

Soil Vapor Intrusion Evaluation Work Plan

Bridge Cleaners (NYSDEC Site No. 241127)

39-26 30th Street, Long Island City, Queens County, New York

Prepared for

39-26 Property, LLC

39-26 30th Street

Long Island City, New York 11101

Prepared by

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File: 241127 - Bridge Cleaners - SVI Evaluation WP

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Acronyms and Abbreviations

AS/SVE	air sparge and soil vapor extraction
Carson Voci	Carson Voci Engineering and Geology, D.P.C.
DER	Division of Environmental Remediation
DER-10	“DER 10 / Technical Requirements for Site Investigation and Remediation”
ROD	Record of Decision
ECC	Environmental Compliance Control Engineering, D.P.C.
HVAC	heating, ventilation, and air conditioning
IA	indoor air
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
Owner	39-26 Property, LLC
PCE	tetrachloroethene
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
SMP	Site Management Plan
SSSV	sub-slab soil vapor
SVE	soil vapor extraction
SVI	soil vapor intrusion
TCE	trichloroethene
VCA	Voluntary Cleanup Amendment
VOC	volatile organic compound
WP	Work Plan

Engineering Certification

I, Nicholas Krasnecky, P.E., certify that I am a New York State registered Professional Engineer and that this *Soil Vapor Intrusion Evaluation Work Plan* was prepared in accordance with applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation, Division of Environmental Remediation “DER-10 / Technical Guidance for Site Investigation and Remediation.”



Nicholas Krasnecky, P.E.
NYS PE License No. 100006

2/3/2026
Date

1 Introduction

Carson Voci Engineering and Geology, D.P.C. (Carson Voci), an affiliate of Terraphase Engineering, Inc., has prepared this *Soil Vapor Intrusion (SVI) Evaluation Work Plan (WP)* on behalf of 39-26 Property, LLC (“Owner”) for the Bridge Cleaners site located at 39-26 30th Street, Long Island City, New York (Site; Figure 1).

During review of the Site Management Plan (SMP) dated November 2021 and revised December 1, 2025, the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) identified the need for an SVI evaluation referencing Section 7 of the *Record of Decision (ROD; NYSDEC 2022)* for the Site. The information herein documents the proposed implementation of the SVI Evaluation following the air sparge and soil vapor extraction (AS/SVE) system deactivation and site redevelopment.

1.1 Site Location and Description

The Site is currently owned by 39-26 Property, LLC and is identified by the NYSDEC as Site No. 241127. The Site is identified as Block 399, Lot 1, on the New York City Tax Map and currently operates as The Fifty LIC, an 11-story mixed-use residential building with a parking garage on the ground floor. Adjacent buildings to the north and west appear to contain residential units. To the south is a multi-story residential structure. To the east is 30th Street.

1.2 Report Organization

This SVI Evaluation WP is organized by the following sections:

1. **Introduction**
2. **Site Background.** Presents pertinent information and characteristics of the Site relevant to the preparation of this WP.
3. **Soil Vapor Intrusion Evaluation.** Presents a detailed description of the proposed SVI Evaluation at the Site.
4. **Schedule:** Presents the proposed schedule for the implementation and associated reporting of this WP.

This report has been prepared in accordance with “DER-10 / Technical Guidance for Site Investigation and Remediation” (DER-10; NYSDEC Division of Environmental Remediation [DER] 2010) and supporting guidance documents. The outlined report structure is in general conformance with Section 5.8 of DER-10.

2 Site Background

The Site was previously occupied by a commercial laundry and dry cleaner, Bridge Cleaners, until 2011. Records indicate at least 10 years of use as a commercial dry cleaner. Site investigations were conducted at the Site and off-site properties from 2009 to 2016. The results of these investigations indicated the presence of dry-cleaning-related compounds tetrachloroethene (PCE) and its breakdown products, including trichloroethene (TCE), in the soil, soil vapor, and groundwater at concentrations exceeding relevant NYSDEC standards and guidelines. The Site currently has an environmental easement in place, dated March 4, 2019, with an amendment dated April 3, 2023 (Appendix A), and a Site Management Plan (SMP; EECC 2021) detailing the institutional and engineering controls and the required inspections, monitoring, maintenance, and reporting activities.

The AS/SVE system was shut down in December 2021 per the *Change of Use Work Plan* (EECC 2021) to facilitate shut-down monitoring and the demolition of the existing building in preparation for redevelopment of the Site. Post-shut down sampling was conducted in January 2022, approximately 30 days after system shut down. The sampling was conducted at seven sub-slab soil vapor (SSSV) locations and four indoor air (IA) locations, and the results reported in the *AS/SVE Remedial Progress Sampling Report* (EECC 2022a). The sampling results indicated remedial effectiveness of the AS/SVE with respect to the SSSV and associated IA impacts, when compared to the historical analytical results. The post-shut down and historical soil vapor analytical results are shown on Figure 2. The AS/SVE system was intended to be re-started after building demolition per Section 4.2.6 of the *Change of Use Work Plan* yet was not re-started due to the results of the shut-down monitoring and adjustments to the overall redevelopment schedule of the Site.

The Site was redeveloped into an 11-story residential building with a parking garage on the ground floor, which was completed in 2025. Subsurface redevelopment excavation activities were conducted in accordance with the *Redevelopment Excavation Work Plan* (EECC 2022b) and completed in March 2023. The final completed component of the Redevelopment Excavation Work Plan was the reinstallation and development of the groundwater monitoring well network at the Site to facilitate groundwater monitoring in accordance with the SMP. Implementation of the *Redevelopment Excavation Work Plan* is documented in the *Construction Completion Report – Redevelopment Excavation* (Carson Voci 2024a).

As detailed in the *Corrective Measures Report* (Carson Voci 2025), following the April 2023 groundwater monitoring event which indicated an increase of PCE and TCE concentrations in GW-2R, corrective measures at the Site were conducted in accordance with the *Corrective Measures Work Plan* (CMWP; Carson Voci 2024b). The corrective measures consisted of an in-situ chemical reduction and enhanced reductive dechlorination injection via direct-push technology application. The remedial injections implemented were proven effective at addressing the rebound of PCE concentrations at monitoring wells GW-2R and GW-5R through the 6-month post-injection monitoring and indicate the presence of conditions that continue to address potential additional rebound.

During review of the SMP dated November 2021 and a draft revision by Carson Voci dated December 1, 2025, the NYSDEC and NYSDOH identified the need for an SVI evaluation referencing Section 7 of the ROD for the Site. The implementation of the SVI evaluation is the subject of this WP. Following

NYSDEC/NYSDOH written approval of the testing plan herein, the owner or responsible party will implement the plan and prepare a report presenting the results to the NYSDEC and NYSDOH.

3 Soil Vapor Intrusion Evaluation

Pursuant to the ROD, an SVI evaluation is required to assess the need for additional mitigative actions to address the potential for SVI related exposures due to the inactive status of the AS/SVE system and the anticipated occupancy of the building onsite. The SVI evaluation sampling activities are detailed in this section.

3.1.1 Sub-Slab Soil Vapor and Indoor Air Sample Locations

Four SSSV samples, SV-01 through SV-04, will be collected from within the building footprint and below the building slab. Sample SV-01 will be located in the garage and will target the area between monitoring well GW-2R and former soil vapor points SP-2 and SP-6/SP-8, all of which historically had elevated concentrations of PCE (Figure 2). Sample SV-02 will be located in the bicycle room and target historically elevated concentrations detected at former soil vapor point SP-04. Sample SV-03 will be located within the residential lobby to collect data representative of the separate HVAC system infrastructure and in the vicinity of former soil vapor point SP-3. Sample SV-04 will be located within the mechanical room to collect a sample in the southeastern portion of the building. If the proposed SV-04 location is not feasible due to mechanical room restrictions such as incoming utilities, available space, the type of equipment present, and the sub-surface stormwater basin, then a secondary location will be collected within the garage. The proposed locations of these samples are shown on Figure 3.

Co-located IA samples, IA-01 through IA-04, will be collected during the sampling event from each of the sample locations. A representative, outdoor ambient air (AA) sample will be collected during the sampling event. Meteorological data will be collected during the sampling event to determine the prevailing wind direction to determine the location of the AA sample.

3.1.2 Sub-Slab Soil Vapor and Indoor Air Sampling Procedures

The following procedures will be utilized during the sampling event to collect the co-located SV and IA samples at each location shown on Figure 3.

3.1.2.1 Building Walk-Through and Questionnaire

A building walk through and questionnaire will be completed pursuant to the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (SVI Guidance; NYSDOH 2006). Any preferential flow pathways and materials stored within the building that may affect the sampling results will be noted. If possible, materials in the building will be removed from the sampling location to mitigate the effects on the sampling results. The building inventory checklist is included as Appendix A. Heating, ventilation, and air conditioning (HVAC) operation in the building will be confirmed to have been operating under typical winter heating season conditions for a minimum of 24 hours prior to conducting sampling.

3.1.2.2 Vapor Pin® Installation

Temporary Vapor Pins® will be installed in accordance with the standard operating procedure provided as Appendix B to facilitate soil vapor sampling. Temporary Vapor Pins® will be installed at locations SV-01, SV-02, SV-03, and SV-04.

3.1.2.3 Tracer Gas Test

Per the SVI Guidance, a helium tracer gas will be utilized prior to or during the sampling of each soil-vapor implant. The tracer gas is used to verify that the infiltration of indoor (ambient) air is not occurring during sample collection. The procedures for conducting the tracer gas test are outlined below:

- An approximate 1- to 2-quart enclosure will be placed over the SSSV port protective casing, and the interface between the enclosure and the ground surface will be sealed with modeling clay or a polyurethane foam gasket to prevent intrusion of outside air into the sampling apparatus.
- A tank containing ultra-high purity helium (99.999 percent) will be connected to the side port of the enclosure and enough helium will be released to displace any ambient air within the enclosure to maintain a positive pressure.
- Following the application of the tracer gas, one to three volumes of soil vapor/trapped air will be purged from the SSSV port using a Gilian GilAir-3 air sample pump (or equivalent). A Dielectric MGD-2002 helium detector (or equivalent) will be used to check for tracer gas in the purged soil vapor; if less than 10 percent of the tracer gas is detected, a soil vapor sample can be collected from the implant.
- If greater than 10 percent of the tracer gas is detected in the purged soil vapor, a determination will be made to repair the implant seal or abandon and reinstall the implant.

3.1.2.4 Sub-Slab Soil Vapor and Indoor Air Sampling

Upon completion and passing of the tracer gas test, the SSSV and IA sampling will be conducted as outlined below:

- SSSV, IA, and AA samples will be collected using laboratory-evacuated, batch certified-clean, 6-liter Summa® canisters with 8-hour laboratory calibrated flow regulators.
- All sampling flow rates will be less than the maximum flow rate of 0.2 liters per minute (NYSDOH 2006) and the flow-regulators will be provided by a NYSDEC certified analytical laboratory.
- Summa canisters will be completely evacuated to negative pressure (30 inches of mercury vacuum) before use. The following specific procedures will be utilized to ensure proper collection of samples with the Summa® canisters:
 - Verification and documentation of the initial vacuum reading of the canister.
 - Confirmation that the canister valve is fully closed (the knob should be turned clockwise).
 - Removal of the fitting from the top of the canister and attachment of the flow controller to the top of the canister.

- Initiation of sample collection by opening the valve on the canister counterclockwise and documentation of the “start” time.
 - Periodic sampling progress monitoring to note the vacuum. It may be necessary to terminate sampling slightly before the desired full sampling duration if the canister vacuum is waning near the end of sampling.
 - Valve closure at the end of the sampling period by turning clockwise until hand tight. Documentation of the “end” time and “end” vacuum. While the ideal reading on the can gauge should be slightly negative, the actual Summa® canister vacuum will be tested with a calibrated gauge at the laboratory.
 - Removal of the flow controller and packaging for shipment to the laboratory.
 - Replacement of the fitting on top of the canister.
 - Documentation of the final vacuum of the canister and complete the chain-of-custody record (to be provided by the laboratory).
- Co-located IA samples and the AA sample(s) will be collected from breathing height between 3 and 5 feet above the ground surface.
 - Samples will be submitted to an Environmental Laboratory Approval Program and NYSDEC certified analytical laboratory for volatile organic compound (VOC) analysis by EPA Method TO-15.

The HVAC system will be in operation a minimum of 24 hours before the sample collection commences and will be set for its normal operation (as if the building were occupied) during the sampling event.

3.1.3 Sub-Slab Soil Vapor and Indoor Air Analytical Parameters

The four SSSV samples, four co-located IA samples, and Quality Assurance/Quality Control (QA/QC) samples collected during the sampling event shall be analyzed for VOCs by EPA Method TO-15 as presented in Table 1, utilizing selected ion monitoring (SIM) as needed to meet a minimum reporting limit of 0.20 and 1 micrograms per cubic meter for IA/AA and SSSV samples, respectively. QA/QC samples shall be collected at a frequency of 1 blind duplicate per 20 samples and one AA sample per day of sampling.

All analyses will be performed by an Environmental Laboratory Approval Program certified laboratory for the parameter being analyzed. Results will be provided with Analytical Services Protocol Category B deliverables and will be reviewed and validated by a third-party data validator, who will prepare a Data Usability Summary Report before data is incorporated into the final reporting for the Site. All data will be submitted to NYSDEC in electronic format in accordance with DER-10, Section 1.15.

3.1.4 Reporting and Deliverables

Upon the receipt and data validation of the analytical results for the sampling event, Carson Voci will prepare a summary report for NYSDEC and NYSDOH, detailing the sampling activities and analytical results. The results will be evaluated in accordance with the SVI Guidance dated October 2006, with updates through February 2024. A determination of “no further action”, “monitor”, or “mitigate” will be

made based on the comparison of the SSSV and IA analytical results to the SV/IA Decision Matrices included in the SVI Guidance.

The summary report will include a detailed description of sampling activities including changes to scope of work and/or schedule, figures depicting the layout of the Site with sampling locations, figures presenting the analytical results and analyses performed, tables presenting all laboratory data results, soil vapor screening level comparisons, laboratory data packages, Data Usability Summary Report(s), sampling field forms, and applicable conclusions and recommendations.

4 Schedule

The estimated project schedule is presented in the table below:

Estimated Project Schedule

Remedial Task	Estimated Implementation Timeframe
Submittal of SVI Evaluation WP	December 31, 2025
NYSDEC Review and SVI Evaluation WP Approval	January 1 – February 3, 2026
Implementation of SVI Evaluation WP	February 2026 (during heating season)
Preparation and Submittal of SVI Evaluation Sampling Reporting and Deliverables	March 2026 – April 2026

5 References

Carson Voci Engineering and Geology, D.P.C. (Carson Voci). 2024a. *Construction Completion Report – Redevelopment Excavation*. January 19.

———. 2024b. *Corrective Measures Work Plan*. January 30.

———. 2025. *Corrective Measures Report*. May 21.

Environmental Engineering Compliance Control, D.P.C. (EECC). 2021. *Change of Use Work Plan*. December 20.

———. 2022a. *AS/SVE Remedial Progress Sampling Report*. March 15.

———. 2022b. *Redevelopment Excavation Work Plan*. May 2.

NYSDEC, Division of Environmental Remediation (DER). 2010. *DER-10 / Technical Guidance for Site Investigation and Remediation (DER-10)*. May 3. <https://www.dec.ny.gov/regulations/67386.html>.

———. 2022. *Record of Decision Bridge Cleaners*. March 27.

NYS Department of Health. 2024. “Updates to Soil Vapor/Indoor Air Decision Matrices.” February. https://health.ny.gov/environmental/indoors/vapor_intrusion/update.htm.

NYS Department of Health, Center of Environmental Health, Bureau of Environmental Exposure Investigations. 2006. *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. October. <https://semspub.epa.gov/work/02/488774.pdf>.

Tables

- 1 Sub-Slab Soil Vapor and Indoor Air Sampling Plan

Table 1

Sub-Slab Soil Vapor and Indoor Air Sampling Plan

Soil Vapor Intrusion Evaluation Work Plan

Bridge Cleaners - NYSDEC Site No. 241127

39-26 30th Street, Long Island City, Queens County, New York

Sub-Slab Soil Vapor/Indoor Air Sample Location	Sample IDs	Sample Depth (feet)	EPA Air Method TO-15
SV-01	SV-01-yyymmdd	0.5 bgs	X
SV-02	SV-02-yyymmdd	0.5 bgs	X
SV-03	SV-03-yyymmdd	0.5 bgs	X
SV-04	SV-04-yyymmdd	0.5 bgs	X
IA-01	IA-01-yyymmdd	3-5 ags	X
IA-02	IA-02-yyymmdd	3-5 ags	X
IA-03	IA-03-yyymmdd	3-5 ags	X
IA-04	IA-04-yyymmdd	3-5 ags	X
Total No. of Samples			8

Notes:

X = Sample to be collected for proposed analysis

* Quality Assurance and Quality Control samples (including outdoor air samples) to be collected in accordance with the Work Plan.

Acronyms

ags = above ground surface

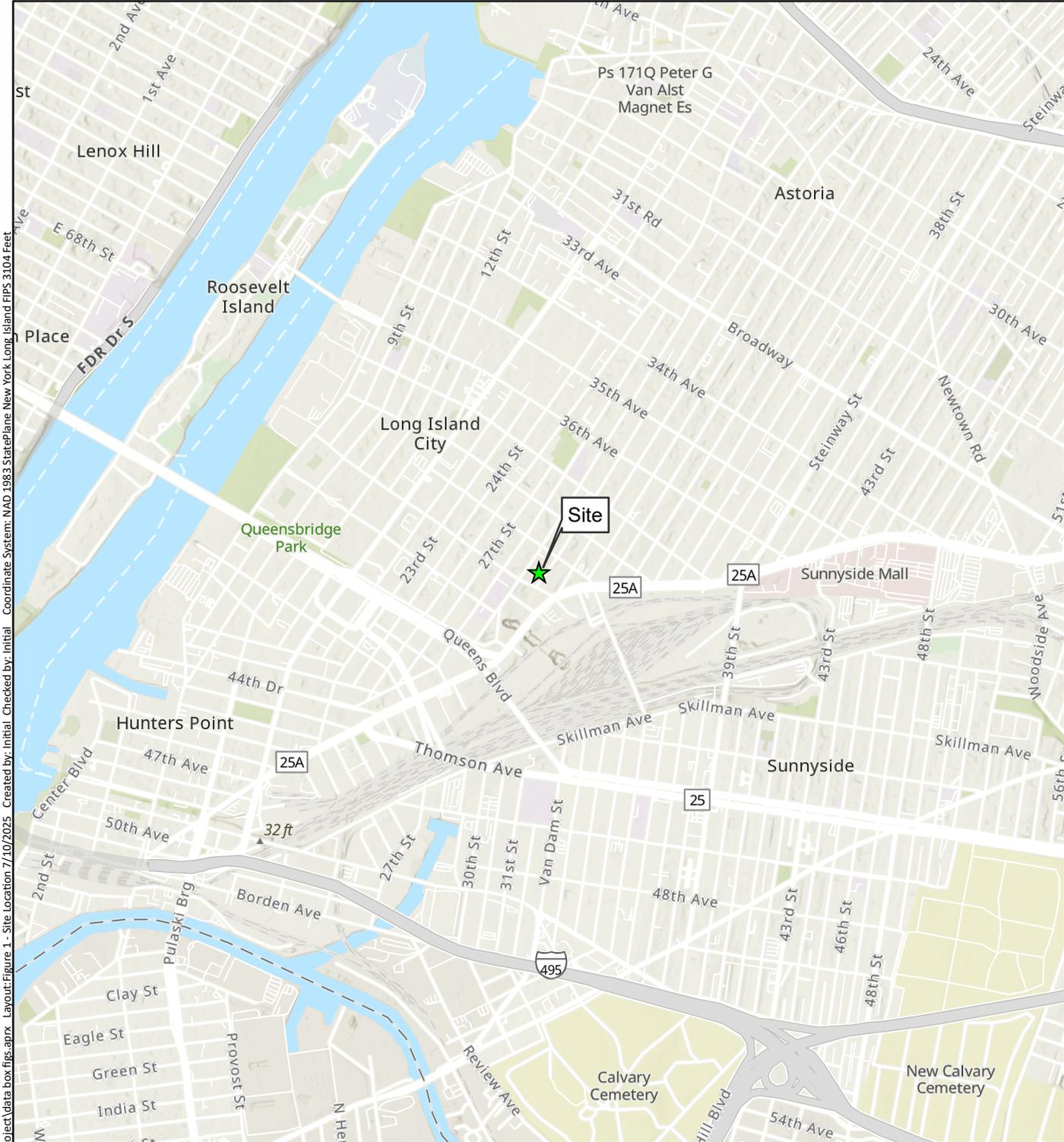
bgs = below ground surface

EPA = United States Environmental Protection Agency

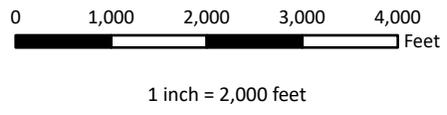
TO-15 = toxic organics 15

Figures

- 1 Site Location
- 2 Historical Soil Vapor Contamination
- 3 Proposed Soil Vapor and Indoor Air Sampling Locations



File: N:\GIS\Proj\CV01.001_Zhong Chuang Properties, LLC\Project\data box figs.aprx Layout: Figure 1 - Site Location 7/10/2025 Created by: Initial Checked by: Initial Coordinate System: NAD 1983 StatePlane New York Long Island FIPS 3104 Feet



Legend

Site Location

Base Map: ESRI World Topographic Map

	<p>CLIENT: 39-26 Property, LLC</p>	<p>Site Location</p>
	<p>PROJECT: Bridge Cleaners, NYSDEC Site No. 241127 39-26 30th Street., Long Island City, NY</p>	
	<p>PROJECT NUMBER: CV03.001.003</p>	<p>FIGURE 1</p>

File: N:\GIS\Prj\CV03.001_Zhong Chuang Properties, LLC\Pro Project\data box figs.aprx Layout: Figure 2 - Historical Soil Vapor Contamination 12/31/2025 Created by: S.Lowe Coordinate System: NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

ANALYTE	SP-7			
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	251	143	0.924	ND
TCE	575	432	5.64	10.7
PCE	44000	56000	675	186
Vinyl Chloride	ND	ND	ND	ND
trans-1,2-DCE	ND	ND	ND	1.61
Isopropanol	47400	ND	ND	ND

ANALYTE	SP-2			
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	920	1400	NS	ND
TCE	871	3750		3.56
PCE	30400	475000		79.3
Vinyl Chloride	ND	ND		ND
trans-1,2-DCE	ND	ND		ND
Isopropanol	25300	ND	ND	1.99

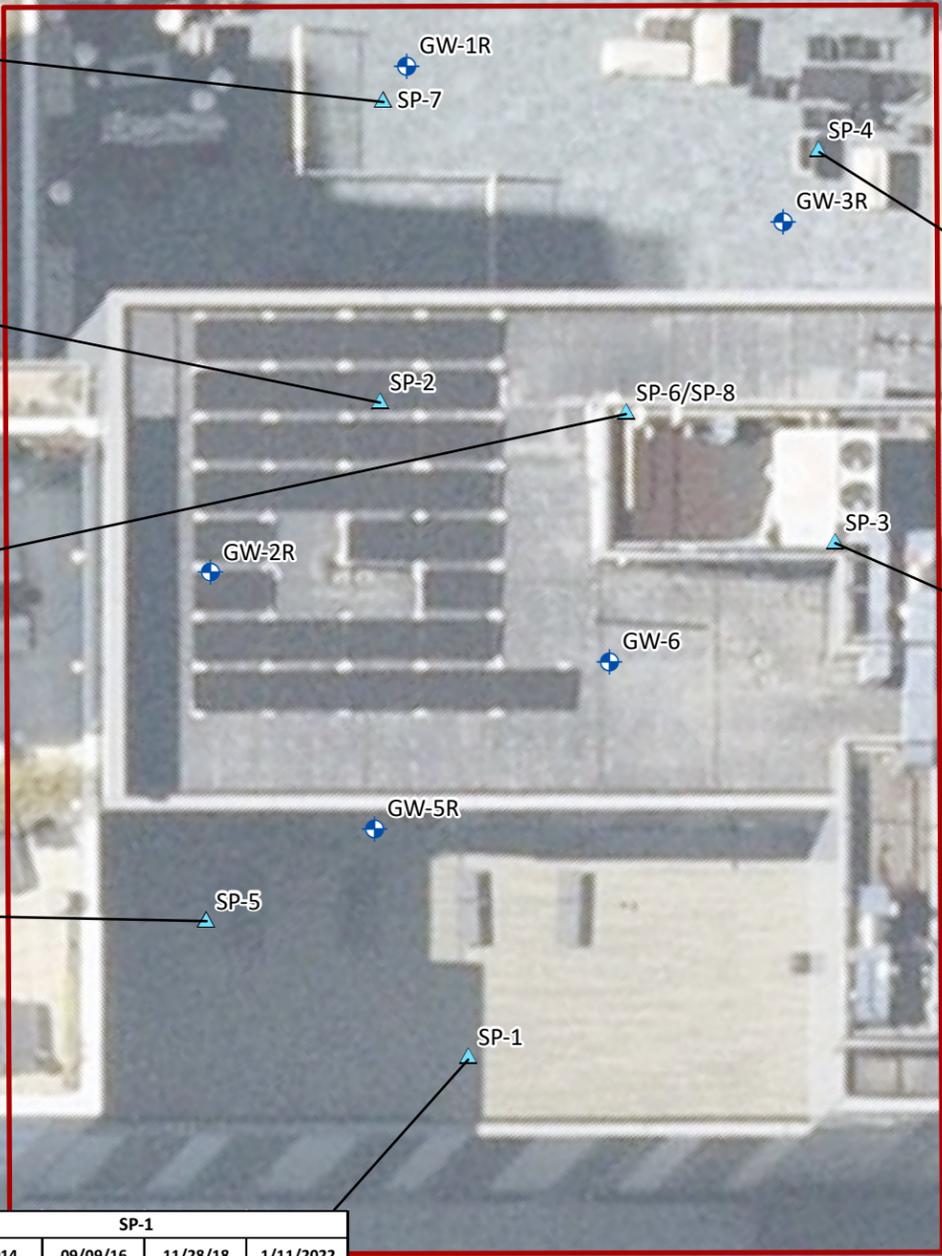
ANALYTE	SP-6		SP-8	
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	1590	ND	ND	1.08
TCE	1930	2180	16	7.9
PCE	246000	543000	1890	685
Vinyl Chloride	ND	ND	ND	ND
trans-1,2-DCE	ND	ND	ND	1.7
Isopropanol	41500	ND	ND	ND

ANALYTE	SP-5			
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	ND	ND	ND	ND
TCE	919	3120	71.5	8.81
PCE	21400	199000	1590	41.6
Vinyl Chloride	ND	ND	ND	ND
trans-1,2-DCE	ND	ND	ND	1.98
Isopropanol	23500	ND	ND	ND

ANALYTE	SP-1			
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	ND	ND	ND	ND
TCE	623	1190	10	3.13
PCE	31700	159000	233	23.3
Vinyl Chloride	ND	ND	ND	ND
trans-1,2-DCE	ND	ND	ND	ND
Isopropanol	26100	ND	ND	2.12

ANALYTE	SP-4			
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	1330	ND	ND	ND
TCE	2140	195	7.2	3.03
PCE	668000	89500	1660	412
Vinyl Chloride	ND	ND	ND	ND
trans-1,2-DCE	ND	ND	ND	ND
Isopropanol	32400	ND	ND	1.89

ANALYTE	SP-3			
	2/8/2014	09/09/16	11/28/18	1/11/2022
cis-1,2-DCE	ND	ND	NS	ND
TCE	554	973		ND
PCE	170000	394000		71.9
Vinyl Chloride	ND	ND		ND
trans-1,2-DCE	ND	ND		ND
Isopropanol	26100	ND		1.84



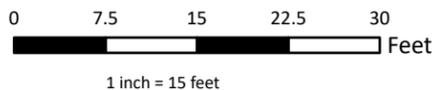
Legend

- ▲ Historic Soil Vapor Sample Location
- ⊕ Monitoring Well Location
- Site Boundary

Notes:

- Detected concentrations are **Bold-faced**
- All results reported in micrograms per cubic meter (ug/m3)
- ND = Non-detect
- cis-1,2-DCE = cis-1,2-Dichloroethene
- TCE = Trichloroethene
- PCE = Tetrachloroethene
- trans-1,2-DCE = trans-1,2-Dichloroethene

Aerial Imagery Source: Nearmap (October 1, 2025)



	CLIENT:	39-26 Property, LLC	Historical Soil Vapor Contamination FIGURE 2
	PROJECT:	Bridge Cleaners, NYSDEC Site No. 241127 39-26 30th Street., Long Island City, NY	
	PROJECT NUMBER:	CV03.001.003	

Appendix A

Building Inventory Checklist



Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: _____ Site Code: _____ Operable Unit: _____

Building Code: _____ Building Name: _____

Address: _____ Apt/Suite No: _____

City: _____ State: _____ Zip: _____ County: _____

Contact Information

Preparer's Name: _____ Phone No: _____

Preparer's Affiliation: _____ Company Code: _____

Purpose of Investigation: _____ Date of Inspection: _____

Contact Name: _____ Affiliation:

Phone No: _____ Alt. Phone No: _____ Email: _____

Number of Occupants (total): _____ Number of Children: _____

Occupant Interviewed? Owner Occupied? Owner Interviewed?

Owner Name (if different): _____ Owner Phone: _____

Owner Mailing Address: _____

Building Details

Bldg Type (Res/Com/Ind/Mixed): Bldg Size (S/M/L):

If Commercial or Industrial Facility, Select Operations:

If Residential Select Structure Type:

Number of Floors: _____ Approx. Year Construction: _____ Building Insulated? Attached Garage?

Describe Overall Building 'Tightness' and Airflows(e.g., results of smoke tests):

Foundation Description

Foundation Type: Foundation Depth (bgs): _____ Unit:

Foundation Floor Material: Foundation Floor Thickness: _____ Unit:

Foundation Wall Material: Foundation Wall Thickness: _____

Floor penetrations? Describe Floor Penetrations: _____

Wall penetrations? Describe Wall Penetrations: _____

Basement is: Basement is: Sumps/Drains? Water In Sump?:

Describe Foundation Condition (cracks, seepage, etc.) : _____

Radon Mitigation System Installed? VOC Mitigation System Installed? Mitigation System On?

Heating/Cooling/Ventilation Systems

Heating System: Heat Fuel Type: Central A/C Present?

Vented Appliances

Water Heater Fuel Type: Clothes Dryer Fuel Type:

Water Htr Vent Location: Dryer Vent Location:



Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: _____ Site Code: _____ Operable Unit: _____

Building Code: _____ Building Name: _____

Address: _____ Apt/Suite No: _____

City: _____ State: _____ Zip: _____ County: _____

Factors Affecting Indoor Air Quality

Frequency Basement/Lowest Level is Occupied?: Floor Material:

Inhabited? HVAC System On? Bathroom Exhaust Fan? Kitchen Exhaust Fan?

Alternate Heat Source: Is there smoking in the building?

Air Fresheners? Description/Location of Air Freshener: _____

Cleaning Products Used Recently?: Description of Cleaning Products: _____

Cosmetic Products Used Recently?: Description of Cosmetic Products: _____

New Carpet or Furniture? Location of New Carpet/Furniture: _____

Recent Dry Cleaning? Location of Recently Dry Cleaned Fabrics: _____

Recent Painting/Staining? Location of New Painting: _____

Solvent or Chemical Odors? Describe Odors (if any): _____

Do Any Occupants Use Solvents At Work? If So, List Solvents Used: _____

Recent Pesticide/Rodenticide? Description of Last Use: _____

Describe Any Household Activities (chemical use,/storage, unvented appliances, hobbies, etc.) That May Affect Indoor Air Quality:

Any Prior Testing For Radon? If So, When?: _____

Any Prior Testing For VOCs? If So, When?: _____

Sampling Conditions

Weather Conditions: Outdoor Temperature: °F

Current Building Use: Barometric Pressure: in(hg)

Product Inventory Complete? Building Questionnaire Completed?



Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Building Code: _____ Address: _____

Sampling Information

Sampler Name(s): _____ Sampler Company Code: _____

Sample Collection Date: Date Samples Sent To Lab: _____

Sample Chain of Custody Number: _____ Outdoor Air Sample Location ID: _____

SUMMA Canister Information

Sample ID:

Location Code:

Location Type:

Canister ID:

Regulator ID:

Matrix:

Sampling Method:

Sampling Area Info

Slab Thickness (inches):

Sub-Slab Material:

Sub-Slab Moisture:

Seal Type:

Seal Adequate?:

Sample Times and Vacuum Readings

Sample Start Date/Time:

Vacuum Gauge Start:

Sample End Date/Time:

Vacuum Gauge End:

Sample Duration (hrs):

Vacuum Gauge Unit:

Sample QA/QC Readings

Vapor Port Purge:

Purge PID Reading:

Purge PID Unit:

Tracer Test Pass:

Sample start and end times should be entered using the following format: MM/DD/YYYY HH:MM



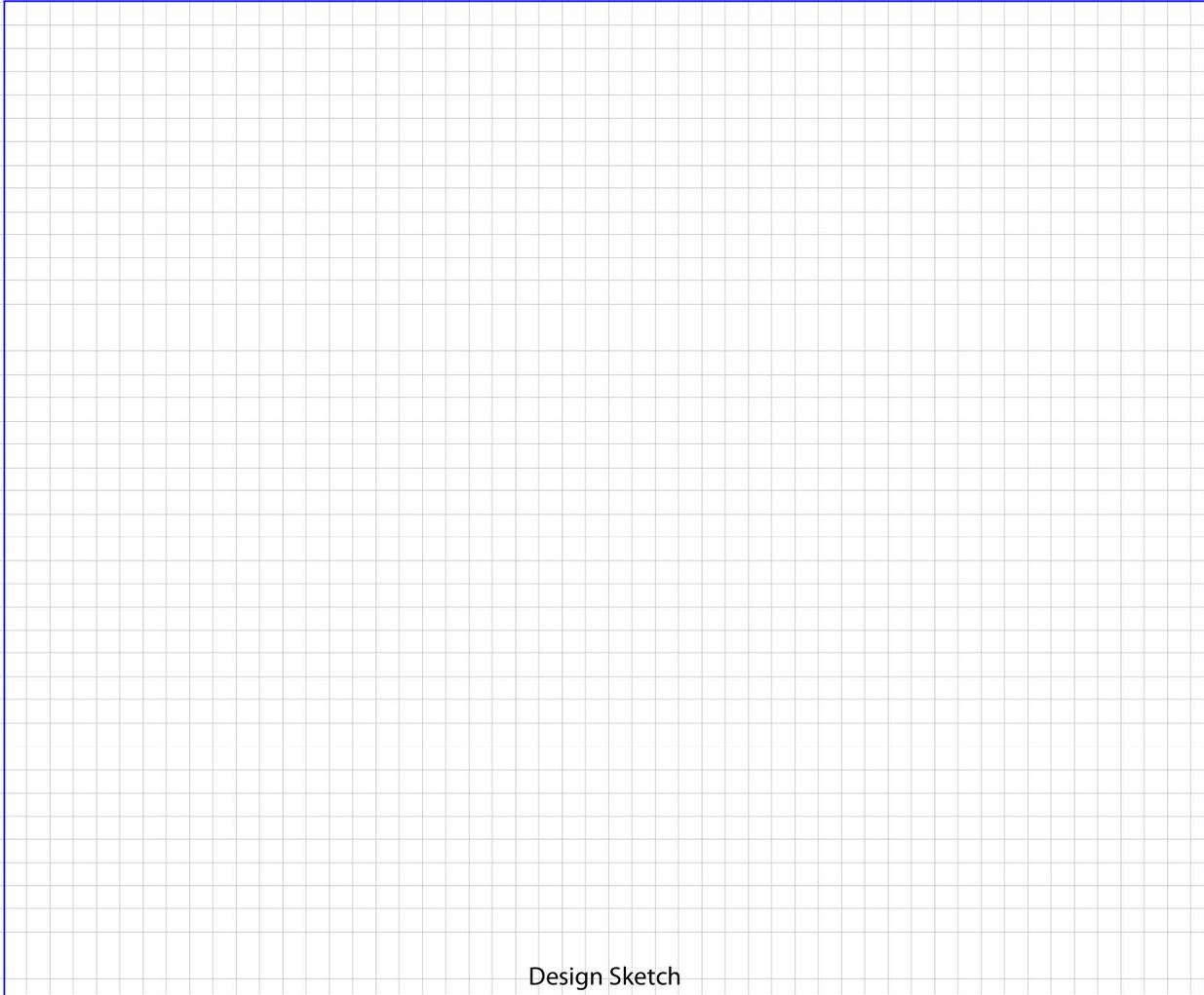
Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

LOWEST BUILDING LEVEL LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the lowest building level .
The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image



Design Sketch

Design Sketch Guidelines and Recommended Symbolology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or F	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	xxxxxxx	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	#####	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.



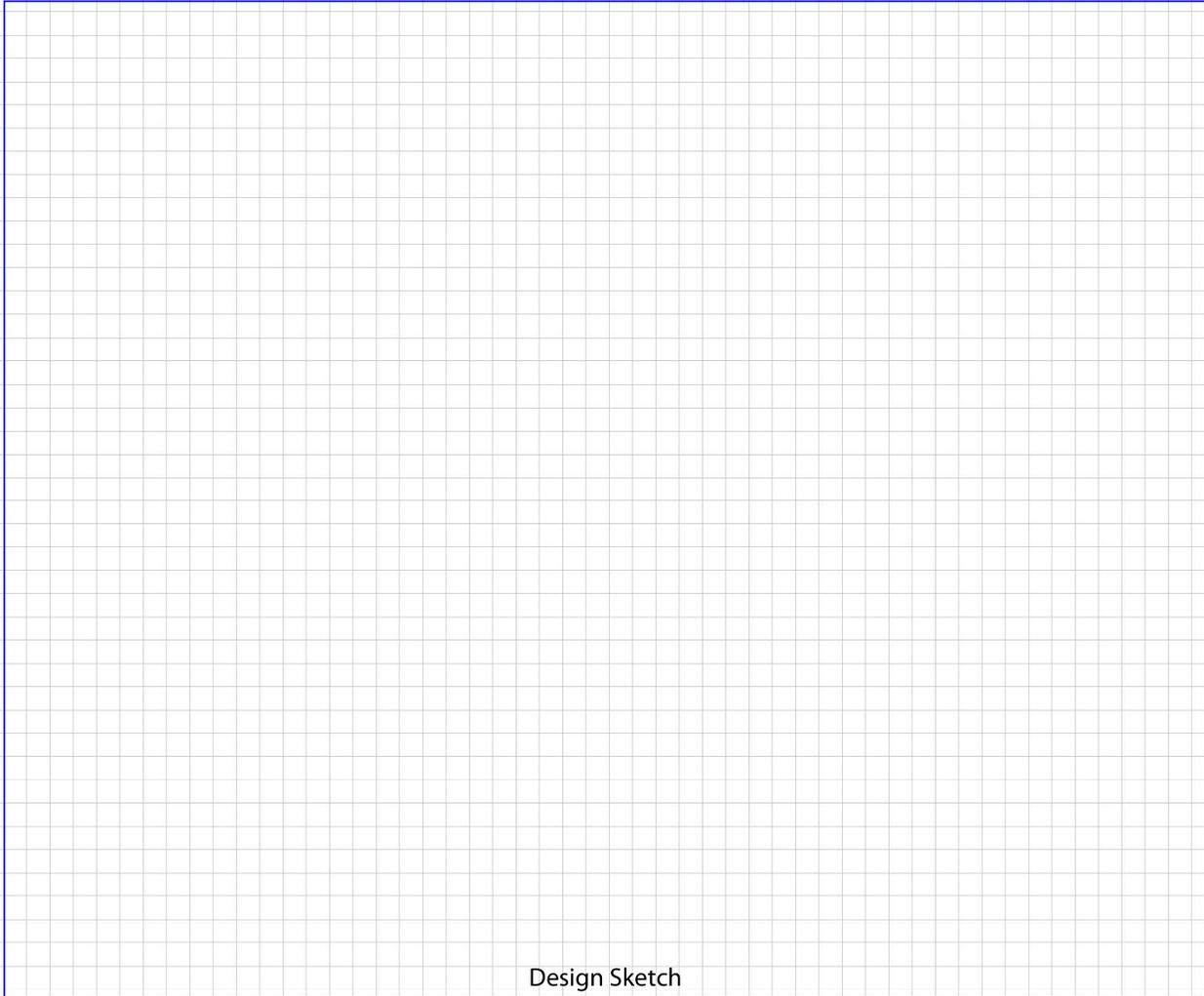
Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

FIRST FLOOR BUILDING LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the first floor of the building.
The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image



Design Sketch

Design Sketch Guidelines and Recommended Symbology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or F	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	xxxxxxx	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	#####	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.



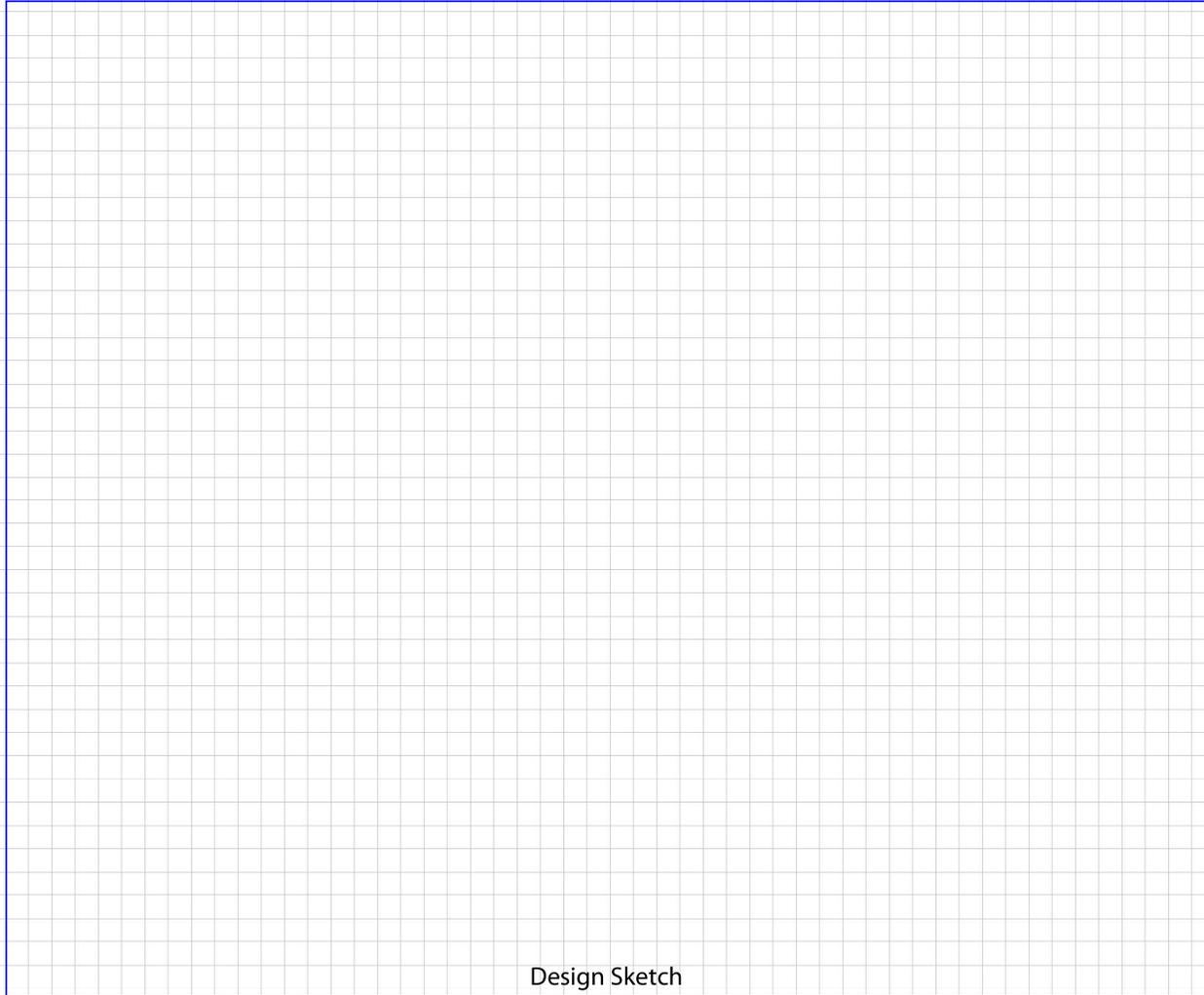
Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

OUTDOOR PLOT LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the outdoor plot of the building as well as the surrounding area. The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image



Design Sketch

Design Sketch Guidelines and Recommended Symbology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or F	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	xxxxxxx	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	#####	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.

Appendix B

Standard Operating Procedure - Vapor Pin® Installation and Extraction



Standard Operating Procedure Installation and Extraction of the Vapor Pin®

Updated September 9, 2016

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® [VAPOR PIN® and silicone sleeve(Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole must be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® installation/extraction tool;
- Dead blow hammer;
- VAPOR PIN® flush mount cover, if desired;
- VAPOR PIN® drilling guide, if desired;

- VAPOR PIN® protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN®.



Figure 1. Assembled VAPOR PIN®

Installation Procedure:

- 1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.
- 2) Set up wet/dry vacuum to collect drill cuttings.
- 3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® drilling guide is recommended.
- 4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole must be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.

VAPOR PIN® protected under US Patent # 8,220,347 B2, US 9,291,531 B2 and other patents pending

- 5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.
- 6) Place the lower end of VAPOR PIN® assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.



Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® shoulder. Place the protective cap on VAPOR PIN® to prevent vapor loss prior to sampling (Figure 3).



Figure 3. Installed VAPOR PIN®

- 7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).



Figure 4. Secure Cover Installed

- 8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.
- 9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN®. This connection can be made using a short piece of Tygon™ tubing to join the VAPOR PIN® with the Nylaflo tubing (Figure 5). Put the

Nylaflow tubing as close to the VAPOR PIN® as possible to minimize contact between soil gas and Tygon™ tubing.



Figure 5. VAPOR PIN® sample connection

10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.



Figure 6. Water dam used for leak detection

11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover

until the next event. If the sampling is complete, extract the VAPOR PIN®.

Extraction Procedure:

- 1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.
- 2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.



Figure 7. Removing the VAPOR PIN®

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN® in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, STAINLESS – 1/2 hour, BRASS 8 minutes
- 3) Replacement parts and supplies are available online.