VOLUNTARY CLEANUP PROGRAM

Revised

REMEDIAL ACTION WORK PLAN

PREPARED FOR

BROOKLYN PROPERTIES #5, LLC

188-192 RALPH AVENUE

BROOKLYN, NEW YORK

Site No.: V-00669-2

Index No.: W2-0977-03-11

SUBMITTED TO

NEW YORK STATE DEPARTMENT OF

ENVIRONMENTAL CONSERVATION

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ALBANY, NEW YORK 12233-7016

PREPARED BY

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BEi

FEBRUARY 2011

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1.0 INTRODUCTION

This Remedial Action Plan (RAP) has been developed for the subject property pursuant to the requirements of an executed Voluntary Cleanup Agreement (February 20, 2004) between the New York State Department of Environmental Conservation, Division of Environmental Remediation (DER), and Brooklyn Properties 5, LLC, the Volunteer. The site is located at 188 -192 Ralph Avenue, Brooklyn, New York 11233 (see Figures 1 and 2), fully described as NYC Tax Map Section 6, Block 1678, Lot No. 53. The site occupant and operator is Rose Tree Management Corp.

This Remedial Action Plan (RAP) contains the following:

- a summary of the site history;
- summary of previous site data;
- design and specifications for the active soil venting system to address Volatile Organic Compound (VOC) contamination in soil ;
- a system for active sub-slab vapor mitigation on-site and;
- an evaluation of how the active Interim Remedial Measure(IRM) remedy will achieve the Remedial Action Plan objectives.

1.1 Site History

The former Fortune Dry Cleaners' Site is located at 188-192 Ralph Avenue, Brooklyn, New York. Other pertinent information is presented below.

1.2 Site Description

Site Name: 188-192 Ralph Avenue Brooklyn, New York 11233

"Former Fortune Dry Cleaners"

Owner: Brooklyn Properties 5, LLC

Mr. Peter Rosenbaum, Managing Member

Location: 188-192 Ralph Avenue, Brooklyn, New York 11233

Latitude: 40º 40'58.854" N, Longitude 73º55'22.613"W

Voluntary Cleanup Agreement: Site No.: V-00669-2

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The dry-cleaning operations occurred in the past in a self-contained small portion of the property comprised of a small extension added onto the main building. The areal extent of the building is approximately 20 feet by 80 feet (0.037 acres), and is located on the west side of Ralph Avenue (Figure-2). The site itself is noted to be a single deed of property identified as 190 Ralph Avenue.

The property has been connected to the municipal sewer system likely since its development. Currently, all bathrooms and wastewater piping within the building are connected to the municipal sanitary sewer system. No other in-situ drainage structures were identified within the building. Inspection of the basement floor indicated no visible pipes, drains or conduits present. The basement floor was noted to be dirt; a concrete covering used to be present in addition to concrete piers for support of former dry-cleaning equipment, located on the first floor. The concrete flooring and piers were removed in order to allow for a subsurface investigation of the basement in 2002. The municipal sewer line and all other utilities appear to enter the building from Ralph Avenue, wherein utility valves were noted to be present within the sidewalk at grade. Electric and telephone service entered the building from below ground conduits. The property is served by natural gas, which is used for the heating system. Municipal water supplies the potable water for the building. No stormwater dry wells or catch basins were observed to be present on the subject property. Drainage appears to flow onto Ralph Avenue into municipal stormwater sewers located along the curb line.

The main building at the subject property, as well as the surrounding properties consist of multiple commercial units on the main level and residential apartments on the upper levels. Since acquisition by the current owner, the main level has been occupied by businesses and administrative offices. At the present time this structure has been unoccupied for over 1.5 years. The former dry-cleaning

operation portion of the main building is a one-story brick-faced structure with a basement accessible only from the sidewalk via a sub-grade stairway covered with a steel plate. The actual entranceway to the extension is via an interior doorway which leads into a corridor separating the former cleaners and the additional 1st floor commercial units. The interior of the former facility is finished with brick walls with a partial concrete lath/covering that is in poor condition. The flooring was noted to be wood/plywood that overlies the basement. The only remaining evidence of former dry-cleaning operations is a portion of a vent pipe that extends through the ceiling in the rear of the structure. A backyard is present behind the building and is not part of the subject parcel; no accessibility from either the first floor or basement was noted. No obvious source of heating or other utilities, if any, was noticeable for the space.

From written correspondence from Mr. Roger Fortune, (former owner) dated November 7, 2003, it was reported that the subject property was acquired in 1946 by Mr. Thomas Fortune (father) and operated as a dry cleaner until his death in 1986. Based upon recollection of Mr. Roger Fortune, the wet chemical portions of the dry-cleaning operation were limited to the building extension, which is the self-contained addition (20 feet by 18 feet) to the main building. On Thomas Fortune's death, the property passed to Mrs. Marjorie Fortune, widow, who, as owner, had the property operated as a dry cleaner by her daughter, Ms. Marcella Simmons (nee Fortune) until circa 1997-1998. From 1998 to 2000, the site dry-cleaning operations were limited to a dry cleaning "drop shop." From 2000 to 2001, no commercial dry cleaning "wet" or drop shop operations have occurred on site. Mrs. Fortune

transferred ownership of the property to her son Roger in 2001. The current owner, Brooklyn Properties 5, LLC acquired the property by deed on April 30th, 2002. Subsequent to April 30, 2002, the overall property has been used solely as a business and administrative Management Office.

1.3 Adjacent Property Land Use

The subject property and surrounding areas have been used for commercial purposes and residential housing since development. The adjacent properties' current uses include:

North: Directly to the north is a three story residential building, followed by retail storefronts with varied heights of residential apartments.

South: The areas to the southeast and southwest of the subject property are predominantly store front retail/commercial and residential.

West: Directly to the west of the subject property is a small inaccessible backyard area followed by other residential/retail properties.

East: Directly to the east is Ralph Avenue, with a church (Family of God) and commercial/retail (a hair salon, automotive, office, etc.) operations.

2.0 PREVIOUS SITE INVESTIGATION

Initial Investigation 2002

BEI had been retained by Mr. Roger Fortune to investigate the above mentioned property, which was the former location of a dry cleaner years ago. The property was being sold and an investigation was warranted based on the site's former use. In May 2002, BEI provided a quotation to perform hand borings in the basement of the building where a former dry cleaner operation existed. The building's first floor was of wood construction with many holes and the basement was the likely place any contamination would be found. The basement was very small with limited access due to large concrete piers that were used to support the large washing machines used years ago.

On May 08, 2002, BEI personnel using an electric operated jack hammer chopped four holes through the concrete floor in the basement in order to operate a GeoProbe manual slide hammer along with a two foot long discrete sampler to obtain soil samples at depths of two to four feet below the basement floor. The four locations were chosen based on the location of the machines used by the former dry cleaner. A two foot sample was obtained from each boring using EPA protocol. The samples were placed into new laboratory glassware labeled and delivered under a chain of custody to a New York State certified laboratory for testing using EPA method 8010 for Halogenated & Aromatic Volatiles. BEI received the laboratory test results on May 16, 2002 and a review of the results indicated very high concentrations of tetrachloroethene in all four borings. The following

concentrations were detected:

All soil sample concentrations are listed in ug/kg (ppb) parts per billion (Figure-8)

Boring Location and Depth	Chemical Detected	NYS-DEC TAGM Value
Boring- 1 @ 2 to 4 ft	Tetrachloroethene @ 903 ppb	1,400 ppb
Boring- 2 @ 2 to 4 ft	Tetrachloroethene @ 313,000 ppb	1,400 ppb
Boring- 3 @ 2 to 4 ft	Tetrachloroethene @ 66,900 ppb	1,400 ppb
Boring- 4 @ 2 to 4 ft	Tetrachloroethene @ 344,000 ppb	1,400 ppb

Based on these findings, BEI informed Mr. Fortune that the concentrations exceeded NYS-DEC guidelines and that further investigation was warranted to determine the extent of the contamination and if it had migrated off-site. Due to the limited space in the basement, BEI recommended the removal of the concrete piers in order to obtain deeper samples using the portable Geoprobe. The additional investigative work was performed by BEI on behalf of Mr. Fortune on July 23, 2002.The results are tabulated below:

All soil sample concentrations are listed in ug/kg (ppb) parts per billion

Boring Location and Depth	Chemical Detected	NYS-DEC TAGM Value
Boring-2A @ 24 to 26 ft	Tetrachloroethene @ 56.0 ppb	1,400 ppb
Boring-2A @ 30 to 32 ft	Tetrachloroethene @ 200 ppb	1,400 ppb
Boring-3A @ 16 to 18 ft	Tetrachloroethene @ 712 ppb	1,400 ppb
Boring-3A @ 24 to 26 ft	Tetrachloroethene @ <5.0 ppb	1,400 ppb
Boring-3A @ 30 to 32 ft	Tetrachloroethene @ <5.01ppb	1,400 ppb
Boring-4A @ 08 to 10 ft	Tetrachloroethene @ 145 ppb	1,400 ppb
Boring-4A @ 14 to 16 ft	Tetrachloroethene @ 50.5 ppb	1,400 ppb
Boring-4A @ 20 to 22 ft	Tetrachloroethene @ 6.74 ppb	1,400 ppb

Subsequent to this data being supplied to the NYSDEC, the NYSDEC indicated the need for further investigation and/or cleanup. Therefore, the Volunteer entered into the Voluntary Cleanup

Program.(See Figure- 8 for all boring locations)

Remedial Investigation Work Plan January 2006

A remedial site investigation was performed by Berninger Environmental Inc. (BEI) during June - July 2006 pursuant to the requirements of an executed Voluntary Cleanup Agreement that included the following at the former Fortune Cleaners property: Task 1a (Indoor Air Testing), Task 1b (Soil Gas Investigation), Task 2 (Soil Investigation), and Task 3 (Groundwater Investigation).

The primary purpose of the investigation was to delineate the lateral and vertical extent of VOC contamination (tetrachloroethene and its breakdown products) in all site media. Additional objectives included the development of site-specific data to allow an evaluation of the actual and potential impacts to public health and the environment; selection and design of remedial action alternatives; and identification of potential feasible cleanup technologies and presumptive remedies.

A soil gas and indoor/outdoor air quality study were performed to evaluate the potential impact of the former use of dry-cleaning chemicals on the indoor air quality of the building at the subject property, as well as the adjoining residential apartment building (196 Ralph Avenue).

Numerous volatile organic compounds (VOCs) including tetrachloroethylene (PCE) were determined to be present at elevated concentrations in the study area relative to the comparative basis established by the NYSDOH for background concentrations in outdoor or indoor air. Tetrachloroethene was present above guidelines in the basement of the management office to the north (IA-3) (500 ug/m^3); within the former dry cleaners basement (IA-5) (4,000 ug/m^3); and the basement of the residential building to the south (IA-6) (*190* ug/m^3). The outdoor ambient air sampling location in the rear yard behind the former dry cleaners reported (OA-1) 1,200 ug/m^3 of PCE (only). Lesser concentrations of PCE were reported within the 1st floor of the former dry cleaners (IA-1) (88 ug/m^3); in the hallway of the 1st building to the north (IA-2) (37 ug/m^3); and within the 1st floor to the north in the management office (IA-4) (58 ug/m^3). The lowest indoor air concentration was reported at the 1st floor building to the south (196 Ralph Avenue) at a concentration of (IA-7) 4.6 ug/m^3 of PCE. (Figure-3)

The presence of VOCs in soil gas was also investigated to evaluate the potential for migration of vapors into off-site locations. The highest concentrations were reported in soil gas samples collected within the basement of the former dry cleaners. These basement soil gas concentrations were consistent with PCE concentrations in soil and groundwater data. Elevated VOCs in soil gas were also reported at the sampling location outside (to the east) of the former dry cleaners, in the sidewalk and beneath the basement of the building to the south and the management office to the north. Elevated soil gas concentrations were also detected within the rear yard to the west. Elevated concentrations of petroleum-related compounds (toluene), methylene chloride and n -Heptane were identified at several sampling locations.

The study confirmed that indoor air quality data within the basement structure of the former dry cleaners has elevated concentrations of PCE. Therefore, as per the NYSDOH Soil Vapor/Indoor Air Guidance, the soil gas data as well as indoor air quality data developed during the VCP investigation confirmed the need for mitigative measures.

The soil investigation that took place in 2006 included 7 borings; IWP-1, IWP-2, IWP-3, IWP-4, IWP-5, IWP-6 and IWP-7. BEI utilized a portable limited access Geoprobe direct-push sampling rig for the collection of soil samples. Two and four foot long soil sampling tools were attached to the drive rods for the collection of continuous undisturbed soil samples. The samples were protected in a PVC liner that prevents the loss of VOCs prior to field analysis. Each sample was opened and logged to document subsurface conditions including soil types and description of non-soil materials, field instrument measurements and depth to groundwater, when encountered. Any other suspect field characteristics such as the presence of odors, vapors and soil discoloration were noted. A portion of each sample was placed in a resealable plastic bag and screened for total VOCs by a MiniRAE 2000 Photoionizer detector (PID). The sample with the highest field measurement recorded at each boring and the deepest sample collected from a non-detection location was also containerized in certified-laboratory glassware at the time of its collection and immediately maintained in an ice-packed cooler. Upon completion of each day's sample collection, these samples were transported under strict chain-of-custody to an NYSDOH ELAP-certified laboratory (H2M Labs, Inc.) for analysis by EPA Method 8260 - Purgeable Organics by GC/MS inclusive of Tentatively Identified Compounds (TICs). PCE was detected at elevated levels in borings IWP-1 and IWP-4. IWP-1 @ 2-4' had

concentrations of PCE at 20,000 ug/kg and IWP-4 @ 6-8' had concentrations of 12,000 ug/kg. Please see Figure-8 for sample designation locations.

The groundwater investigation for 2006 consisted of 7 borings to the groundwater table where two samples from each boring location where collected at the surface of the aquifer 39-41' bgs and also ten feet below at 49-51'. All groundwater samples (GW-1, GW-2, GW-3, GW-4, GW-5,GW-6 and GW-7) showed elevated concentrations of PCE.(Figure-8 for locations)

Interim Remedial Measure and Supplemental Investigation Work Plan 2007

The Interim Remedial Measure(IRM) and Supplemental Investigation Work Plan(SIRWP) were developed during June of 2007 to address PCE impacted soil and the resulting soil vapor that posed a threat to the indoor air at the subject property. The selected remedy chosen was a Soil Vapor Extraction System (SVE). The SVE system is designed to remediate VOCs in unsaturated soils within the basement structure, as well as control and mitigate the migration of soil vapor on-site and off-site. The SVE system was finalized and initially began to operate in January of 2008 and continues to operate to date. The SVE will remain in operation until soils at the subject property appear to be adequately remediated and the soil vapors from the residual soil contamination no longer pose any human health threats with regards to the quality of the indoor air.

Supplemental investigation activities included the installation of 5 piezometer wells to a depth of approximately 44' below grade surface (bgs) which is approximately 7' below the surface of the water table. The installation of the piezometers was necessary in determining localized groundwater flow direction.(Figure-7) This enabled BEI to produce an accurate and site-specific calculation of the direction and velocity of groundwater flow at the subject property. Additional activities included the collection of groundwater samples from each of the piezometer wells as well as off-site groundwater borings at multiple depths, supplemental soil vapor sampling, indoor air quality testing and supplemental soil sampling to delineate the source of contamination.(see figure-4 for supplemental off-site groundwater and piezometer well sample locations)

Piezometer well sample data and Off-site Groundwater Results are tabulated below:

Well Location/ Boring	PCE Concentrations ug/l	NYS-DEC Standard
PZ-1	4,900	5 ug/l
PZ-2	820	“
PZ-3	170	“
PZ-4	830	“
PZ-5	450	“
GW-1A@39'	590	“
GW-1A@49'	260	“
GW-1A@59'	160	“
GW-1A@69	84	“
GW-2A@39'	7100	“
GW-2A@49'	710	“
GW-2A@59'	190	“
GW-2A@69'	38	“
GW-3A@39'	100	“
GW-3A@49'	190	“
GW-3A@59'	11	“
GW-3A@69'	5	“
GW-4A@39'	88	“
GW-4A@49'	73	“

As part of the IRM and Supplemental Investigation Work Plan a series of permanent vapor points were installed in order to determine the effectiveness of the SVE system as well as provide sampling ports for soil gas analysis. Radius of influence is one key measurement that can be calculated with the use of the permanent vapor points and is one of the more important factors when determining the overall area effected by the system. Fifteen permanent vapor points were installed throughout the subject site and at nearby off-site locations.(PV-1-15) PV-14 and PV-15 were installed at a later date

than the original 13 permanent vapor points, therefore, only one round of sampling was conducted on PV-14 and PV-15. Supplemental soil vapor sampling was conducted on two separate occasions in December 2007 and August 2008. In December 2007 13 permanent vapor points were sampled as part of the supplemental investigation activities and in August 2008 a second round of soil gas samples were collected at the newly installed PV-14 and PV-15 permanent vapor points as well as PV-2 and PV-12. All vapor points were analyzed using 6 liter summa canisters to collect the soil gas needed to be analyzed.(see figure-4 for permanent vapor point locations) The results for the December 2007 and August 2008 soil gas sampling events are tabulated in the chart below. All results shown in ug/m3.

Permanent Vapor Point	December 2007 PCE results	August 2008 PCE results
PV-1	692	n/s
PV-2	61,700	427
PV-3	241	n/s
PV-4	28	n/s
PV-5	37	n/s
PV-6	14	n/s
PV-7	436	n/s
PV-8	619	n/s
PV-9	27	n/s
PV-10	1.36	n/s
PV-11	102	n/s
PV-12	4.21	416
PV-13	7.12	n/s
PV-14	n/s	551
PV-15	n/s	612

* n/s not sampled

In August of 2008 a second round of indoor air quality testing (IAQ) was performed that replicated the indoor air quality test conducted in June of 2006. The August 2008 air samples were collected at the same locations as in June 2006 and also followed the same labeling procedure in order to comparatively analyze the results. The August 2008 results revealed significant reductions in the indoor air contamination as compared with the June 2006 results. These reductions are directly associated with the operation of the SVE system, which has captured a significant quantity of the soil vapor that was infiltrating into the indoor air during 2007. Figure-3 depicts all air sampling results from June 2006 (pre-SVE) and August 2008 (post-SVE) in order to show a comparative view of PCE concentrations and sampling locations from both sampling events.

Supplemental soil samples were collected at four locations surrounding the former dry cleaner just outside the property boundary to delineate any soil contamination. S-1A was collected to the east of the former dry-cleaner, S-2A to the north, S-3A to the south and S-4A to the west. The analytical data for these soil samples did not show any significant levels of PCE. Only low levels of PCE were present with the highest concentration 12 ug/kg for the S-4A sample. The laboratory results are tabulated in the chart below: (Figure-4 shows boring locations and other sampling locations that are part of the supplemental investigation)

Boring	**PCE ug/kg**
S-1A @ 22-30'	3
S-1A @ 35-37.5'	5
S-2A @ 3-4'	11
S-3A @ 2-4'	11
S-4A @ 6-8'	12

3.0 REMEDIAL ACTION OBJECTIVES

The overall remedial objective is to remove source material from the area of the former dry-cleaner with the use of a soil vapor extraction system (SVE). The SVE system has been in operation since January of 2008 and will continue to operate until the vast majority of soil contamination residing under the basement floor has been removed and remediated. The indoor air quality in the area of the former dry-cleaner and the management office has been tested on two separate occasions with the objective being to achieve concentration levels at or below the matrix guidelines for PCE and TCE set forth in the "NYSDOH 2006 Guide for Soil Vapor Intrusion." As mentioned earlier in section 2.0 the June 2006 indoor air results showed concentrations of PCE at significant levels many samples of which were above the air guidance value of 100 ug/m3. The second round of sampling in August of 2008 saw significant reductions in contamination levels. All of the samples for 2008 exhibited concentration levels below the guidance value of 100 ug/m3, however, matrix guidelines for indoor air quality follow a more stringent protocol for PCE and TCE. The soil vapor intrusion guidance states that, " The purpose of a guideline is to help guide decisions about the nature of efforts to reduce exposure to the chemical. Reasonable and practical actions should be taken to reduce exposures when indoor air levels are above background, even when they are below the guideline." Under matrix 1 reasonable action and practical action to identify the source and reduce exposure is required for concentrations of TCE that exceed 0.25 ug/m3. Matrix 2 states that of the same except concentration levels that exceed 3.0 ug/m3 for PCE should warrant reasonable and practical action. Based upon August 2008 indoor air sampling results, PCE levels in each of the basement areas tested (basement of management office, basement of former cleaners and basement of residential apartment building) and also the first floor of the former cleaners had a concentration of approximately 7.0 ug/m3. Matrix 2 guidelines for PCE recommend that PCE found at a concentration of 7.0 ug/m3 should be monitored and /or mitigated. BEI continues to monitor and mitigate the soil vapor with the operation of the SVE system. Monthly monitoring of the system includes SVE operational inspections and evaluation of the buildings structural integrity to ensure no new exposure pathways arise. The future use of the building is intended to be a commercial rental with details as to what type of business not readily available at this time.

4.0 PROPOSED PLAN

In order to address soil and soil vapor impacts within the basement of the former Fortune Dry Cleaners' portion of the subject property, a Soil Vapor Extraction (SVE) system has been installed and in operation since January of 2008. The SVE system is being used to both remediate VOCs in unsaturated soils within the basement structure, as well as to control and mitigate the migration of soil vapor on-site and off-site. In addition to the SVE system, other mitigative measures such as engineering controls (coincident sub-slab depressurization of the basement floor for on-site and off-site vapor recovery, installation of a vapor barrier and concrete cap, etc.) are employed as part of the overall remedy specified as the Remedial Action Plan (RAP).

Basement of Former Dry-Cleaner

The wells installed were constructed with twenty-five (25) feet of one-inch Schedule 40 PVC well screen with the terminus of the screen set at twenty-seven (27) feet below the exposed soil dirt floor of the basement. The bottom of the well screen was five (5) feet above the encountered water table (previously measured at 32 feet below the basement floor). The upper two feet of the SVE wells have been constructed of solid one-inch diameter riser pipe.

The native soils were observed during the previous site investigation to be highly permeable sands, which will allow air to flow easily into the well. An in-line sample port and airflow gauge has been installed at a working height of approximately 4 feet above each SVE well head. The air travels through the SVE piping, passes through a water knockout drum which removes moisture then extends to the blower unit. PVC piping connects the blower intake using flexible ductwork. Next the air travels from the blower unit in the basement of the former dry cleaners to the upstairs portion of the structure where it gets filtered through two carbon drum units. Flexible ductwork connects the blower outlet or exhaust to a two-inch diameter air stack which is then connected to the carbon units. The air stack extends from the carbon units to a height of approximately ten (10) feet above the highest roofline (management office) allowing venting to the atmosphere, where it is anticipated that the soil gas (air) effluent will undergo sufficient levels of dilution. Testing of effluent soil gas has been conducted on a monthly basis since the project start up. The effluent from the SVE system is

being treated to comply with the NYS-DEC Guidelines for the Control of Toxic Ambient Air Contaminants (Air Guide 1). Based on the other SVE systems installed in similar areas of Brooklyn, BEI has installed a Rotron explosion-proof blower or equivalent to create the vacuum for the SVE system. The blower unit has been wired to an existing electric sub-panel and operated by a control box located within the basement of the former dry cleaners. An alarm or system fault light has been installed at a visible area within the first floor to indicate times that the system becomes inoperable due to equipment malfunction or power outages. A pressure gauge has also been included as a supplemental warning device of system malfunction or failure.

Basement of Rose Tree Management

As the basement of the Rose Tree Management was virtually inaccessible to drilling equipment necessary to install SVE wells to significant depths (e.g., beyond seven feet below the concrete floor), BEI hand-installed two (2) shallow SVE wells within this area. These wells were installed utilizing manually-operated equipment and consist of one inch diameter PVC well screen constructed of five (5) feet of well screen with the bottom of the screen set at seven (7) feet below the concrete surface. The upper two feet of the SVE wells are constructed of solid one inch diameter PVC piping. Consistent with the wells installed within the basement of the former dry cleaners, one inch connectors have been used to connect with piping into the basement of the former dry cleaners. In-line sample ports and airflow gauges have been installed at a working height of approximately 4 feet above each SVE well head. The SVE piping extends to the blower unit and to the rest of the SVE system. The locations of all SVE wells in the basement of the former dry cleaner and the basement of the Rose Tree Management office are also depicted in Figure 5.

4.1 Mitigation of Soil Vapor Migration Pathways

Typical soil vapor migration pathways include entrance into a building through cracks or perforations in the slab or walls and through openings around sump pumps or where pipes and

electrical wires go through the foundation. The vapor movement is primarily a result of a difference between interior and exterior pressures. As established in the NYSDOH Vapor Intrusion Guidance, the basic requirements that must be established with respect to a soil vapor mitigation program are as follows:

- Methods of mitigation;
- Installation and design of mitigation system;
- Post-mitigation testing;
- Operation, maintenance and monitoring of mitigation systems;
- Termination of mitigation system operations; and
- Annual certification

Methods of Mitigation and Sealing of Infiltration Points within the Basement of the Former Dry Cleaners

The most effective mitigation methods for soil vapors include a combination of sealing any infiltration points and actively manipulating the pressure differential between the building's interior and exterior. A new concrete floor with vapor barrier was installed throughout the entire basement, which greatly suppresses any vapors beneath the foundation floor. The installation of the active SVE system has accomplished the pressure differential creating a sub-slab depressurization system to draw the vapors back toward the points of vacuum, then to the system for exterior venting or treatment as necessary.

Sealing of Infiltration Points within the Basement of the Rose Tree Management Office

BEI has exercised every feasible option in order to eliminate or reduce vapor migration within the interior basement area of the management office, which has been identified as requiring mitigation. This area will continue to be inspected as to the integrity and condition of the poured concrete floor and any utility or other perforation into the sub-grade surface. Although sealing is not a reliable mitigation technique on its own, it can significantly improve the effectiveness of a soil vapor

extraction system since it limits the flow of subsurface vapors into the building. All joints, cracks and other penetrations of the basement floor of the management office, as well as the interior basement wall separating the management office basement and the former dry cleaners have been sealed with materials that prevent air leakage.

Effectiveness of the SVE

BEI believes that a significant amount of soil vapor has been removed within the former dry cleaner through the on-going use of the SVE system. Proof of this statement is offered in field screening data that has been generated by our field technicians during monitoring operations and maintenance procedures. Field data has been generated on a monthly basis and has been compiled into a summary of data in graph and chart form. The most relevant field data that has been compiled from the SVE system includes influent and effluent PID readings as well as PID readings on each of the SVE wells.

PID readings have drastically reduced from the startup of the SVE system to the present day. The influent PID readings represent the contaminated air that is extracted from the vapor extraction wells in the area of the former dry cleaner and management office before it enters into the carbon drum filtration units. After the influent air is screened with a PID meter, a second reading is taken after the contaminated air passes through the first carbon drum, also referred to as carbon middle PID. As expected these readings are significantly lower because of the large amount of contamination absorbed by the first carbon drum. Finally, the air passes through the second carbon drum, which is the last stage of the filtration process. These PID readings are even lower than the readings after carbon drum one and the final effluent air is retrieved and submitted as an effluent air sample to a New York State certified Laboratory and tested for dry cleaning related chemicals. The residual air is released through an exhaust stack made of 2" schedule 40 PVC 10' above the highest neighboring roof line. Any exhaust generated from the SVE system is intended to comply with the NYS-DEC Guidelines for the Control of Toxic Ambient Air Contaminants (Air Guide 1). The volume of contamination that has been captured from the area of the former dry cleaners and the management office is shown on Figures 6, 6a and 6b. These figures represent the drastic decline of contamination in parts per million (ppm) from the start-up of the system to present time.

Based upon these drastic reductions BEI is proposing to move from monthly monitoring and

reporting to quarterly monitoring and reporting. BEI will continue to keep the system operational on a day to day basis with only monitoring and reporting moving to a quarterly format. It should be noted that sampling of the effluent stack is part of the monitoring procedure which would also be collected on a quarterly basis. Quarterly monitoring and maintenance would include BEI's usual activities that are performed on a monthly basis. BEI feels that the SVE system has reached an asymptotic phase based upon our graph results that show the flat lining or zeroing of effluent PID readings since the initial start up. The system will remain fully operational twenty four hours a day seven days a week until further evaluation of the site conditions.

4.2 Termination of SVE Operations

The SVE will not be turned off without prior approval from the State, except in emergency situations. The SVE will remain operational until it is no longer needed to address current or potential exposures related to soil vapor intrusion. Termination of the mitigation system will comply with the procedures discussed in the NYSDOH guidance and with NYSDEC and NYSDOH concurrence. A petition for the termination of the SVE operation would be based upon the following:

a. Residual subsurface sources of contamination, if any, of VOCs in subsurface vapors have been remediated based upon an evaluation of appropriate post-remedial sampling results;

b. Residual contamination, if any, in subsurface vapors is not expected to affect indoor air quality significantly based upon indoor air, outdoor air and sub-slab vapor sampling results;

c. Residual contamination, if any, in subsurface vapors is not expected to affect indoor air quality significantly when the SVE is turned off based upon indoor air, outdoor air and sub-slab vapor sampling results at representative structures: and

d. There is no "rebound" effect that requires additional mitigation efforts observed when the SVE system is turned off for prolonged periods of time. This determination is based upon indoor air, outdoor air and sub-slab vapor sampling from the building over a time period, which will depend upon site-specific conditions.

BEI will work with the property owner to make such a petition. Both the NYSDEC and NYSDOH will be petitioned on this matter for concurrence prior to system termination.

4.3 Groundwater Remedial Action

With regards to treating groundwater contamination, BEI has found that it is not feasible to treat groundwater at this site due to restricted accessability of the necessary equipment needed to install monitoring wells to groundwater. Previous investigations have shown BEI's efforts with regards to installing SVE wells in the basement of the former dry cleaners. Significant efforts were required to get a portable boring rig into the basement of the former dry cleaners so SVE wells could be installed. This also involved the moving and dismantling of the floor above the former dry cleaner's basement in order to use our portable boring rig to install the wells. Unfortunately, while installing the SVE wells in the basement area, the deepest attainable depth with the portable boring rig was short of reaching the surface of the aquifer.

With accessability being a large issue and the inability for our only accessible machine to reach groundwater, BEI does not see any possibility that groundwater can be treated on-site. BEI also believes that a large majority of the groundwater contamination has migrated off-site. The Voluntary Clean-up Program policy states that the volunteer is only responsible for remediation of contamination that lies within the footprint of the subject property. In this case the NYSDEC will be investigating the off-site conditions under the State Superfund program. BEI believes that we have done the required due diligence to provide off-site investigation information regarding soil, soil vapor and groundwater contamination.

A complete exposure assessment for groundwater was also conducted as detailed in the approved Supplemental Investigation Report (SIR) of August 2008. The exposure assessment for groundwater stated the following: Previous information developed for the study site determined that potable water is supplied to the study area by the systems of reservoirs, lakes, aqueducts, tunnels and water mains located many miles from the study area. The groundwater underlying the subject property is not known to be used for any potable or non-potable purposes. The investigation performed at the subject property did not identify the use of groundwater for residential or industrial use, potable or non-potable. Although the possibility exists that non-potable (non-contact cooling water) supply wells may exist within a one mile radius of the site, it is anticipated that this water would be used for non-contact purposes only. Therefore, no present exposure exists but a potential exposure nonetheless still exists and has been minimized.

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5.0 INSTITUTIONAL/ENGINEERING CONTROLS (ICS/ECS) AND ANNUAL CERTIFICATION

A deed restriction or environmental easement to prevent disruption of the vapor barrier and the new concrete floor. In addition to the concrete floor and vapor barrier, the environmental easement will prohibit the use of on-site groundwater for potable purposes and also specify the use of the property.

The easement will also state the maintenance required for all monitoring wells, sampling points, and remedial equipment at the site, including permanent vapor points, piezometer wells and vapor extraction wells.

6.0 HEALTH AND SAFETY PLAN

The Health and Safety Plan included in the previously approved Remedial Investigation Work Plan (Section 7) will be used for all activities to be conducted under the IRM, Supplemental Investigation and this RAP.

7.0 QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

Quality Assurance /Quality Control (QA/QC) procedures were developed to ensure that suitable and verifiable data results from sampling and analyses are maintained during the field activities. The Investigation Work Plan provided detailed quality assurance procedures to be followed for sampling and laboratory analysis activities. These procedures were implemented during the investigation and a limited summary description of the quality assurance procedures followed is provided below.

7.1 Sampling Personnel

The activities associated with the field sampling and analysis program were performed under the supervision of a Quality Assurance Officer, in accordance with the NYSDEC, DER "Draft Technical Guidance for Site Investigation and Remediation", December, 2000 (3/26/01). The samplers possessed a minimum of two or more years experience in environmental/geological field work. Additionally, all samplers had received mandatory forty-hour Occupational Safety and Health Administration (OSHA) training on working with potentially hazardous materials and appropriate Hazard Communication Program and Right-To-Know' training.

7.2 Sampling Equipment

Individual QA/QC measures were implemented for each of the types of equipment, field screening instruments, sample containers, etc. used in the performance of the sampling program.

7.2.1 GeoProbe® and all related sampling equipment

Prior to arrival on the subject property and between sample locations, the probes were decontaminated by washing them with a detergent (Alconox) and potable water solution and rinsing them with distilled water.

7.2.2 Glassware

All sample glassware was "level A" certified decontaminated containers supplied by a NYSDOH-Certified Commercial Laboratory. Samples analyzed for media potentially containing VOCs were placed in Teflon-lined containers. All samples were preserved by cooling them to a temperature of approximately four degrees Celsius.

7.3 Sample Documentation

To establish and maintain proper sample documentation control, the following sample identification and chain-of-custody procedures were followed.

7.3.1 Sample Identification

Sample identification was executed by use of a sample tag, log book and chain-of-custody form. Said documentation provided the following information: 1) the project code; 2) the sample laboratory number; 3) the sample preservation; 4) the date the sample was secured from the source media; 5) the time the sample was secured from the source media; and 6) the person who secured the sample from the source media.

7.3.2 Chain-of Custody Procedures

Due to the evidential nature of samples, possession was traceable from the time the samples were collected until they were received by the testing laboratory. A sample was considered under custody if it: was in a person's possession; it was in a person's view, after being in possession; if it was in a person's possession and they locked it up; or, it was in a designated secure area. When transferring custody, the individuals relinquishing and receiving the samples signed, dated and noted the time on the Chain-of-Custody Form.

7.3.3 Laboratory-Custody Procedures

A designated sample custodian accepted custody of the delivered samples and verified that the information on the sample tags matched that on the Chain-of-Custody Records. Pertinent information as to delivery, pick-up, courier, etc., were entered in the "remarks" section. The

custodian entered the sample tag data into a bound logbook. The laboratory custodian used the sample tag number, or assigned a unique laboratory number to each sample tag, and assured that all samples were transferred to the proper analyst or stored in the appropriate source area. The laboratory custodian distributed samples to the appropriate analysts. Laboratory personnel were responsible for the care and custody of samples, from the time they were received, until the sample was exhausted or returned to the sample custodian. All identifying data sheets and laboratory records were retained as part of the permanent documentation. Samples received by the laboratory were retained until after analysis and quality assurance checks were completed.

8.0 PROJECT SCHEDULE AND REPORTING

The project schedule and reporting procedures will continue to comply with the monitoring, operations and maintenance program with one exception. As stated on page 16, BEI would like to request moving from monthly monitoring/maintenance to quarterly monitoring/maintenance as per our reasoning in section 4.0 page 16. This would require quarterly monitoring of the SVE system and submittals of effluent air samples on a quarterly basis until the final stage of the remediation has been achieved. As of now the system is fully operational and is doing more than an adequate job in removing contamination from impacted soils throughout the subject property. BEI will be submitting a Site Management Plan and a Final Engineering Report as we approach the final stages of the project.

9.0 PROJECT ORGANIZATION

The project organization is as follows:

Owner: Peter Rosenbaum

Volunteer: Brooklyn Properties 5, LLC; 41 Carriage Road Roslyn, NY 11576

Attorney/P.E: John Soderberg ESQ; 207 Hallock Road Stony Brook, NY 11790 Suite 212

Consultant: Berninger Environmental Inc.; Justin Halpin- Scientist/Project Manager; 90-b Knickerbocker Ave. Bohemia, NY 11716

FIGURES

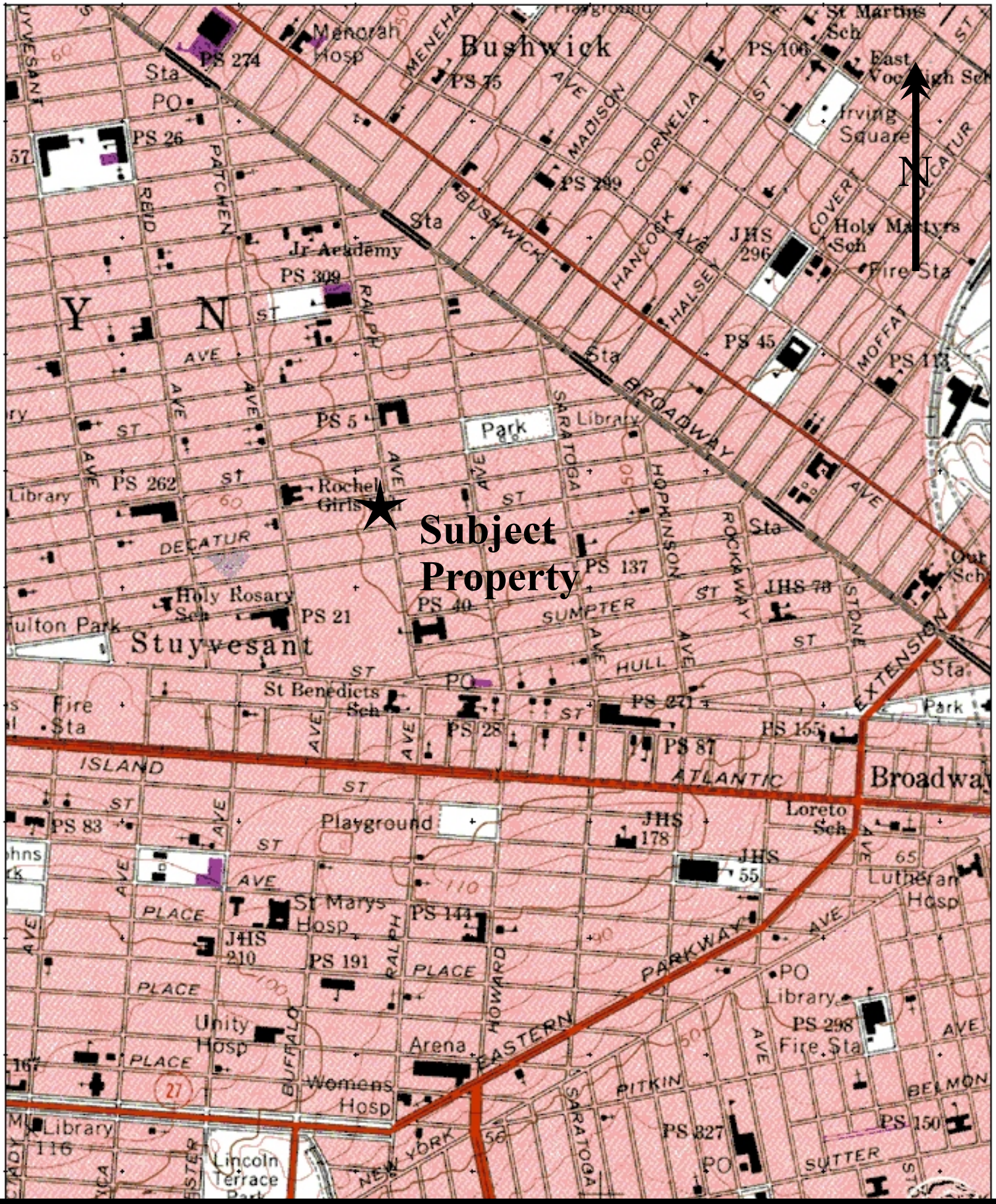

Figure 1 - Site Location

188-192 Ralph Avenue
Brooklyn, New York

BEi
BERNINGER ENVIRONMENTAL INC.
groundwater consultants and geologists
90-B Knickerbocker Avenue
Bohemia, New York 11716
Phone # (631) 589-6521
Fax #(631) 589-6528

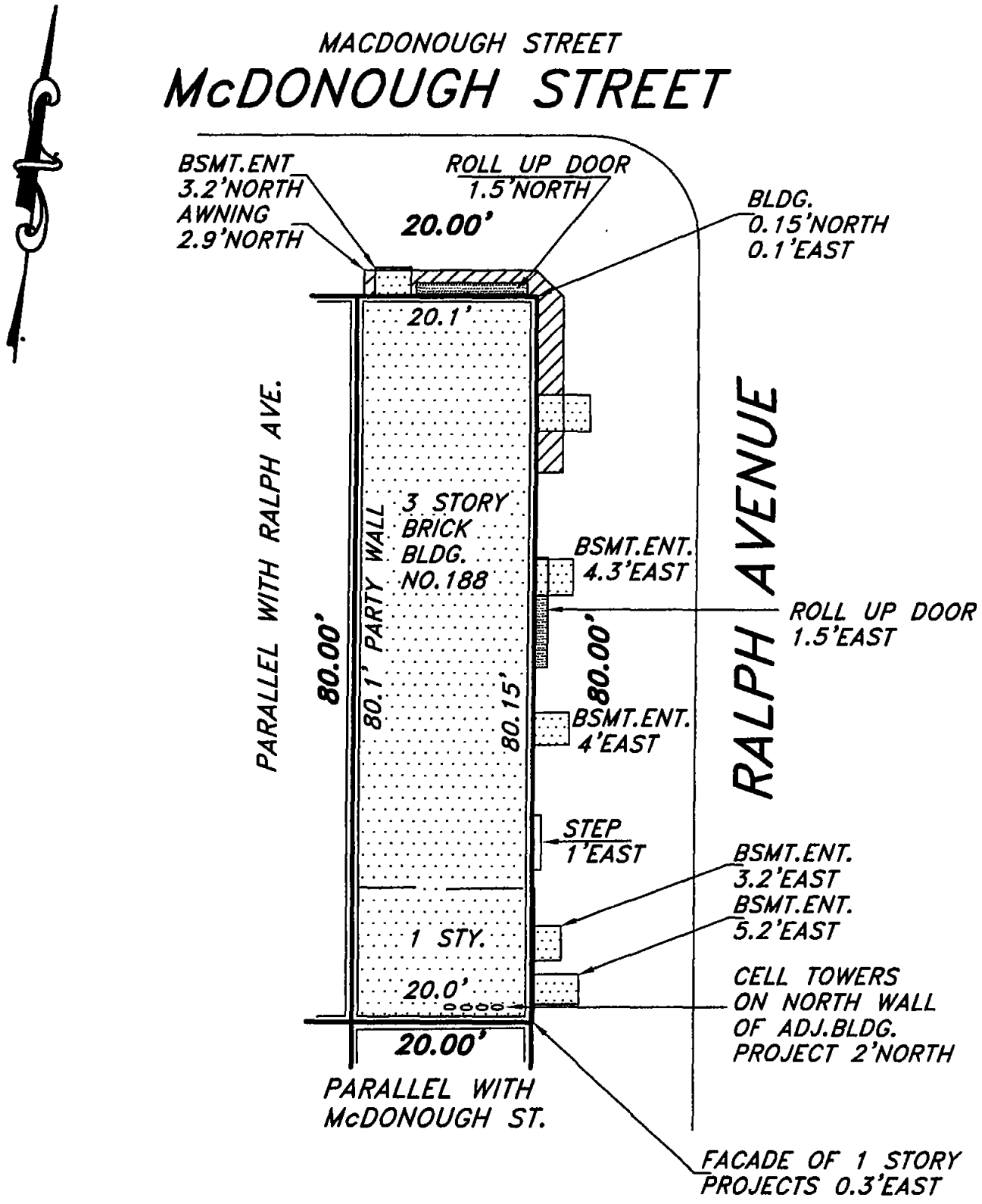

Figure 2
Site Survey

188-192 Ralph Avenue
Brooklyn, New York
Site No. V-00669-2
Index No.: W2-0977-03-11

BEI BERNINGER ENVIRONMENTAL INC.
groundwater consultants and geologists
90-B Knickerbocker Avenue
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Fax #(631) 589-6528

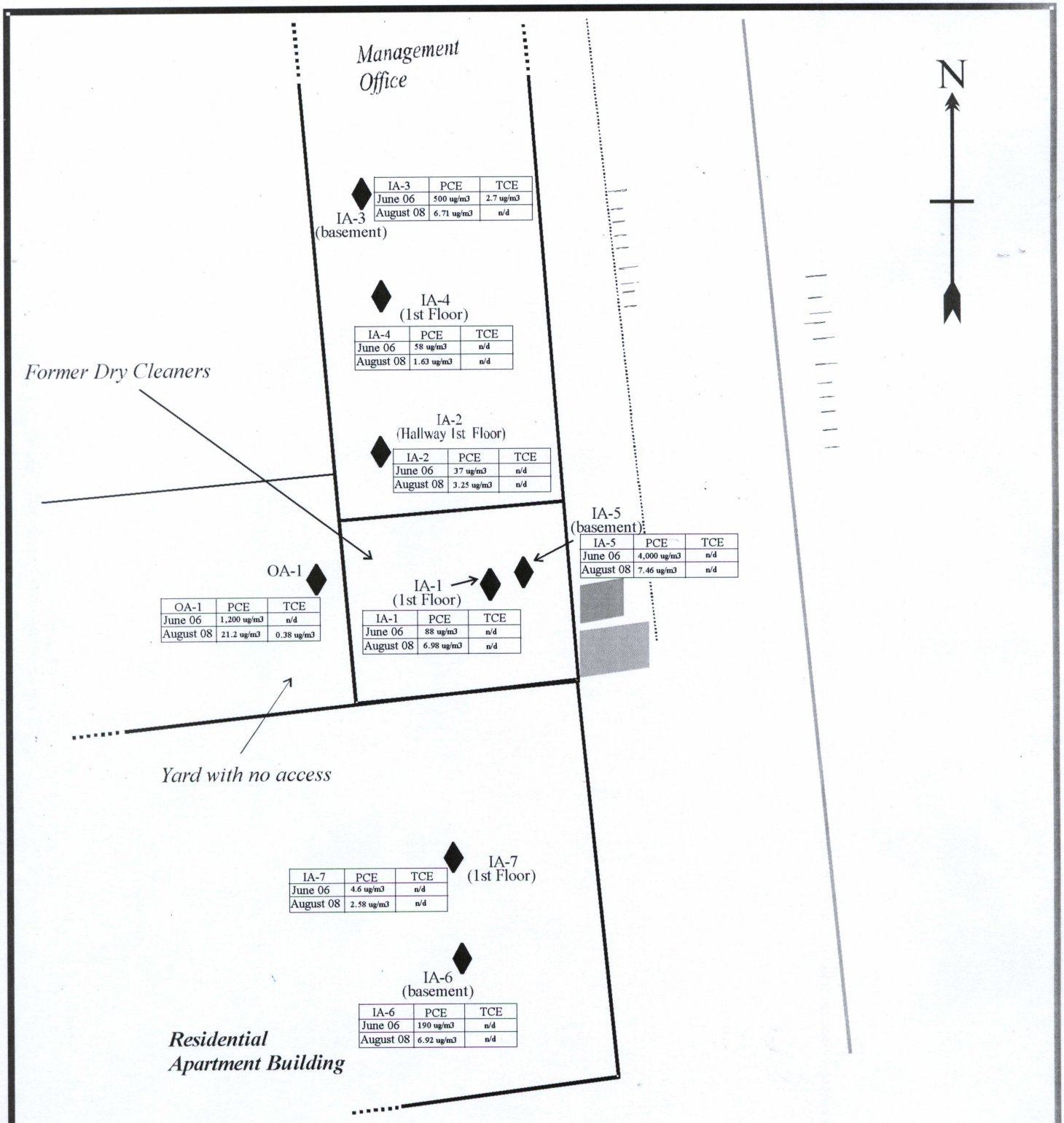

Figure-3
Indoor Air Quality
Comparison of June 2006
and August 2008
Air Samples

188-192 Ralph Avenue
Brooklyn, New York
Site No. V-00669-2
Index No.: W2-0977-03-11

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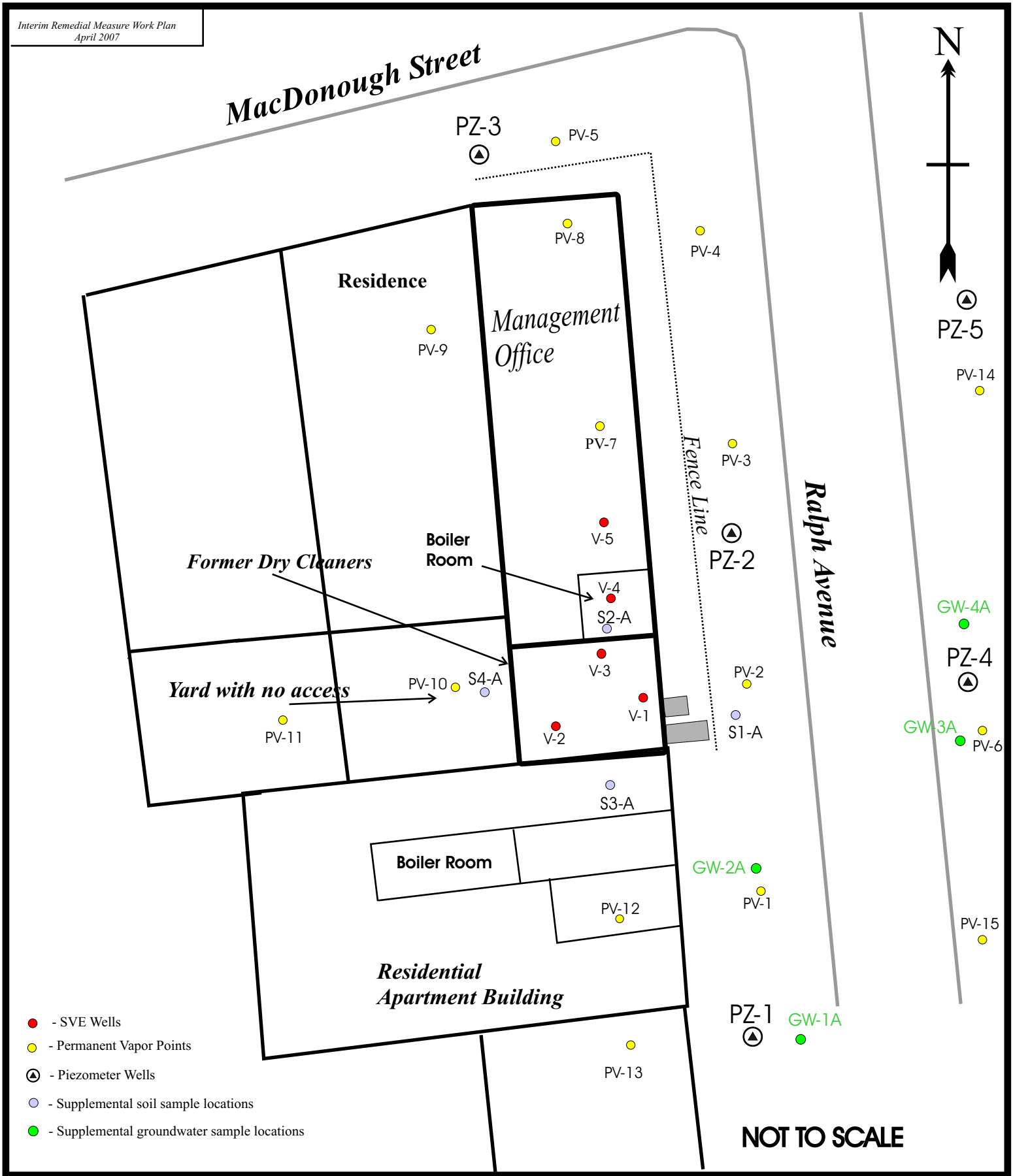

Figure -4
All Permanent Vapor Sample Locations / SVE Wells Soil and Groundwater Sample Locations

188-192 Ralph Avenue
Brooklyn, New York
Site No. V-00669-2
Index No.: W2-0977-03-11

Revised By: JGH 7/31/10

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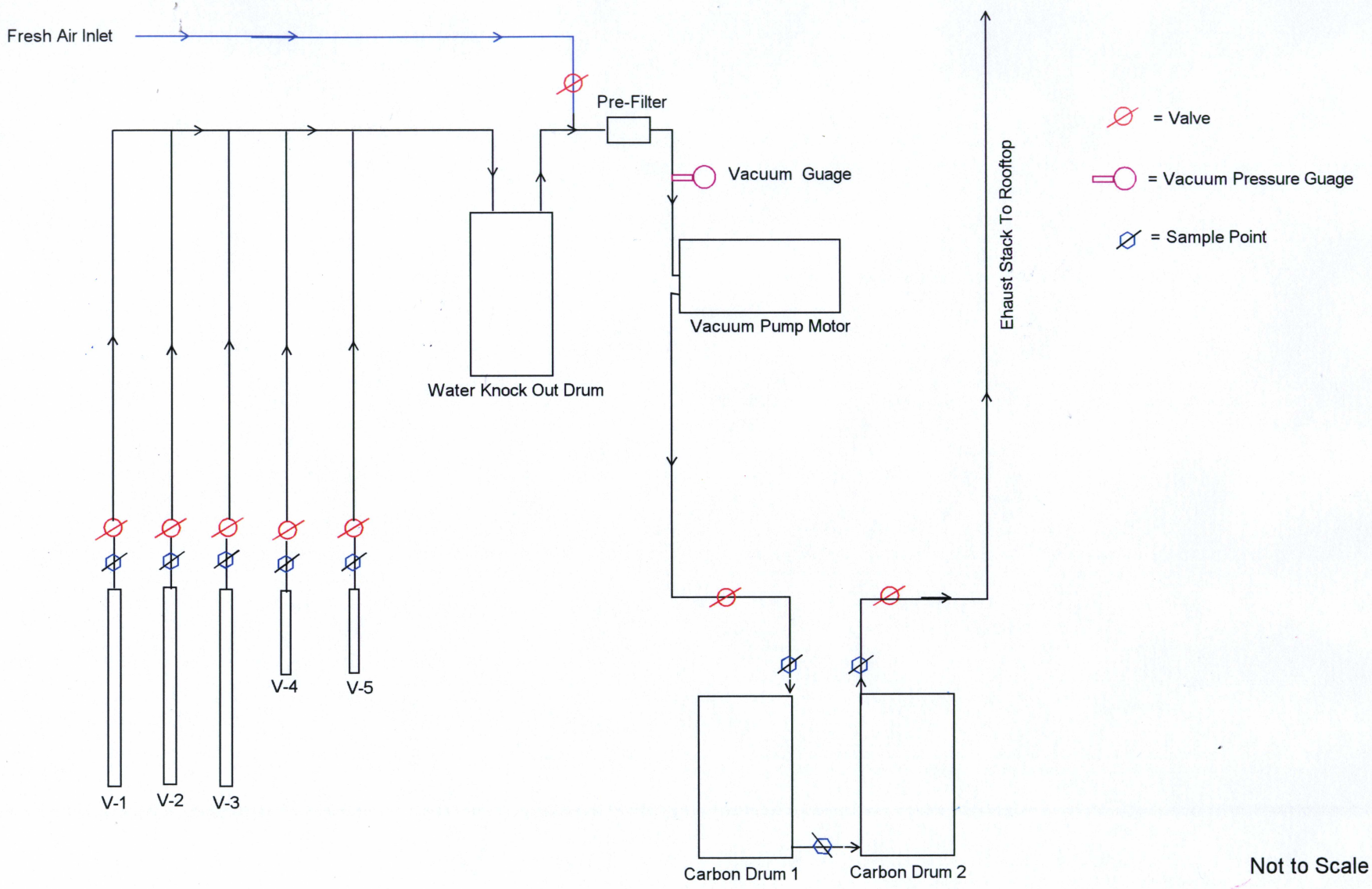


BEI Berninger Environmental, Inc.

groundwater consultants, engineers, geologists

631 • 589 • 6521

90-B Knickerbocker Ave. • Bohemia, NY • 11716

DRAWN BY: JGH

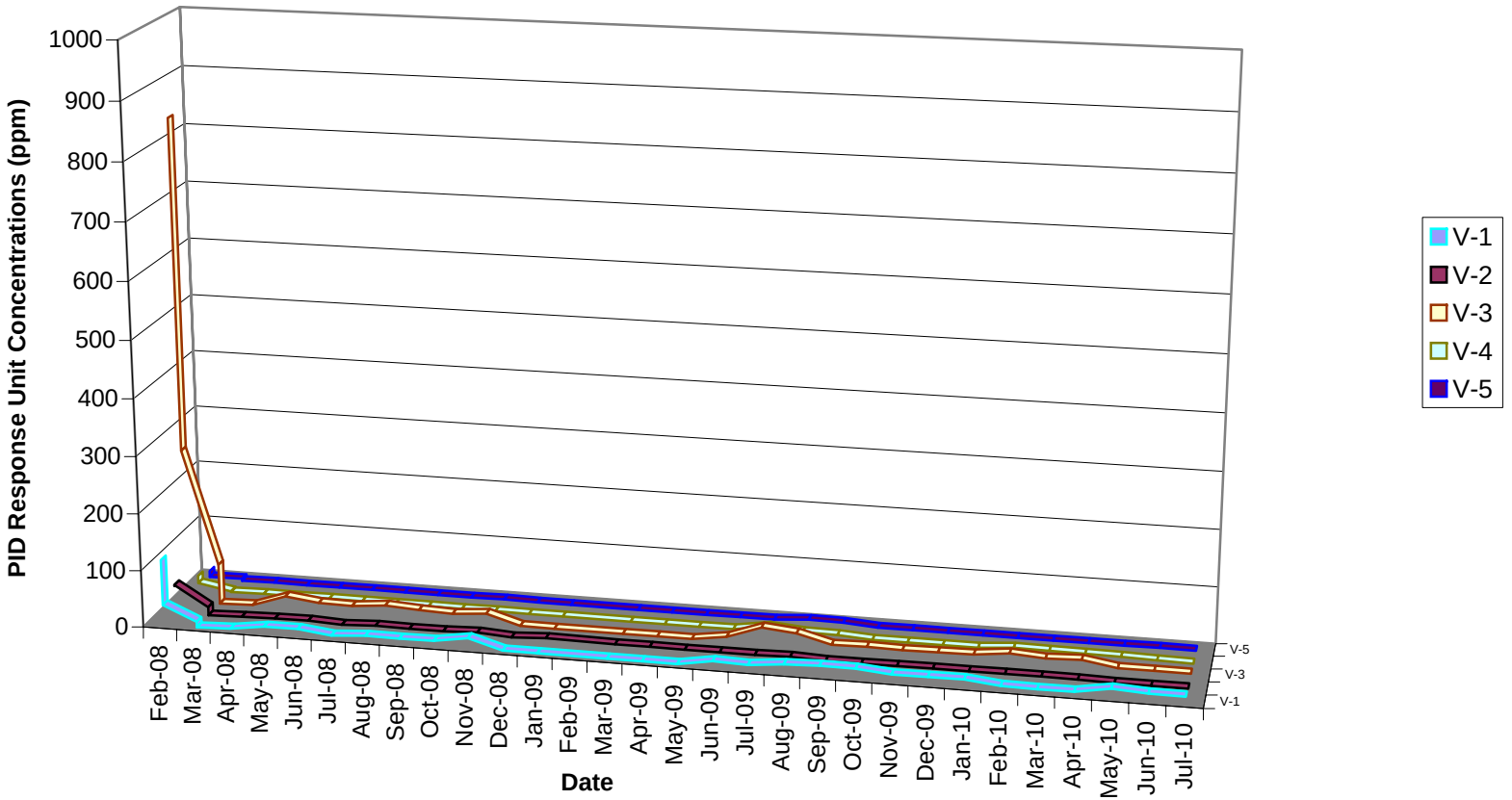
DATE: 10/09

Figure - 5

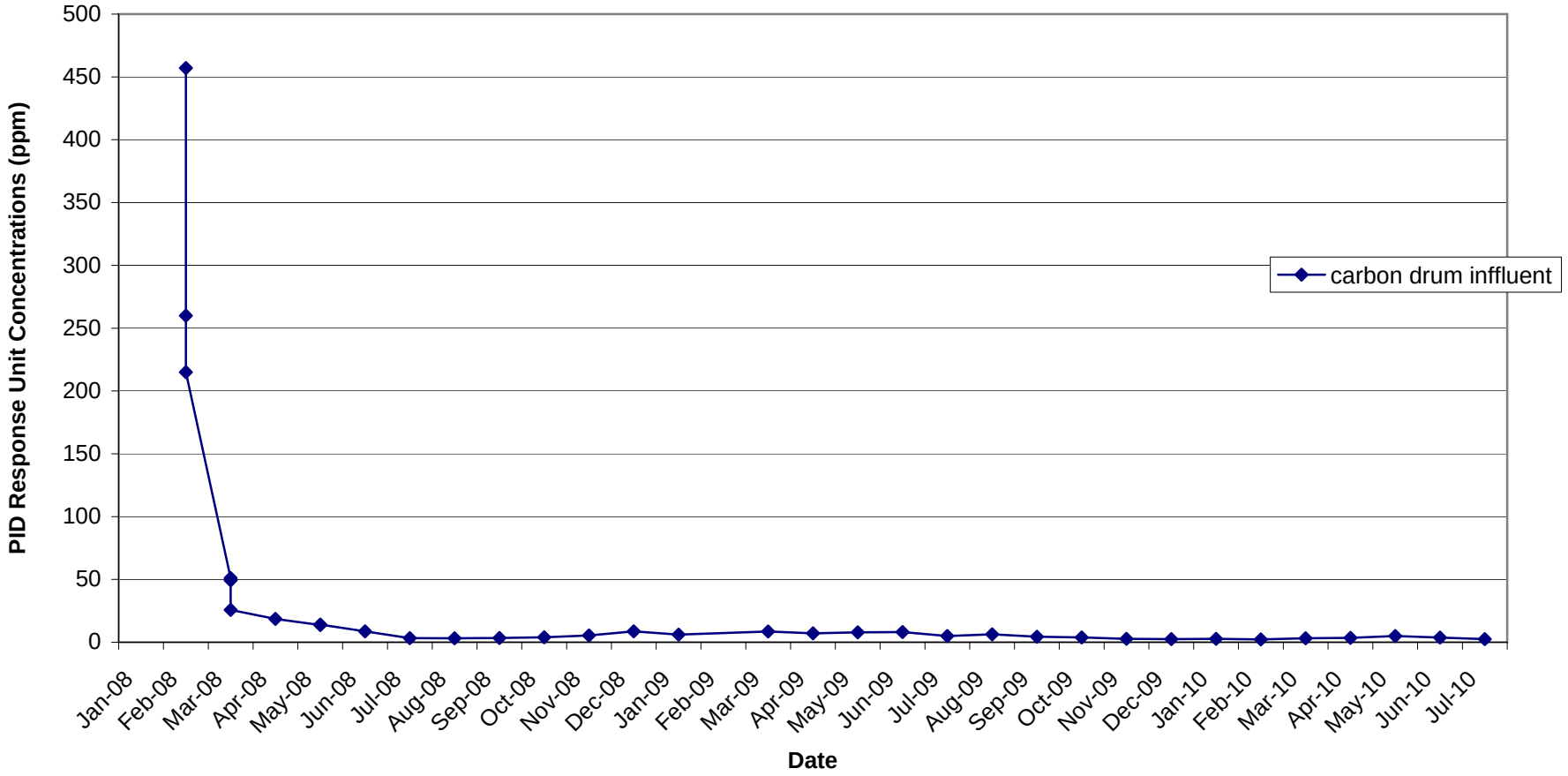
VES Flow Diagram

188 Ralph Avenue
Brooklyn, NY
Site No. V-00669-2
Index No.: W2-0977-03-11

188-192 Ralph Ave.
Brooklyn, NY
Site# V-00669-2
Index# W2-0977-03-11
Vapor Extraction Wells PID
Figure-6



188-192 Ralph Ave.
Brooklyn, NY
Site# V-00669-2
Index# W2-0977-03-11
Carbon Drum Influent
Figure-6a



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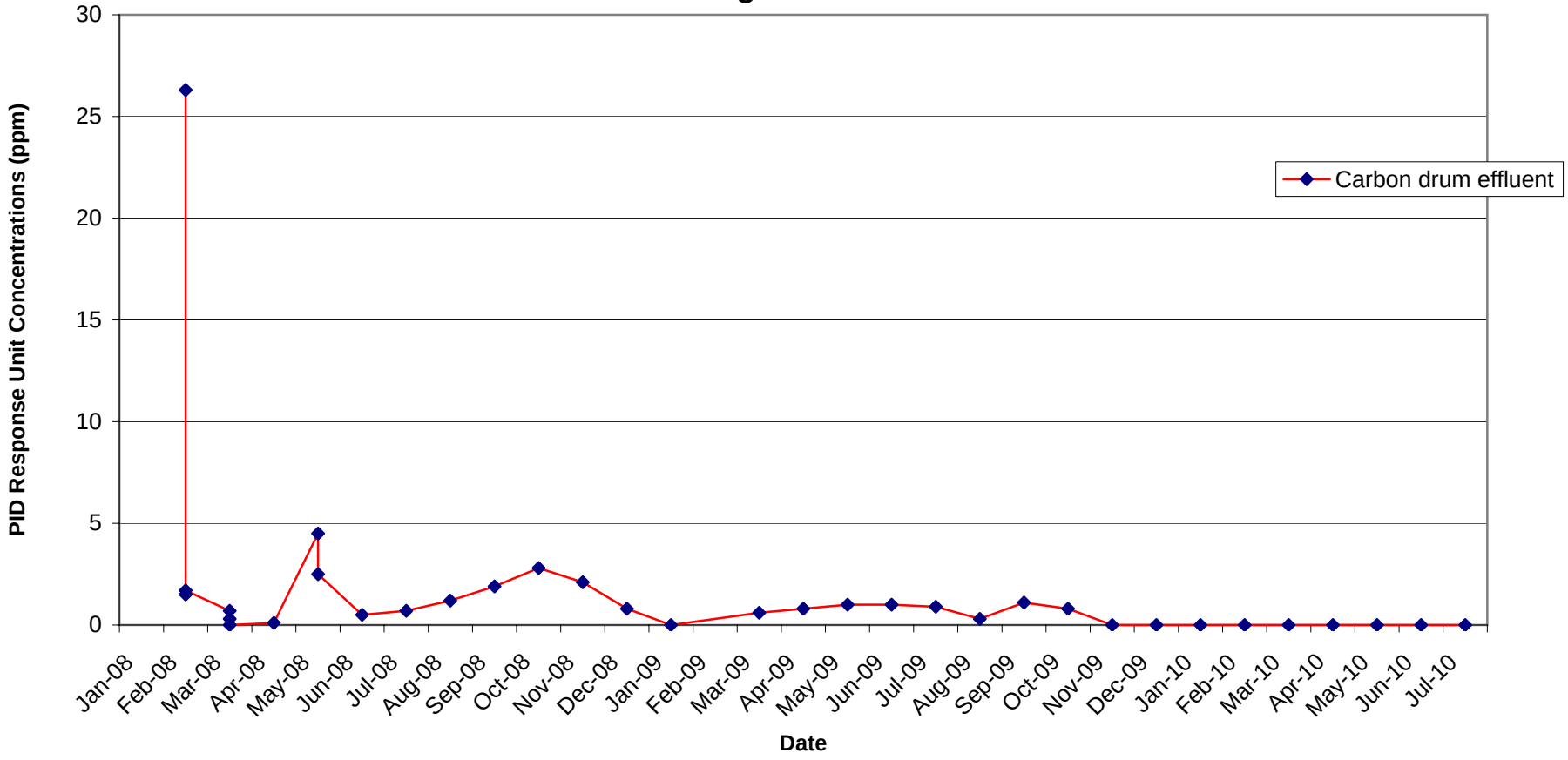
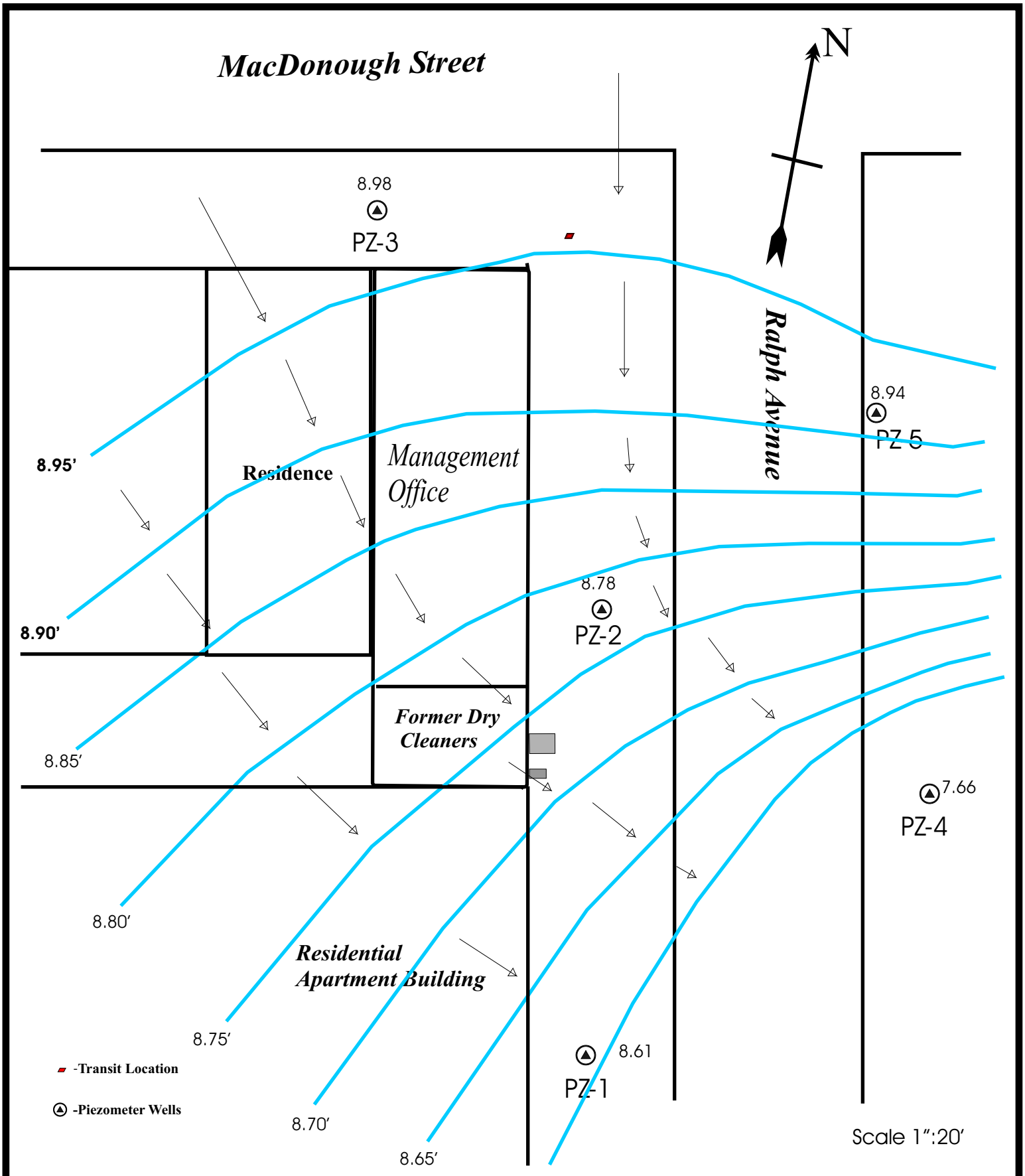
Brooklyn, NY
Site# V-00669-2
Index# W2-0977-03-11
Carbon Drum Effluent
Figure-6b





Groundwater Elevation Survey

Well	MW Case-Elevation	DTW 1 /2/ 08	WT Elevation 1 /2/ 08
PZ-1	45.53	36.87	8.61
PZ-2	45.77	36.95	8.78
PZ-3	46.41	37.37	8.98
PZ-4	45.60	37.94	7.66
PZ-5	45.69	36,65	8.94

Elevation In Feet

Start Elevation: 45.92' Source: USGS Seamless Server South West Corner MacDonough St. & Ralph Ave.

188-192 Ralph Avenue
Brooklyn, New York
Site No. V-00669-2
Index No.: W2-0977-03-11
Figure-7

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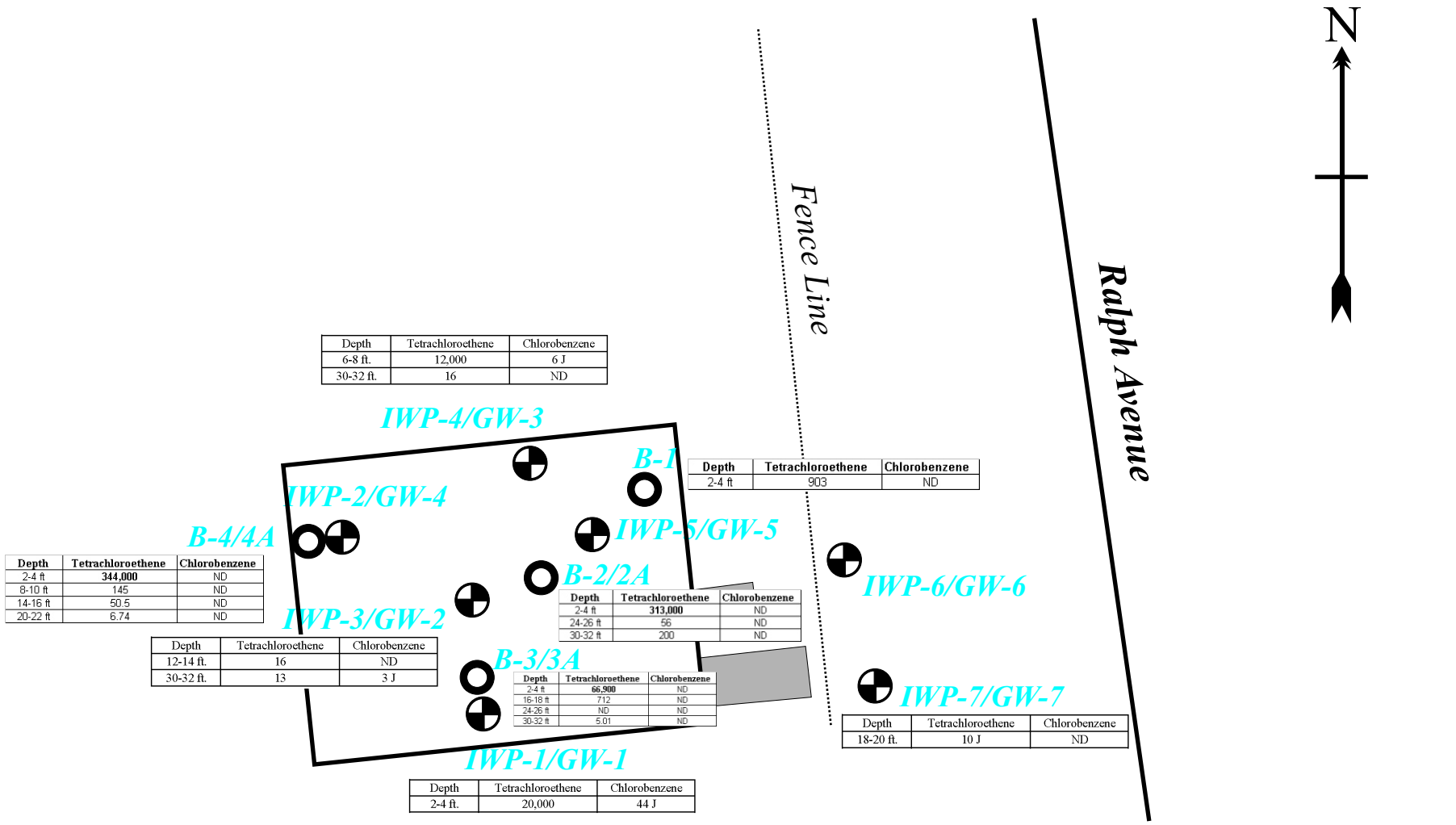

- Soil Sampling Location May and July 2002
- Soil and Groundwater Sampling Location July and August 2006
- Detected Concentrations of VOCs in Soil Samples in micrograms per kilogram

Scale

0 ft. 20 ft.

Figure 8 - VOCs Detected in Soil Samples Collected in Prior Investigations and During IWP Activities July/August 2006

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