
VAPOR INTRUSION INVESTIGATION WORKPLAN



FOR

**245 WEST 55TH ST LLC
245 WEST 55TH STREET
BLOCK 1027, LOT 7
NEW YORK, NEW YORK
EL PROJECT NUMBER 23-0001
NYSDEC SITE No.: C231157**

MARCH 2024

**Environmental**
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**REMEDIAL INVESTIGATION WORKPLAN
FOR
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BLOCK 1027, LOT 7
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NYSDEC SITE NO.: C231157**

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1. NYSDOH Structure Sampling Questionnaire and Building Inventory



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1.0 INTRODUCTION

This Soil Vapor Intrusion Investigation Workplan was prepared on behalf of 245 WEST 55TH ST LLC to support additional vapor intrusion (VI) investigations at the Site located at 245 West 55th Street (Block 1027, Lot 7), located in New York, New York (herein referred to as the “Site”). 245 WEST 55TH ST LLC is enrolled as a Volunteer in the New York State Brownfield Cleanup Program (BCP), pursuant to the Brownfield Cleanup Agreement (BCA) number C231157.

Of note, the building is undergoing renovation. A sub-slab depressurization system and vapor barrier will be installed as part of the renovation activities.

As detailed in the attachments to the Brownfields Cleanup Application package, Soil vapor intrusion sampling was conducted in October 2022 and Chlorinated Volatile Organic Compounds CVOCs were detected in all sub-slab soil vapor samples and all indoor air samples collected across in the basement of the on-Site building. The compound 1,1,1-TCA was the VOC detected at the highest concentrations. 1,1,1-TCA is a compound historically associated with the cleaning of photographic films, and the presence of this compound in soil vapor and indoor air is likely due to historical Site usage for this purpose.

Based on review of the data, and as discussed in the New York State Department of Environmental Conservation (NYSDEC) March 20, 2023, comment letter, the NYSDEC and New York State Department of Health (NYSDOH) request that additional VI evaluation be conducted. This Work Plan provides a proposed scope of work for conducting additional VI investigation confirming the previous 2022 sampling results at select locations and at additional locations requested by NYSDEC and NYSDOH.

2.0 SITE INFORMATION AND BACKGROUND

2.1 Site Location and Setting

The Site is located in a C6-4/C6-6 Commercial District in Manhattan, approximately 1,000 feet southwest of Central Park. The Site is bordered to the north, east, and west by mixed-use



commercial/residential properties, and is bordered to the south by West 55th Street and additional mixed-use commercial/residential properties.

The Site elevation is generally flat. A United States Geological Survey (USGS) 7.5-minute topographic map showing the Site location and surrounding area is provided on Figure 1.

The property is a rectangle-shaped parcel comprised of 0.14 acres and identified on tax maps of Manhattan NY as Block 1027, Lot 7. The Site is currently owned by 245 WEST 55TH ST LLC.

2.2 Site Geology and Hydrogeology

Based on soil sampling conducted by EL in January and February 2023, shallow soils consisted of sands and silty sands underlain by more clayey material. One soil boring was advanced to the presumed depth of bedrock, approximately 35 feet below the basement floor (i.e., approximately 48 to 50 feet below grade). Bedrock observed in this boring consisted of weathered schist at approximately 32.5 feet below the basement floor. Bedrock underlying the site consists of the Hartland Formation, which is comprised of a dark grey, medium- to coarse-grained muscovite-biotite-garnet (mica) schist and grey fine-grained quartz feldspar granulite biotite and garnet, with localized concentrations of granite and intrusions of coarse-grained granitic pegmatite. Based on ground water sampling conducted by Environmental Logic in January 2023, ground water at the Site was encountered at approximately 27 feet below grade.

2.3 Site Features and Use

The Site is fully developed with a 12-story commercial and office building with a basement which is currently vacant.

The Site was formerly owned and utilized by DuArt Media Services/DuArt Film Labs (DuArt) for cinematographic film cleaning and film processing from approximately 1922 through 2011. Film production including voiceover work, audio recording, and film editing continued to take place at the Site until 2021. Cinematographic film cleaning operations utilized cleaning and degreasing compounds including the chlorinated volatile organic compounds (CVOCs) tetrachloroethene (PCE) and 1,1,1-trichloroethane (1,1,1-TCA) to remove dirt, grease, and minor scratches from film negatives prior to print.

A Site Map is included as Figure 2.

3.0 VAPOR INTRUSION INVESTIGATION WORKPLAN

The objective of this Vapor Intrusion Investigation Workplan is to evaluate the previously identified VI pathway and potential VI risk at the site. As noted in Section 3.3, field staff will identify and document any preferential VI pathways (cracks, perforations, sumps, drains, etc.) in the basement walls as well as in the slab during VI sampling activities.

3.1 Vapor Intrusion Investigation Scope

The scope of the VI Investigation will include the collection of Site data to satisfy NYSDEC and NYSDOH requirements. To accomplish this, the SOW for the VI Investigation will include the following:

- The completion of Site reconnaissance. Reviewing property conditions and conducting a building inventory for indoor locations prior to sample collection;
- The installation of a total of eight (8) temporary soil gas monitoring points (6 sub-slab soil gas and 2 soil vapor);
- The collection of six (6) indoor air samples paired with 6 indoor sub-slab soil gas samples;
- The collection of two (2) outdoor ambient air samples paired with 2 outside soil vapor samples; and
- Preparation of a VI Summary Report for submission to NYSDEC and NYSDOH.

Sampling will be conducted in accordance with the NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH 2006, rev. 2024). Contingent upon Work Plan approval, sampling will tentatively be performed during the 2023/2024 heating season.

Per the NYSDOH Guidance, sub-slab vapor samples and, unless immediate sampling is appropriate, indoor air samples are typically collected during the heating season because soil vapor intrusion is more likely to occur when a building's heating system is in operation and doors and windows are closed. In New York State, heating systems are generally expected to be operating routinely from November 15th to March 31st. However, these dates are not absolute; The timeframe for sampling may vary depending on factors such as the location of the site (e.g., upstate versus downstate) and the weather conditions for a particular year.

A soil vapor intrusion investigation at a building may be conducted outside of the heating season if the concern for vapor intrusion is greater during another time of year. This may occur at certain industrial buildings, for instance, where HVAC systems are actively managed to control the ratio of recirculated indoor air to make-up air from outside the building.



See Section 3.6 for details regarding the project schedule.

The sections below present a detailed discussion of the scope of the investigation and support activities.

3.2 Health and Safety Plan

A site-specific Health and Safety Plan will be prepared containing the health and safety procedures, methods, and requirements that will apply to field personnel during implementation of the field work. Field activities will be conducted using Modified Level D personal protective equipment. All personnel who work in areas where they may be exposed to site contaminants will be trained as required. Health and safety procedures will be compliant with the Occupational Safety and Health Administration's Hazardous Waste Operations and Emergency Response standards, as described in 29 Code of Federal Regulations 1910.120. All VI field staff will abstain from using or having contact with fuels, solvent cleaners, aerosol sprays and avoid smoke/vapor exposure for 24 hours prior to conducting sampling activities.

3.3 Sub-Slab and Indoor Air Paired Sampling Points

Building surveys and reconnaissance will be completed on Site prior to sampling activities on those properties. The purpose of the survey and reconnaissance will be to document information that will be used to evaluate the VI results. Field personnel will complete the NYSDOH Structure Sampling Questionnaire and Building Inventory (presented in Attachment 1) prior to conducting the indoor air sampling. This will be done in conjunction with evaluating slab perforations, obtaining information on building space use, evaluating the operating conditions of the heating/ventilation/air conditioning system, and identifying the type and location of chemical products that could influence indoor air results. Field personnel will identify and document any preferential pathways (cracks, perforations, sumps, drains, etc.) in the basement walls as well as in the slab.

A photoionization detector (PID), equipped with a 11.7 electron volt lamp, will be used to complete a real-time vapor survey to screen for the presence of detectable vapor-phase chemicals within the breathing zone and for any floor penetrations. Any products identified during the survey that could impact the results of the indoor air sampling will be removed from the area prior to sampling, if possible.



The temporary sub-slab and exterior soil vapor points will be installed at the locations depicted on Figure 2. These proposed sampling locations may be changed, as necessary, based on building access and the location of any utilities.

The sub-slab and exterior soil vapor points will be installed using a hand-held hammer drill and a High-Efficiency Particulate Air (HEPA) dust collection vacuum to collect dust generated during drilling activities. A $\frac{3}{8}$ -inch core hole will be advanced through the concrete slab and approximately 3 inches into the sub-slab material to create an open cavity.

Sub-slab soil gas sampling will be performed utilizing the following procedural steps and a tracer gas test will be performed on each vapor point prior to sampling in accordance with the procedures outlined in the NYSDOH Guidance (October 2006):

1. The sample tubing will be connected to a Teflon-lined “T” connector, three-way assembly, with one end of the “T” connector leading to a vacuum pump and the other end leading to a pre-evacuated Summa canister with a calibrated regulator.
2. The Summa canisters will be batch certified as clean by the laboratory providing the sampling canisters.
3. The soil gas sample tubing will be purged of approximately three volumes of air using a vacuum pump set at a rate of approximately 0.2 liters per minute.
4. Tracer gas testing will be conducted on all monitoring points to verify that ambient air did not dilute the soil gas sample during collection. To conduct the test, a plastic container (i.e., bucket) will be placed over the monitoring point with a seal, and helium (i.e., the tracer gas) will be injected into the bucket during purging of the monitoring point to enrich the interior of the bucket with the tracer gas. The three-way valves at the monitoring points will also be placed under the shroud (i.e., the bucket enclosure), and included in the tracer gas verification. This will be done to ensure that the valves do not provide a potential means by which ambient air would enter the canister and possibly dilute the sample. Both the purge volume from the sample tubing (i.e., also the air that passed through the three-way valve), and the helium enriched area within the bucket will be screened for the tracer gas. The tracer gas will be measured utilizing a direct-read helium detector, which will be used to measure the rate of helium leakage at the surface or the concentration of helium in a container. If the screening results show that the rate or concentration of helium detected in the sample tubing is greater than 10% of that found in the bucket, the seals around the sampling equipment will be reset and the sample tubing purged again. This process of resetting and purging will continue until the tracer gas is no longer detected at levels greater than 10% of the enriched area. The screening data will be recorded on soil gas sampling field forms.



5. Following the purging and tracer gas verification steps, the valve leading to the pump will be closed, the pump will be turned off, and the soil gas will be directed to a 6-liter Summa canister for sample collection. A laboratory-supplied flow controller calibrated to collect the sample over an 8-hour collection period will be used.

Paired building indoor air samples (Figure X; Table X) will be collected concurrently (over the same 8-hour time period) and in the general vicinity of the sub-slab soil vapor sample points shown on Figure 2.

Ambient air samples collocated with the exterior soil vapor samples will also be collected will be collected over the same time period (8 hours) as the sub-slab and indoor air samples.

Indoor air and ambient air samples will be collected from an intake height of approximately 4 to 5 feet above the ground/slab.

3.4 Laboratory Analysis

All soil gas samples will be collected using batch-certified, pre-cleaned 6-liter Summa canisters with calibrated regulators and analyzed by Alpha Analytical, Mansfield, MA a NYSDOH Environmental Laboratory Approval Program (ELAP ID 11627) certified laboratory using USEPA Analytical Method TO-15 for VOCs.

All data will be produced in accordance with NYSDEC ASP Category B deliverables. All analytical data will be reviewed by an independent data validator, and a Data Usability Summary Report (DUSR) will be prepared.

3.5 Data Evaluation

Sub-slab soil gas and indoor air samples will be compared to the NYSDOH Guidance Soil Vapor/Indoor Air Matrices. The results of the comparison will be provided in the VI Summary Report

3.6 Project Scheduling and Reporting

The proposed sampling will occur as soon as practicable upon receipt of NYSDEC's and NYSDOH's written approval of the Work Plan.

Depending on the date of Departmental approval and the impending end of the heating season (March 31) as detailed in the 2006 NYSDOH Guidance, sampling may occur several days after the



defined heating season. As the building is currently vacant, and the HVAC system is not operating, this variance should not influence the results of the sampling.

A VI Investigation Summary Report will be prepared and submitted to NYSDEC and NYSDOH within 45 days of the receipt of validated laboratory data. The report will include a detailed synopsis of all work performed; figures depicting the layout of the sampling locations, figures presenting the analytical results and analyses performed, tables presenting all laboratory data results, results of the screening level comparison, laboratory data packages, a DUSR, and soil gas field forms.

4.0 CERTIFICATION

I, Gary Weissberger, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Report (the August 2023 Remedial Investigation Work Plan) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).



DIGITAL SIGNATURE REPRESENTATION

**Gary Weissberger, Associate
Environmental Logic**



TABLES



Table 1

**245 West 55th Street
New York, New York**

VI Sampling Workplan - Proposed Sampling Summary Table

Sample ID	Matrix	Sampling Method	Analysis
IA-1	Indoor Air	Summa Cannister	EPA TO-15
SSG-1	Soil Gas	Summa Cannister	EPA TO-15
IA-2	Indoor Air	Summa Cannister	EPA TO-15
SSG-2	Soil Gas	Summa Cannister	EPA TO-15
IA-3	Indoor Air	Summa Cannister	EPA TO-15
SSG-3	Soil Gas	Summa Cannister	EPA TO-15
IA-4	Indoor Air	Summa Cannister	EPA TO-15
SSG-4	Soil Gas	Summa Cannister	EPA TO-15
IA-5	Indoor Air	Summa Cannister	EPA TO-15
SSG-5	Soil Gas	Summa Cannister	EPA TO-15
IA-6	Indoor Air	Summa Cannister	EPA TO-15
SSG-6	Soil Gas	Summa Cannister	EPA TO-15
AA-7	Ambient Air	Summa Cannister	EPA TO-15
SSG-7	Soil Gas	Summa Cannister	EPA TO-15
AA-8	Ambient Air	Summa Cannister	EPA TO-15
SSG-8	Soil Gas	Summa Cannister	EPA TO-15

FIGURES





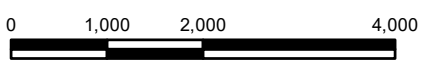
SITE LOCATION



NEW YORK QUADRANGLE LOCATION

USGS The National Map
USGS 7.5 Minute Series Topographic Map of Central Park, New York

GRAPHIC SCALE



(IN FEET)



Environmental LOGIC

11 Princess Road Suite B,
Lawrenceville, NJ 08648

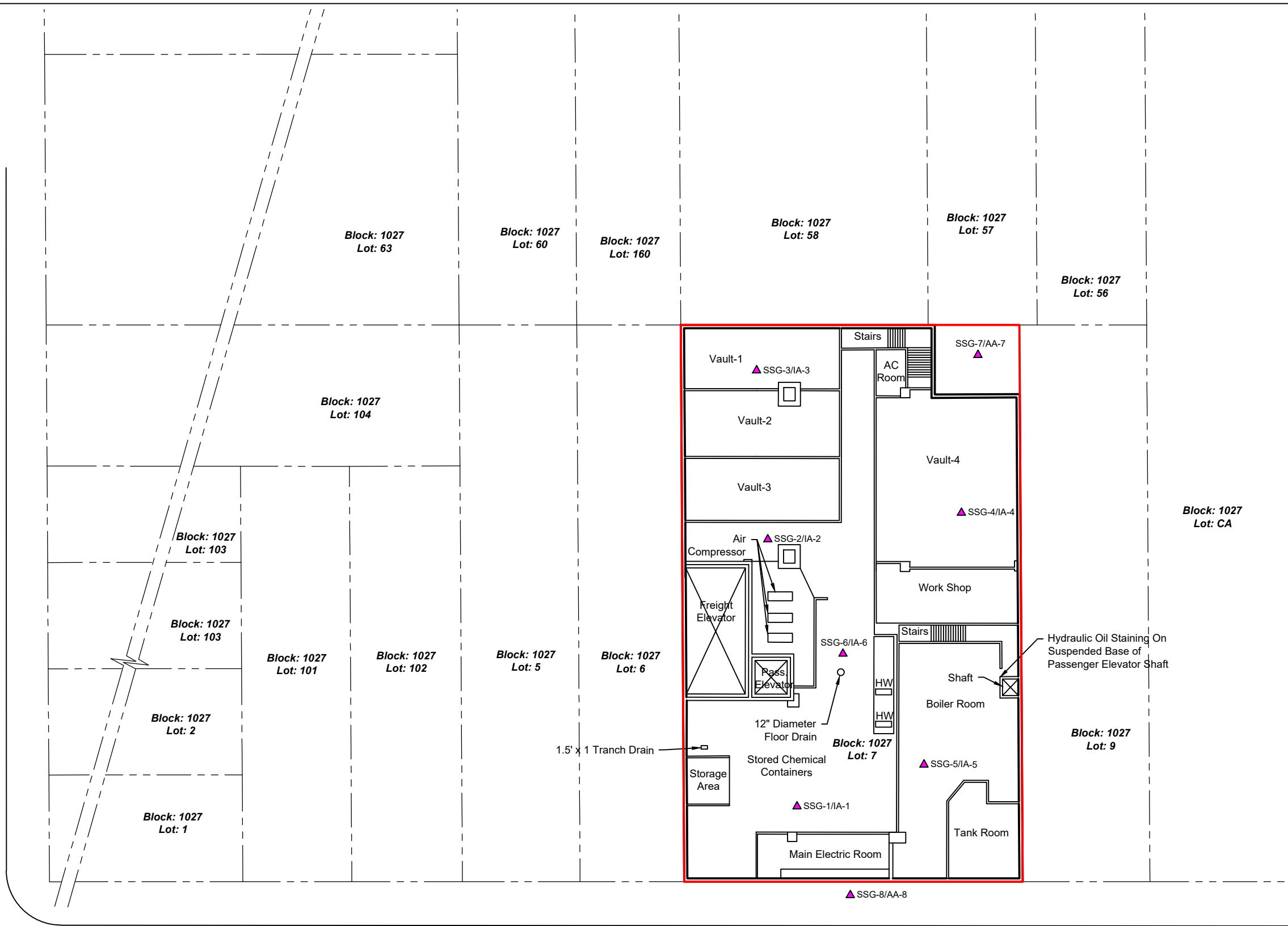
Scale:	AS SHOWN	PROJECT:	23-0001
Date:	6/14/23		
Drawn By:	PM		
Checked By:	BM		

SITE LOCATION ON USGS QUADRANGLE
245 WEST 55TH STREET
BLOCK 1027, LOT 7
MANHATTEN, NEW YORK

FIGURE #
1

File: X:\Environmental\logic\Manhattan - NY\245W55thStreet\Drawings\245W55 - ManhattanNY.dwg; FS - Proposed

Eighth Avenue



LEGEND	
	APPROXIMATE SITE BOUNDARY
	PARCEL BOUNDARY
	PROPOSED SUB-SLAB SOIL GAS AND INDOOR/AMBIENT AIR SAMPLE LOCATION



GRAPHIC SCALE



W. 55 th Street

<p>15 Princess Road, Suite K Lawrenceville, NJ 08648</p>	SCALE: AS SHOWN	PROJECT #
	DATE: 3/21/24	23-0001
	DRAWN BY: PM	
	CHECKED BY: BM	
PROPOSED VAPOR INTRUSION SAMPLING LOCATIONS 245 WEST 55TH STREET MANHATTEN, NEW YORK		FIGURE #
		2

ATTACHMENT 1

NYSDOH Structure Sampling Questionnaire and Building Inventory



**NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH**

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No. _____

Purpose of Investigation _____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

- | | | |
|--------------|-----------------|-------------------|
| Ranch | 2-Family | 3-Family |
| Raised Ranch | Split Level | Colonial |
| Cape Cod | Contemporary | Mobile Home |
| Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: _____ |

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors _____ Building age _____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Airflow near source

Outdoor air infiltration

Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

- a. Above grade construction: wood frame concrete stone brick
- b. Basement type: full crawlspace slab other _____
- c. Basement floor: concrete dirt stone other _____
- d. Basement floor: uncovered covered covered with _____
- e. Concrete floor: unsealed sealed sealed with _____
- f. Foundation walls: poured block stone other _____
- g. Foundation walls: unsealed sealed sealed with _____
- h. The basement is: wet damp dry moldy
- i. The basement is: finished unfinished partially finished
- j. Sump present? Y / N
- k. Water in sump? Y / N / not applicable

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

- Hot air circulation
- Space Heaters
- Electric baseboard
- Heat pump
- Stream radiation
- Wood stove
- Hot water baseboard
- Radiant floor
- Outdoor wood boiler
- Other _____

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: _____

Boiler/furnace located in: Basement Outdoors Main Floor Other _____

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)

Basement	_____
1 st Floor	_____
2 nd Floor	_____
3 rd Floor	_____
4 th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a. Is there an attached garage? Y / N
- b. Does the garage have a separate heating unit? Y / N / NA
- c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA
Please specify _____
- d. Has the building ever had a fire? Y / N When? _____
- e. Is a kerosene or unvented gas space heater present? Y / N Where? _____
- f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____
- g. Is there smoking in the building? Y / N How frequently? _____
- h. Have cleaning products been used recently? Y / N When & Type? _____
- i. Have cosmetic products been used recently? Y / N When & Type? _____

- j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____
- k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____
- l. Have air fresheners been used recently? Y / N When & Type? _____
- m. Is there a kitchen exhaust fan? Y / N If yes, where vented? _____
- n. Is there a bathroom exhaust fan? Y / N If yes, where vented? _____
- o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N
- p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building? Y / N

If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

No

Unknown

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____

Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _____

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

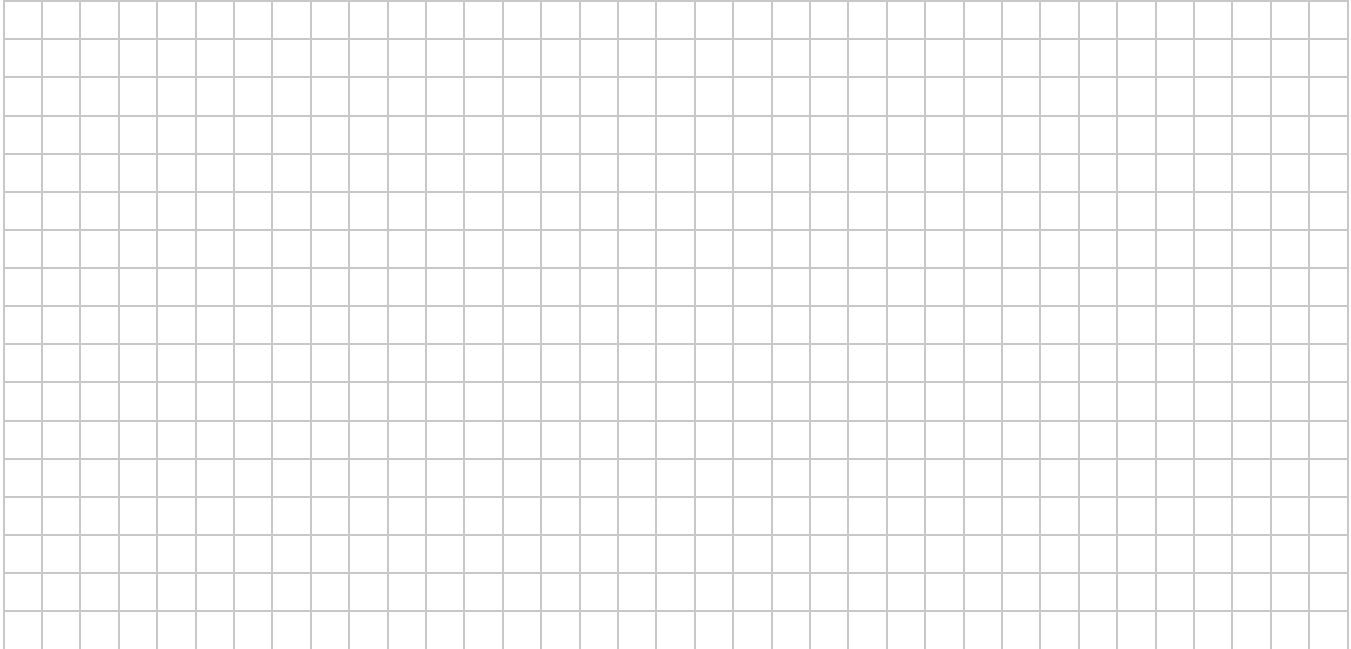
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

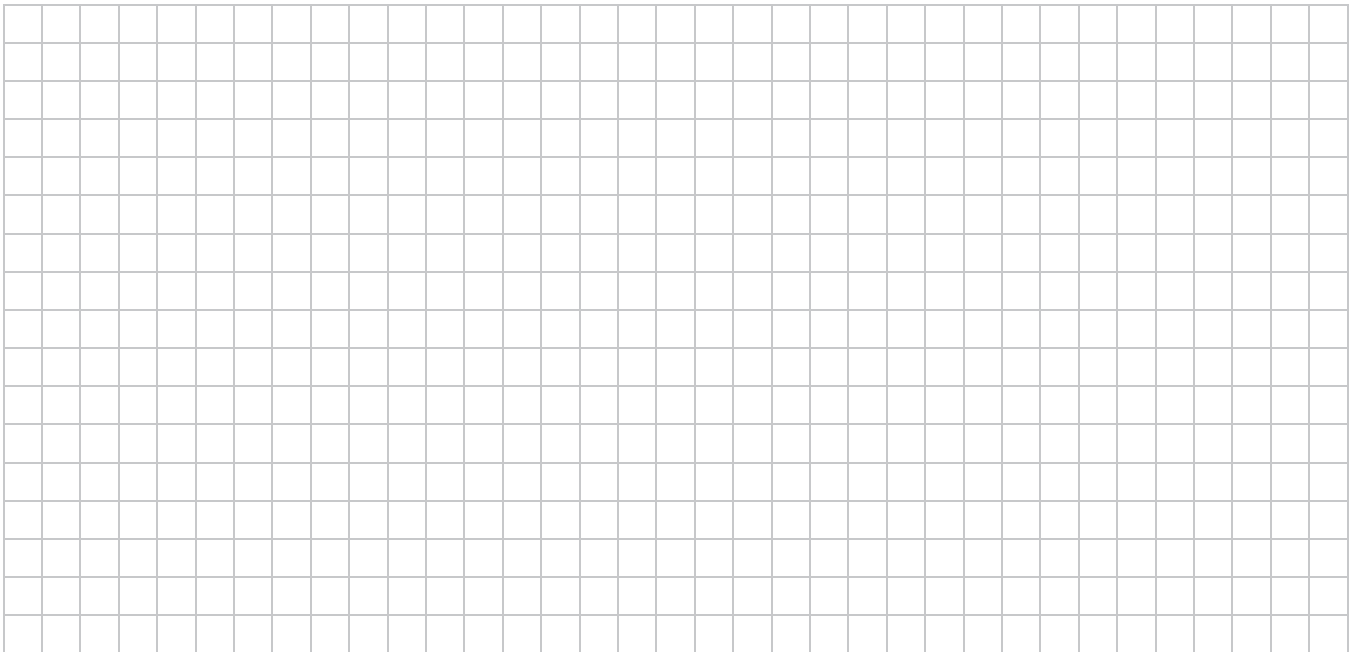
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



First Floor:



12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition *	Chemical Ingredients	Field Instrument Reading (units)	Photo ** <u>Y/N</u>

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.