SUPPLEMENTAL SOIL VAPOR INVESTIGATION WORK PLAN
for the Property Located at 129-09 Jamaica Avenue,
Richmond Hill, NY
Tax Block 9281, Lot 44

Prepared for:

UFI, Inc.
173 Foster Avenue
Valley Stream, NY

August 12, 2011

Prepared by:

Environmental Liability Management, L.L.C.
267 Broadway, Fifth Floor
New York, NY 10007
www.ExploreELM.com

Craig Puerta, PE
Senior Manager

Reviewed by:

Pete W. Zimmermann
Principal

DISCLAIMER

The ELM Group, Inc. (ELM) has prepared this report based upon a review of information provided by the client as well as information collected and/or developed as part of the specific scope of work under this project. The report was prepared for the exclusive use of the client of record for the stated objectives relative to the subject property. No other warranty, express or implied, is made.

ELM does not purport to give legal advice. Any reference to legal issues or terms is provided as part of the general environmental risk assessment and is not a substitute for the advice of competent legal counsel.

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LIST OF ATTACHMENTS

Attachment 1: Letter dated June 25, 2007 from NYSDOH to Mr. Dale Desnoyers

1.0 INTRODUCTION

The ELM Group (ELM) has prepared this Supplemental Soil Vapor Investigation Work Plan (SSVIWP) for the property located at 129-09 Jamaica Avenue, Richmond Hill, New York (Site). This SSVIWP has been prepared to supplement a Soil Vapor Investigation Work Plan (SVWP), dated April 16, 2010, prepared by ELM on behalf of UFI, Inc. (UFI), the former owner of the Site.

The Site is located on a block bound by Hillside Avenue to the north, 130th Street to the east, 127th Street to the west, and Jamaica Avenue to the south. The Site is located in a mixed community consisting of industrial, commercial, and residential applications. The legal definition of the Site is Tax Block 9281, Lot 44. The Site is currently enrolled in the New York State Brownfields Cleanup Program (Site #C241103). A Site map is provided as Figure 1.

In November 2010, ELM completed portions of a soil vapor investigation under the April 2010 SVWP. ELM subsequently submitted a report detailing the results from this investigation to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH). ELM received formal comments from the NYSDEC and NYSDOH in April 2011. This SSVIWP was prepared in response to these comments and in accordance with the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH Guidance).

2.0 BACKGROUND

ELM performed a Remedial Investigation (RI) at the Site in November 2008. As part of the RI, ELM completed on-Site sub-slab and soil vapor samples for general characterization of soil vapor conditions across the Site footprint. The results indicated detections of soil vapor constituents of interest (COIs)--tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride and cis-1,2-dichloroethene--at levels exceeding the NYSDOH guidance at specific locations as identified on Figure 2.

In April 2010, ELM prepared an Off-Site Soil Vapor Investigation Work Plan, which was approved by NYSDEC/NYSDOH on April 16, 2010. ELM implemented and completed Phase I of this work, which involved soil vapor sampling on the sidewalks across the street from the Site on western 127th Street, southern Jamaica Avenue, and western 130th Street, in December 2010. These samples indicate no detections of COIs exceeding their respective air guidance values (AGVs) or Matrix 1 & 2 values established by the NYSDOH, as shown on Figure 3.

In October 2010, the Site was purchased by Vista Developers Corp. (Vista). Since that date, Vista has engaged in significant soil excavation and off-Site soil disposal activities in and around the western parking lot, the southeastern portion of the Site, and the former USTs located near the eastern boundary of the Site. "Hot-spots" associated with the former tank farm area have been excavated and disposed off-Site, the former dry wells have been removed and disposed off-Site, and all buildings and building slabs and shallow subsurface infrastructure have been demolished and soils removed from the beneath the former slab. Soils excavated for off-Site disposal have not exceeded NYSDEC Track 1 Soil Cleanup Objectives (SCOs).

Phase II of the April 10, 2010 work plan contemplated interior air and sub-slab soil vapor sampling in neighboring residences to the northwest of the Site. In light of (1) the lack of any response to date by occupants of these residences to ELM's letters requesting access, (2) the results of the December 2010 sidewalk soil vapor samples, and (3) subsequent remedial activities at the Site which have removed significant amounts of source material, ELM is proposing instead to collect additional on-Site soil vapor samples in areas previously exhibiting elevated indicators of COIs, as shown on Figure 4. If these samples do not indicate COIs above NYSDOH criteria, ELM will request that no further action be required with respect to off-site soil vapor issues.

3.0 SCOPE OF WORK

Prior to initiation of soil vapor sampling at any on-Site locations, a Site visit will be performed in order to assess Site conditions. The observations made and information gained during the visit will be used for the final selection of sampling locations. The Site reconnaissance will include documenting all observations in field notes and photographs.

The following locations are proposed for sampling:

- Installation and collection of up to three soil vapor samples across the Site footprint in the approximate locations identified on Figure 4. The locations were chosen based on the 2008 RI data, as well as additional points to provide Site-wide characterization. An ambient air sample and one duplicate sample for Quality Assurance/Quality Control will also be collected.
- Collection of soil vapor samples for COIs [tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride and cis-1,2-dichloroethene] from each probe using Summa canisters and chemical analysis by modified EPA Method TO-15.
- Collection of ambient air samples for COIs and analysis by modified EPA Method TO-15 to represent background conditions.
- On-Site measurement and select laboratory analysis of soil gas samples for O_2, CO_2, and CH_4 to provide information needed to assess the persistence of hydrocarbon vapors.
- Preparation of a report for submission to NYSDOH and NYSDEC.

4.0 METHODS

The methods proposed for the completion of the investigation are described in the subsections below.

4.1. Soil Vapor Probe Installation

A temporary soil vapor probe will be installed at each of the proposed locations, at an approximate depth of up to eight feet below grade surface. Soil vapor sampling will not be performed within 48 hours of a significant rainfall event (1/2 inch of water or greater).

To install each probe, a 3/8" hole will be drilled using a hand-held hammer drill to advance the bit. Upon drilling to the desired depth, a 1/8" Teflon tube will be implanted into the hole, and the annular space sealed with bentonite slurry to prevent ambient air from entering the area around the probe. Once the seal is secure, a "T" fitting and valve will be connected on the above-surface end of the tubing, and using a syringe, the vapors in the probe and tubing will be purged of three volumes. As required by the NYSDOH Guidance, a helium (He) tracer will be used as part of the sampling process and the testing will follow the NYSDOH guidance, specifically Figure 2.4a, which is attached to this SSVIWP as Figure 5. Prior to sample collection, the He vapor will be screened using a field meter. The measurement recorded will be less than 5% He at each soil vapor sampling location (NYSDOH allows for 10%). Following this procedure, soil vapor samples will be collected in Summa™ canisters at a flow rate of no greater than 200 ml/min. All soil vapor samples will be collected for a period of eight hours. Following sample collection, He percentages will again be measured and recorded. The soil vapor samples will be analyzed by an New York ELAP certified laboratory for VOCs via EPA TO-15 analysis.

During sample collection, a sample log sheet will be maintained summarizing the following information:

- Sample Identification;
- Date and time of sample collection;
- Sampling depth;
- Name of sampler;
- Sampling methods and devices;
- Purge volumes;
- Volume of soil vapor extracted;
- Vacuum measurements on Summa canisters before and after sample collection;
- Chain of custody protocols and records used to track samples from sampling point to analysis; and
- A simple schematic of sample locations, including distances from property lines or other significant Site landmarks.

Periodic checks will be performed on the sample equipment to ensure that the sample is being collected properly and the correct vacuum is being achieved. Upon the conclusion of sampling, a slight vacuum will be left in the Summa canister to evaluate if there was any leakage during transit. If no vacuum remains in the canister, the canister will be discarded and the sample will be re-collected.

4.2. Ambient Air Samples

Outdoor (ambient) air commonly contains VOCs at measurable concentrations and can contribute a positive bias to soil vapor samples. To characterize such "background" concentrations, one ambient air sample will be collected for each day of soil vapor sampling

activities. Ambient air samples will be collected near the area of the field sampling crew, and preferentially upwind. Ambient air samples will be collected using clean-certified, batch-certified Summa canisters and flow controllers designed to collect a sample over approximately an 8-hour period, corresponding to a working day. The Summa canisters will be placed at a height of 3 to 5 feet above grade to simulate the breathing zone elevation.

4.3. Laboratory Analysis of Soil Vapor and Outdoor Air Samples

All soil vapor samples will be analyzed by a New York ELAP certified laboratory for VOCs via EPA Method TO-15. All summa canisters will be certified clean by the laboratory.

5.0 DATA ANALYSIS AND INTERPRETATION

The primary data analysis will be an evaluation of the concentration of COIs in soil vapor samples. Both the specific compounds identified and the concentrations of the COIs will be evaluated in comparison with soil vapor data collected historically on-Site and off-Site. These data will be reported in micrograms per cubic meter of soil vapor ($\mu g/m^3$). A Data Usability Summary Report (DUSR) will be generated from a qualified environmental scientist upon the completion of the testing.

The results of this the soil vapor investigation will be evaluated consistent with the NYSDOH Guidance, including its decision matrices #1 & #2. The compounds identified in the June 25, 2007 letter from NYSDOH to Mr. Dale Desnoyers will also be added to the Matrix evaluation, provided as Attachment 1. The results of the soil vapor sampling will be used to update and refine the conceptual site model for soil vapor from all investigations performed to date.

6.0 REPORTING TASKS AND SCHEDULE

This scope of work is proposed to be performed in conjunction with Vista's remedial and development activities at the relevant areas of the Site, according to a schedule to be negotiated with Vista and subject to review and approval by NYSDEC and NYSDOH. Laboratory reports will be received within a standard two- to four-week turnaround time.

ELM will prepare a letter report presenting the results of the sampling within approximately 2-3 weeks after receipt of QA/QC'd results.

7.0 KEY PERSONNEL CONTACT LIST

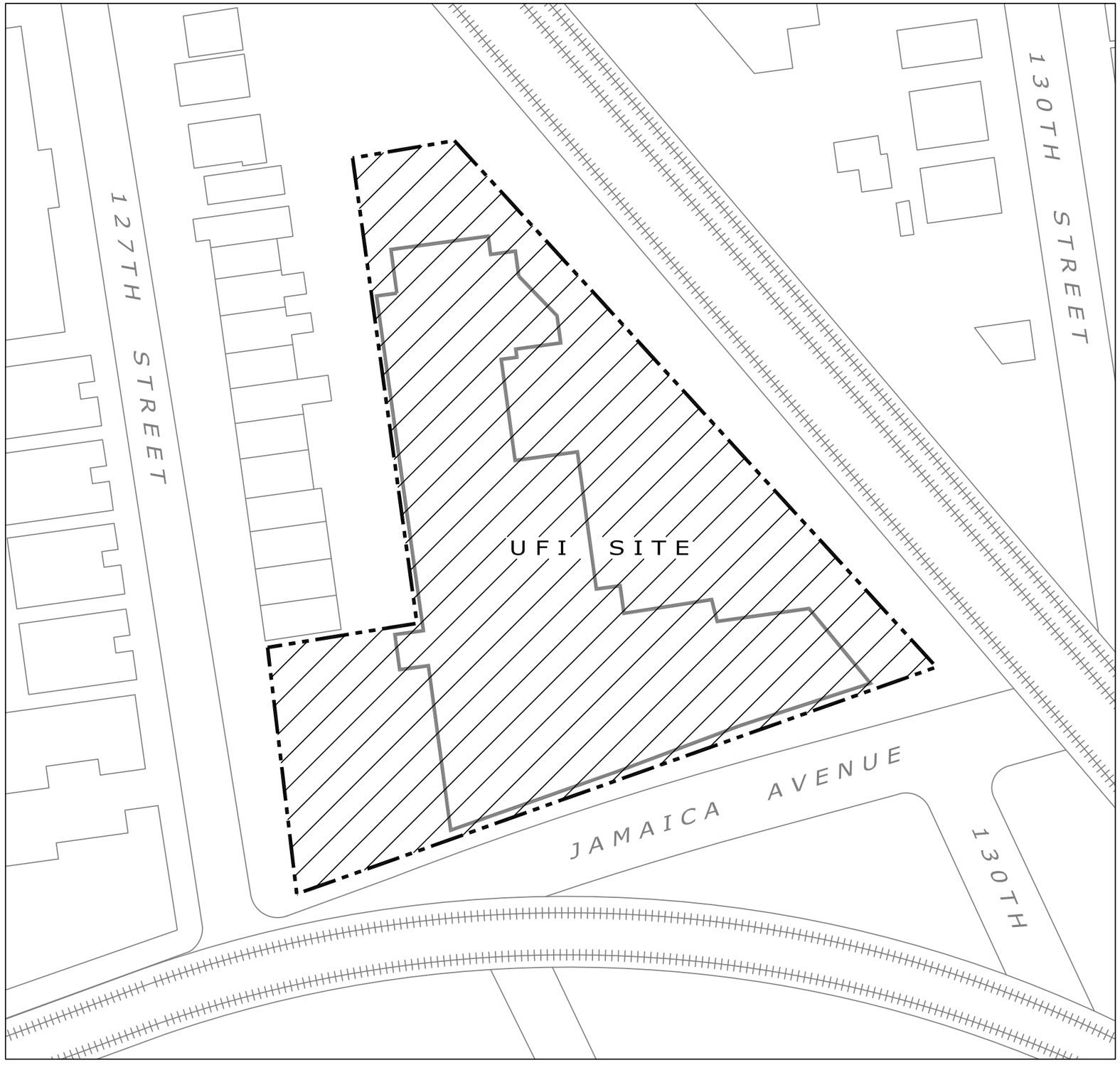
Contact information is provided for the following key project personnel:

Craig Puerta, PE, ELM Project Manager	(212) 962-4301 (office); (917) 952-8216 (cell)
Richard Sena, UFI Representative	(845) 623-0941 (office); (917) 406-1947 (cell)

8.0 REFERENCES

New York State Department of Health (NYSDOH). 2006. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York, Final*. October 2006.

FIGURES



LEGEND

PROPERTY LINE (APPROX.)

RAILROAD

NOTES:

SOURCE:

1. VERTEX ENGINEERING SERVICES, INC., SOIL BORING AND PROCESS WATER WELL LOCATION PLAN, 8/22/03, PROJECT NO. 5062.00.
2. AERIAL PHOTO, GOOGLE EARTH.

0 60 120

SCALE: 1:60

TITLE:

FIGURE 1

SITE FIGURE

LOCATION:

129-09 JAMAICA AVENUE,
RICHMOND HILL, NEW YORK

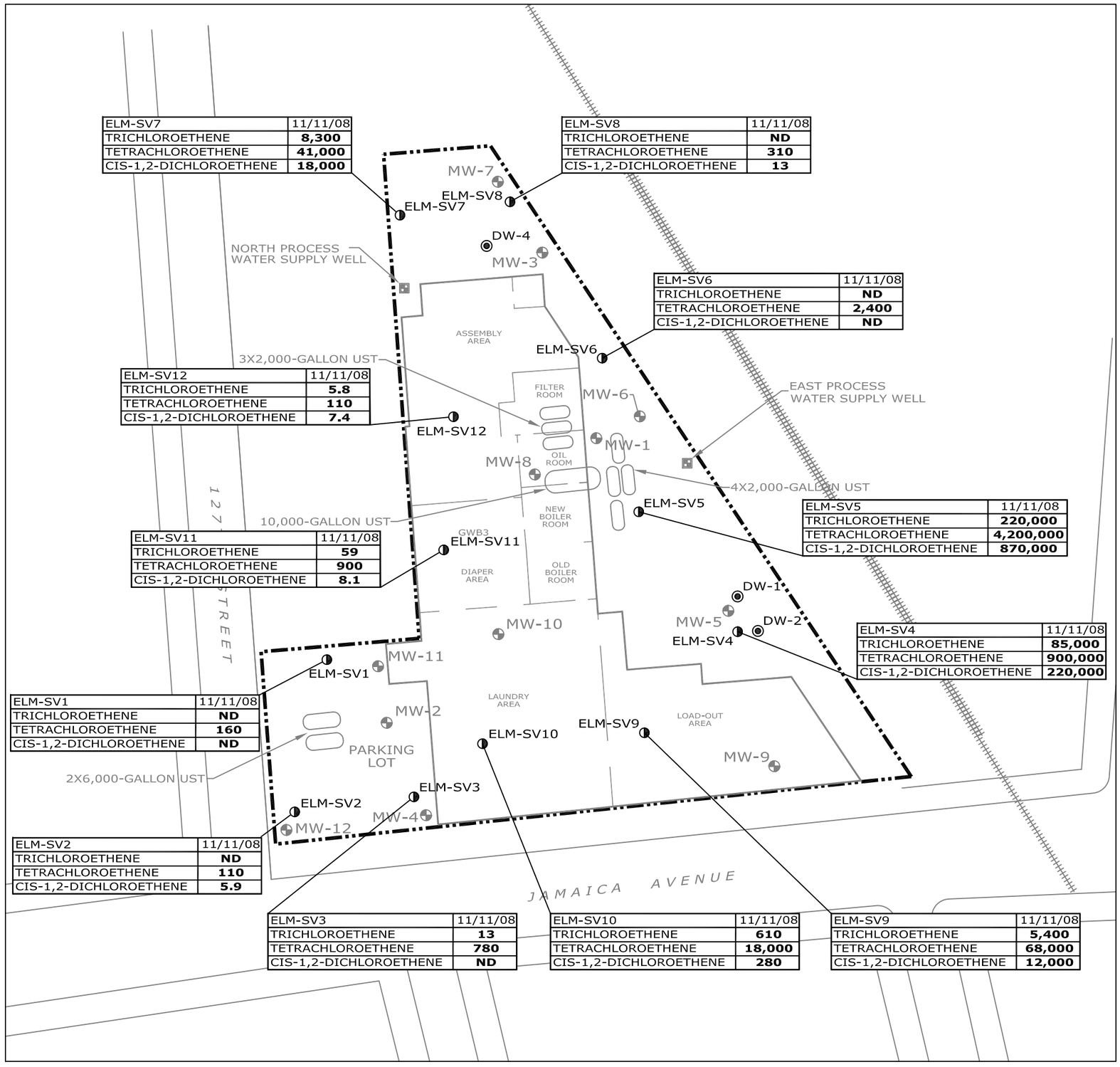
DATE: 1/6/10

FILENAME: 207078_SITEMAP_NY_V2.dwg

LAYOUT: AIR_SAMPLE_REV1-1

The ELM Group

218 WALL STREET, Pprinceton, NEW JERSEY 08540
4920 YORK ROAD, SUITE 290, HOLICONG, PENNSYLVANIA 18928
612 MAIN STREET, BOONTON, NEW JERSEY 07005
267 BROADWAY, FIFTH FLOOR, NEW YORK, NEW YORK 10007
2475 BAGLYOS CIRCLE, BETHLEHEM, PENNSYLVANIA 18020
www.ExploreELM.com



LEGEND

- PROPERTY LINE (APPROX.)
- RAILROAD
- PROCESS WATER SUPPLY WELL LOCATION
- MW-1 — EXISTING MONITORING WELL LOCATION AND ID
- OSW-1 — EXISTING OFF-SITE MONITORING WELL LOCATION AND ID
- ELM-SV1 — SOIL VAPOR PROBE LOCATION AND ID
- DW-2 — FORMER DRYWELL LOCATION AND ID

ELM-SV6	11/11/08	SOIL VAPOR SAMPLE ID AND SAMPLE DATE
TRICHLOROETHENE	ND	TRICHLOROETHENE RESULTS IN ug/m³
TETRACHLOROETHENE	2,400	TETRACHLOROETHENE RESULTS IN ug/m³
CIS-1,2-DICHLOROETHENE	ND	CIS-1,2-DICHLOROETHENE RESULTS IN ug/m³

ND — NOT DETECTED

NOTES:
1. SOIL VAPOR SAMPLE COLLECTED NOVEMBER 11, 2008.
2. ALL RESULTS ARE IN ug/m³.
3. ONLY RESULTS FOR COMPOUNDS OF CONCERN ARE SHOWN.

SOURCE:
1. VERTEX ENGINEERING SERVICES, INC., SOIL BORING AND PROCESS WATER WELL LOCATION PLAN, 8/22/03, PROJECT NO. 5062.00.
2. AERIAL PHOTO, GOOGLE EARTH.

0 60 120

SCALE: 1"=60'

TITLE:

FIGURE 2

ON-SITE SOIL VAPOR ANALYTICAL DATA FOR CVOCs

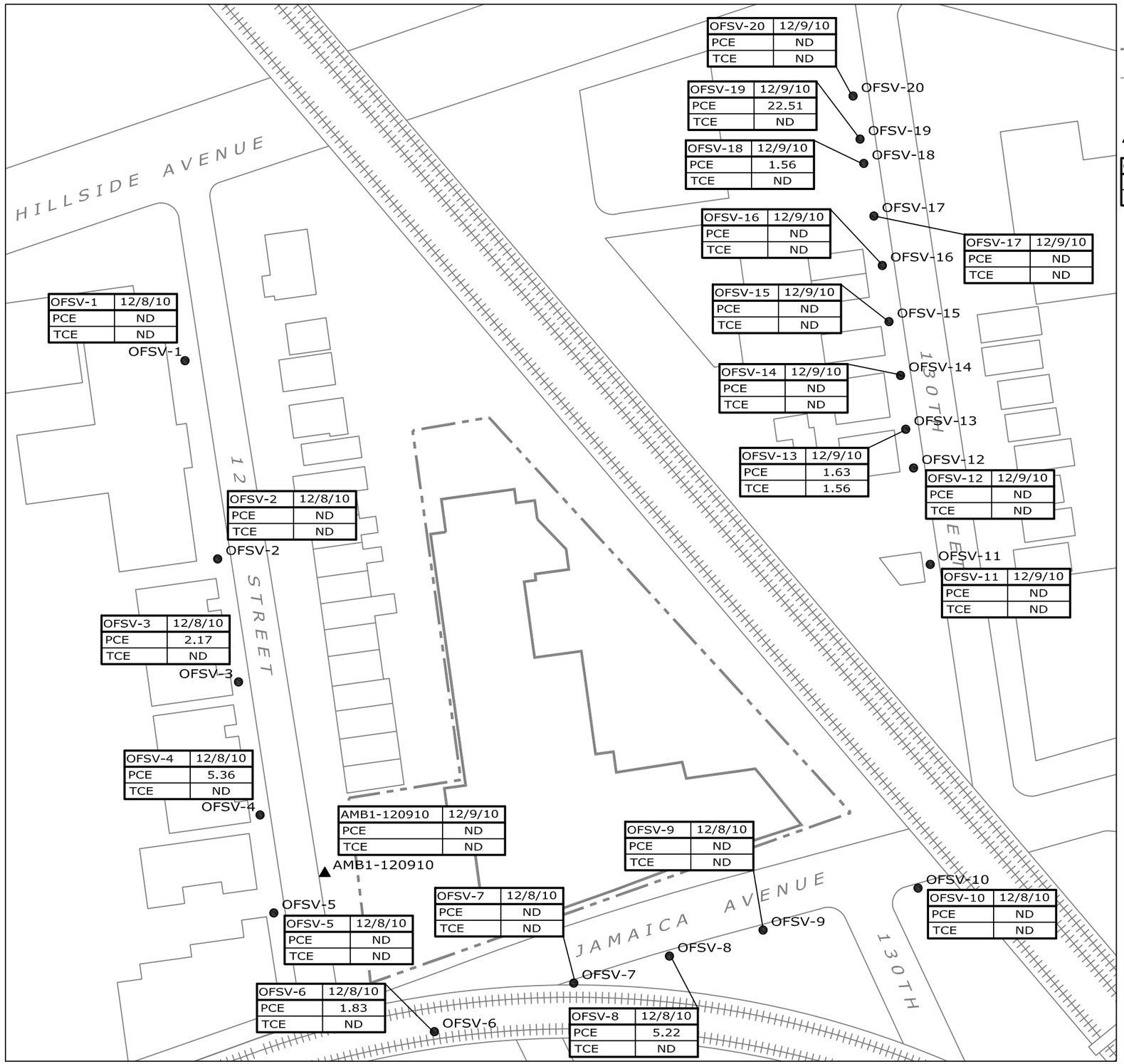
LOCATION: 129-09 JAMAICA AVENUE, RICHMOND HILL, NEW YORK

DATE: 2/24/11

FILENAME: 207078_DATA_NY_V2.dwg

LAYOUT: SOIL_VAPOR_V2

THE ELM GROUP
218 WALL STREET, PRINCETON, NEW JERSEY 08540
4920 YORK ROAD, SUITE 290, HOLICONG, PENNSYLVANIA 18928 612
MAIN STREET, BOONTON, NEW JERSEY 07005
267 BROADWAY, FIFTH FLOOR, NEW YORK, NEW YORK 10007
2475 BAGLYOS CIRCLE, BETHLEHEM, PENNSYLVANIA 18020
www.ExploreELM.com



LEGEND

- PROPERTY LINE (APPROX.)
- ELEVATED RAILROAD
- OFSV-1 — TEMPORARY SOIL VAPOR PROBE LOCATION AND ID
- AMB1-120910 — AMBIENT AIR SAMPLE LOCATION AND ID

OFSV-1	12/8/10	SAMPLE ID AND SAMPLE DATE
PCE	ND	TETRACHLOROETHENE RESULT IN ug/m³ (NYSDEC DOH=100)
TCE	ND	TRICHLOROETHENE RESULT IN ug/m³ (NYSDEC DOH=5)
	ND	NOT DETECTED

NOTES:
1. SOIL VAPOR SAMPLE COLLECTED DECEMBER 8 AND 9, 2010.
2. ALL RESULTS ARE IN ug/m³.
3. ONLY RESULTS FOR COMPOUNDS OF CONCERN ARE SHOWN.

SOURCE:
1. VERTEX ENGINEERING SERVICES, INC., SOIL BORING AND PROCESS WATER WELL LOCATION PLAN, 8/22/03, PROJECT NO. 5062.00.
2. AERIAL PHOTO, GOOGLE EARTH.

0 80 160

SCALE: 1" = 80'

TITLE:

FIGURE 3

OFF-SITE SOIL VAPOR ANALYTICAL DATA FOR PCE AND TCE

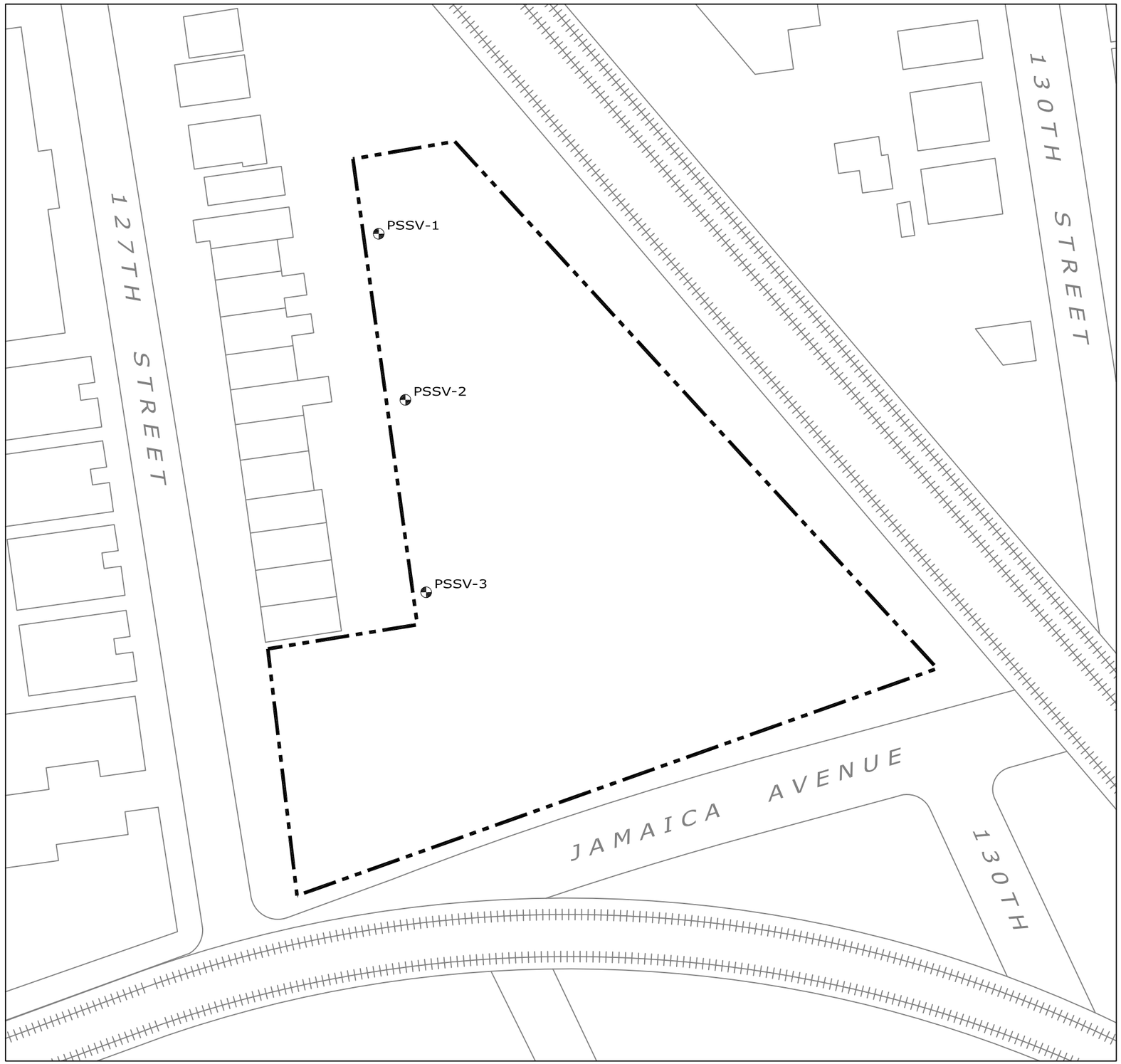
LOCATION: 129-09 JAMAICA AVENUE, RICHMOND HILL, NEW YORK

DATE: 2/24/11

FILENAME: 207078_SITEMAP_NY_V2.dwg

LAYOUT: SVDATA

The ELM Group
218 WALL STREET, PRINCETON, NEW JERSEY 08540
4920 YORK ROAD, SUITE 290, HOLICONG, PENNSYLVANIA 18928
612 MAIN STREET, BOONTON, NEW JERSEY 07005
267 BROADWAY, FIFTH FLOOR, NEW YORK, NEW YORK 10007
2475 BAGLYOS CIRCLE, BETHLEHEM, PENNSYLVANIA 18020
www.ExploreELM.com



LEGEND

- PROPERTY LINE (APPROX.)
- RAILROAD
- PSSV-2 LOCATION OF PROPOSED SOIL VAPOR SAMPLE AND ID

NOTES:

SOURCE:

1. VERTEX ENGINEERING SERVICES, INC., SOIL BORING AND PROCESS WATER WELL LOCATION PLAN, 8/22/03, PROJECT NO. 5062.00.
2. AERIAL PHOTO, GOOGLE EARTH.

0 60 120

SCALE: 1"=60'

TITLE:

FIGURE 4

ON SITE PROPOSED SOIL VAPOR SAMPLING LOCATIONS PLAN

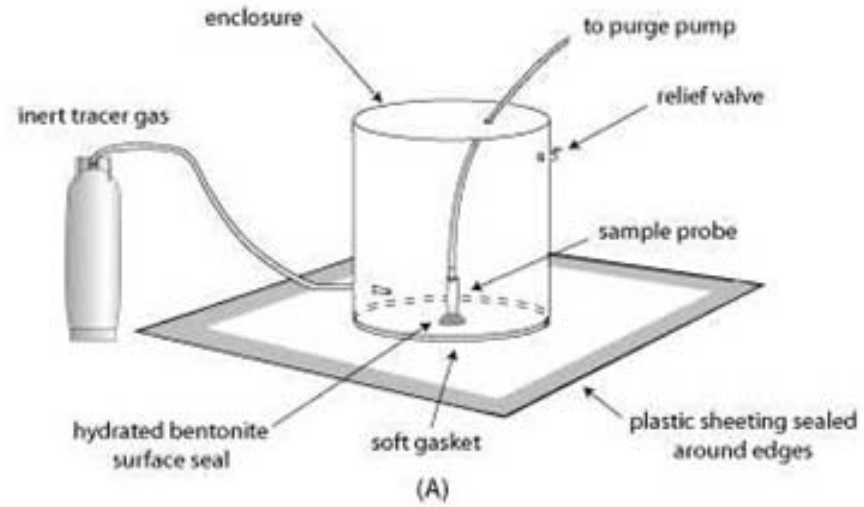
LOCATION: 129-09 JAMAICA AVENUE, RICHMOND HILL, NEW YORK

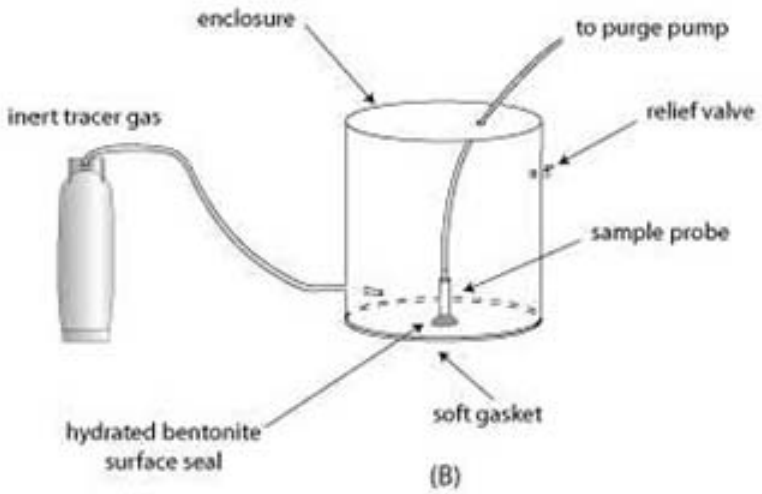
DATE: 9/12/11

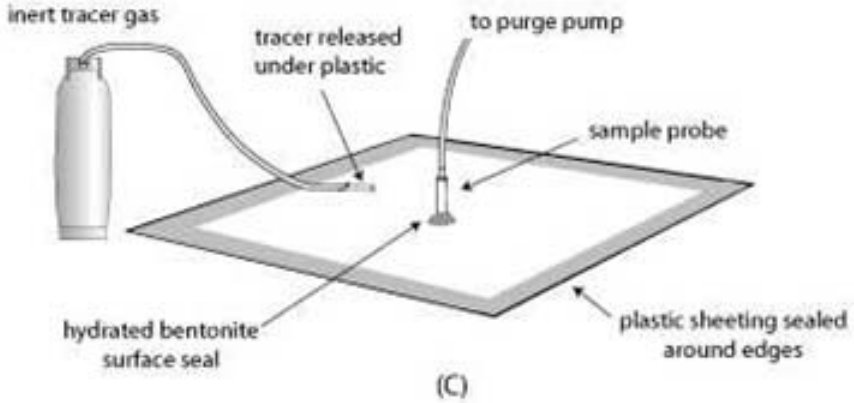
FILENAME: 207078_SITEMAP_NY_V2.dwg

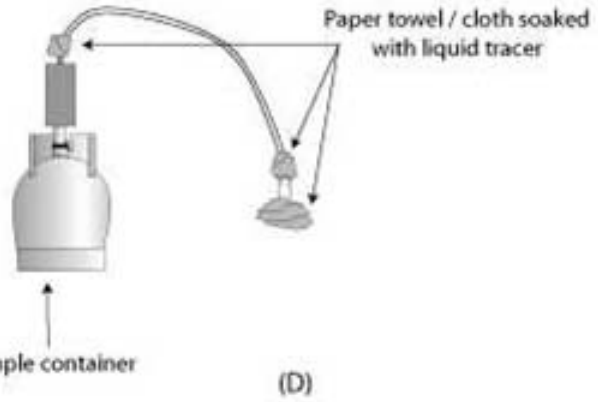
LAYOUT: VAPOR-SAMPLE

The ELM Group
218 WALL STREET, PRINCETON, NEW JERSEY 08540
4920 YORK ROAD, SUITE 290, HOLICONG, PENNSYLVANIA 18928
612 MAIN STREET, BOONTON, NEW JERSEY 07005
267 BROADWAY, FIFTH FLOOR, NEW YORK, NEW YORK 10007
2475 BAGLYOS CIRCLE, BETHLEHEM, PENNSYLVANIA 18020
www.ExploreELM.com









note: during the introduction of tracer gas, measures should be taken to maintain ambient air pressure within the enclosure

FIGURE 5
TRACER GAS ILLUSTRATION EXAMPLE DURING TESTING

LOCATION:	
DATE:	03/05/10
PROJECT NO.:	207078
FILE NAME:	

ENVIRONMENTAL LIABILITY MANAGEMENT, LLC
267 BROADWAY, 5TH FLOOR, NEW YORK, NY 10007

ATTACHMENT

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Richard F. Daines, M.D.
Commissioner

June 25, 2007

Mr. Dale Desnoyers, Director
Division of Environmental Remediation
NYS Dept. of Environmental Conservation
625 Broadway — 12th Floor
Albany, NY 12233-7011

Re: Soil Vapor/Indoor Air Matrices

Dear Mr. Desnoyers,

In the wake of recent investigations of soil vapor intrusion at remedial sites, I would like to advise you that the Department has assigned three new volatile chemicals to our existing soil vapor/indoor air decision matrices: vinyl chloride to Matrix 1, and 1,1-dichloroethene and *cis*-1,2-dichloroethene to Matrix 2.

The NYSDOH has made these assignments on the basis of several factors that are consistent with those listed in the *Guidance for Evaluating Soil Vapor Intrusion in New York State* (NYSDOH 2006):

a. human health risks, including such factors as a chemical's ability to cause cancer, reproductive, developmental, liver, kidney, nervous system, immune system or other effects, in animals and humans and the doses that may cause those effects;

b. the data gaps in a chemical's toxicologic database;

c. background concentrations of a chemical in indoor air; and

d. analytical capabilities currently available.

With the assignment of these three volatile chemicals, the decision matrices now provide recommendations for a total of seven chemicals. The following table summarizes the assignments to date:

Volatile Chemical	Soil Vapor/Indoor Air Matrix
carbon tetrachloride	Matrix 1
1,1-dichloroethene	Matrix 2
cis-1,2-dichloroethene	Matrix 2
tetrachloroethene	Matrix 2
1,1,1-trichloroethane	Matrix 2
trichloroethene	Matrix 1
vinyl chloride	Matrix 1

If you have any questions about this information, please feel free to contact me at 402-7850.

Sincerely,

Gary A. Litwin, Director
Bureau of Environmental Exposure Investigation

cc: N. Kim, Ph.D.
G. A. Carlson, Ph.D./A. Salame-Alfie, Ph.D.
E. Horn, Ph.D./A. Grey, Ph.D.
D. Luttinger, Ph.D.
S. Bates

P:\Sections\Secretary\soilvapor_indoorairmatricesLTR.doc