warranted at this site.

Data collected during the RI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. A summary table of data for chemical analyses performed on soil vapor samples is included in Table 10.

### **5.5 PRIOR ACTIVITY**

Based on an evaluation of the data and information from the RIR, disposal of significant amounts of hazardous waste is not suspected at this site.

### **5.6 IMPEDIMENTS TO REMEDIAL ACTION**

There are no known impediments to remedial action at this property.

# **TABLES**

**Table 1**  
**386-388 Wallabout Street, Brooklyn, New York**  
**Soil Boring / Well Information**

<b>Boring/Well No.</b>	<b>Date</b>	<b>Total Depth (ft)</b>	<b>Diameter (in)</b>	<b>Construction Materials</b>	<b>Screen Length (ft)</b>	<b>DTW (ft)</b>
B1	6/10/2011	15.00	2			8
B2	6/10/2011	15.00	2			8
B3	6/10/2011	15.00	2			8
B4	6/10/2011	15.00	2			8
B5	6/10/2011	15.00	2			
B1 - Well	6/10/2011	15.00	1	pvc	10.00	8.79
B2 - Well	6/10/2011	15.00	1	pvc	10.00	9.01
B5 - Well	6/10/2011	15.00	1	pvc	10.00	8.16

TABLE 2  
386 and 388 Wallabout Street, Brooklyn, New York  
Soil Analytical Results  
Volatile Organic Compounds

COMPOUND	* Track 1 Unrestricted Use Soil Cleanup Objectives	B1 0-2'	B1 12-14'	B2 0-2'	B2 12-14'	B3 0-2'	B3 12-14'	B4 0-2'	B4 12-14'	B5 0-2'	B5 12-14'
		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
1,1,1,2-Tetrachloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	680	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	330	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	50	ND	ND	<b>38.4</b>	ND	<b>78.4</b>	ND	<b>67.1</b>	ND	<b>66.5</b>	ND
Benzene	60	ND	ND	ND	ND	ND	ND	<b>13.9</b>	ND	ND	ND
Bromochloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	760	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	370	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	50	<b>43.4</b>	<b>12.7</b>	ND	<b>11.5</b>	<b>8.2</b>	<b>8.3</b>	<b>7.4</b>	<b>42.8</b>	<b>4.5</b>	<b>5.2</b>
o-Xylene	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-&m-Xylenes	260	ND	ND	ND	ND	ND	ND	<b>6.5</b>	ND	ND	ND
Styrene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	1,300	ND	ND	ND	ND	ND	ND	<b>2.5</b>	ND	ND	ND
Toluene	700	ND	ND	ND	ND	ND	ND	<b>2.8</b>	ND	ND	ND
trans-1,2-Dichloroethylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	470	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total BTEX Concentration		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>23.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Total VOCs Concentration		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>78.4</b>	<b>0.0</b>	<b>92.8</b>	<b>0.0</b>	<b>66.5</b>	<b>0.0</b>

Notes:

\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**Bold/highlighted-** Indicated exceedance of the NYSDEC UUSCO Guidance Value

TABLE 3  
386 and 388 Wallabout Street, Brooklyn, New York  
Soil Analytical Results  
Semi-Volatile Organic Compounds

COMPOUND	Track 1 Unrestricted Use Soil Cleanup Objectives*	B1 0-2'	B1 12-14'	B2 0-2'	B2 12-14'	B3 0-2'	B3 12-14'	B4 0-2'	B4 12-14'	B5 0-2'	B5 12-14'
		ug/Kg	ug/Kg								
1,2-Dichlorobenzene		ND	ND								
1,3-Dichlorobenzene		ND	ND								
1,4-Dichlorobenzene		ND	ND								
2-Nitroaniline		ND	ND								
2,4-Dinitrotoluene		ND	ND								
2,6-Dinitrotoluene		ND	ND								
2-Chloronaphthalene		ND	ND								
2-Methylnaphthalene		ND	ND	ND	ND	ND	ND	72.3	ND	ND	ND
3,3'-Dichlorobenzidine		ND	ND								
3-Nitroaniline		ND	ND								
4-Bromophenyl phenyl ether		ND	ND								
4-Chloroaniline		ND	ND								
4-Chlorophenyl phenyl ether		ND	ND								
4-Nitroaniline		ND	ND								
Acenaphthene	20,000	ND	ND	66.7	ND	ND	ND	211	ND	93.5	ND
Acenaphthylene	100,000	ND	ND	ND	ND	ND	ND	286	ND	73.9	ND
Anthracene		ND	ND	220	ND	ND	ND	739	ND	326	ND
Benzo(a)anthracene	1,000	114	ND	712	ND	121	ND	2,930	ND	1,040	ND
Benzo(a)pyrene	1,000	109	ND	726	ND	105	ND	3,070	ND	1,150	ND
Benzo(b)fluoranthene	1,000	104	ND	791	ND	104	ND	3,320	ND	1,130	ND
Benzo(g,h,i)perylene	100,000	ND	ND	252	ND	ND	ND	798	ND	687	ND
Benzo(k)fluoranthene	800	123	ND	697	ND	107	ND	2,550	ND	964	ND
Butyl benzyl phthalate		ND	ND	29	ND	ND	ND	ND	ND	768	ND
Bis(2-chloroethoxy)methane		ND	ND								
Bis(2-chloroethyl)ether		ND	ND								
Bis(2-chloroisopropyl)ether		ND	ND								
Bis(2-ethylhexyl)phthalate		ND	ND	936	ND	ND	ND	ND	ND	413	ND
Carbazole		ND	ND	ND	ND	ND	ND	248	ND	ND	ND
Chrysene	1,000	121	ND	760	ND	130	ND	2,900	ND	1,180	ND
Dibenzo(a,h)anthracene	330	ND	ND	101	ND	ND	ND	366	ND	240	ND
Dibenzofuran		ND	ND	ND	ND	ND	ND	170	ND	ND	ND
Diethylphthalate		ND	ND								
Dimethylphthalate		ND	ND								
Di-n-butylphthalate		ND	ND	ND	ND	ND	ND	ND	ND	147	ND
Di-n-octylphthalate		ND	ND	2,050	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100,000	213	ND	ND	ND	280	ND	5,600	ND	1,490	ND
Fluorene	30,000	ND	ND	88.4	ND	ND	ND	262	ND	67.9	ND
Hexachlorobenzene		ND	ND								
Hexachlorobutadiene		ND	ND								
Hexachlorocyclopentadiene		ND	ND								
Hexachloroethane		ND	ND								
Indeno(1,2,3-cd)pyrene	500	ND	ND	261	ND	ND	ND	924	ND	604	ND
Isophorone		ND	ND								
Naphthalene	12,000	ND	ND	ND	ND	ND	ND	88.9	ND	ND	ND
Nitrobenzene		ND	ND								
N-Nitrosodiphenylamine		ND	ND								
N-Nitrosodi-n-propylamine		ND	ND								
Phenanthrene	100,000	110	ND	988	ND	248	ND	2,640	ND	1,170	ND
Pyrene	100,000	175	ND	1,300	ND	215	ND	4,560	ND	1,620	ND

Notes:

\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

NA - Guidance value not available

Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value

TABLE 4  
386 and 388 Wallabout Street, Brooklyn, New York  
Soil Analytical Results  
Pesticides / PCBs

COMPOUND	Track 1 Unrestricted Use Soil Cleanup Objectives*	B1 0-2'	B1 12-14'	B2 0-2'	B2 12-14'	B3 0-2'	B3 12-14'	B4 0-2'	B4 12-14'	B5 0-2'	B5 12-14'
		ug/Kg	ug/Kg								
4,4-DDD	3.3	ND	ND								
4,4-DDE	3.3	ND	ND	20.1	ND	ND	ND	ND	ND	19.0	ND
4,4-DDT	3.3	ND	ND	116	ND	67.0	ND	ND	ND	46.3	ND
alpha-Chlordane	940	ND	ND	ND	ND	13.5	ND	ND	ND	10.9	ND
Aldrin	5	ND	ND								
alpha-BHC	20	ND	ND								
PCB-1016	100	ND	ND								
PCB-1221	100	ND	ND								
PCB-1232	100	ND	ND								
PCB-1242	100	ND	ND								
PCB-1248	100	ND	ND								
PCB-1254	100	ND	ND								
PCB-1260	100	ND	ND								
PCBs Total	100	ND	ND								
beta-BHC	36	ND	ND								
delta-BHC	40	ND	ND								
Dieldrin	5	ND	ND								
Endosulfan I	2,400	ND	ND								
Endosulfan II	2,400	ND	ND								
Endosulfan Sulfate	2,400	ND	ND								
Endrin	14	ND	ND								
Endrin aldehyde		ND	ND								
Endrin ketone		ND	ND								
gamma-BHC		ND	ND								
gamma-Chlordane		ND	ND	ND	ND	10.0	ND	ND	ND	10.6	ND
Heptachlor	42	ND	ND								
Heptachlor epoxide		ND	ND								
Methoxychlor		ND	ND								
Mirex		ND	ND								
Toxaphene		ND	ND								

Notes:

\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value

TABLE 5  
386 and 388 Wallabout Street, Brooklyn, New York  
Soil Analytical Results  
Metals

COMPOUND	Track 1 Unrestricted Cleanup Objectives**	B1 0-2'	B1 12-14'	B2 0-2'	B2 12-14'	B3 0-2'	B3 12-14'	B4 0-2'	B4 12-14'	B5 0-2'	B5 12-14'
		mg/Kg	mg/Kg								
Aluminum		5,630	4,080	5,750	3,750	5,400	3,510	7,310	4,170	3,070	4,660
Antimony		ND	ND								
Arsenic	13	6.9	ND	4.5	ND	2.5	ND	5.4	2.2	3.4	ND
Barium	350	137	20.9	492	15.7	39.4	8.4	64.9	14.3	229	39.9
Beryllium	7	ND	ND								
Cadmium	2.5 c	2.7	ND	0.83	ND	ND	ND	ND	ND	1.1	ND
Calcium		5,780	423	34,500	391	2,340	626	4,580	674	34,600	994
Chromium	30 c	14.3	14.4	17.1	8.6	17.0	7.6	16.8	22.2	107	14.5
Cobalt		6.1	4.2	5.1	4.0	3.8	1.2	7.2	4.0	2.2	3.0
Copper	50	187	7.3	34.3	6.2	12.8	11.4	67.0	8.1	59.4	9.1
Iron		12,500	6,830	9,700	5,920	11,600	4,030	15,100	6,150	5,690	5,530
Lead	63 c	618	3.9	326	2.8	53.8	ND	220	3.0	554	4.9
Magnesium		1,170	677	6,760	910	1,140	477	3,670	1,260	2,280	1,360
Manganese	1600 c	202	96.8	521	119	136	23.4	286	49.9	165	59.1
Mercury	0.18 c	1.500	ND	0.36	ND	0.23	ND	0.35	ND	0.71	ND
Nickel	30	14.9	8.0	12.6	6.8	7.0	5.0	21.4	9.7	7.1	8.8
Potassium		537	265	608	284	320	179	1,250	459	390	407
Selenium	3.9c	ND	ND								
Silver	2	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND
Sodium		126	ND	260	ND	ND	ND	105	ND	147	ND
Thallium		ND	ND								
Vanadium		23.0	20.1	18.8	12.1	16.2	10.8	25.4	15.7	10.7	13.6
Zinc	109 c	451	19.6	588	22.1	30.4	9.7	109	22.0	417	24.2

**Notes:**

\* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives

ND - Not-detected

**Bold/highlighted-** Indicated exceedance of the NYSDEC UUSCO Guidance Value

TABLE 6  
386 and 388 Wallabout Street, Brooklyn, New York  
Groundwater Analytical Results  
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	Sample ID		
		B1	B2	B4
<b>Volatile Organic Compounds by 8260 - ug/L</b>		<b>B1</b>	<b>B2</b>	<b>B4</b>
1,1,1-Trichloroethane	5	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
1,1-Dichloroethylene	5	ND	ND	ND
1,2-Dibromo-3-Chloropropane	0.04	ND	ND	ND
1,2-Dibromoethane	0.0006	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND
2-Butanone	50	ND	ND	ND
2-Hexanone	50	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	-	ND	ND	ND
Acetone	50	ND	ND	ND
Benzene	1	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND
Bromoform	50	ND	ND	ND
Bromomethane	5	ND	ND	ND
Carbon Disulfide	-	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
Chlorodibromomethane	-	ND	ND	ND
Chloroethane	5	ND	ND	ND
Chloroform	7	ND	ND	ND
Chloromethane	5	ND	ND	ND
cis-1,2-Dichloroethylene	5	<b>83.4</b>	<b>20.7</b>	<b>12.8</b>
cis-1,3-Dichloropropylene	0.4	ND	ND	ND
Ethyl Benzene	5	ND	ND	ND
Methylene Chloride	5	ND	ND	ND
o-Xylene	5	ND	ND	ND
p- & m- Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	ND
Tetrachloroethylene	5	<b>8.7</b>	<b>2.6</b>	<b>7.3</b>
Toluene	5	ND	ND	ND
trans-1,2-Dichloroethylene	5	ND	ND	ND
trans-1,3-Dichloropropylene	0.4	ND	ND	ND
Trichloroethylene	5	<b>13.0</b>	<b>3.1</b>	<b>11.6</b>
Vinyl Chloride	2	<b>3.3</b>	ND	<b>1.8</b>

**Notes:**

ND - Not detected

**Bold/highlighted-** Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 7  
386 and 388 Wallabout Street, Brooklyn, New York  
Groundwater Analytical Results  
Semi-Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	Sample ID		
		B1	B2	B4
<b>Semi-Volatile Organic Compounds by 8270 - ug/L</b>				
1,2,4-Trichlorobenzene	5	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND
1,2-Diphenylhydrazine		ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND
2,4-Dinitrotoluene	5	ND	ND	ND
2,6-Dinitrotoluene	5	ND	ND	ND
2-Chloronaphthalene		ND	ND	ND
2-Methylnaphthalene		ND	ND	ND
2-Nitroaniline	5	ND	ND	ND
3,3-Dichlorobenzidine	5	ND	ND	ND
3-Nitroaniline	5	ND	ND	ND
4-Bromophenyl phenyl ether		ND	ND	ND
4-Chloroaniline		ND	ND	ND
4-Chlorophenyl phenyl ether		ND	ND	ND
4-Nitroaniline	5	ND	ND	ND
Acenaphthene	5	ND	ND	ND
Acenaphthylene		ND	ND	ND
Anthracene		ND	ND	ND
Benzidine	5	ND	ND	ND
Benzo(a)anthracene		ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Benzo(b)fluoranthene		ND	ND	ND
Benzo(g,h,i)perylene		ND	ND	ND
Benzo(k)fluoranthene		ND	ND	ND
bis(2-Chloroethoxy)methane		ND	ND	ND
bis(2-Chloroethyl)ether	1	ND	ND	ND
bis(2-Chloroisopropyl)ether		ND	ND	ND
bis(2-Ethylhexyl)phthalate	5	ND	ND	ND
Butylbenzylphthalate		ND	ND	ND
Carbazole		ND	ND	ND
Chrysene		ND	ND	ND
Dibenzo(a,h)anthracene		ND	ND	ND
Dibenzofuran		ND	ND	ND
Diethylphthalate		ND	ND	ND
Dimethylphthalate		ND	ND	ND
Di-n-butylphthalate		ND	ND	ND
Di-n-octyl phthalate		ND	ND	ND
Fluoranthene		ND	ND	ND
Fluorene		ND	ND	ND
Hexachlorobenzene	0.04	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND
Hexachlorocyclopentadiene	5	ND	ND	ND
Hexachloroethane	5	ND	ND	ND
Indeno(1,2,3-cd)pyrene		ND	ND	ND
Isophorone		ND	ND	ND
Naphthalene		ND	ND	ND
Nitrobenzene	0.4	ND	ND	ND
N-Nitroso-di-n-propylamine		ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND
Phenanthrene		ND	ND	ND
Pyrene		ND	ND	ND

**Notes:**

ND - Not detected

**Bold/highlighted-** Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 8  
386 and 388 Wallabout Street, Brooklyn, New York  
Groundwater Analytical Results  
Pesticides/PCBs

COMPOUND	NYSDEC GROUNDWATER QUALITY STANDARDS	B1	B2	B4
Pesticides and PCBs	(µg/L)	(µg/L)	(µg/L)	(µg/L)
4,4-DDD	0.3	ND	ND	ND
4,4-DDE	0.2	ND	ND	ND
4,4-DDT	0.2	ND	<b>0.037</b>	ND
Aldrin	ND	ND	ND	ND
alpha-BHC	0.01	ND	ND	ND
alpha-Chlordane	0.05	ND	ND	ND
beta-BHC	0.04	ND	ND	ND
delta-BHC	0.04	ND	ND	ND
Dieldrin	0.004	ND	ND	ND
Endosulfan I		ND	ND	ND
Endosulfan II		ND	ND	ND
Endosulfan Sulfate		ND	ND	ND
Endrin	ND	ND	ND	ND
Endrin aldehyde	5	ND	ND	ND
Endrin Ketone		ND	ND	ND
gamma-BHC	0.05	ND	ND	ND
gamma-Chlordane	0.05	ND	ND	ND
Heptachlor	0.04	ND	ND	ND
Heptachlor epoxide	0.03	ND	ND	ND
Methoxychlor	35	ND	ND	ND
Toxaphene		ND	ND	ND
Total PCBs		ND	ND	ND
Aroclor-1016	0.09	ND	ND	ND
Aroclor-1221	0.09	ND	ND	ND
Aroclor-1232	0.09	ND	ND	ND
Aroclor-1242	0.09	ND	ND	ND
Aroclor-1248	0.09	ND	ND	ND
Aroclor-1254	0.09	ND	ND	ND
Aroclor-1260	0.09	ND	ND	ND

Notes:

ND - Non-detect

**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

Table 9  
 386 and 388 Wallabout Street, Brooklyn, New York  
 Groundwater Analytical Results  
 TAL Filtered Metals

COMPOUND	NYSDEC GROUNDWATER QUALITY STANDARDS	B1	B2	B4
Priority Pollutant Metals	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Aluminum	NS	ND	ND	ND
Antimony	3	ND	ND	ND
Arsenic	25	ND	ND	ND
Barium	100	40	41	39
Beryllium	3	ND	ND	ND
Cadmium	5	ND	ND	ND
Calcium	NS	169,000	188,000	161,000
Chromium	50	ND	ND	ND
Cobalt	NS	ND	7.3	ND
Copper	200	ND	ND	ND
Iron	500	ND	ND	ND
Lead	25	24	ND	24
Magnesium	3500	17,200	28,200	16,300
Manganese	300	550	1000	530
Mercury	0.7	ND	ND	ND
Nickel	100	ND	ND	ND
Potassium	NS	8,500	10,900	8,400
Selenium	10	ND	ND	ND
Silver	50	ND	ND	ND
Sodium	2000	21,000	24,300	20,700
Thallium	0.5	ND	ND	ND
Vanadium	NS	ND	ND	ND
Zinc	2000	69	33	72

Notes:

ND - ND

NS - No Standard

**Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard**

**TABLE 10**  
**386-388 Wallabout Street, Brooklyn, New York**  
**Soil Gas - Volatile Organic Compounds**

COMPOUNDS ANALYZED BY CHEMTECH	EPA Shallow Soil Gas	NYSDOH Soil Outdoor	SG-1	SG-2	SG-1	SG-2	SG-1	SG-2
	Concentrations (ug/m <sup>3</sup> ) <sup>(b)</sup>	Background Levels (ug/m <sup>3</sup> ) <sup>(a)</sup>	(ug/m <sup>3</sup> )					
1,1,1-Trichloroethane	22,000	<2.0 - 2.8	ND	ND	ND	ND	3	ND
1,1,2,2-Tetrachloroethane	0.42	<1.5	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1.5	<1.0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5,000	<1.0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2,000	<1.0	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	20,000	NA	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	60	<1.0	21	22	21	14	14	24
1,2-Dichlorobenzene	2,000	<2.0	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.94	<1.0	ND	ND	ND	ND	2	ND
1,2-Dichloropropane	40	<1.0	ND	ND	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	NA	NA	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	60	<1.0	ND	10	10	ND	4	ND
1,3-Butadiene	0.087	NA	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1,100	<2.0	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	8,000	NA	ND	ND	ND	ND	ND	ND
1,4-Dioxane			ND	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	NA	NA	ND	ND	ND	ND	ND	ND
2-Butanone			120	100	260	81	110	89
2-Hexanone			29	35	62	22	36	36
3-Chloropropene			ND	ND	ND	ND	ND	ND
4-ethyltoluene			10	12	10	ND	24	ND
4-Methyl-2-pentanone			ND	ND	10	ND	4	9
Acetone	3,500	NA	2,500	1,900	3,400	2,100	940	1,600
Benzene	3.1	<1.6 - 4.7	8	12	9	8	12	14
Benzyl Chloride	0.5	NA	ND	ND	ND	ND	ND	ND
Bromodichloromethane	1.4	<5.0	ND	ND	ND	ND	ND	ND
Bromoform	22	<1.0	ND	ND	ND	ND	ND	ND
Bromomethane	NA	<1.0	ND	ND	ND	ND	ND	ND
Carbon Disulfide	7,000	NA	15	30	16	29	34	79
Carbon Tetrachloride	1.6	<3.1	ND	ND	ND	ND	ND	ND
Chlorobenzene	600	<2.0	ND	ND	ND	ND	ND	ND
Chloroethane	100,000	NA	ND	ND	ND	ND	ND	ND
Chloroform	1.1	<2.4	ND	ND	11	ND	4	ND
Chloromethane	NA	<1.0 - 1.4	ND	ND	ND	ND	1	ND
cis-1,2-Dichloroethene	NA	<1.0	ND	ND	ND	ND	17	ND
cis-1,3-Dichloropropene	NA	NA	ND	ND	ND	ND	4	ND
Cyclohexane	NA	NA	ND	7	8	9	ND	ND
Dichlorodifluoromethane	NA	NA	ND	ND	12	10	10	ND
Ethyl Acetate	32,000	NA	ND	ND	ND	ND	ND	ND
Ethylbenzene	22	<4.3	11	13	14	ND	8	15
Freon-113	NA	NA	ND	ND	ND	ND	ND	ND
Hexachloro-1,3-butadiene	NA	NA	ND	ND	ND	ND	ND	ND
Isopropanol	NA	NA	28	26	65	23	28	19
Methylene Chloride	NA	<3.4	8	9	52	11	27	ND
MTBE	30,000	NA	ND	ND	ND	8	2	ND
n-Heptane	NA	NA	23	28	21	510	33	24
n-Hexane	NA	<1.5	225	43	23	590	65	34
Xylene (o)	7,000	<4.3	11	13	15	ND	12	15
Xylene (m&p)	7,000	<4.3	31	38	38	24	26	43
p-Ethyltoluene			ND	ND	ND	ND	ND	ND
Propylene	NA	NA	89	260	100	170	120	170
Styrene	10,000	<1.0	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	8.1		87	30	75	ND	100	44
Tetrahydrofuran	NA	NA	ND	ND	ND	ND	ND	ND
Toluene	4,000	1.0 - 6.1	36	48	64	36	76	84
trans-1,2-Dichloroethene	NA	NA	ND	ND	ND	ND	3	ND
trans-1,3-Dichloropropene	6	NA	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.22	<1.7	31	ND	29	ND	53	ND
Trichlorofluoromethane	7,000	NA	21	17	55	110	47	72
Vinyl Acetate	2,000	NA	ND	ND	ND	ND	ND	ND
Vinyl Bromide			ND	ND	ND	ND	ND	ND
Vinyl Chloride	3	<1.0	ND	ND	ND	ND	4	ND

Notes:

SG2 Suma cannister failed to draw a sample

NA No guidance value or standard available

(a) NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February

(b) USEPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils

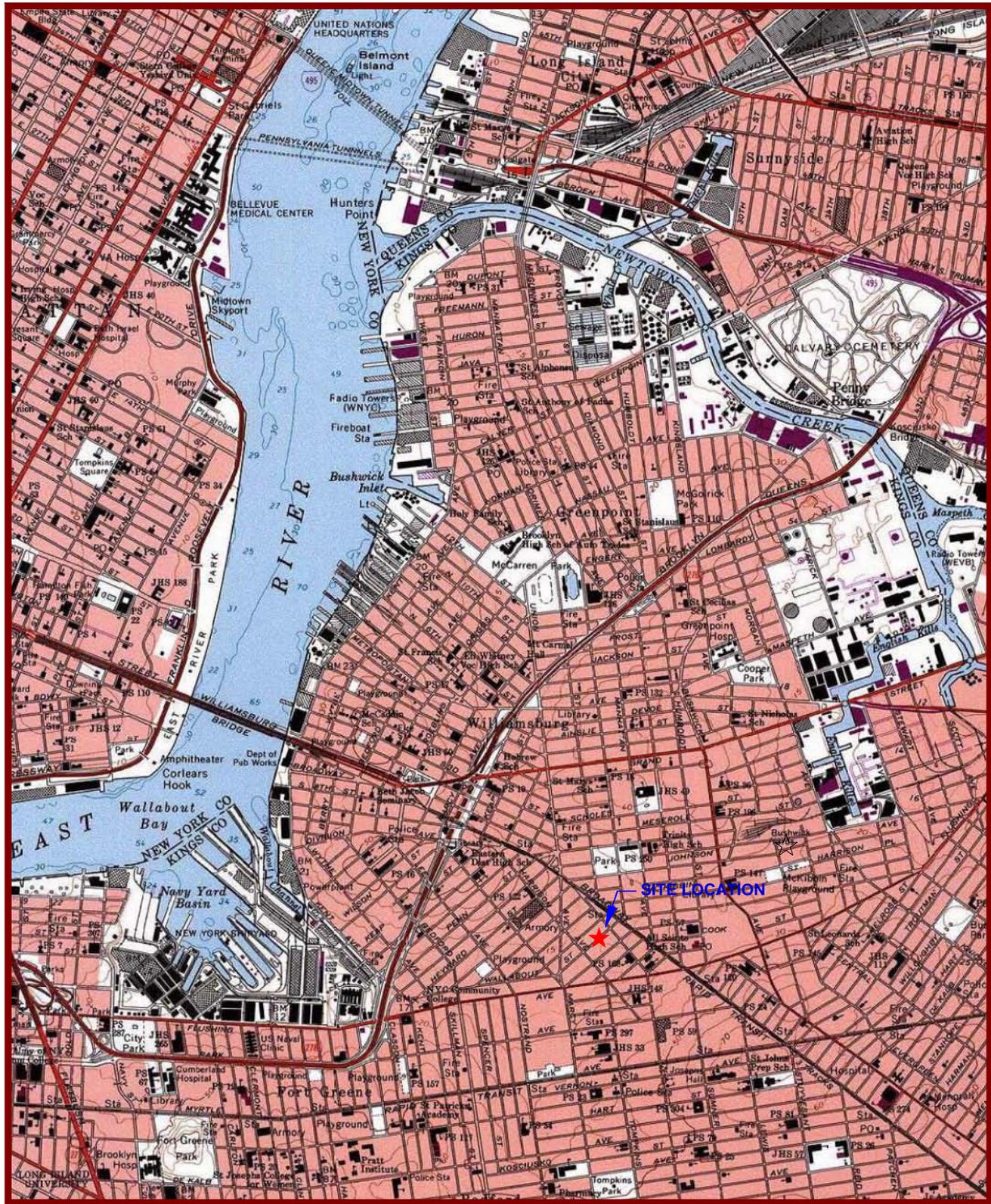
(Subsurface Vapor Intrusion Guidance), Table 2c, Risk=1 x10<sup>6</sup>

\* Petroleum Volatile Organic Compounds

\*\* Benzene, toluene, ethylbenzene, xylene

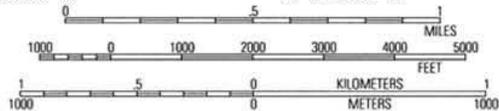
\*\* \* Volatile Organic Compounds (excluding acetone)

# **FIGURES**



40°45.000' N  
40°44.000' N  
40°43.000' N  
40°42.000' N

73°59.000' W      73°58.000' W      73°57.000' W      WGS84 73°56.000' W



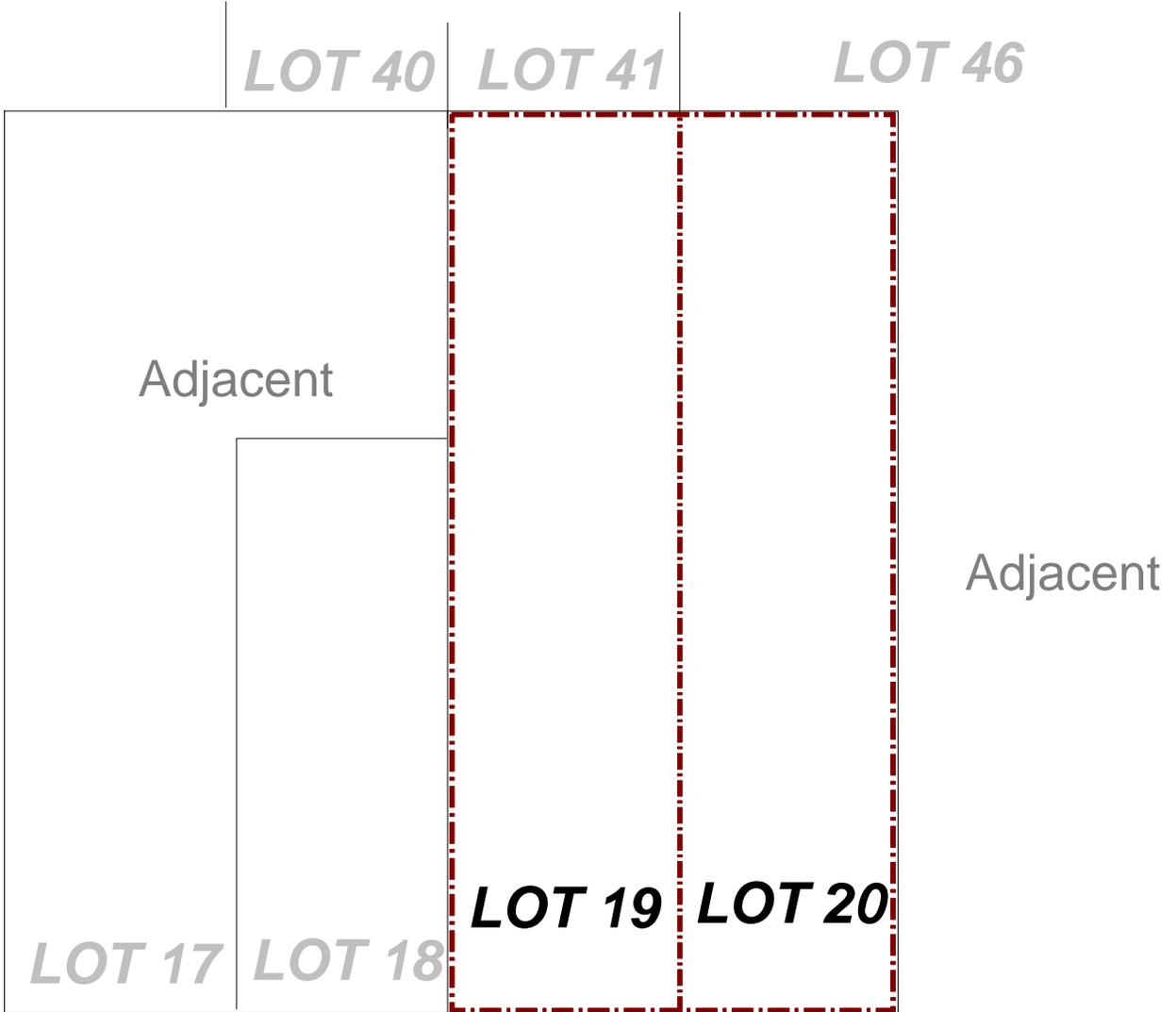
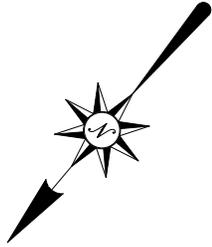
13°  
06/04/11

USGS Brooklyn Quadrangle 1995, Contour Interval = 10 feet

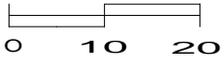
**EBC**  
**ENVIRONMENTAL BUSINESS CONSULTANTS**  
 Phone 631.504.6000  
 Fax 631.924.2870

**386-388 WALLABOUT STREET  
 BROOKLYN, NY**

**FIGURE 1 SITE LOCATION MAP**



 Lot Line



1 Inch = 20 feet

**EBC**

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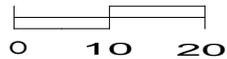
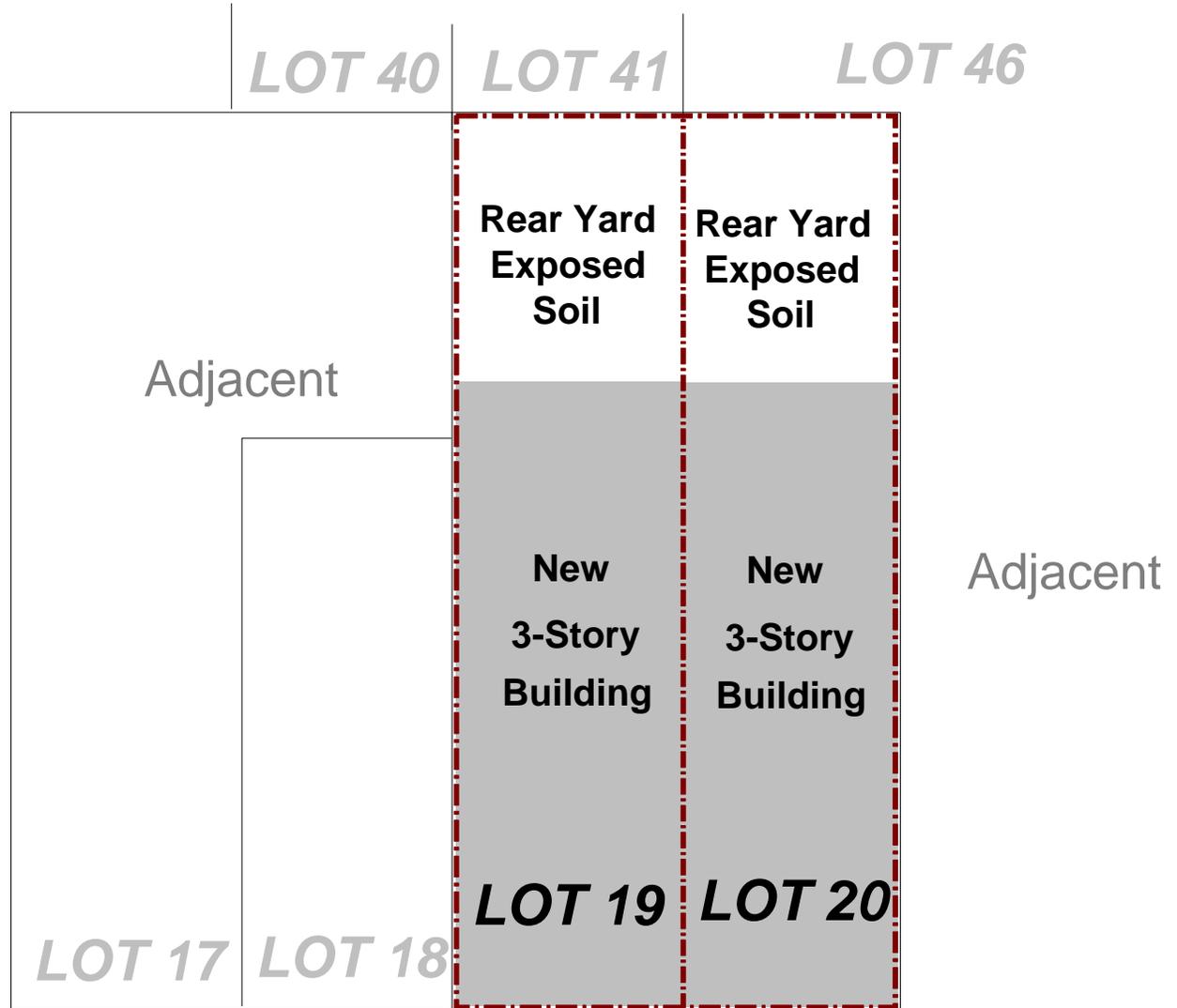
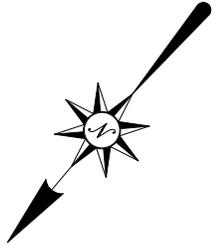
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**SITE PLAN**  
386 AND 388 WALLABOUT STREET, BROOKLYN, NY 11206

**FIGURE 2**



1 Inch = 20 feet



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**REDEVELOPMENT PLAN**  
386 AND 388 WALLABOUT STREET, BROOKLYN, NY 11206

**FIGURE 3**



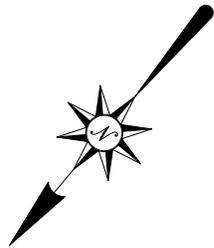
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386-388 WALLABOUT STREET, BROOKLYN, NY  
SURROUNDING LAND USE

**FIGURE 4**



LOT 40

LOT 41

LOT 46

Adjacent

Adjacent

LOT 17 LOT 18

SG1

SG2

B3

B1

B2

SG3

SG4

B4

B5

SG5

SG6

**KEY**

B3



Soil Boring Location

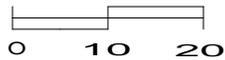
SG3



Soil Gas Location

Note: Temporary Wells Installed  
boring locations B1, B2 and B4

Lot Line



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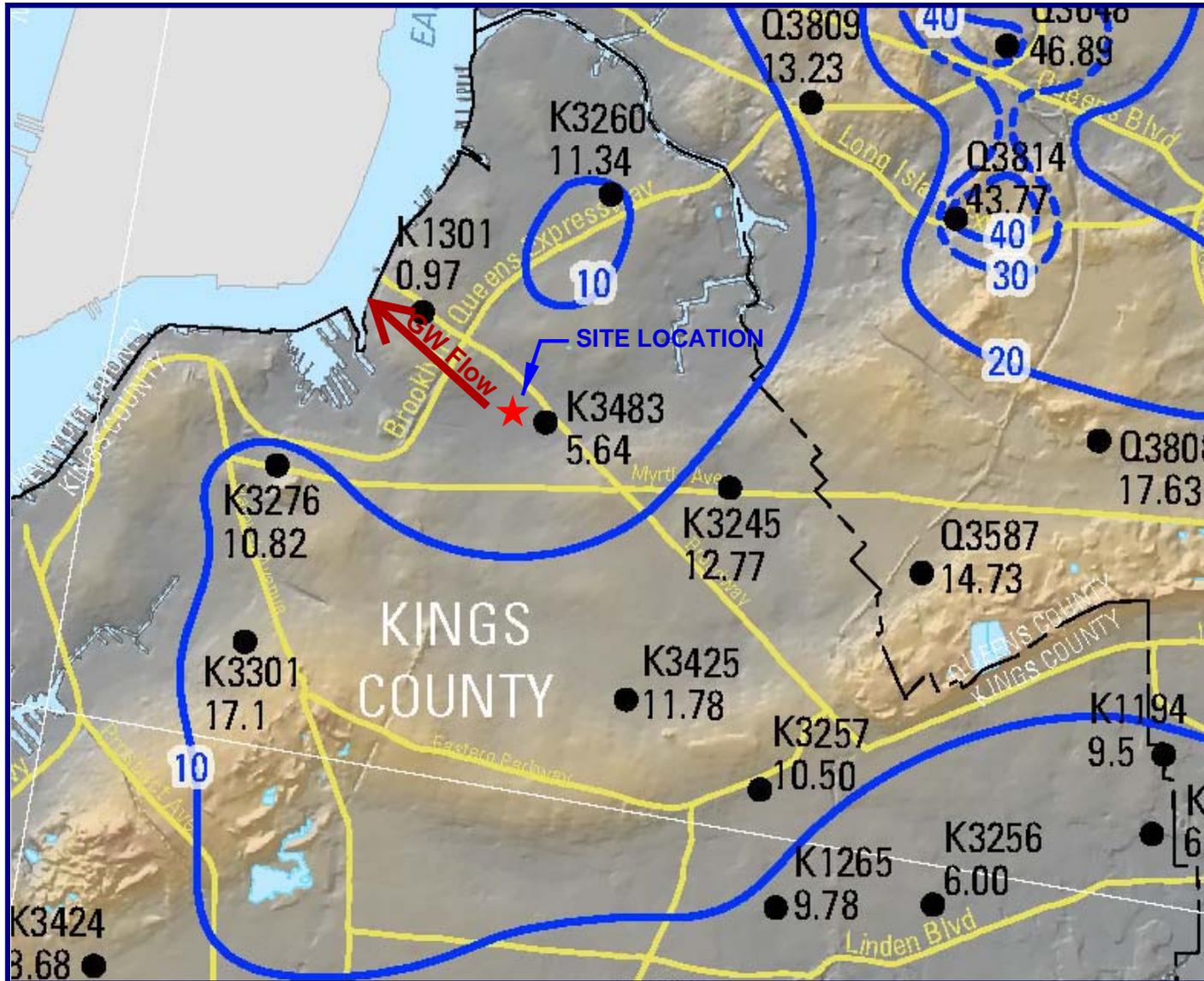
Phone 631.504.6000

Fax 631.924.2780

SAMPLING LOCATIONS

386 AND 388 WALLABOUT STREET, BROOKLYN, NY 11206

**FIGURE 5**



**IBC**

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386-388 WALLABOUT STREET, BROOKLYN, NY  
GROUNDWATER ELEVATION

**FIGURE 6**

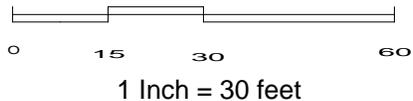


**KEY:**

**B3(0-2)** SAMPLE DEPTH INTERVAL  
 SOIL BORING LOCATION

Barium	492
--------	-----

 ALL UUSCO  
 EXCEEDENCES IN ppm



**B3 0-2'**

Barium	492
--------	-----

Adjacent Pfizer Property

LOT 40 LOT 41 LOT 46

**B1 0-2'**

Cadmium	2.7
Copper	187
Lead	618
Mercury	1.500
Zinc	451

Adjacent

Adjacent

**B2 0-2'**

Barium	492
Lead	326
Mercury	0.36
Zinc	588

LOT 17 LOT 18 LOT 19 LOT 20

**B5 0-2'**

Chromium	107
Copper	59.4
Lead	554
Mercury	0.71
Zinc	417
Benzo(a)a	1.04
Benzo(a)p	1.15
Benzo(b)	1.13
Benzo(k)	964
Chrysene	1.18

**B4 0-2'**

Lead	220
Mercury	0.35
Benzo(a)a	2.93
Benzo(a)p	3.07
Benzo(b)	3.32
Benzo(k)	2.55
Dibenzo	0.36
Chrysene	2.90

WALLABOUT STREET



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**SOIL SAMPLE RESULTS**  
 386 AND 388 WALLABOUT STREET, BROOKLYN, NY 11206

**FIGURE 7**



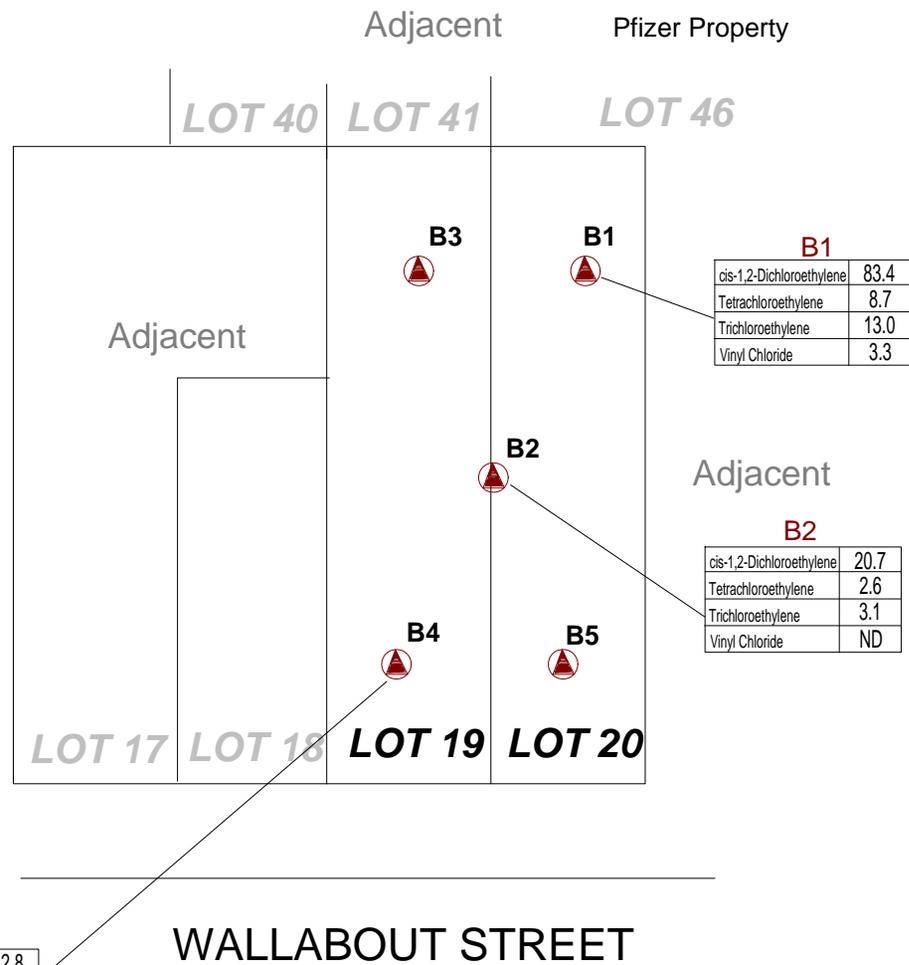
**KEY:**

**B3**  
 GW SAMPLE LOCATION

	CONCENTRATION (ppb)
cis-1,2-Dichloroethylene	12.8
Tetrachloroethylene	7.3
Trichloroethylene	11.6
Vinyl Chloride	1.8



1 Inch = 60 feet



**B4**

cis-1,2-Dichloroethylene	12.8
Tetrachloroethylene	7.3
Trichloroethylene	11.6
Vinyl Chloride	1.8

**B1**

cis-1,2-Dichloroethylene	83.4
Tetrachloroethylene	8.7
Trichloroethylene	13.0
Vinyl Chloride	3.3

**B2**

cis-1,2-Dichloroethylene	20.7
Tetrachloroethylene	2.6
Trichloroethylene	3.1
Vinyl Chloride	ND



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**GROUNDWATER RESULTS (VOCs)**  
 386 AND 388 WALLABOUT STREET, BROOKLYN, NY 11206

**FIGURE 8**

**APPENDIX A**  
**DRILL LOGS**











**ATTACHMENT B**  
**GROUNDWATER SAMPLING LOGS**







**ATTACHMENT C**  
**SOIL GAS SAMPLING LOGS**



### AIR ANALYSIS CHAIN-OF-CUSTODY/FIELD TEST DATA SHEET

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT/SAMPLER. INSTRUCTIONS ON THE BACK.



SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

1. CLIENT INFORMATION		2. ANALYSES/METHOD REQUESTED		3. LABORATORY		RECEIVING INFORMATION:	
Client Name/Address: <b>EBC</b> 1809 Monroe Country Rd. Pike, NY 11961 Contact: CHARLES SOSIK Phone#: 631-504-6000 Project Name#: 386 WALLABOUT ST. BROOKLYN Bill To: EBC	TO-15 Analytic: <input checked="" type="checkbox"/> X STD LIST: <input type="checkbox"/> UFT LIST: <input type="checkbox"/> OTHER: <input type="checkbox"/>	LABORATORY CANISTER CERTIFIED BY: <i>[Signature]</i> GC/MS Analyt's Signature: <i>[Signature]</i> CANISTERS PREPARED BY: <i>[Signature]</i> Name: ENN C. BOYD Title: S.H. GEMS ANALYST Custody Sealed Date/Time: 7/15/11 15:10 Date Shipped to Client: 7/15/11 Custody Seal #s: #0285, #0165, #0161	COC Complete/Accurate? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Initial <i>[Signature]</i> Labels Complete/Accurate? <input checked="" type="checkbox"/> Cont. in Good Cond.? <input checked="" type="checkbox"/> Custody Seals Present? <input checked="" type="checkbox"/> (If present) Seals Intact? <input checked="" type="checkbox"/> Returned in ≤ 15 days? <input checked="" type="checkbox"/> Custody Seal #s: <input type="checkbox"/>	3. LABORATORY		RECEIVING INFORMATION:	
TAT <input checked="" type="checkbox"/> Normal/Standard TAT is 10-12 business days. TAT <input checked="" type="checkbox"/> Rush - TAT Subject to ALSI approval and surcharges. Date Analyzed: 7-27-11 WEDS Approved By: <i>[Signature]</i> Email: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Fax: <input type="checkbox"/> Y <input type="checkbox"/> N	APPROPRIATE TEST CODE/ANALYTE LIST:		COURIER/TRACKING #:				

4. FIELD DATA SHEET										
Sample Description/Location (as it will appear on the lab report)	Sample Type - Choose one: 14-100ml or 14-100ml or 14-100ml or 14-100ml	Sample Date	Start Time	Stop Time	Temp Deg C	Flow Controller No.	Canister No.	Canister Pressure ("Hg)		Setpoint (mL/min)
								Start	Stop	
1. S61	AS	7-19	1429	1627	90	7329533	1836	30	7	
2. S62			1425	1602		7309695	5025	28	7	
3. S63			1445	1620		7282088	1487	26.5	7	
4. S64			1423	1614		7288461	1189	29	7	
5. S65			1443	1552		7286508	1126	28	5	
6. S66			1419	1534		ALS1 #3	10076	29.5	5	
7.										
8.										
9.										
10.										

5. SAMPLED BY (Please Print):		LOGGED BY (signature):		REVIEWED BY (signature):		6. PROJECT INFORMATION	
KEVIN BRUSSEE		<i>[Signature]</i>		<i>[Signature]</i>		Standard <input type="checkbox"/> CLP-like <input type="checkbox"/>	
Refinished by / Company Name	Date	Time	Received by	Date	Time	Data Delivers <input type="checkbox"/> TO-15 <input type="checkbox"/>	
<i>[Signature]</i> - EBC	7-20	1317	<i>[Signature]</i>	7-20	1317	Other <input type="checkbox"/>	
<i>[Signature]</i>	7-20	1430	<i>[Signature]</i>	7-20	1430	EDDS-Format Type: <input type="checkbox"/>	
<i>[Signature]</i>	7-20	1415	<i>[Signature]</i>	7-20	1415	ALSI Field Services: <input checked="" type="checkbox"/> Pickup <input type="checkbox"/> Labor	
						State Samples Collected In: <input checked="" type="checkbox"/> NY <input type="checkbox"/> NJ <input type="checkbox"/> PA <input type="checkbox"/> NC <input type="checkbox"/> other	

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**ATTACHMENT D**  
**LABORATORY REPORTS IN DIGITAL**  
**FORMAT**