Date: March 27, 2024

Tracey Garland, GIT
Remedial Bureau C, Section E
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7014
tracey.garland@dec.ny.gov

Ref: 218 Front Street
Site No. C224063
Brooklyn, NY 11201
Soil Vapor Intrusion Evaluation Work Plan

Dear Mr. Garland,

This work plan has been prepared to conduct a post-construction soil vapor intrusion evaluation for 218 Front Street. Based on a review of the Desktop Soil Vapor Intrusion Evaluation by NYSDEC, the Department requests an evaluation for soil vapor intrusion be conducted within the amenities area of the newly constructed building which follows the NYS DOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Work Plan:

The proposed soil vapor evaluation will be performed in accordance with the NYSDOH's *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006 and subsequent updates.

This evaluation will consist of the collection of indoor air, sub-slab vapor, outdoor air, and associated quality assurance and quality control samples. As shown in **Figure 1**, four indoor air samples and two co-located sub-slab vapor samples will be collected concurrently with one ambient outdoor air sample.

Prior to the sampling event, a pre-sampling inspection will be performed, and the *New York State Department of Health Indoor Air Quality Questionnaire and Building Inventory* will be filled out. The sampling will start with an inventory of products used in the amenities space, and where possible, products containing compounds of concern will be removed from the building prior to sampling.

Samples will be collected in 6-liter Summa® canisters over an 8-hour period in accordance with NYSDOH protocols. The indoor and outdoor canisters will be placed in raised positions to simulate breathing zone conditions in accordance with NYSDOH procedures. The canisters will be transported to Phoenix Labs under chain of custody. These samples will be analyzed for volatile organic compounds by USEPA method TO-15. A sampling report will be generated upon receipt of the results.

After the sampling event, the owner is responsible for repairing the vapor barrier and slab in accordance with all manufacturer recommendations at all sub-slab sampling locations.

As indicated above and in the Attachments, all work will be implemented in accordance with this SVIWP, the Quality Assurance Project Plan (QAPP) and the Health and Safety Plan (HASP).

Thanks,

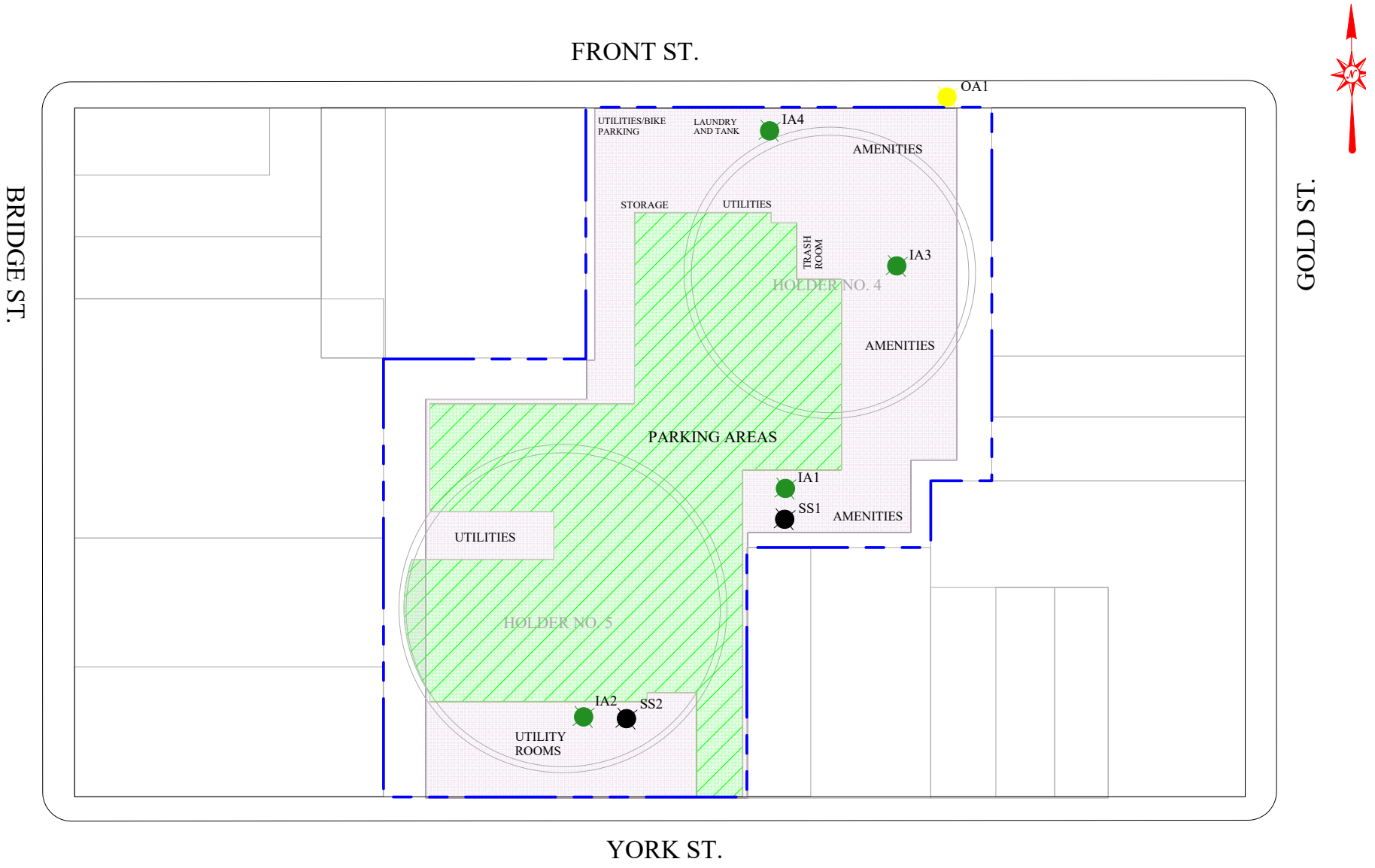
Ariel Czemerinski, PE
AMC Engineering, PLLC

cc: David Salamon – Chess Builders LLC

Enclosures

Figures
Attachment 1 – Health and Safety Plan
Attachment 2 – Quality Assurance Project Plan
Attachment 3 – NYSDOH Indoor Air Quality Questionnaire and Building Inventory

Figures



LEGEND

- PROPERTY LINE
- PARKING AREA
- CELLAR LEVEL
- OUTDOOR AIR SAMPLE
- INDOOR AIR SAMPLE
- SUB-SLAB SAMPLE

SEAL AND SIGNATURE

AMC ENGINEERING PLLC
18-36 42ND STREET
ASTORIA, NY 11105
718-545-0474

PROJECT: 218 FRONT STREET

DATE: MAR. 21, 2024

DRAWING BY: AH

TITLE: PROPOSED AIR SAMPLE LOCATIONS

BC 1106
PARKING AND PASSENGER LOADING FACILITIES
BC 1106.1
WHERE PARKING IS PROVIDED, 5 PERCENT OF THE TOTAL NUMBER OF PARKING SPACES PROVIDED FOR A FACILITY, BUT NOT LESS THAN ONE PARKING SPACE, SHALL BE ACCESSIBLE PARKING SPACES.

ACCESSIBLE PARKING SPACES SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 1106.

TOTAL NUMBER OF PARKING SPACES 134

134 X 5 % =7 ACCESSIBLE PARKING SPACES REQUIRED

7 PROVIDED AT CELLAR
7 PROVIDED TOTAL

1106.5 VAN SPACES.
FOR EVERY SIX OR FRACTION OF SIX ACCESSIBLE PARKING SPACES, AT LEAST ONE SPACE SHALL BE A VAN ACCESSIBLE PARKING SPACE. VAN ACCESSIBLE PARKING SPACES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ICC A117.1, INCLUDING SECTION 502 (PARKING SPACES).

TOTAL NUMBER OF ACCESSIBLE PARKING SPACES = 7

7 / 6 = 1.17 VAN ACCESSIBLE PARKING SPACE REQURIED = 1
2 PROVIDED AT CELLAR = TOTAL PROVIDED = 2

ZR 25-62
SIZE AND LOCATION OF SPACES
ALL ACCESSORY OFF-STREET PARKING SPACES, OPEN OR ENCLOSED, EACH 300 SQUARE FEET OF UNOBSTRUCTED STANDING OR MANEUVERING AREA SHALL BE CONSIDERED ONE PARKING SPACE.

59 STACKER PARKING SPACES + 16 STANDARD PARKING SPACES AT CELLAR
134 PARKING SPACES PROPOSED AT CELLAR
TOTAL 134 PARKING SPACES PROPOSED. COMPLIES ATTENDANDT PARKING

59 PARKING STACKER SPACES PROPOSED AT CELLAR
59 X 200 SF PER GROUND LEVEL SPACE AND GROUND STACKER = 11,800 SF
59 X 47 SF PER UPPER STACKER (TIER 1) = 2,773 SF
16 PROPOSED PARKING SPACE X 200 SF = 3,200 SF
TOTAL REQUIRED =11,800 SF + 2,773 SF +4,800 SF = 17,773 SF

PROPOSED PARKING SPACE AT CELLAR = 19,526 SF
17,773 SF < 19,526 SF THEREFORE COMPLIES

406.7.11 ELECTRIC VEHICLE CHARGING STATIONS.
A MINIMUM OF 20 PERCENT OF THE PARKING SPACES IN AN OPEN PARKING LOT SHALL BE EQUIPPED WITH ELECTRICAL RACEWAY CAPABLE OF PROVIDING A MINIMUM SUPPLY OF 11.5 KVATO ELECTRICAL VEHICLE SUPPLY EQUIPMENT (EVSE)FROM AN ELECTRICAL SUPPLY PANEL.
134 X .20 = 26.8 REQUIRED ELECTRIC VEHICLE CHARGING STATIONS

27 ELECTRIC VEHICLE CHARGING STATIONS PROPOSED AT CELLAR
TOTAL PROPOSED 27 ELECTRIC VEHICLE CHARGING STATIONS

PROVIDE FINISH WITH TWO-COMPONENT VEHICULAR WEARING SURFACE THRU-OUT PARKING GARAGE AND RAMPS
PITCH SLAB TO DRAINS
DRAINS LOCATED AS PER PLUMBING DRAWINGS
PROVIDE CORNER GUARDS AT COLUMNS AND WALLS.
FOR FUTURE CHARGING STATIONS PROVISIONS SEE ELECTIRCAL PLANS

ZR 25-65
SURFACING AS PER ZR 25-65 REQUIREMENTS:
ALL OPEN OFF-STREET PARKING SPACES SHALL BE SURFACED WITH ASPHALTIC OR PORTLAND CEMENT CONCRETE, OR OTHER HARD-SURFACED DUSTLESS MATERIAL, AT LEAST FOUR INCHES THICK, EXCEPT THAT WHERE REQUIRED PARKING SPACES ARE LOCATED IN SIDE LOT RIBBONS, HARD SURFACE RIBBONS MAY BE PERMITTED. HOWEVER, PERMEABLE PAVING MATERIALS MAY BE USED IN OPEN PARKING AREAS WHERE THE COMMISSIONER OF BUILDINGS DETERMINES THAT SUCH MATERIALS ARE APPROPRIATE.

*NOTE: ALL PARKING TO BE FULLLY ATTENDED BY 24 HR PARKING ATTENDANT

VALET PARKING ATTENDANT TO OPERATE THE STACK CAR LIFTS , AND HOLDS KEYS TO ALL VEHICLES , ONLY THE ATTENDANT IS PERMITTED TO PARK AND OPERATE THE VEHICLES

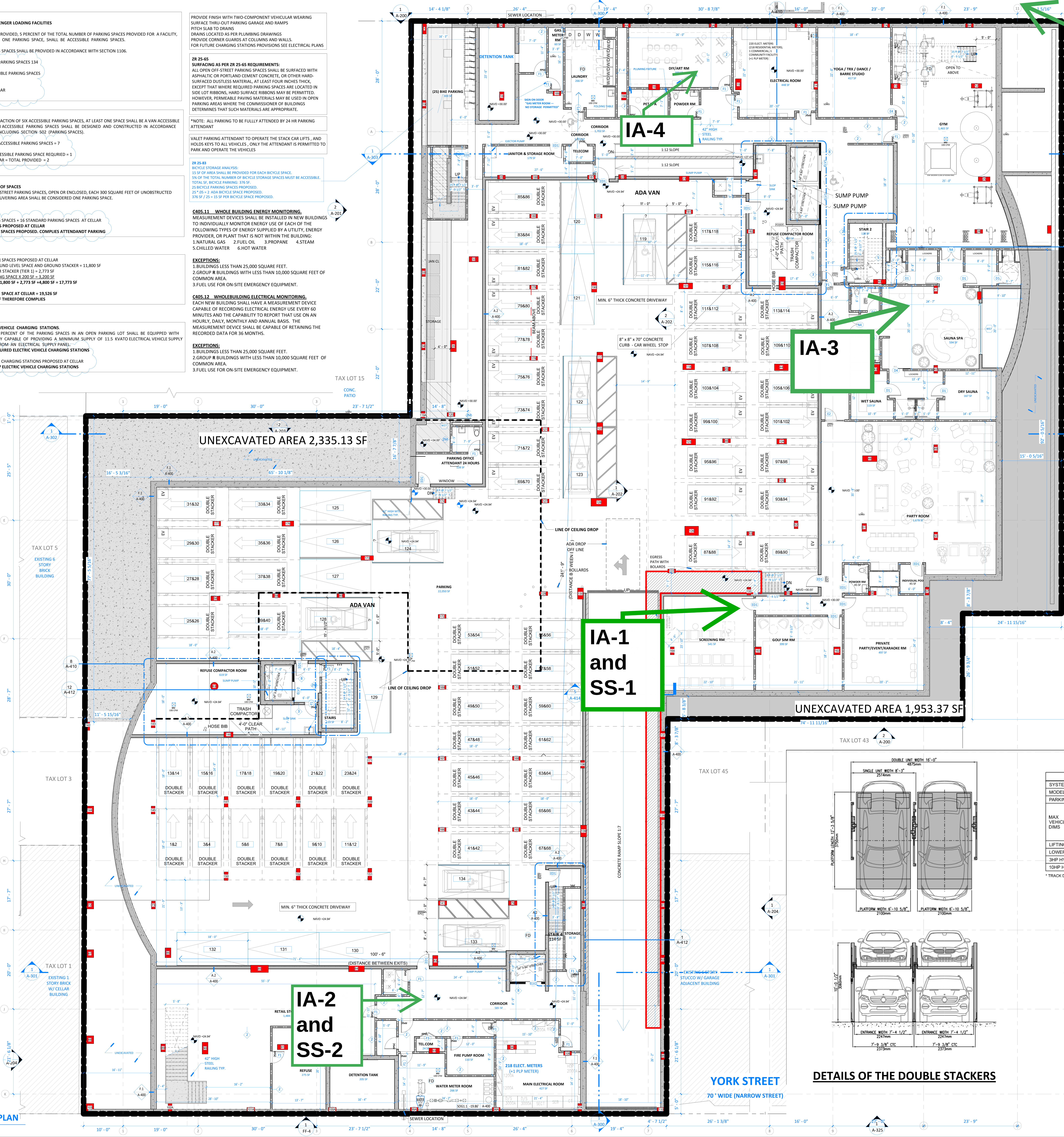
ZR 25-83
BICYCLE STORAGE ANALYSIS:
15 SF OF AREA SHALL BE PROVIDED FOR EACH BICYCLE SPACE.
5% OF THE TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE.
TOTAL SF, BICYCLE PARKING: 376 SF.
25 BICYCLE PARKING SPACES PROPOSED.
25 *.05 = 2 ADA BICYCLE SPACE PROPOSED.
376 SF / 25 = 15 SF PER BICYCLE SPACE PROPOSED.

C405.11 WHOLE BUILDING ENERGY MONITORING.
MEASUREMENT DEVICES SHALL BE INSTALLED IN NEW BUILDINGS TO INDIVIDUALLY MONITOR ENERGY USE OF EACH OF THE FOLLOWING TYPES OF ENERGY SUPPLIED BY A UTILITY, ENERGY PROVIDER, OR PLANT THAT IS NOT WITHIN THE BUILDING:
1.NATURAL GAS 2.FUEL OIL 3.PROPANE 4.STEAM
5.CHILLED WATER 6.HOT WATER

EXCEPTIONS:
1.BUILDINGS LESS THAN 25,000 SQUARE FEET.
2.GROUP **R** BUILDINGS WITH LESS THAN 10,000 SQUARE FEET OF COMMON AREA.
3.FUEL USE FOR ON-SITE EMERGENCY EQUIPMENT.

C405.12 WHOLEBUILDING ELECTRICAL MONITORING.
EACH NEW BUILDING SHALL HAVE A MEASUREMENT DEVICE CAPABLE OF RECORDING ELECTRICAL ENERGY USE EVERY 60 MINUTES AND THE CAPABILITY TO REPORT THAT USE ON AN HOURLY, DAILY, MONTHLY AND ANNUAL BASIS. THE MEASUREMENT DEVICE SHALL BE CAPABLE OF RETAINING THE RECORDED DATA FOR 36 MONTHS.

EXCEPTIONS:
1.BUILDINGS LESS THAN 25,000 SQUARE FEET.
2.GROUP **R** BUILDINGS WITH LESS THAN 10,000 SQUARE FEET OF COMMON AREA.
3.FUEL USE FOR ON-SITE EMERGENCY EQUIPMENT.



1 CELLAR FLOOR PLAN
SCALE: 1/8" = 1'-0"

FGS E.3 GAS METER LOCATION

GAS METER LOCATION SHALL COMPLY WITH THE FOLLOWING:
WHEN LOCATED INSIDE THE BUILDING, METERS SHALL BE LOCATED AS NEAR AS PRACTICABLE TO THE POINT OF ENTRANCE OF THE SERVICE AND, WHERE POSSIBLE, THE METERS SHALL BE LOCATED IN THE CELLAR OR BASEMENT UNLESS OTHERWISE PERMITTED BY THE COMMISSIONER. THE METER LOCATION SHALL BE CLEAN, DRY, AND FREE OF REFUSE, STEAM OR CHEMICAL FUMES AND LOCATED NOT LESS THAN 3 FEET (914 MM) FROM ANY SOURCE OF IGNITION OR ANY SOURCE OF HEAT WHICH MIGHT CAUSE DAMAGE TO THE METER. METERS SHALL BE ADEQUATELY PROTECTED AGAINST EXTREME COLD OR HEAT AND SHALL BE READILY ACCESSIBLE FOR READING AND INSPECTION. THE AREA IN WHICH THE METER IS LOCATED SHALL BE PROPERLY VENTILATED AS PER SECTION E.4. NOTWITHSTANDING THE FOREGOING, OUTSIDE METER INSTALLATION SHALL BE PERMITTED IN AREAS WHERE THE UTILITY COMPANY CERTIFIES THAT DRY GAS IS BEING DISTRIBUTED.

NO GAS METER, OTHER THAN THE REPLACEMENT OF AN EXISTING METER SHALL BE LOCATED IN ANY BOILER ROOM OR OTHER ROOM OR SPACE CONTAINING A HEATING BOILER, IN ANY STAIR HALL, NOR IN ANY PUBLIC HALL ABOVE THE CELLAR OR ABOVE THE LOWEST STORY IF THERE IS NO CELLAR. HOWEVER, WHERE THERE IS AN EXISTING GAS METER LOCATED IN ANY BOILER ROOM OR OTHER ROOM OR SPACE CONTAINING A HEATING BOILER, ONE ADDITIONAL GAS METER MAY BE INSTALLED IN SUCH ROOM OR SPACE, PROVIDED SUCH ADDITIONAL GAS METER IS INSTALLED ADJACENT TO THE EXISTING GAS METER AND IS USED IN CONJUNCTION WITH THE SUPPLY OF GAS FOR A GAS-FIRED HEATING BOILER OR A GAS-FIRED WATER HEATER USED AS A CENTRAL SOURCE OF SUPPLY OF HEAT OR HOT WATER FOR THE TENANTS. SUCH ADDITIONAL GAS METER MAY BE INSTALLED ONLY UPON THE CONDITION THAT SPACE HEATERS OR HOT WATER APPLIANCES IN THE TENANT SPACES ARE ELIMINATED.

GAS METER ROOMS, WHEN PROVIDED, SHALL AT ALL TIMES BE KEPT CLEAR OF ALL RUBBISH; AND SHALL NOT BE USED IN ANY WAY FOR STORAGE PURPOSES, INCLUDING MATERIAL OR EQUIPMENT OF ANY KIND. A LEGIBLE SIGN READING "GAS METER ROOM—NO STORAGE PERMITTED" SHALL BE PERMANENTLY AND CONSPICUOUSLY POSTED ON THE EXTERIOR OF THE METER ROOM DOOR, EXCEPT THAT THE SIGN MAY BE POSTED ON THE INTERIOR OF THE METER ROOM DOOR IN OCCUPANCY GROUP R-3. THE LETTERING OF SUCH SIGNS SHALL BE OF BOLD TYPE AT LEAST 1 INCH (25 MM) IN HEIGHT AND SHALL BE PROPERLY SPACED TO PROVIDE GOOD LEGIBILITY. THE LETTERING AND BACKGROUND SHALL BE OF CONTRASTING COLORS. WHERE GAS METERS AND RELATED EQUIPMENT ARE NOT LOCATED IN A SEPARATE ROOM BUT ARE LOCATED IN AN OPEN FLOOR AREA, NO COMBUSTIBLE MATERIAL SHALL BE STORED OR KEPT WITHIN 5 FEET (1524 MM) OF SUCH EQUIPMENT; NOR SHALL THE GAS METER BE WITHIN 3 FEET (914 MM) OF ANY HEATING BOILER OR SOURCES OF IGNITION AND, EXCEPT OCCUPANCY GROUP R-3, THERE SHALL BE A PHYSICAL BARRIER REQUIRED IF THE ROOM IS ALSO USED FOR STORAGE PURPOSES OR THE LIKE.

THE INSTALLATION OF GAS METER PIPING SHALL BE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CODE AND THE LOCAL UTILITY COMPANY.

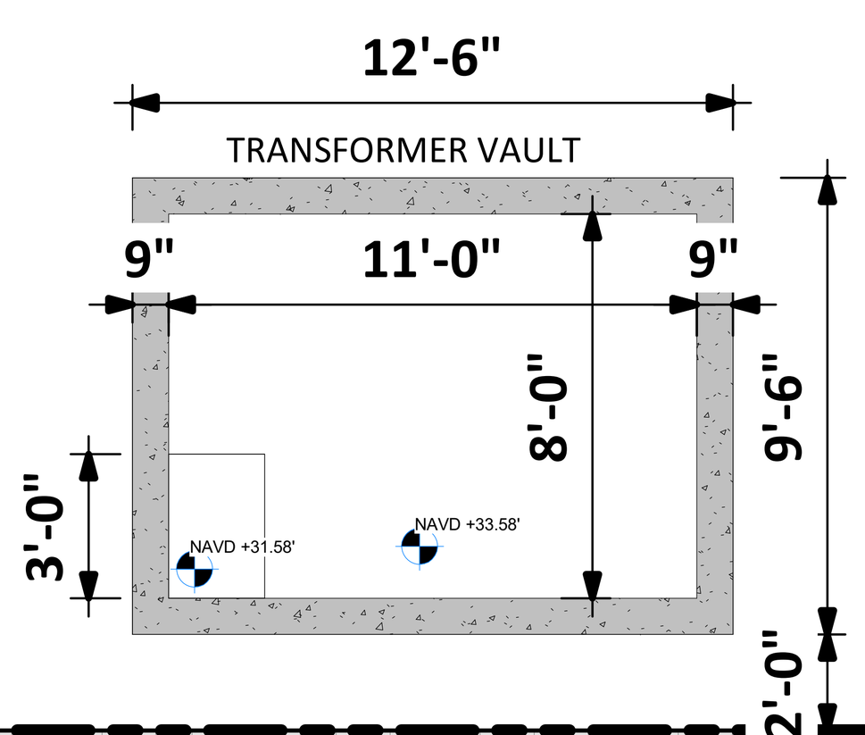
PIPING CONTAINING GAS WITH A PRESSURE EXCEEDING 1/2 PSIG (3.4 KPA GAUGE) AND THE GAS SERVICE PRESSURE REGULATOR WHICH MAY BE SUBJECTED TO ACCIDENTAL VEHICULAR IMPACT SHALL BE SUITABLY PROTECTED

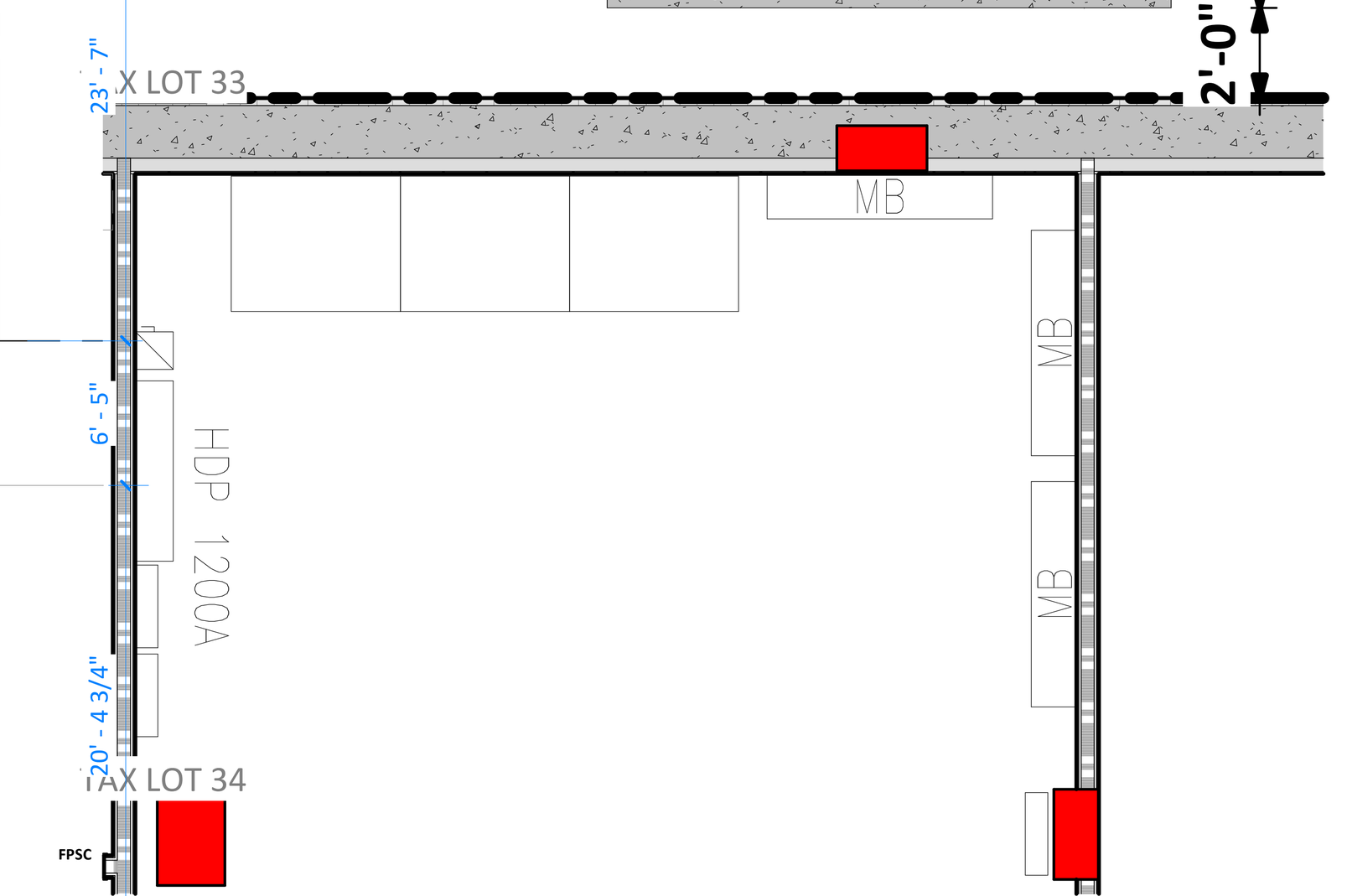
FGS E.4 GAS METER ROOM VENTILATION

ANY ONE OF THE FOLLOWING METHODS SHALL BE CONSIDERED SUFFICIENT TO PROVIDE PROPER VENTILATION TO A ROOM OR SPACE IN WHICH A GAS METER(S) IS INSTALLED:
AN OPENING TO THE OUTSIDE AIR IN THE WALL OF SUCH ROOM OR SPACE, PROVIDED THE FREE AREA OF THE OPENING IS NOT LESS THAN 30 SQUARE INCHES (19 321 MM2).
A DUCT HAVING A CROSS-SECTION AREA OF AT LEAST 50 SQUARE INCHES (32 522 MM2) OF FREE AREA AND A MAXIMUM LENGTH OF 15 FEET (4572 MM) LEADING TO THE OUTSIDE AIR. IF A LONGER DUCT IS REQUIRED DUE TO THE BUILDING CONSTRUCTION, THE AREA OF THE DUCT SHOULD BE INCREASED ACCORDINGLY, SUBJECT TO THE APPROVAL OF THE COMMISSIONER. HOWEVER, UNDER NO CIRCUMSTANCES SHALL THE MEANS OF VENTILATION FOR THE GAS METER ROOM OR SPACE BE FROM AN ADJOINING ROOM OR SPACE WITHIN THE BUILDING.
THE ABOVE REQUIREMENT IS NOT APPLICABLE TO ONE- AND TWO-FAMILY DWELLINGS, SINCE THE GAS METER IS AVAILABLE FOR CONTINUOUS SUPERVISION.

REFUSE STORAGE NOTES:
ALL COMPACTOR WALLS & TRASH CHUTE WALLS SHALL HAVE A STC OF 50
3 HOUR RATED CEILING,
PROPOSED 8" CONC. SLAB
4 HOUR RATING AS PER TABLE BC 721.2.2.1
CONCRETE FLOOR SLOPED TO DRAIN

218 DWELLING UNITS x 2.9 C.F. = 632 C.F. REQUIRED
TOTAL PROPOSED 582 SF + 579 SF = 1,161 SF
1,161 SF x 8'-0" = 9,288 C.F. PROVIDED





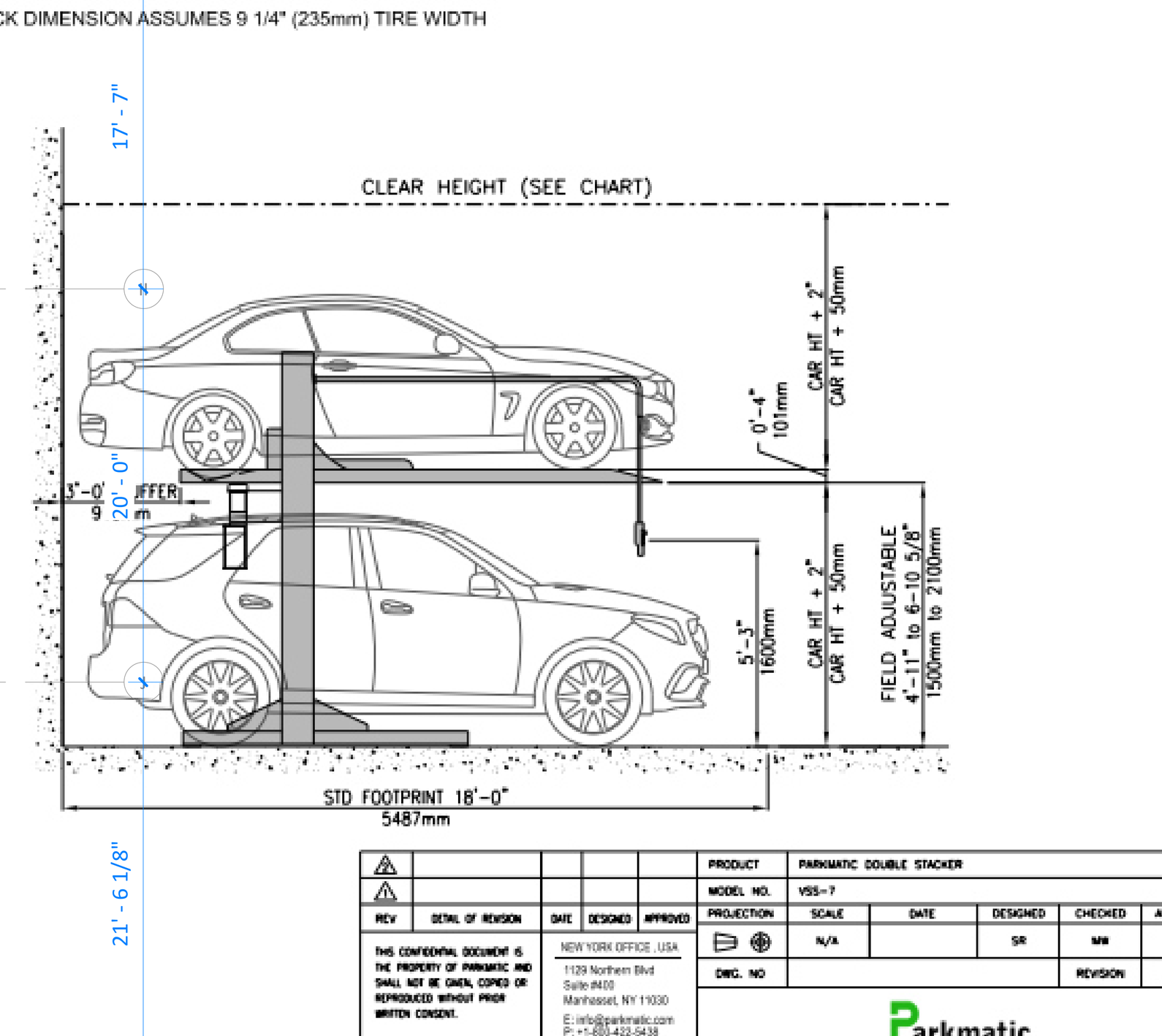
2 VAULT AT CELLAR
SCALE: 1/4" = 1'-0"

TECHNICAL SPECIFICATIONS		
SYSTEM TYPE		DOUBLE STACKER
MODEL NO.		VSS-7
PARKING CAPACITY		2 CARS
MAX VEHICLE DIMS	WHEELBASE	10'-2" (3,100 mm)
	TRACK*	5'-8 1/4" (1,670 mm)
	WIDTH	7'-0 5/8" (2,150 mm)
	HEIGHT (ON GRADE)	6'-8 3/4" (2,050 mm)
	WEIGHT	7,000 lbs (3,175 Kg)
LIFTING TIME		30 sec
LOWERING TIME		15 sec
3HP HYDRAULIC UNIT (1 ea)		208-230V, 1PH, 60 Hz, 18 FLA
10HP HYDRAULIC UNIT (1 per 25)		208-230V, 3PH, 60 Hz, 28.4 FLA

* TRACK DIMENSION ASSUMES 9 1/4" (235mm) TIRE WIDTH

CLEARANCES	
TYPE	HEIGHT
L/L	11'-2"
S/L	12'-2"
S/S	13'-2"

L = SEDAN
S = SUV



DETAILS OF THE DOUBLE STACKERS

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.
40-12 28TH STREET, LONG ISLAND CITY, N.Y. 11101
TEL: 718.706.7196 EXT: 113

MEP ENGINEER:
A&D ENGINEERING, PLLC
2606 EAST 15TH STREET SUITE #204
BROOKLYN, NY 11235
TEL. (718) 872-6122

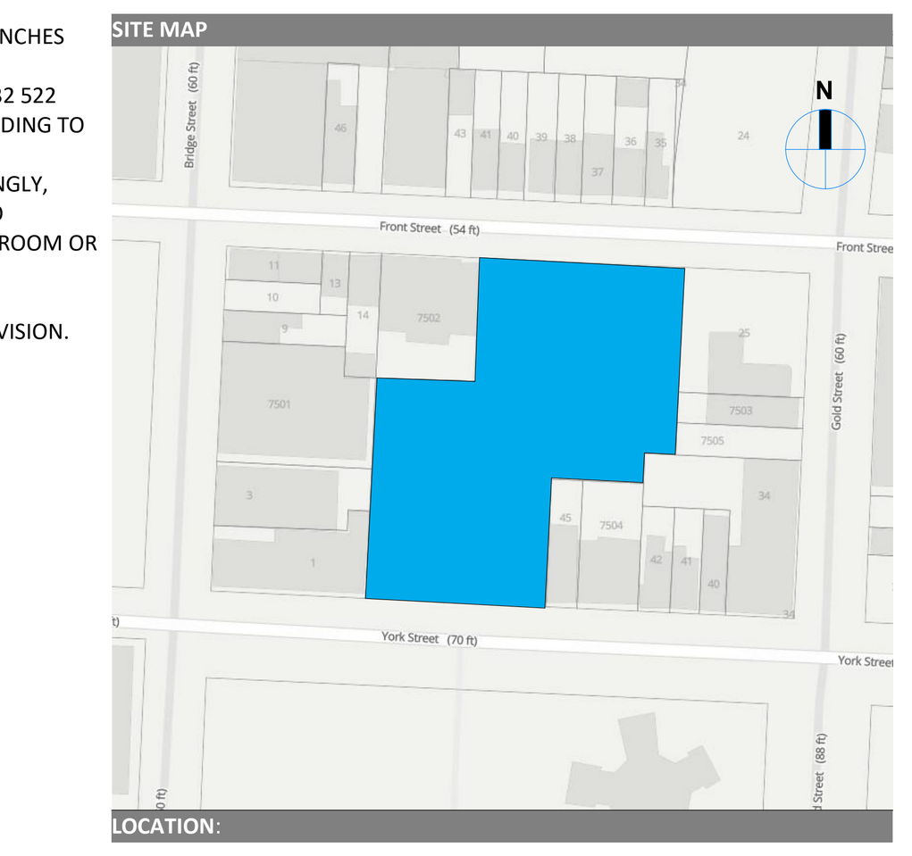
MUNICIPAL CONSULTANT:
BAC GROUP LTD
366 BROADWAY BROOKLYN, NY 11211
TEL: 718-599-1559

OWNER:
CHESS BUILDERS, LLC
59 MONTROSE AVE. BROOKLYN, NY 11206
718.522.5512

NO.	DESCRIPTION	DATE
0	DOB FILING	12/28/2021
1	PAA #1	03/09/2023
2	PAA #2	3/22/2023

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
218 FRONT STREET
BROOKLYN, NY 11201

PROPOSED 7 STORY MIXED USE NEW BUILDING

CELLAR PLAN

DOB # :
B00651570-I1
PAA JOB # B00651570-P4
B00651570-P8
DOB BSCAN + STAMP :

FLOOR LEGEND
MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- STRUCTURAL COLUMN
- MECH. VENT
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- SLOPE TO DRAIN / 4" ROOF DRAIN W/ CONTROLLED FLOW DEVICE
- ROOM TAG
- UNIT TAG
- EMERGENCY WALL LIGHT & EMERGENCY BACKUP POWER
- FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- WINDOW SCHEDULE TAG SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- TRICKLE VENT WINDOW
- DOOR TYPE, SEE DOOR SCHEDULE SHEET
- PARTITION TYPE TAG
- STOREFRONT TYPE TAG
- COLUMN LINE / GRID INDICATOR
- SMOKE AND CARBON MONOXIDE DETECTOR
- ELECTRIC VEHICLE CHARGING STATION

SEAL AND SIGNATURE

DATE: 6/1/2023 11:08:30 AM
SCALE: As indicated
DRAWN BY: XX

A-100.02

SHEET: 20 OF 69

Attachment 1
Health and Safety Plan

Health and Safety Plan (HASP)

218 Front Street
Brooklyn, NY 11201

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by:

AMC Engineering, PLLC
18-36 42nd Street
Astoria, NY 11105

Health and Safety Plan Expiration Date: March 2025

Site no: C224063

AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105
Phone: (718) 545-0474
Info@amc-engineering.com

Table of Contents

LIST OF ACRONYMS

Acronym	Definition
AMC	AMC Engineering, PLLC
APR	Air Purifying Respirator
ASR	Air Supplied Respirator
CAMP	Community Air Monitoring Plan
CHASP	Construction Health and Safety Plan
EMDP	Excavated Materials Disposal Plan
HASP	Health and Safety Plan
HEPA	High Efficiency Particulate Air
HSM	Health Safety Manager
IDLH	Immediately Dangerous to Life or Health
LEL	Lower Explosive Limit
NIOSH	National Institute for Occupational Safety and Health
NYC DOT	New York City Department of Transportation
NYC SCA	New York City School Construction Authority
NYS DEC	New York State Department of Environmental Conservation
NYS DOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
OVA	Organic Vapor Analyzer
PID	Photoionization Detector
PPE	Personal Protective Equipment
SCBA	Self Contained Breathing Apparatus
SSI	Sub-Surface Investigation
SSO	Site Safety Officer
VOC	Volatile Organic Compound

STATEMENT OF COMMITMENT

This Health and Safety Plan (HASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during the Indoor Air Evaluation at 218 Front Street in Brooklyn, New York.

This HASP, which applies to persons present at the site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This HASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees.

1.0 INTRODUCTION

This document describes the health and safety guidelines developed by AMC Engineering (AMC) for the implementation of an Indoor Air Evaluation (IAE) at the site located at: 218 Front Street, Brooklyn, NY to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during subsurface investigation activities. In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule, this HASP, including the attachments, addresses safety and health hazards related to subsurface sample collection activities and is based on the best information available. The HASP may be revised by AMC at the request of the Client and/or the New York State Department of Environmental Conservation (NYSDEC) or New York State Department of Health (NYSDOH) upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by the owner's project manager, site safety officer and/or the AMC health and safety consultant.

1.1 Training Requirements

Personnel entering the exclusion zone or decontamination zone are required to be certified in health and safety practices for hazardous waste site operations as specified in the Federal OSHA Regulations CFR 1910.120e (revised 3/6/90).

Paragraph (e - 3) of the above referenced regulations requires that all on-site management personnel directly responsible for or who supervise employees engaged in hazardous waste operations, must initially receive 8 hours of supervisor training related to managing hazardous waste work.

Paragraph (e - 8) of the above referenced regulations requires that workers and supervisors receive 8 hours of refresher training annually on the items specified in Paragraph (e-1) and/or (e- 3).

Additionally, all on-site personnel must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.
- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

Health and Safety meetings will be conducted on a daily basis and will cover protective clothing and other equipment to be used that day, potential and chemical and physical hazards, emergency procedures, and conditions and activities from the previous day.

1.2 Medical Monitoring Requirements

Field personnel and visitors entering the exclusion zone or decontamination zone must have completed appropriate medical monitoring required under OSHA 29 CFR 1910.120(f) if respirators or other breathing related PPE is needed. Medical monitoring enables a physician to monitor each employee's health, physical condition, and his fitness to wear respiratory protective equipment and carry out on-site tasks.

1.3 Site Safety Plan Acceptance, Acknowledgement and Amendment

The project superintendent and the site safety officer are responsible for informing personnel (employees and/or owner or owners representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included in **Attachment A.**

Site conditions may warrant an amendment to the HASP. Amendments to the HASP are acknowledged by completing forms included in **Attachment B.**

1.4 Key Personnel - Roles and Responsibilities

Personnel responsible for implementing this Construction Health and Safety Plan are:

Name	Title	Contact Numbers
Ariel Czemerinski	Project Manager & Site Safety Officer	718-545-0474
Anjeza Harrington	Environmental Engineer	718-545-0474

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this HASP. The site safety officer will conduct daily (tail gate or toolbox) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is also responsible for coordinating health and safety activities related to hazardous material exposure on-site. The site safety officer is responsible for the following:

1. Educating personnel about information in this HASP and other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.
2. Coordinating site safety decisions with the project manager.
3. Designating exclusion, decontamination and support zones on a daily basis.
4. Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this HASP.
5. Maintaining the work zone entry/exit log and site entry/exit log.
6. Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

2.0 SITE BACKGROUND AND SCOPE OF WORK

The Site is comprised of one parcel of land located at 218 Front Street/171 York Street in the Vinegar Hill neighborhood of Brooklyn, Kings County, NY (**Figure 1**). The Site is approximately 1.13 acres in size, identified as Block 55, Lot 20. Block 55 is bordered by Front Street to the north, by Gold Street to the east, by York Street to the south, and by Bridge Street to the west.

On October 27, 2021, Macentico II LLC (Macentico or property owner), acquired the property from Great Front Realty, Inc. (Great Front Realty), which had owned the property since 1983. The property owner plans to demolish the existing structures and construct two residential buildings. The property owner has begun preliminary Site redevelopment activities and plans on starting construction activities in the very near future in order to meet the mid-June 2022 deadline related to the New York State 421a tax abatement program. The main Site feature is an unoccupied one-story building at 218 Front Street, which was used as a warehouse (mainly clothing). There are also three open-air sheds (corrugated metal roof on steel frames) at the 171 York Street address. The 171 York Street property was used for lumber and building material storage. These sheds cover approximately 75 percent of the 171 York Street portion of the Site. The rest of the property is covered with pavement.

The Site is currently zoned for C2-4/R6A, which allows for residential, commercial, and light industrial uses. The nearest residential area is directly adjacent to the Site at the northwest and southeast site boundaries. The most recent use of the Site was commercial with an active warehouse and lumber yard.

The Site was operated as an MGP holder station by The Brooklyn Union Gas Company and one of its predecessors, The Brooklyn Gas Light Company, from approximately 1867 to 1935. The Standard Oil Company controlled The Brooklyn Gas Light Company and later The Brooklyn Union Gas Company from approximately 1883 to 1922. In the mid-1920s, The American Light and Traction Company, The United Light and Power Company, and Koppers obtained significant ownership interest in The Brooklyn Union Gas Company with The Brooklyn Union Gas Company being a subsidiary of Koppers from approximately 1927 to 1944.

The station operated solely for gas storage and distribution (*i.e.*, a holder station), and no gas production facilities were present at the Site. The holder station infrastructure included Holder No. 4 and Holder No. 5 and some associated holder station buildings (*e.g.*, boiler house, exhauster house, and valve house). The first gas holder (No. 4) was constructed circa 1867 in the northern portion of the Site (218 Front Street) and was approximately 109.2 feet in diameter and 62.5 feet tall. The second gas holder (No. 5) was constructed around 1890 in the southwestern portion of the Site (171 York Street) and was approximately 132 feet in diameter and 94.7 feet tall (see Drawings 1 and 2 below). The above-ground portions of both holders and all associated holder station buildings were removed between 1935 and 1938. The property was then used as a parking lot until it was sold by Brooklyn Union Gas in 1951. The 1969 Sanborn fire insurance map (**Figure 3**) shows that a filling station was located to the northwest of the Site (*i.e.*, at the 206 Front Street address).

2.1 Previous Investigations

Phase II

Summary of Previous Investigations

Previous investigations at the Site consisted of the SC and the RSOI and are discussed below.

Site Characterization

The SC investigation included advancing five on-site borings and four off-site borings. The SC confirmed the locations of the holder tanks (*i.e.*, Holders No. 4 and 5) in the subsurface beneath the Site. The investigation borings determined that the Site is underlain by varying amounts of fill which is underlain by natural deposits of fine to coarse sand with gravel and cobbles. Material found within the holder tanks was fill consisting of sands and gravel and varying amounts of brick, concrete, and wood.

During the SC investigation, one on-site boring and the four off-site borings were completed as monitoring wells. Water level measurements determined that regional groundwater beneath the Site ranges from a depth of approximately 37 to 42 feet below ground surface (ft bgs; 2 to -2 ft mean sea level [msl]) with flow to the north towards the East River. Perched water encountered within the Holder No. 5 tank indicates that the tank is tight and not hydraulically connected to the regional groundwater.

Identified Soil Impacts

The SC investigation included soil and groundwater sampling and analysis for target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), target analyte list (TAL) metals, and cyanide. The detected concentrations of VOCs, SVOCs, and metals in the subsurface soil samples from inside the holder tanks exceeded the 6 NYCRR Part 375 Restricted Residential and Commercial Use Soil Cleanup Objectives (SCOs) (**Figure 4**). However, sampling of subsurface soil was limited due to inability to access much of the property with a drill rig.

Analytes which were detected at concentrations exceeding Restricted Residential Use SCOs in the soil samples were:

- naphthalene (up to 280 milligrams per kilogram [mg/Kg], SCO of 100 mg/Kg),
- xylenes (up to 120 mg/Kg, SCO of 100 mg/Kg),
- benzo(a)anthracene (up to 8.4 mg/Kg, SCO of 1 mg/Kg),
- benzo(a)pyrene (up to 8.8 mg/Kg, SCO of 1 mg/Kg),
- benzo(b)fluoranthene (up to 8.2 mg/Kg, SCO of 1 mg/Kg),
- chrysene (up to 9.1 mg/Kg, SCO of 3.9 mg/Kg),
- dibenzo(a,h)anthracene (up to 1.9 mg/Kg, SCO of 0.33 mg/Kg),
- indeno(1,2,3-cd)pyrene (up to 6.7 mg/Kg, SCO of 0.5 mg/Kg),
- copper (up to 564 mg/Kg, SCO of 270 mg/Kg),

- lead (up to 926 mg/Kg, SCO of 400 mg/Kg), and
- mercury (up to 4 mg/Kg, SCO of 0.81 mg/Kg).

Analytes which were detected at concentrations above the Commercial Use SCOs included SVOCs (five samples), copper (two samples), and mercury (one sample).

Adjacent to the Site, the detected concentrations of some SVOCs in soil samples slightly exceeded Restricted Residential Use SCOs. The suite of SVOCs and the concentrations at which they were detected is indicative of historical, urban fill.

Identified Groundwater Impacts

Detected analytical concentrations in groundwater samples collected from inside the Holder No. 5 tank exceeded groundwater quality standards (GWQSs) presented in NYSDEC's *Technical and Operational Guidance Series 1.1.1.*, dated June 1998 for:

- benzene at 210 micrograms per liter (µg/L) (standard of 1 µg/L),
- toluene at 55 µg/L (standard of 5 µg/L),
- ethylbenzene at 110 µg/L ppb (standard of 5 µg/L),
- xylenes at 210 µg/L (standard of 5 µg/L),
- naphthalene at 70 µg/L (standard 10 µg/L),
- 1,2,4-trimethylbenzene at 6 µg/L (standard of 5 µg/L),
- isopropylbenzene at 10 µg/L (standard of 5 µg/L),
- five SVOCs (benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene,
- chrysene and indeno(1,2,3-cd)pyrene; all with a standard of 0.002 µg/L) ranging
- from non-detect to 1.8 µg/L,
- cyanide at 287 µg/L (standard of 200 µg/L),
- chromium at 130 µg/L (standard of 50 µg/L), and
- lead at 5,210 µg/L (standard of 25 µg/L).

In the groundwater samples collected from one of the four off-site monitoring wells, chlorinated VOCs (1,2-dichloroethene, tetrachloroethene (PCE), trichloroethene (TCE)) and naphthalene were detected at concentrations exceeding GWQSs (**see Figure 5**). Chlorinated solvents are not considered to be attributable to the Front Street Holder Station or its operation. The 1969 Sanborn fire insurance map (**Figure 3**) shows a dry cleaner present at 191 York Street, near to the southeast corner of the Site. Considering that dry cleaners frequently used chlorinated solvents, and that groundwater flow at the Site is from south to north, the former dry cleaner may be considered a potential source of the chlorinated solvents detected in groundwater during the SC.

Because the perched groundwater in Holder No. 5 and regional groundwater outside the holder are not used as a water supply, the potential for human exposure through direct contact, inhalation, or ingestion of the perched or regional groundwater is minimal. All monitoring wells at the Site were decommissioned with NYSDEC approval in October 2013.

Summary of the Remedial Investigation

On May 18, 2020, National Grid was notified by Great Front Realty of their entry into a sales contract with a prospective buyer, Urban Realty Partners, LLC (Urban Realty), an entity related to Macentico. Through subsequent conversations with Great Front Realty and Urban Realty, National Grid and NYSDEC learned that Urban Realty/Macentico planned to redevelop the property on a scale that would trigger the RSOI required by the ROD and the ISMP. The RSOI Work Plan was finalized in February 2021 (approved as the Further Investigation Work Plan).

The RSOI was conducted in March and April 2021. The objective of the RSOI was to investigate the nature and extent of impacts, if any, in areas where access was previously limited or unavailable during the SC. This was attained through an investigation that included the collection and analysis of subsurface soil, groundwater, soil vapor, and indoor air samples from on-site areas not previously investigated.

The RSOI consisted of advancing 11 soil borings. Four of the 11 borings were located within the holder tanks and were advanced to the bottom of the tanks. The remaining seven borings were located outside the holder tanks and were advanced into the regional groundwater. A soil vapor intrusion (SVI) investigation was performed that included two soil vapor points in the lumber yard and two paired sub-slab soil vapor and indoor air samples in the warehouse. Ambient outdoor air samples were collected concurrently with the soil vapor points and sub-slab soil vapor/indoor air samples. Soil and groundwater samples were analyzed for TCL VOCs, TCL SVOCs, pesticides, herbicides, polychlorinated biphenyls, TAL metals, and cyanide. The soil vapor samples were analyzed for TO-15 VOCs.

The drilling provided additional information regarding the holders, which supported previous observations in the SC. The maximum depth drilled in Holder No. 4 was approximately 22 ft below the basement floor (16 ft msl). The materials encountered in the holder consisted of varying amounts of sand, gravel, brick, and concrete, which are interpreted as demolition debris. No water was encountered in Holder No. 4 and other than a slight petroleum odor at 15 to 17 ft below the basement floor in boring FS-SB-14, no impacts were observed in Holder No. 4. The absence of compounds detected at concentrations exceeding Part 375 soil criteria are consistent with the field observations.

Unlike Holder No. 4, impacted materials are present in the lower portion of Holder No. 5. The maximum depth drilled in Holder No. 5 was approximately 27 ft bgs (19 ft msl). The observed impacts included petroleum and naphthalene odors, elevated PID readings, and black staining. The analysis of soil samples from Holder No. 5 detected VOCs (benzene, ethylbenzene, toluene, xylenes), SVOCs (benzo(a)anthracene, benzo(b)fluoranthene, naphthalene), and metals (lead and mercury) at concentrations above Restricted Residential Use SCOs. Concentrations of benzene, ethylbenzene, toluene, lead, and mercury exceeded Commercial Use SCOs (**Figure 4**).

The analysis of groundwater samples from Holder No. 5 detected benzene, ethylbenzene, xylenes, iron, lead, magnesium, manganese, and sodium at concentrations exceeding GWQSs (**Figure 5**). Tetrachloroethene (PCE) and other chlorinated compounds were detected in a regional groundwater sample from one boring (FS-SB-17). PCE and chlorinated solvents are not considered to be associated with MGP sites.

Seven borings were completed outside of the holder tanks to characterize subsurface conditions across the Site. Fill was encountered in each boring with thicknesses ranging from approximately 7 to 15 ft, except at boring FS-SB-12 where 41 ft of fill was observed. No notable impacts were observed, except at FS-SB-12 where a maximum PID reading of 649.7 parts per million (ppm) and petroleum odors were present in the 50- to 60-ft bgs interval. No analytes were detected in soil samples collected from outside the holders at concentrations exceeding SCOs except for one detection of indeno(1,2,3-cd)pyrene detected in the 19- to 20-foot sample from boring FS-SB-19. In the sample, indeno(1,2,3-cd)pyrene was detected at a concentration of 0.51 mg/Kg, compared to the Restricted Residential Use SCO of 0.5 mg/Kg. The holders are not considered a source of petroleum odors and elevated PID readings.

PCE and other chlorinated compounds were detected in sub-slab soil vapor/indoor air samples (**Figure 6**). One of the two indoor air/sub-slab soil vapor samples had PCE detections at concentrations that warranted a "monitor" recommendation per New York State Department of Health (NYSDOH) SVI guidance. The detected methylene chloride concentrations in the FS-SV-03 indoor air/sub-slab soil vapor samples warranted an "identify sources and resample or mitigate" recommendation per NYSDOH guidance. PCE and chlorinated solvents are not considered to be associated with MGP sites. As such, AECOM concluded that the chlorinated impacts are from a non-MGP source, and are likely associated with the dry cleaner previously located at 191 York Street.

2.2 Description of Remedial Action

The ROD states that the remedy will include a site cover to allow for restricted residential use of the Site in areas where the upper 2 ft of exposed surface soil will exceed the applicable SCOs. The ROD also states that a RAWP will be developed for the final remedy for MGP contamination at the Site, including removal and/or treatment of any source areas to the extent feasible. The removal or treatment would be sufficient in scope to address the Site as a source of on-site and potentially of off-site groundwater contamination. The selected remedy for MGP contamination is removal of materials in Holder No. 5.

3.0 HAZARD ASSESSMENT

This section identifies the hazards associated with the proposed scope of work, general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against using engineering controls and/or personal protective equipment.

3.1 Physical Hazards

3.1.1 Tripping Hazards
Areas of risk associated with on-site activities can be presented by uneven ground, concrete, curbstones or equipment which may be present at the site thereby creating a potential tripping hazard. During intrusive work, care should be taken to mark or remove any obstacles within the exclusion zone.

3.1.2 Climbing Hazards
During site activities, workers may have to work on excavating equipment by climbing. The excavating contractor will conform to any applicable NIOSH and OSHA requirements or climbing activities.

3.1.3 Cuts and Lacerations
Field activities that involve excavating activities usually involve contact with various types of machinery. A first aid kit approved by the American Red Cross will be available during all intrusive activities.

3.1.4 Lifting Hazards
Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the excavation program may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.5 Utility Hazards
Before conducting any excavation, the excavation contractor will be responsible for locating and verifying all existing utilities at each excavation.

3.1.6 Traffic Hazards
All traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state and federal agency regulations regarding such traffic and in accordance with NYCDOT guidelines. The excavation contractor shall carry on his operations without undue interference or delays to traffic. The excavation contractor shall furnish all labor, materials, guards, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public, during operations.

3.2 Work in Extreme Temperatures

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress.

3.2.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress.

The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention
   a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.
   b. Work in Pairs. Individuals should avoid undertaking any activity alone.
   c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
   d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment
   a. Heat Rash (or prickly heat):
      Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.
      Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.
      Treatment: Remove source of irritation and cool skin with water or wet cloths.

   b. Heat Cramps (or heat prostration)
      Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.
      Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.
      Treatment: Perform the following while making arrangement for transport to a medical facility. Remove the worker to a contamination reduction zone. Remove protective clothing. Lie worker down on back in a cool place and raise feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport to a medical facility.

   c. Heat Stroke
      Cause: Same as heat exhaustion. This is also an extremely serious condition.
      Symptoms: Dry hot skin, dry mouth, dizziness, nausea, headache, rapid pulse.
      Treatment: Cool worker immediately by immersing or spraying with cool water or sponge bare skin after removing protective clothing.

3.2.2 Cold Exposure

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive loss of body heat (hypothermia) and /or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of frost bite and hypothermia such as shivering, reduced blood pressure, reduced coordination, drowsiness, impaired judgment, fatigue, pupils dilated but reactive to light and numbing of the toes and fingers.

3.3 Chemical Hazards

The primary routes of exposure to identified contaminants in groundwater to on-site investigation and remediation workers are through inhalation, ingestion and absorption.

3.3.1 Respirable Dust

Dust may be generated from vehicular traffic and/or excavation activities. If visible observation detects elevated levels of dust, a program of wetting will be employed by the site safety officer. If elevated dust levels persist, the site safety office will employ dust monitoring using a particulate monitor (Miniram or equivalent). If monitoring detects concentrations greater than 150 $\mu g/m^3$ over daily background, the site safety officer will take corrective actions as defined herein, including the use of water for dust suppression and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

Absorption pathways for dust and direct contact with soils or groundwater will be mitigated with the implementation of latex gloves, hand washing and decontamination exercises when necessary.

3.3.2 Dust Control and Monitoring During Earthwork

Dust generated during excavation activities or other earthwork may contain contaminants identified in soils at the site. Dust will be controlled by wetting the working surface with water. Calcium chloride may be used if the problem cannot be controlled with water. Air monitoring and dust control techniques are specified in a site specific Dust Control Plan (if applicable). Site workers will not be required to wear APR's unless dust concentrations are consistently greater than 150 $\mu g/m^3$ over site-specific background in the breathing zone as measured by a dust monitor unless the site safety officer directs workers to wear APRs. The site safety officer will use visible dust as an indicator to implement the dust control plan.

3.3.3 Organic Vapors

Elevated levels of VOCs were detected in both soil and groundwater samples collected during previous investigations at the site. Therefore, excavation activities may cause the release of organic vapors to the atmosphere. The site safety officer will periodically monitor organic vapors with a Photoionization Detector (PID) during excavation activities to determine whether organic vapor concentrations exceed action levels shown in Section 5 and / or the Community Air Monitoring Plan.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be NIOSH approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D through B is the addition of the type of respiratory protection. **It is anticipated that work will be performed in Level D PPE.**

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work clothes, coveralls, or tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

Level C PPE shall be donned when sustained concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), by more than 5 ppm. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves (surgical gloves);
- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

The exact PPE ensemble is decided on a site-by-site basis by the Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 4.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection, engineering controls (i.e. Facing equipment away from the wind and placing site personnel upwind of excavations, active venting, etc.) will be implemented before requiring the use of respiratory protection.

5.0 AIR MONITORING AND ACTION LEVELS

29 CFR 1910.120(h) specifies that monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

5.1 Air Monitoring Requirements

If excavation work is performed, air will be monitored for VOCs with a portable photoionization detector, or the equivalent. If necessary, Lower Explosive Limit (LEL) and oxygen will be monitored with a Combustible Gas Indicator (CGI). If appropriate, fugitive dust will be monitored using a MiniRam Model PDM-3 aerosol monitor. Air will be monitored when any of the following conditions apply:

- initial site entry;
- during any work where a potential IDLH condition or flammable atmosphere could develop;
- excavation work begins on another portion of the site;
- contaminants, other than those previously identified, have been discovered;
- each time a different task or activity is initiated;
- during trenching and/or excavation work.

The designated site safety officer will record air monitoring data and ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. Instruments will be zeroed daily and checked for accuracy. Monitoring results will be recorded in a field notebook and will be transferred to instrument reading logs.

5.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage are exceeded:

a. The SSO will be consulted immediately
b. All personnel (except as necessary for continued monitoring and contaminant migration, if applicable) will be cleared from the work area (eg from the exclusion zone).
c. Monitoring will be continued until intrusive work resumes.

5.3 Action Levels During Excavation Activities

Instrument readings will be taken in the breathing zone above the excavation pit unless otherwise noted. Each action level is independent of all other action levels in determining responses.

Organic Vapors (PID)	LEL %	Responses
0-1 ppm above background	0%	Continue excavating Level D protection Continue monitoring every 10 minutes
1-5 ppm above background, sustained reading	1-10%	Continue excavating Go to Level C protection or employ engineering controls
5-25 ppm above background, sustained reading	10-20%	Continue monitoring every 10 minute Discontinue excavating, unless PID is only action level exceeded. Level C protection or employ engineering controls Continue monitoring for organic vapors 200 ft downwind Continuous monitoring for LEL at excavation pit

Notes:
Air monitoring will occur in the breathing zone 30 inches above the excavation pit. Readings may also be taken in the excavation pit but will not be used for action levels.

If action levels for any one of the monitoring parameters are exceeded, the appropriate responses listed in the right hand column should be taken. If instrument readings do not return to acceptable levels after the excavation pit has been vented for a period of greater than one-half hour, a decision will then be made whether or not to seal the pit with suppressant foam.

If, during excavation activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one-half hour, excavation will stop until sustained levels are less than 5 ppm.

6.0 SITE CONTROL

6.1 Work Zones

The extent of the work area for this work plan will be around the sub-slab sample, which is not expected to migrate contaminants into clean areas or lead to exposure of hazardous materials.

7.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

7.1 Emergency Equipment On-site

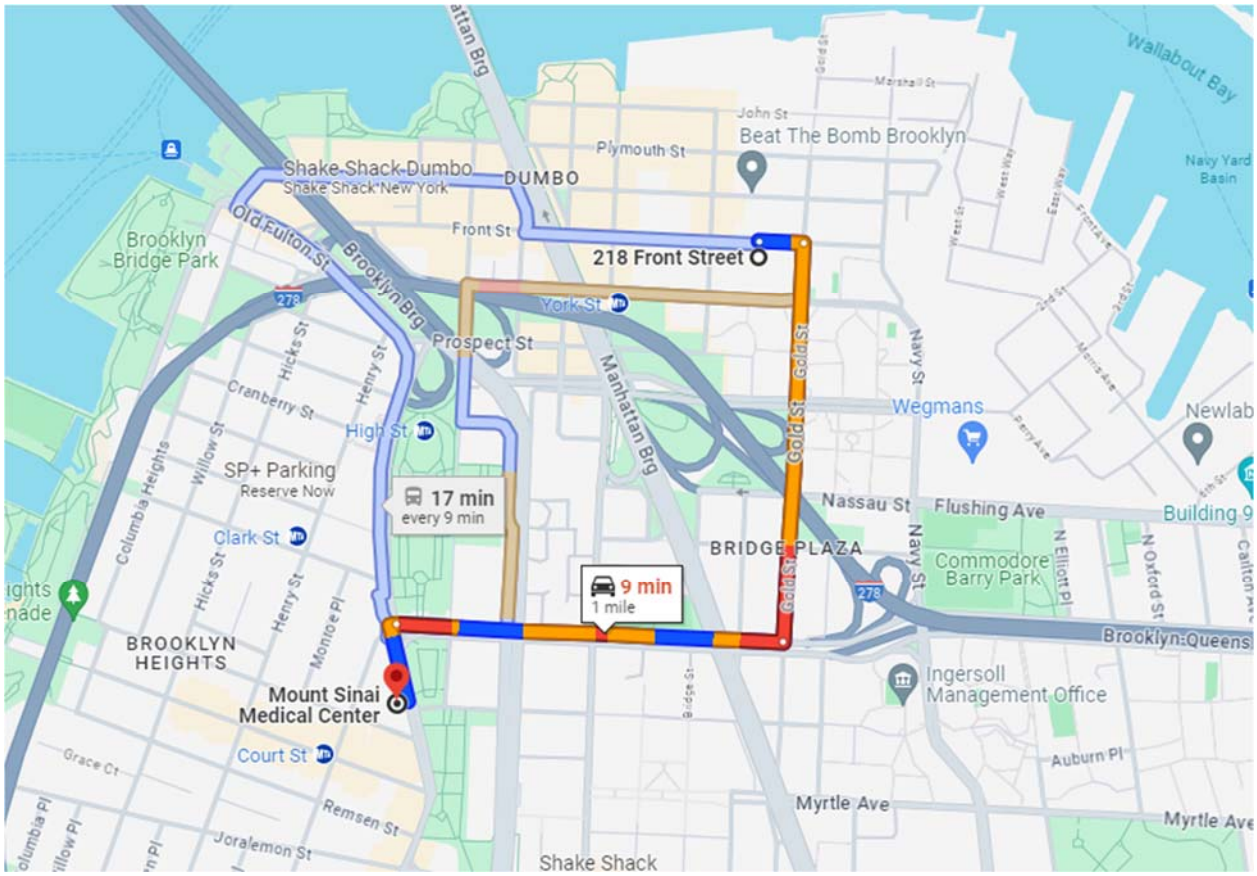
Private telephones:	Site personnel.
Two-way radios:	Site personnel where necessary.
Emergency Alarms:	On-site vehicle horns*.
First aid kits:	On-site, in vehicles or office.
Fire extinguisher:	On-site, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

7.2 Emergency Telephone Numbers

General Emergencies	911
NYC Police Department	911
New York City Police Department – 84th Precinct 301 Gold Street Brooklyn, NY 11201	(718) 875-6811
NYC Fire Department	911
NYSDEC Spills Hotline	1-800-457-7362
NYSDEC Regional Materials Management Engineer	(718) 482-4896
NYC Department of Health	(212) 676-2400
National Response Center	1-800-424-8802
Poison Control	1-800-222-1222
Project Manager Joe Panico	(732) 379-4990

Nearest Hospital in case of Emergency
Mount Sinai Medical Center
300 Cadman Plz. W.
Brooklyn, NY 11201
(929) 210-6000



7.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, evacuate and secure the site, or upgrade/downgrade the level of protective clothing and respiratory protection;

- Ensure that appropriate federal, state, and local agencies are informed and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;

- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;

- Determine the cause of incidents and make recommendations to prevent recurrence; and

- Ensure that all required reports have been prepared. The following key personnel are planned for this project:

Name	Title	Contact Numbers
Ariel Czemerinski	Project Manager & Site Safety Officer	718-545-0474

7.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (identified in 7.2) and information on the chemical(s) to which they may have been exposed (gasoline).

7.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- use firefighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

7.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.
- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

7.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

7.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped.

If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

- contact the local police;
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are below 5 ppm (non-methane), off-site air monitoring will be halted.

All property line and off site air monitoring locations and results associated with vapor releases will be recorded in the site safety log book

Attachment A: SITE SAFETY ACKNOWLEDGEMENT FORM

BRIEFING SIGN-IN SHEET

Date: Person Conducting Briefing:

Project Name and Location:_____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc...):

2. OTHER ISSUES (HASP changes, attendee comments, etc...):

3. ATTENDEES (Print Name):

1.	11.
2.	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8 9.	18. 19.
10.	20.

Attachment B: SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #

Site Name:

Reason for Amendment

Alternative Procedures

Required Changes in PPE

Project Superintendent (signature) **Date**

Health and Safety Consultant (signature) **Date**

Site Safety Officer (signature) **Date**

Attachment 2
Quality Assurance Project Plan

Quality Assurance Project Plan (QAPP)

218 Front Street
Brooklyn, NY 11201

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by:

AMC Engineering, PLLC
18-36 42nd Street
Astoria, NY 11105

Site no: C224063

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Table of Contents

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by the work plan.

To ensure the successful completion of the project, each individual responsible for a given component of the project must be aware of the quality assurance objectives of his/her particular work and of the overall project. The Project Manager, Ariel Czemerinski will be directly responsible to the client for overall project conduct and quality assurance/quality control (QA/QC) for the project. The Project Manager will be responsible for overseeing all technical and administrative aspects of the project and for directing QA/QC activities and coordinate with field sampling crews and subcontractors. Anjeza Harrington will serve as the Quality Assurance Officer (QAO) and in this role may conduct:

- Field and sampling audits;
- Interface with the analytical laboratory to resolve problems; and
- Interface with the data validator and/or preparer of the DUSR to resolve problems.

Reporting directly to the Project Manager will be the Field Operations Officer, Anjeza Harrington, who will serve as the on-Site qualified environmental professional who will record observations, monitor excavation activities and be responsible for the collection and handling of all samples.

1.1 Organization

Project QA will be maintained under the direction of the Project Manager, in accordance with this QAPP. QC for specific tasks will be the responsibility of the individuals and organizations and organizations listed below, under the direction and coordinated of the Project Manager.

GENERAL RESPONSIBILITIES	SCOPE OF WORK	RESPONSIBILITY OF QUALITY CONTROL
Field Operations	Monitoring of Remedial Activities, sample collection and handling	A. Harrington, AMC Engineering
Project Manager	Implementation of the Remedial Action according to the RAWP	Ariel Czemerinski, AMC Engineering
Laboratory Analysis	Analysis of air samples by NYSDEC ASP methods Laboratory	NYSDEC-approved
Data Review	Review for completeness and compliance	3rd party validation

2.0 QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

2.1 Overview

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative Statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan.

In this plan, Quality Assurance and Quality Control are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.
- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

2.2 QA/QC Requirements for Analytical Laboratory

Samples will be analyzed by a New York State Department of Health (NYSDOH) certified laboratory. Data generated from the laboratory will be used to evaluate chlorinated and other volatile organic compounds (VOCs) in soil and effluent air from a sub-slab depressurization system. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. The data generated by the analytical laboratory for this project are required to be sensitive enough to achieve detection levels low enough to meet required quantification limits as specified in NYSDEC Analytical Services Protocol (NYSDEC ASP, 07/2005). The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this remedial program as described in the work plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

2.2.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of calibration curves and initial calibration response factors must be consistent with method requirements presented in the most recent version of (NYSDEC ASP 07/2005).

2.2.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hrs by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

2.2.3 Method Blanks

Method blank or preparation blank is prepared from an analyte free matrix which includes the same reagents, internal standards and surrogate standards as the related samples. It is carried through the entire sample preparation and analytical procedure. A method blank analysis will be performed once for each 12 hr period during the analysis of samples for volatiles. An acceptable method blank will contain less than two (2) times the CRQL of methylene chloride, acetone and 2-butanone. For all other target compounds, the method blank must contain less than or equal to the CRQL of any single target compound. For non-target peaks in the method blank, the peak area must be less than 10 percent of the nearest internal standard. The method blank will be used to demonstrate the level of laboratory background and reagent contamination that might result from the analytical process itself.

2.2.4 Trip Blanks

Trip blanks consist of a single set of sample containers filled at the laboratory with deionized. laboratory-grade water. The water used will be from the same source as that used for the laboratory method blank. The containers will be carried into the field and handled and transported in the same way as the samples collected that day. Analysis of the trip blank for VOCs is used to identify contamination from the air, shipping containers, or from other items coming in contact with the sample bottles. (The bottles holding the trip blanks will be not opened during this procedure.) A complete set of trip blanks will be provided with each shipment of samples to the certified laboratory.

2.2.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NY5DEC ASP protocols for samples falling within the quantification limits without dilution.

2.2.6 Matrix Spike / Matrix Spike Duplicate / Matrix Spike Blank (MS/MSDIMSB) Analysis

MS, MSD and MSB analyses will be performed to evaluate the matrix effect of the sample upon the analytical methodology along with the precision of the instrument by measuring recoveries. The MS / MSD / MSB samples will be analyzed for each group of samples of a similar matrix at a rate of 5% (one for every 20 field samples). The RPD will be calculated from the difference between the MS and MSD. Matrix spike blank analysis will be performed to indicate the appropriateness of the spiking solution(s) used for the MS/MSD.

2.2.7 Sampling Procedures Soil Vapor

The sampling event will include the following:

- Co-located sub-slab vapor and indoor air samples in the Screening Room,
- Co-located sub-slab vapor and indoor air samples in the corridor between the southern elevator and sump pump,
- One indoor air sample from the Sauna Spa Room
- One outdoor air sample,

- Collect one duplicate sample for QA/QC requirements,
- Complete the New York State Department of Health Indoor Air Quality Questionnaire.

See **Figure 1** and **Figure 2** for the proposed locations of the sub-slab, indoor air, and outdoor air sampling locations. The working copy of the New York State Department of Health Indoor Air Quality Questionnaire and Building Inventory is provided in **Attachment 3**.

Air sampling will be performed over an 8-hour period to average the exposure condition. Air samples will be collected in accordance with NYSDOH protocols as presented in the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)*.

Indoor air samples will be collected in the breathing zone at a height of 5 feet above the floor. Sub-slab samples will be collected by drilling a ½ inch hole with a handheld drill through the building slab, and then inserting a ¼ inch polyethylene tube to no more than 2 inches below the base of the slab. The tubing will be sealed at the surface with hydrated granular bentonite and a 4" x 4" (approx.) plastic sheet.

Prior to sample collection, the sub-slab sampling points will be purged of three sampler volumes using a handheld vacuum pump. The integrity of the seal will be tested using helium as a tracer gas. Seal testing will be completed by placing a plastic 5-gallon pail over the sampling point and running the sampling tube through a small opening in the pail to the exterior. Helium gas will then be introduced through a second small opening in the pail to saturate the atmosphere around the sample port with helium gas. The integrity of the surface seal will be confirmed prior to collecting the sample by connecting a portable helium detector to the sample tube for a period of 5 minutes. If helium is detected at high concentrations (>10%) then the seal will be deemed inadequate and resealed and tested again until acceptable levels of helium are achieved.

All air samples will be collected with 6-liter Summa canisters equipped with flow controllers calibrated at an appropriate flow rate by the laboratory. The Summa canister identification number, flow regulator identification number and sample ID will be recorded in a bound field notebook. The sample ID will be recorded on the sample tag attached to each canister. Sampling will then be initiated by fully opening the flow control valve on each canister in turn. Immediately after opening the flow control valve on a canister, the initial vacuum (inches of mercury) and start time will be recorded in the field book and on the sample tag. When the vacuum level in the canister is between 5 and 8 inches of mercury, the flow controller valve will be closed, and the final vacuum and time will be recorded in the field notebook and on the sample tag.

2.3 Accuracy

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value.

Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%\ REC = \frac{SSR - SR}{SA}\ x\ 100$$

Where,
SSR = spike sample results
SR = sample results
SA = spike added from spiking mix

2.4 Precision

Precision is defined as the measurement of agreement of a set of replicate results among themselves without a Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analyses. Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formula:

$$RPD = \frac{D^1 - D^2}{(D^1 + D^2)/2}\ x\ 100$$

Where:
RPD = relative percent difference
D^1 = first sample value
D^2 = second sample value (duplicate)

2.5 Sensitivity

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by NYSDEC ASP and to meet all site-specific standards, criteria and guidance values (SGCs) established for this project.

2.6 Representativeness

Representativeness is a measure of the relationship of an individual sample taken from a particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Interim Remedial Measure Work Plan.

2.7 Completeness

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers and should be between 70 and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory's ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).
6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

2.8 Laboratory Custody Procedures

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. Approximate sampling locations will be marked on a map with a description of the sample location. The number, type of sample, and sample identification will be entered into the field logbook. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

3.0 ANALYTICAL PROCEDURES

3.1 Laboratory Analysis

Samples will be analyzed by the NYSDOH ELAP laboratory for the following parameter: VOCs in air by USEPA Method TO15. If any modifications or additions to the standard procedures are anticipated, and if any nonstandard sample preparation or analytical protocol is to be used, the modifications and the nonstandard protocol will be explicitly defined and documented. Prior approval by AMC Engineering's PM will be necessary for any nonstandard analytical or sample preparation protocol used by the laboratory, i.e., dilution of samples or extracts by greater than a factor of five (5).

4.0 DATA REDUCTION, REVIEW, AND REPORTING

4.1 Overview

The process of data reduction, review, and reporting ensures the assessments or a conclusion based on the final data accurately reflects actual site conditions. This plan presents the specific procedures, methods, and format that will be employed for data reduction, review and reporting of each measurement parameter determined in the laboratory and field. Also described in this section is the process by which all data, reports, and work plans are proofed and checked for technical and numerical errors prior to final submission.

4.2 Data Reduction

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review.

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Analytical results shall be presented on standard NYSDEC ASP-B forms or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Note that when waste characterization samples are analyzed they will be in results only format and will not be evaluated in the DUSR.

Laboratory QA/QC information required by the method protocols will be compiled, including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data. Specifics on internal laboratory data reduction protocols are identified in the laboratory's SOPs.

Following receipt of the laboratory analytical results by AMC Engineering, the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability.

4.3 Laboratory Data Reporting

All sample data packages submitted by the analytical laboratory will be required to be reported in conformance to the NYSDEC ASP (7/2005), Category B data deliverable requirements as applicable to the method utilized. All results will be provided in accordance with the NYSDEC

Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Note that waste characterization samples if analyzed will be in results only format and will not be evaluated in the DUSR.

5.0 CORRECTIVE ACTION

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the AMC Engineering PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the field investigation, all changes to the sampling program will be documented in field logs/sheets and the AMC Engineering PM advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

Attachment 3

NYSDOH Indoor Air Quality 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 Heat pump Hot water baseboard Space Heaters Stream radiation Radiant floor Electric baseboard Wood stove Outdoor wood boiler Other _____

The primary type of fuel used is:

Natural Gas Fuel Oil Kerosene Electric Propane Solar Wood Coal

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 _____ 1st Floor

_____ 2nd Floor

_____ 3rd Floor

_____ 4th 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 Y / N / NA **stored in the garage** (e.g., lawnmower, atv, car) 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) No Yes, use dry-cleaning infrequently (monthly or less) Unknown Yes, work at a dry-cleaning service

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

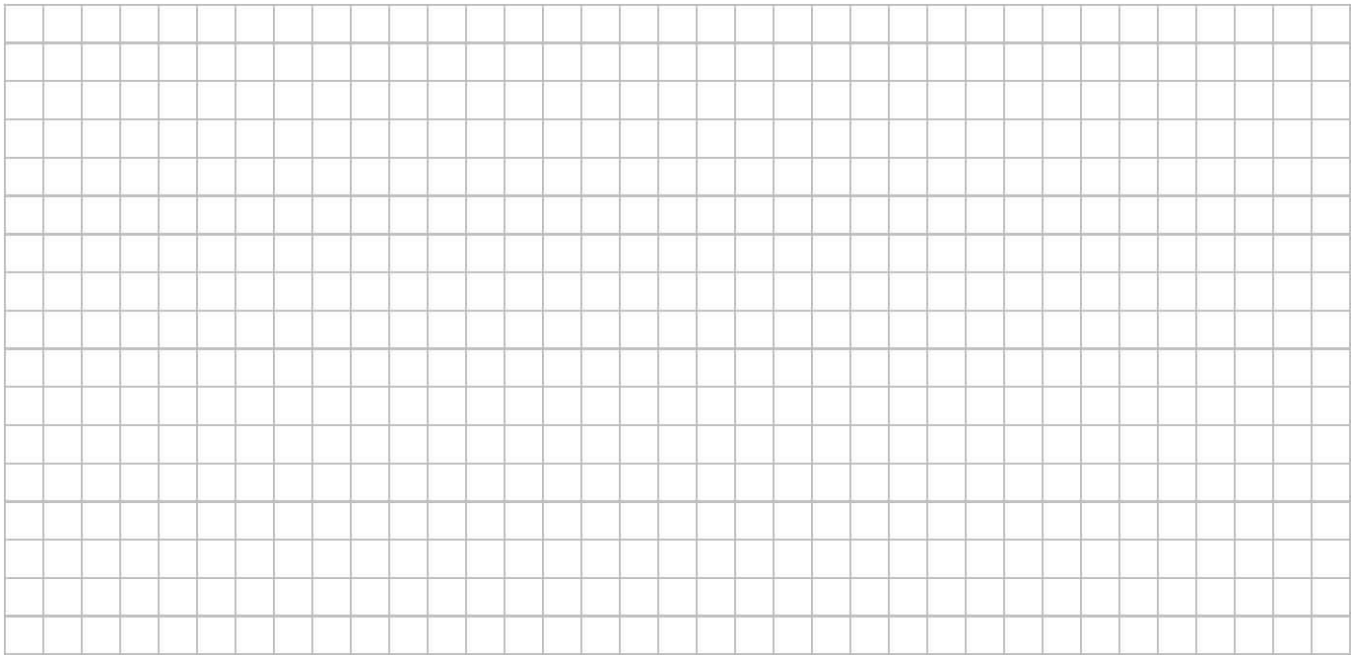
c. Responsibility for costs associated with reimbursement explained? Y / N

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

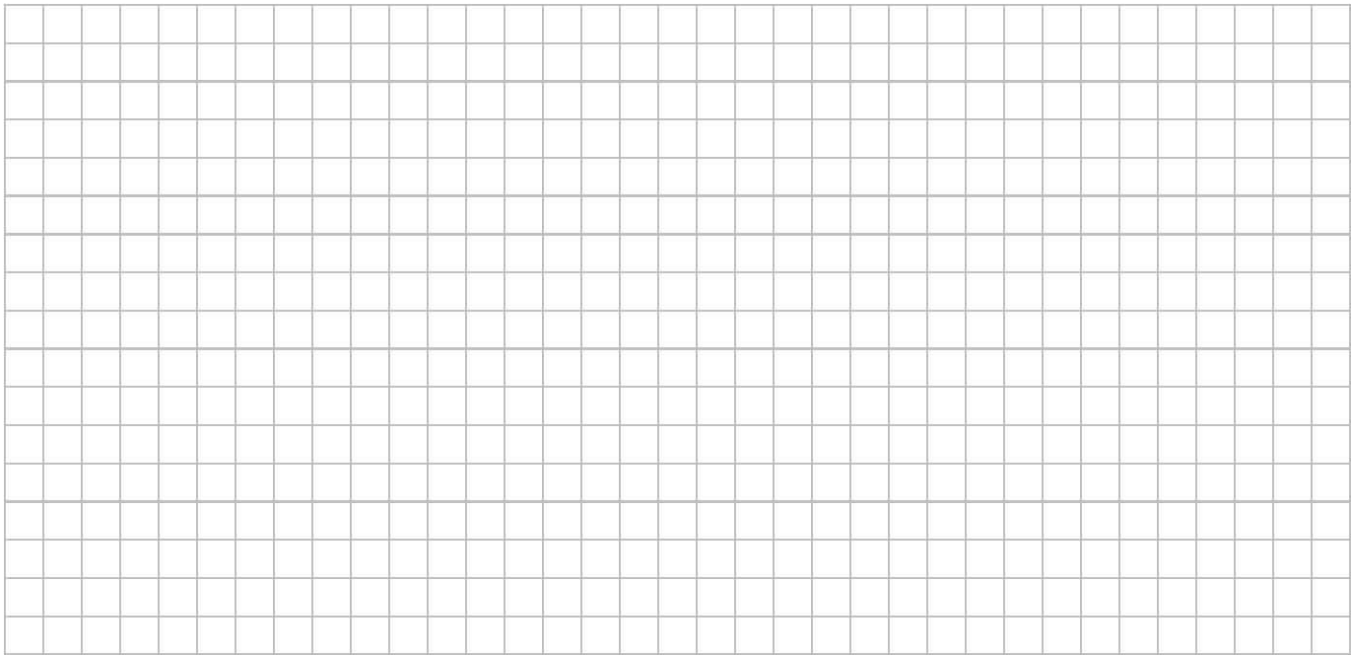
11. FLOOR PLANS

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:

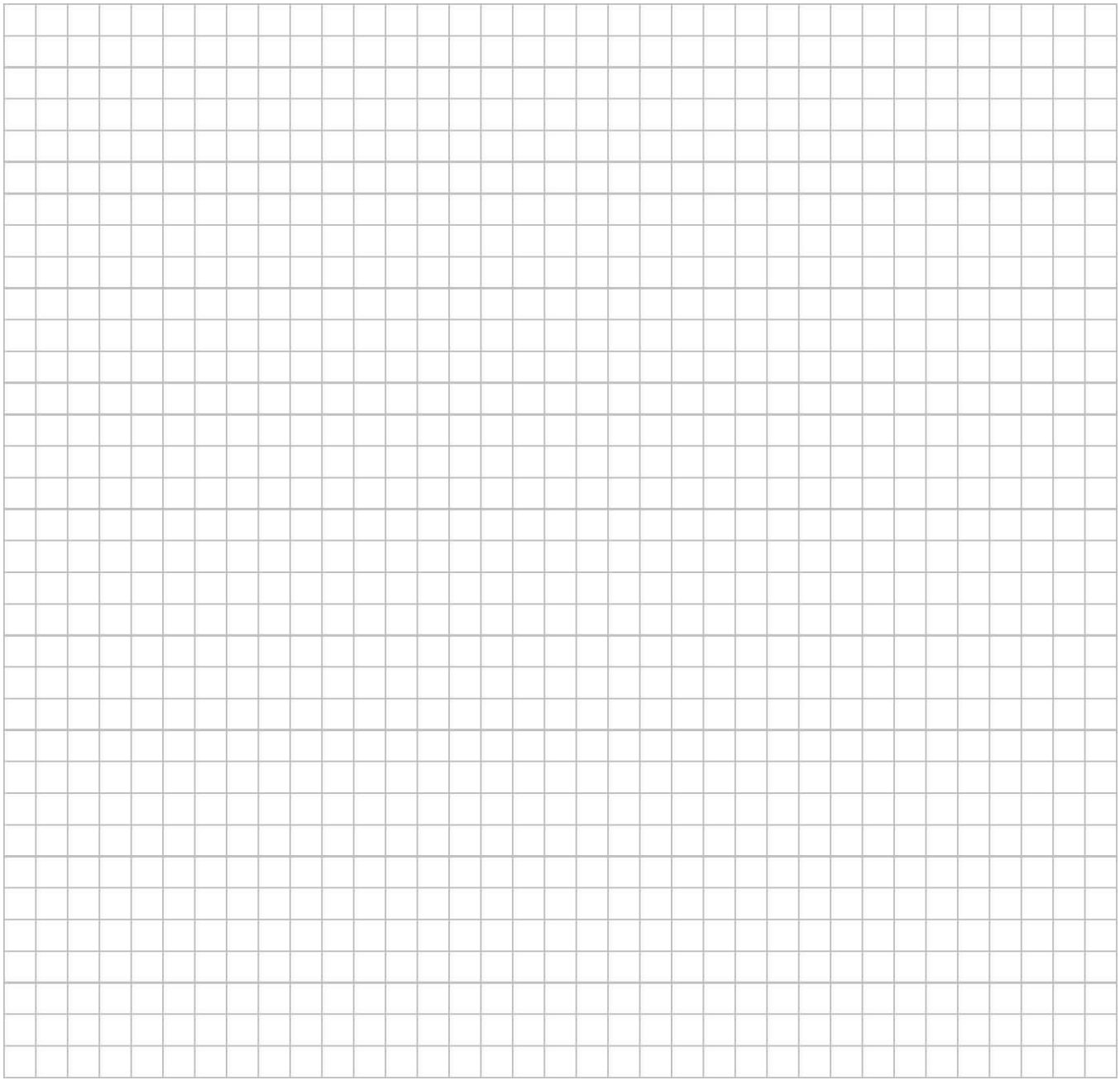


First Floor: 12. OUTDOOR PLOT



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 ** Y / N

* 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.