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REMEDIAL ACTION WORK PLAN

FORMER BP GASOLINE SERVICE STATION SITE
KINGS COUNTY
860 FLUSHING AVENUE
BROOKLYN, NEW YORK 11206
NYSDEC BCP NUMBER: C224424

Prepared by
H & A of New York Engineering and Geology, LLP
New York, New York

Prepared for
Flushing Holdings NY LLC
Brooklyn, New York

File No. 0211437
May 2026

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PREPARED FOR

FLUSHING HOLDINGS NY LLC
BROOKLYN, NEW YORK

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Certification

I, Zhan Shu, certify that I am currently a New York State-registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

NYS Professional Engineer 112052	May 11, 2026 *Date*	Zhan Shu *Signature*

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H	Quality Assurance Project Plan
I	Proposed Remedial Action Project Schedule
J	NYSDOH Generic and Special Requirements Community Air Monitoring Program
K	Odor Control Suppressant Safety Data Sheet

List of Acronyms and Abbreviations

Acronym	Definition
#	
2025 RI	Remedial Investigation performed by H & A of New York Engineering and Geology, LLP in July and August 2025
2025 SRI	Supplemental Remedial Investigation performed by H & A of New York Engineering and Geology, LLP in November and December 2025
Symbol	
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
A	
AOC	Area of Concern
ALS/York	Australian Laboratory Services/York Analytical Laboratories, Inc.
ASP	Analytical Services Protocol
AWQS	Ambient Water Quality Standards
B	
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below grade surface
BTEX	benzene, toluene, ethylbenzene, xylenes
btoc	below top of casing
C	
C&D	construction and demolition
CAMP	Community Air Monitoring Plan
cf	cubic foot/cubic feet
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	contaminant of concern
CPP	Citizen Participation Plan
CP-51	Commissioners Policy-51 *(specifically "October 2010 NYSDEC Commissioners Policy 51")*
CQAP	Construction Quality Assurance Plan
CSM	Conceptual Site Model
cu yd	cubic yard
CVOC	chlorinated volatile organic compound

List of Acronyms and Abbreviations (continued)

Acronym	Definition
D	
DER	Division of Environmental Remediation
DER-10	Division of Environmental Remediation-10 *(specifically "May 2010 NYSDEC Technical Guidance for Site Investigation and Remediation")*
DMM	Division of Materials Management
DUSR	Data Usability Summary Report
DustTrak	TSI DustTrak® Environmental Monitor
E	
EC	Engineering Control
ECL	Environmental Conservation Law
EDD	Electronic Data Deliverable
EE	Environmental Easement
El.	elevation
ELAP	Environmental Laboratory Accreditation Program
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
F	
FER	Final Engineering Report
Flushing Holdings	Flushing Holdings NY LLC
ft	foot/feet
FWRIA	Fish and Wildlife Resource Impact Analysis
G	
GAC	granular activated carbon
GV	Guidance Value
H	
Haley & Aldrich of New York	H & A of New York Engineering and Geology, LLP
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HREC	Historical Recognized Environmental Condition
HVAC	heating, ventilation, and air conditioning
I	
IC	Institutional Control
K	
Kleinfelder	Kleinfelder East, Inc.

List of Acronyms and Abbreviations (continued)

Acronym	Definition
L	
LSDF	low-sulfur diesel fuel
M	
Merritt	Merritt Environmental Consulting Corp.
mg/kg	milligrams per kilogram
MP	monitoring point
MTBE	methyl tertiary-butyl ether
MW	monitoring well
N	
NAVD	North American Vertical Datum
ng/L	nanograms per liter
NTU	nephelometric turbidity unit
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCOER	New York City Office of Environmental Remediation
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
O	
OSHA	Occupational Health and Safety Administration
P	
PAH	polycyclic aromatic hydrocarbon
PBS	Petroleum Bulk Storage
PCB	polychlorinated biphenyl
PCE	perchloroethylene/tetrachloroethene
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PGWSCO	Protection of Groundwater Soil Cleanup Objective
PID	photoionization detector
PM-10	particles with diameters generally less than 10 micrometers and smaller
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
ppt	parts per trillion
PVC	polyvinyl chloride

List of Acronyms and Abbreviations (continued)

Acronym	Definition
Q	
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
R	
RA	Remedial Action
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	recycled concrete aggregate
RCRA	Resource Conservation and Recovery Act
RE	Remedial Engineer
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
ROI	radius of influence
RRSCO	Restricted Residential Soil Cleanup Objective
S	
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SDS	Safety Data Sheet
SEFA	Spreadsheets for Environmental Footprint Analysis
Site	860 Flushing Avenue, Brooklyn, New York
S/MMP	Soil/Materials Management Plan
SMP	Site Management Plan
SOE	support of excavation
SPDES	State Pollutant Discharge Elimination System
sq ft	square feet
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVI	soil vapor intrusion
SVOC	semi-volatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
T	
TAL	Total Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOGS	Technical and Operational Guidance Series

List of Acronyms and Abbreviations (continued)

Acronym	Definition
U	
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
UUSCO	Unrestricted Use Soil Cleanup Objective
V	
VEP	vapor extraction point
VOC	volatile organic compound
Volunteer	Flushing Holdings NY LLC

Executive Summary

This Remedial Action Work Plan (RAWP) was developed by H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) on behalf of Flushing Holdings NY LLC (Flushing Holdings; the "Volunteer") for the proposed development of the property located at 860 Flushing Avenue, Brooklyn, New York (the "Site"). Flushing Holdings applied to and was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) as a Volunteer. A Brownfield Cleanup Agreement (BCA) was executed by the NYSDEC on June 20, 2025, with Flushing Holdings (BCP Site No. C224424).

This RAWP summarizes the nature and extent of contamination on the Site as determined from data gathered during the August 2022 Phase I Environmental Site Assessment (ESA), the August 2022 Limited Phase II Environmental Site Investigation (ESI), the July and August 2025 Remedial Investigation (RI), and the November and December 2025 Supplemental Remedial Investigation (SRI), all completed and performed by Haley & Aldrich of New York.

This RAWP provides an evaluation of a Track 1 cleanup and other applicable Remedial Action (RA) alternatives, their associated costs, and the recommended and preferred remedy. The remedies described in this document are consistent with the procedures defined in the NYSDEC Division of Environmental Remediation (DER) Program Policy: Technical Guidance for Site Investigation and Remediation (DER-10) and comply with applicable federal, state, and local laws, regulations, and requirements.

Site Description/Physical Setting/Site History

The Site is identified as Block 3138, Lot 32 on the New York City tax map. The Site, currently vacant, is approximately 10,600 square feet (sq ft) (0.24 acres) in size and was formerly operating as a gasoline filling station. The Site is located in an urban area surrounded by commercial and residential properties served by municipal water. The Site is bounded to the north by Flushing Avenue and a multi-story residential building that is part of the Bushwick Houses apartment complex; to the east by a one-story restaurant and two four-story residential buildings with ground-floor commercial use; to the south by a six-story residential building with ground-floor commercial use; and to the west by a two-story deli.

The Site is located within an R6A residential zoning district with a C2-4 overlay, characterized by low-rise commercial and residential buildings and multi-family high-rise buildings. The Volunteer plans to redevelop the Site for residential purposes, which is consistent with current zoning.

A Site location map is provided as Figure 1, and a Site plan showing the property boundaries and adjacent properties is provided as Figure 2.

There are five sensitive receptors within a 500-foot (ft) radius of the Site listed below:

1. P.S. 120 Carlos Tapia – 18 Beaver Street, Brooklyn, New York 11206, listed as a public K-12 school.
2. Garden Playground – 40 Beaver Street, Brooklyn, New York 11206, listed as a playground.

3. Rheingold Development – 501 Bushwick Avenue, Brooklyn, New York 11206, listed as a park and plaza.
4. Riseboro Community Partnership Inc. – 9 Noll Street, Brooklyn, New York 11206, listed as a senior center.
5. Bushwick Playground and Pool – 817 Flushing Avenue, Brooklyn, New York 11206, listed as a park and plaza.

Available historical records identify that the Site was first developed as early as 1887 with multiple dwellings and storefronts. By 1934, the subject property was occupied by commercial businesses, including a chair manufacturer with paint spraying, an upholsterer, a dentist, a scrap iron business, a plumbing supply business, and a shoe store. From 1946 to the present, the subject property has operated as a gasoline filling station, including auto service until at least 1979. Historical operations have included a laundry, lubritorium, repair shop, auto inspection, auto washing and sales, and parking and storage of more than five cars. Since 1979, the property has remained relatively unchanged except for the addition of a pump island canopy around 2001.

Based on the findings of the Phase I ESA completed by Haley & Aldrich of New York in August 2024, two Recognized Environmental Conditions (RECs) were identified in connection with the Site, including 1) NYSDEC Spill Number 0701041 and 2) the previous and current property uses and conditions. In addition, one Historic Recognized Environmental Condition (HREC) was identified, including closed NYSDEC Spill Number 0607879. Lastly, the potential for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) impacts to the subsurface was identified as a *de minimis* condition.

Summary of the Remedial and Supplemental Remedial Investigations

The 2025 RI was completed in accordance with Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375, DER-10, the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006 and subsequent updates), and the July 2025 Remedial Investigation Work Plan (RIWP), prepared by Haley & Aldrich of New York. The objective of the 2025 RI was to determine the nature and extent of contamination in soil, groundwater, and soil vapor. The 2025 RI was performed from July 21 through August 6, 2025, and the SRI was performed from November 21 through December 4, 2025. Air monitoring was conducted during ground-intrusive activities. The draft Remedial Investigation Report (RIR) was submitted to NYSDEC in August 2025 with a revised RIR submitted in December 2025.

The 2025 RI and SRI consisted of the following:

1. Advancement of 19 soil borings to a maximum depth of 35 ft below grade surface (bgs). Three to four samples were collected at each boring, including from surface grade (or immediately below the concrete cover) at specific intervals, including 0 to 2 ft, the fill material between 6 to 8 ft, the development depth of approximately 14 to 16 ft, and the 2-ft interval above the groundwater interface at 25 to 27 ft. In addition, samples were collected at 20 and 25 ft in SB-15, 23 to 25 ft in SB-17, and 17 to 19 ft in SB-19. A total of 63 soil samples were collected (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.

2. Installation of six permanent groundwater monitoring wells to a maximum depth of 35 ft bgs, each screened across the groundwater interface. Eleven groundwater sample were collected from the wells (plus QA/QC samples) for laboratory analysis.
3. Installation of five soil vapor probes to a depth of approximately 24 ft bgs, targeting the 2-ft interval above the groundwater interface. Five soil vapor samples were collected for laboratory analysis.
4. Collection of grab sediment samples from three drywells and a grab water sample from one drywell. A total of three sediment samples and one water sample were collected from the drywells on Site.

The ground-level elevation on the Site is approximately 34 ft above mean sea level (amsl). The topography of the Site is relatively flat, and the surrounding area slopes downward towards the northwest. The Site is underlain by a layer of urban fill consisting of brown to dark brown to light gray fine to medium sand with varying amounts of silt, fine gravel, brick, glass, concrete, and wood observed from surface grade to approximately 10 to 17 ft bgs. The urban fill layer was underlain by a potential native layer consisting of brown to light brown fine to medium sand with varying amounts of clay, silt, fine gravel, and cobbles. Groundwater was encountered between 26.31 to 28.2 ft below top of casing (btoc) with groundwater flow generally to the west during the RI and between 26.59 to 28.75 with groundwater flow generally to the west during the SRI.

According to the U.S. Geological Survey (USGS) Bedrock and Engineering Geologic Maps of Brooklyn County, New York (1992), the uppermost geologic formation underlying the soils at the Site is the Hartland Formation. Bedrock was not encountered during the 2025 RI; however, depth to bedrock in this region of Brooklyn is estimated to be about 150 to 200 ft bgs.

A summary of the Areas of Concern (AOCs) identified from the 2025 RI and SRI findings is provided below:

- AOC 1 – Site-Wide Contaminated Fill in Subsurface Soils: Subsurface soils throughout the Site are impacted with elevated concentrations of metals (including arsenic, barium, copper, lead, manganese, mercury, nickel, and zinc), semi-volatile organic compounds (SVOCs; specifically polycyclic aromatic hydrocarbon [PAHs]), and, in some areas, pesticides and per- and polyfluoroalkyl substances (PFAS). These findings are consistent with characteristics of contaminated fill found throughout the New York City area. Contaminated fill material varies in depth throughout the Site, generally extending from surface grade down to about 17 ft bgs. Seven PAHs, four metals, and one pesticide that were identified as contaminants of concern (COCs) in shallow soils are present in deeper soil directly above the water table (25 to 27 ft bgs) at concentrations above the Unrestricted Use Soil Cleanup Objectives (UUSCOs), with five PAHs and one metal also exceeding Restricted Residential Soil Cleanup Objectives (RRSCOs). PFAS impacts to soil were identified across the Site but primarily in shallow soil samples collected between 0 to 2 ft bgs. Hazardous lead was delineated around SB-03 both vertically to 18 ft bgs and laterally in a 5-ft by 5-ft area centralized on the boring location.
- AOC 2 – Localized VOC-Impacted Deeper Soils: VOCs, specifically ethylbenzene, total xylenes, and n-propylbenzene were detected above UUSCOs in deeper soils between 23 to 27 ft bgs, localized to the vicinity of SB-12 and SB-17, and appear to be limited to the vicinity of the

gasoline pump islands. VOC contamination in deeper soils likely resulted from historical uses at the Site and/or at nearby properties.

- AOC 3 – Groundwater Impacts: VOCs, SVOCs (specifically PAHs), four metals (chromium, iron, lead, and nickel), and PFAS were detected above Ambient Water Quality Standards (AWQS) in Site groundwater. VOC and PAH contamination in groundwater appears to be limited to the vicinity of the gasoline pump islands and identified in MW-01, MW-02, and MW-06. Metals contamination in groundwater appears to be limited to the vicinity of MW-06. The three VOCs and lead identified above UUSCOs in soil were also identified above AWQS. PFAS impacts in groundwater were encountered Site-wide. Naturally occurring metals, including iron, manganese, and sodium, were also identified in groundwater but not as COCs. Groundwater contamination likely resulted from Site-wide contaminated fill and historical uses at the Site and/or at nearby properties.
- AOC 4 – Soil Vapor Impacts: Volatile organic compounds (VOCs), specifically petroleum-related VOCs, are present in the vapor phase at the Site and are likely the result of historical Site use. Concentrations of petroleum-related compounds, such as benzene, toluene, ethylbenzene, xylenes (BTEX), were significantly higher in the vicinity of SG-02, which was collected beneath the northern portion of the gasoline pump island. Chlorinated volatile organic compound (CVOC) contamination in soil vapor was also observed with slightly elevated concentrations Site-wide, and the maximum total CVOCs were identified in SG-03, located beneath the convenience store building.
- AOC 5 – Drywell System Sediment Impacts: Sediment sampling in the drywells identified elevated VOCs exceeding the UUSCOs, including BTEX, 1,2,4-trimethylbenzene, n-propyl benzene, and methylene chloride in DW-02. One or more metals, including copper, lead, mercury, nickel, and zinc, were also identified exceeding UUSCOs in DW-01, DW-02, and DW-03. In addition, PFOS was identified in DW-01, exceeding both the UUSCO and the Protection of Groundwater Soil Cleanup Objective (PGWSCO). Impacts to sediments in the drywells are likely the result of exposure to contaminated fill and historical uses at the Site.

Qualitative Human Health Exposure Assessment

A qualitative exposure assessment consists of characterizing the exposure setting (including the physical environment and potentially exposed human populations), identifying exposure pathways, and evaluating chemical fate and transport. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has the following five elements:

1. Receptor population;
2. Contaminant source;
3. Contaminant release and transport mechanism;
4. Point of exposure; and
5. Route of exposure.

An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented but could reasonably occur. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway does not exist in the present and will not exist in the future. A qualitative human health exposure assessment was performed to evaluate the exposure pathways, and the following conclusions were developed:

- Site contamination includes metals, PAHs, three VOCs on the northern Site boundary, and in some areas, pesticides and PFAS in soil; PAHs, VOCs, and lead in groundwater on the northern Site boundary and PFAS Site-wide in groundwater; and petroleum-related VOCs in soil vapor on the northern portion of the Site. Under current conditions, the likelihood of exposure to soil or groundwater is limited, as the Site is secured and affixed with a perimeter fence secured with a lock. Site access is only granted to personnel associated with the planned development. Potable water for Kings County will continue to be sourced from reservoirs in the Catskill and Delaware watersheds. All intrusive work on the Site is performed in accordance with a Site-Specific Health and Safety Plan (HASP), Community Air Monitoring Plan (CAMP), and donning of appropriate personal protective equipment (PPE).
- During future construction/remediation, the exposure element exists for all elements during this phase. The primary exposure pathways include dermal contact via ingestion and inhalation of contaminated soil, groundwater, or soil vapor by construction works or dermal contact via injection and inhalation of soil dust by the community in the vicinity of the Site. The overall risk will be minimized by the implementation of a Site-Specific Construction Health and Safety Plan (CHASP), localized monitoring of organic vapors, community air monitoring on the Site perimeter for particulates and VOCs, vapor and dust suppression techniques, installation of a stabilized entrance, cleaning truck tires and undercarriages, and donning of appropriate PPE. Additionally, the Site will be remediated pursuant to an NYSDEC-approved RAWP that will include a Soil/Materials Management Plan (S/MMP) that will highlight measures for PPE, covering of stockpiles, housekeeping, suppression techniques (particulates and vapor), and measures to prevent off-Site migration of contaminants. In addition, the Site will be secured and inaccessible to the public during remedial construction.
- Under the proposed future condition (after construction/remediation), residual contaminants may remain on Site depending on the remedy achieved. The residual contaminants would include those listed in the current conditions. If contaminants remain on Site after construction/remediation, the route of exposure will be mitigated by proper installation of Engineering Controls (ECs), including, but not limited to a Site composite cover system (foundation and foundation elements), potentially in-situ treatment, soil vapor mitigation systems, vapor barriers, implementation of Institutional Controls (ICs), and adherence to a Site Management Plan (SMP). The existence of a complete exposure pathway for Site contaminants to human receptors during the proposed future use condition is unlikely due to the proposed remediation, which will remove most contaminated soil off-Site and cap the Site with an impermeable cover.

Fish and Wildlife Assessment

NYSDEC DER-10 requires an on-Site and off-Site Fish and Wildlife Resource Impact Analysis (FWRIA) if certain criteria are met. The Site, which was developed as early as the late 1800s as dwellings, operated

as various manufacturing uses, including a chair manufacturer with paint spraying, an upholsterer, a dentist, a scrap iron business, a plumbing supply business, and a shoe store. The Site is located in the Bedford-Stuyvesant neighborhood of Brooklyn, New York. The Site provides little or no wildlife habitat or food value and/or access to the detected subsurface contamination. No natural waterways are present on or adjacent to the Site. The proposed future use of the Site is for residential and commercial purposes. Based on the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, there was no need to prepare a FWRIA for the Site.

Summary of the Remedy

The selected Track 2 (Alternative 2) remedy will include the following tasks:

1. Development and implementation of a CHASP and CAMP for the protection of on-Site workers, the community, residents, and the environment during remediation and construction activities.
2. Design and construction of a support of excavation (SOE) system to facilitate the Track 2 remediation and provide hydraulic control.
3. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
4. Removal of the existing concrete cover and miscellaneous debris on the Site.
5. Decommissioning of on-Site monitoring wells, as necessary, in accordance with NYSDEC Commissioner Policy (CP)-43: Groundwater Monitoring Well Decommissioning Policy.
6. Excavation, stockpiling, off-Site transport, and disposal of contaminated soil/fill material that exceeds RRSCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet. Excavation and off-site disposal of contaminated soil will extend to approximately 10 feet bgs across the majority of the Site, with deeper localized excavations down to 15 ft bgs. As per the Track 2 remedy, impacts above the RRSCOs at the Site may be left in place below 15 ft. Approximately 3,990 cu yd of soil/fill will be removed as part of this Track 2 remedial excavation.
7. Removal, decommissioning, and off-Site disposal of two 12,000-gallon gasoline USTs and any additional USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduit) during redevelopment in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
8. Screening for indications of contamination (by visual means, odor, and monitoring with photoionization detectors [PIDs]) of excavated material during intrusive Site work.
9. Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to a New York City Department of Environmental Protection (NYCDEP)-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.
10. Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
11. Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.

12. Appropriate off-Site disposal of material removed from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
13. Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), recycled concrete aggregate (RCA), and/or virgin, native crushed stone.
14. Collection and analysis of confirmation soil samples from the excavation base and sidewalls of the source material hotspot excavation areas, in accordance with DER-10, to document post-excavation conditions to confirm a Track 2 remedy was achieved. If the proposed confirmation endpoint sample exceeds the Track 2 RRSCOs in the upper 15 feet, over-excavation and resampling may be performed up to 15 feet, as necessary, to meet Track 2 standards.
15. Documentation samples will be collected at the base of the PAH and metals hotspots (at 15 ft bgs), and confirmation samples will be taken on the sidewalls of the PAH and metals hotspots. If the proposed confirmation sidewall samples exceed the Track 2 RRSCOs, over-excavation and resampling may be performed, as necessary, to meet RRSCOs.
16. Installation of a Soil Vapor Extraction (SVE) system to address elevated petroleum-related VOCs in soil vapor from the proposed cellar development depth of 14 ft bgs to 25 ft bgs, terminating slightly above the observed groundwater depth, in the northeastern portion of the Site and an active SSDS beneath the building footprint.
17. Completion of a Soil Vapor Intrusion (SVI) Evaluation in accordance with DER-10 and the NYSDOH Final Guidance on Soil Vapor Intrusion following remedial excavation activities and prior to occupancy.
18. Recording of an Environmental Easement (EE), including ICs, to prevent future exposure to any residual contamination remaining at the Site;
19. Publication of an SMP for long-term management of residual contamination as required by the EE, including plans for: (1) ICs and ECs, (2) monitoring, (3) operation and maintenance, and (4) reporting;
20. All responsibilities associated with the RA, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.

1. Introduction

Flushing Holdings NY LLC (Flushing Holdings) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in June 2025 to investigate and remediate a 0.24-acre property located at 860 Flushing Avenue in Kings County, Brooklyn, New York (the "Site"). Flushing Holdings is a Volunteer in the Brownfield Cleanup Program (BCP), and residential use is proposed for the property. When completed, the Site will contain an eight-story mixed-use commercial and residential building with a full cellar encompassing a majority of the Site footprint. Refer to the BCP Application for additional details.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between July 21 and August 8, 2025 and Supplemental Remedial Investigation (SRI), performed between November 21 and December 4, 2025. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action (RA) alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in the NYSDEC Division of Environmental Remediation (DER)-10, DER-31, and complies with all applicable standards, criteria, and guidance (SCG). The remedy described in this document also complies with all applicable federal, state, and local laws, regulations, and requirements. A formal Remedial Design document will not be prepared.

The NYSDEC and New York State Department of Health (NYSDOH) have determined that this Site does not pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

1.1 SITE LOCATION AND DESCRIPTION

The Site, located in the County of Kings, Brooklyn, New York, and identified as Block 3138, Lot 32 on the New York City Tax Map, is approximately 0.24 acres in size. The Site is bounded to the north by Flushing Avenue and a multi-story residential building that is part of the Bushwick Houses apartment complex; to the east by a one-story restaurant and two four-story residential buildings with ground-floor commercial use; to the south by a six-story residential building with ground-floor commercial use; and to the west by a two-story deli.

A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419. A Project Locus showing the Site location is provided as Figure 1, and a Site Plan showing the property boundaries and adjacent properties is provided as Figure 2. The Site is fully described with Metes and Bounds and global positioning system coordinates for the starting point, as included in Appendix A. The zoning map is included in Appendix B.

1.2 REDEVELOPMENT PLAN

The RA to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use are described here to provide the basis for this assessment. However, the RA contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

The planned project will consist of the construction of an eight-story mixed-use commercial and residential building with a full cellar encompassing a majority of the Site footprint (approximately 9,816 square feet [sq ft]) and requiring general excavation to approximately 14 feet (ft) below grade surface (bgs) with deeper localized excavations for foundation footings, grade beams, and foundation walls to approximately 16 ft bgs. The proposed top of cellar slab will be at a depth of approximately 11 ft bgs. Proposed development plans are provided in Appendix C.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located on Flushing Avenue in an urban area identified as the Bedford-Stuyvesant neighborhood in the Borough of Brooklyn. There are five sensitive receptors within a 500-ft radius of the Site listed below:

1. P.S. 120 Carlos Tapia – 18 Beaver Street, Brooklyn, New York 11206, listed as a public K-12 school.
2. Garden Playground – 40 Beaver Street, Brooklyn, New York 11206, listed as a playground.
3. Rheingold Development – 501 Bushwick Avenue, Brooklyn, New York 11206, listed as a park and plaza.
4. Riseboro Community Partnership Inc. – 9 Noll Street, Brooklyn, New York 11206, listed as a senior center.
5. Bushwick Playground and Pool – 817 Flushing Avenue, Brooklyn, New York 11206, listed as a park and plaza.

Properties immediately surrounding the Site consist of residential uses as described in the table below:

Direction	Owner/Entity Name	Property Address	Adjoining Property Use	Surrounding Property Use
North Adjacent	New York City Housing Authority (North)	811 Flushing Avenue, Brooklyn, New York 11206	Multi-Family Residential	Residential
East Adjacent	Flushing Conservatory of Music, Inc. (East)	457 Bushwick Avenue, Brooklyn, New York 11206	Commercial & Office Building	Residential and commercial
East Adjacent	Bushwick Terrace LLC (East)	459 Bushwick Avenue, Brooklyn, New York 11206	Commercial	Residential and commercial
East Adjacent	Kwok Hung Ng (East)	461 Bushwick Avenue, Brooklyn, New York 11206	Mixed-Use Residential & Commercial	Residential and commercial
South Adjacent	Serlin Building Limited Partnership (South)	464 Bushwick Avenue, Brooklyn, New York 11206	Mixed-Use Residential & Commercial	Residential and commercial
South Adjacent	Garden Owner LLC (South)	21 Garden Street, Brooklyn, New York 11206	Multi-Family Residential	Residential and commercial
West Adjacent	Felipe Wasersztrom (West)	858 Flushing Avenue, Brooklyn, New York 11206	Mixed-Use Residential & Commercial	Residential and commercial

2. Description of Remedial Investigation Findings

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation Work Plan (RIWP) dated July 2025 and NYSDEC-approved Supplemental Remedial Investigation Work Plan (SRIWP) dated November 2025. The investigations were conducted between July 21 and August 8, 2025, and November 21 and December 4, 2025. The RIR was submitted to NYSDEC on September 5, 2025, with a NYSDEC RIR comment letter provided on October 29, 2025. The revised RIR was submitted to the NYSDEC on December 19, 2025, and is awaiting approval.

2.1 SUMMARY OF REMEDIAL INVESTIGATION

The 2025 RI and SRI consisted of the following:

1. Advancement of 19 soil borings to a maximum depth of 35 ft bgs. Three to four samples were collected at each boring, including from surface grade (or immediately below the concrete cover) at specific intervals, including 0 to 2 ft, the fill material between 6 to 8 ft, the development depth of approximately 14 to 16 ft, and the 2-ft interval above the groundwater interface at 25 to 27 ft. In addition, samples were collected at 20 and 25 ft in SB-15, 23 to 25 ft in SB-17, and 17 to 19 ft in SB-19. A total of 63 soil samples were collected (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.
2. Installation of six permanent groundwater monitoring wells to a maximum depth of 35 ft bgs, each screened across the groundwater interface. Eleven groundwater samples were collected from the wells (plus QA/QC samples) for laboratory analysis.
3. Installation of five soil vapor probes to a depth of approximately 24 ft bgs, targeting the 2-ft interval above the groundwater interface. Five soil vapor samples were collected for laboratory analysis.
4. Collection of grab sediment samples from three drywells and a grab water sample from one drywell. A total of three sediment samples and one water sample were collected from the drywells on the Site.

Sample locations are shown on Figure 3.

Soil, groundwater, and soil vapor samples were relinquished under standard chain of custody protocol and delivered via courier to Australian Laboratory Services/York Analytical Laboratories, Inc. (ALS/York) of Stratford, Connecticut (Certification No. 10854) and Pace Analytical Services (Pace) of Westborough, Massachusetts (Certification No. 11148), for analysis. Air monitoring was conducted during all ground-intrusive activities. Results of RI and SRI media sampling are shown on Figures 4, 5, 6, and 7.

2.1.1 Soil Borings and Monitoring Wells

Nineteen soil borings were advanced throughout the Site to a maximum depth of 35 ft bgs, using a Geoprobe® model 6610DT drill rig operated by a licensed operator provided by Lakewood Environmental Services Corp., the drilling subcontractor. Soils were logged continuously by a geologist using the Modified Burmister Soil Classification System. The presence of staining, odors, and photoionization detector (PID) responses was noted.

Six, 2-inch permanent monitoring wells were installed to 35 ft bgs. Each monitoring well was constructed using a 2-inch diameter polyvinyl chloride (PVC) riser pipe with 10-ft-long, 10-slot (0.00-inch) slotted screens. Each monitoring well was constructed within a 2-inch annular space backfilled with #0 certified clean sand fill, followed by bentonite plugs. All of the monitoring wells were sealed at grade with steel flush-mount covers. Monitoring well screens were installed to straddle the water table. During a monitoring well gauging event concurrent with the start of groundwater sampling on August 4, 2025, groundwater was encountered at depths ranging from approximately 26.31 to 28.2 ft below top of casing (btoc). During a monitoring well gauging event concurrent with the start of groundwater sampling on December 1, 2025, groundwater was encountered at depths ranging from approximately 26.59 to 28.75 ft btoc. Groundwater contour maps for the August and December 2025 gauging events are shown on Figures 8 and 9, respectively.

Following installation, monitoring wells were developed by surging a pump in the well several times to pull fine-grained material from the well. Development was completed until the water turbidity was 50 nephelometric turbidity units (NTUs) or less, or 10 well volumes were purged.

2.1.2 Soil Vapor Points

Soil vapor samples were collected in accordance with the "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, 2006). Five soil vapor probes were installed in the 2-ft interval directly above the observed groundwater interface (to a depth of approximately 24 ft bgs). Soil vapor implants were installed with a Geoprobe® drill rig to advance a stainless-steel probe to the desired sample depth.

To ensure the stainless-steel soil vapor probe was sealed completely to the surface using bentonite, a tracer gas was used in accordance with NYSDOH protocols to serve as a QA/QC device to verify the integrity of the soil vapor probe seal. In addition, one to three implant volumes were purged prior to the collection of the soil vapor samples. At the conclusion of the sampling round, tracer monitoring was performed a second time to confirm the continued integrity of the probe seals.

2.1.3 Samples Collected

Soil samples were collected from surface grade (or immediately below the concrete cover) at specific intervals, including 0 to 2 ft, the fill material between 6 to 8 ft, the development depth of approximately 14 to 16 ft, and the 2-ft interval above the groundwater interface at 25 to 27 ft. In addition, samples were collected at 20 and 25 ft in SB-15, 23 to 25 ft in SB-17, and 17 to 19 ft in SB-19. Soil samples were collected from acetate liners using a stainless-steel trowel or sampling spoon. Samples were collected using laboratory-provided clean bottle ware. Volatile organic compound (VOC) grab samples were collected using Terra Cores®.

Groundwater monitoring wells were sampled utilizing low-flow sampling procedures. Prior to sampling, the water level was measured from each monitoring well using an electronic water level meter. Groundwater from each well was purged using low pumping rates (less than 500 milliliters per minute) to limit drawdown of the water level. Dedicated disposable field equipment used at each well included high-density polyethylene and silicon tubing. Wells were purged until turbidity, pH, temperature, dissolved oxygen, and specific conductivity stabilized.

Soil vapor samples were collected in appropriately sized Summa canisters that were certified clean by the laboratory. Flow rate for both purging and sampling did not exceed 0.2 liters per minute (L/min), and sampling occurred for the duration of approximately two hours.

2.1.4 Chemical Analytical Work Performed

All samples were collected in laboratory-supplied containers, which were relinquished under standard chain of custody protocol and delivered via courier to ALS/York and Pace for analysis.

H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) collected 63 RI and SRI soil samples (plus QA/QC samples), 10 hazardous lead delineation samples, and one hazardous mercury confirmation sample for laboratory analysis.

RI and SRI soil samples were analyzed for the following:

- Target Compound List (TCL) VOCs using the U.S. Environmental Protection Agency (USEPA) Method 8260B;
- TCL semi-volatile organic compounds (SVOCs) using USEPA Method 8270C;
- Total Analyte List (TAL) metals using USEPA Method 6010;
- Polychlorinated biphenyls (PCBs) using USEPA Method 8082;
- TCL pesticides using USEPA Method 8081B;
- Per- and polyfluoroalkyl substances (PFAS) by USEPA Method 1633A; and
- 1,4-dioxane by USEPA Method 8270 SIM.

Hazardous lead delineation soil samples were analyzed for the following:

- Total lead using USEPA Method 6010; and
- Toxicity Characteristic Leaching Procedure (TCLP) lead using USEPA Method 6010D/1311.

The hazardous mercury confirmation soil sample was analyzed for the following:

- Total mercury using USEPA Method 6010;
- TCLP mercury using USEPA Method 7470/1311.

Haley & Aldrich of New York collected eleven RI and SRI groundwater samples (including one for QA/QC). RI and SRI groundwater samples were analyzed for the following:

- TCL VOCs using USEPA Method 8260B;
- TCL SVOCs using USEPA Method 8270C;
- Total metals using USEPA Methods 6010/7471;
- Dissolved metals using USEPA Methods 6020/7471;
- TCL pesticides using USEPA Method 8081B;

- PCBs using USEPA Method 8082;
- PFAS using USEPA Method 1633; and
- 1,4-dioxane using USEPA Method 8270 SIM.

Groundwater samples analyzed for PFAS and 1,4-dioxane were collected and analyzed in accordance with the protocols established in the April 2023 PFAS Guidance.

Soil vapor samples were analyzed for VOCs using USEPA Method TO-15.

2.1.5 Best Management Practices

DER-31 provides examples of best practices and techniques that could be applied during all phases of remediation (Attachment 1 of the DER-31 policy). In order to comply with the requirements of DER-31, the following actions were taken during the RI and SRI:

1. All vehicles and fuel-consuming equipment on the Site were shut off if not in use for more than three minutes;
2. Fuel-consuming equipment utilized low-sulfur diesel fuel (LSDF) or applicable alternate fuels when possible;
3. Work was sequenced, to the extent practicable, to limit unnecessary mobilizations to and throughout the Site; and
4. To the extent practicable, energy-efficient systems and office equipment were utilized.

2.1.6 Documentation

Below is a summary of RI and SRI findings. Detailed discussion of analytical results is included in the approved Remedial Investigation Report (RIR). Results are provided in Figures 3 through 9.

- In general, Site contaminants of concern (COCs) include metals, SVOCs (specifically polycyclic aromatic hydrocarbons [PAHs]), one VOC, pesticides, and PFAS in soil; SVOCs (specifically PAHs), VOCs, and PFAS in groundwater; and petroleum-related VOCs in soil vapor.
- Elevated concentrations of metals, PAHs, pesticides, and PFAS are present throughout the historical fill layer that extends from surface grade down to about 17 ft bgs. These contaminants are characteristic of historical fill material commonly found throughout the New York City area. Exceedances of metals and pesticides in deeper native soil (25 to 27 ft bgs) are likely due to the presence of historic fill at the Site.
- PAH and VOC contamination in groundwater at the Site, encountered solely in the northern portion of the Site in the vicinity of the former pump islands, may potentially be a result of historical Site uses. The elevated concentrations of PAHs and VOCs in Site groundwater may have been introduced through the use of petroleum products during historical Site operations.
- Petroleum-related VOCs in soil vapor were significantly elevated on the northern boundary of the Site in the vicinity of the former fuel pump island.
- PFAS impacts to groundwater observed Site-wide are likely the result of an off-Site source.

- Impacts to sediments in the on-Site drywells are likely attributed to exposure to contaminated fill and former historical operations.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have determined that the Site does not pose a significant threat to human health and the environment.

2.3 SITE HISTORY

2.3.1 Past Uses and Ownership

The Site was first developed as early as 1887 with multiple dwellings and storefronts. By 1934, the subject property was occupied by commercial businesses, including a chair manufacturer with paint spraying, an upholsterer, a dentist, a scrap iron business, a plumbing supply business, and a shoe store. From 1946 to the present, the subject property has operated as a gasoline filling station, including auto service until at least 1979. Historical operations have included a laundry, lubritorium, repair shop, auto inspection, auto washing and sales, and parking and storage of more than five cars. Since 1979, the property has remained relatively unchanged except for the addition of a pump island canopy around 2001. 456 Bushwick LLC purchased the Site from Berges, LLC in 2009. The Volunteer is operating the Site under a 99-year lease agreement.

2.3.2 Previous Environmental Reports

The following reports were prepared for the Site prior to the Requestors' application:

- November 2023 Phase 1 Environmental Update, prepared by Merritt Environmental Consulting Corp. (Merritt)
- August 2024 Phase I Environmental Site Assessment (ESA), prepared by Haley & Aldrich of New York
- September 2024 Limited Phase II Environmental Site Investigation (ESI) Report, prepared by Haley & Aldrich of New York

November 2023 Phase I Environmental Update Prepared by Merritt

In November 2023, a Phase I Environmental Update was conducted for the subject property by Merritt. The assessment revealed no evidence of Recognized Environmental Conditions (RECs) in connection with the property; however, Merritt noted the following:

- The station is registered with the NYSDEC for two active 12,000-gallon gasoline underground storage tanks (USTs) that were installed in 1998 with a monitoring system. The report further lists eight USTs that have been registered at the subject property: the two active USTs, three 4,000-gallon gasoline USTs removed on July 1, 1998, and three 4,000-gallon USTs listed as non-regulated use. Merritt also noted that the three NYSDEC Spill events and observation of groundwater monitoring wells constitute Historical Recognized Environmental Conditions (HRECs) and that the subject property has an environmental E-designation that needs to be complied with during any redevelopment.

- Merritt noted that the process to address an E-designation and receive a notice of satisfaction includes submitting a work plan to the New York City Office of Environmental Remediation (NYCOER), conducting a sub-surface investigation, and submitting results to the NYCOER.
- Appended to Merrit's Phase I Environmental Update, subsurface investigation reports detail soil and groundwater sampling completed at the subject property by Kleinfelder East, Inc. (Kleinfelder) on behalf of Exxon Mobil Corp. in reference to the closure of Spill Number 0701041.
- These reports summarized the subsurface investigations completed by Kleinfelder that included the installation of five monitoring wells and the collection of soil and groundwater samples to obtain spill closure with the NYSDEC.
- Subsurface deposits consisting predominantly of artificial fill were observed extending from grade to 7 ft bgs and underlain by native deposits consisting predominantly of poorly sorted, medium- to fine-grained sand with trace gravel. Groundwater was measured between 24.95 and 27.46 ft bgs with a north-northwest flow direction.
- Based on the data developed during the subsurface investigation activities, Kleinfelder petitioned the NYSDEC for spill closure based on documented concentrations and trends of benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary-butyl ether (MTBE) in groundwater samples, the absence of known impacts/effects to identified sensitive receptors, the absence of potable wells located within 2,500 ft of the subject property and absence of surface-water bodies located within 1,000 ft of the subject property, and further stated that the lateral and vertical extent of adsorbed-phase hydrocarbons and dissolved-phase BTEX and MTBE have been delineated at the subject property.
- Based on these findings, the NYSDEC issued the closure of Spill Number 0701041, and the wells were abandoned on April 10, 2008, with a grout/slurry mixture.

September 2024 Phase I ESA Prepared by Haley & Aldrich of New York

In September 2024, Haley & Aldrich of New York prepared a Phase I ESA for the Site. The findings include the following RECs:

- Spill Number 0701041 was reported at the subject property for an unknown amount of gasoline affecting groundwater based on the results of soil sampling. Spill Number 9614354, related to a gasoline spill that affected groundwater during the Site's use as a Getty Station, was transferred to Spill Number 0701041 by the NYSDEC. Subsurface Investigations were completed that included the installation of five monitoring wells and the collection of soil and groundwater samples; the NYSDEC closed the spill on March 27, 2008. However, records indicate that MTBE was detected above regulatory standards in off-Site monitoring wells downgradient to the Site, and a source was not identified prior to closure.
- Records identify the current and former use of the Site as a petroleum filling station/auto-related facility since 1947, with three historical spills reported that were transferred or closed with NYSDEC. Additionally, the property was used as a dentist's office from about 1928 to 1934, and the potential for liquid mercury as an amalgam component for use in fillings exists. The Site is currently still operating as a filling station with two active 12,000-gallon USTs. Petroleum stains were observed on the ground surface in the vicinity of the pump islands and driveway areas of the Site, and one 55-gallon capacity unsecured and improperly closed drum labeled for

benzene-listed (D018) hazardous contents was observed at the Site without implementation of spill prevention measures.

- Additional environmental findings for the Site identify one HREC, one *de minimis* condition, and one Other Finding, including the following:
  - Spill Number 0607879 resulting from a suspected leak from a gasoline UST was reported on October 11, 2006. The spill report indicates that the incident resulted from an inventory discrepancy, and no leak was identified. The spill was closed by NYSDEC on November 16, 2006.
  - Former uses of the Site, including paint spraying, upholstering, and chair manufacturing, that could have potentially used materials containing perfluorooctanoic acid (PFOA) or perfluorooctane sulfonate (PFOS), as is typical of painting and textile operations.
  - The environmental E-designation (E-315) for hazardous materials, noise, and air quality.
- Based on the findings of the Phase I, Haley & Aldrich of New York recommended that a Phase II Subsurface Investigation be performed to determine the nature and extent of contamination at the subject Site, if present.

As part of the Phase I ESA, Haley & Aldrich of New York reviewed all Sanborn Fire Insurance Maps available for this Site.

November 2024 Limited Subsurface Investigation Prepared by Haley and Aldrich of New York

Haley & Aldrich of New York completed a limited sampling event at the Site to investigate soil, groundwater, and sub-slab vapor quality at the Site. Urban fill, generally consisting of brown to dark brown to light gray sand with varying amounts of silt, gravel, brick, asphalt, glass, and ceramic, was observed from surface grade to approximately 11.5 to 22.5 ft bgs at the Site. The urban fill layer was underlain by a potential native layer consisting of brown to light brown sand with varying amounts of clay, silt, and gravel. Soil samples were collected continuously, characterized, and screened for visual and olfactory evidence of contamination such as staining and odors. Instrumental screening for the presence of organic vapors was performed using a PID. No apparent subsurface impacts were observed, including odors and staining, and PID readings did not exceed 0.8 parts per million (ppm). Groundwater was encountered between 26 and 28 ft bgs, and temporary wells were installed to 35 ft bgs to facilitate the collection of groundwater samples.

A geophysical survey was completed prior to the completion of intrusive activities. Geophysical anomalies resembling potential and main subsurface utilities, subsurface fuel lines, electrical lines, and large anomalies consistent with the known USTs were identified and marked. An unknown geophysical anomaly located along the east side of the USTs was also identified.

Field observations and analytical results identified historical urban fill contaminated with heavy metals and SVOCs (specifically PAHs) at concentrations consistent with characteristics of urban fill found throughout the New York City area. Urban fill was observed up to a depth of 22.5 ft bgs. SVOCs and total metals exceeding Restricted Residential Soil Cleanup Objectives (RRSCOs) were observed widely distributed throughout the Site in urban fill up to 18 ft bgs, with total metals exceeding Unrestricted Use Soil Cleanup Objectives (UUSCOs) up to 19 ft bgs. A hazardous lead hotspot was identified in soil

collected from boring B-8 at a depth of 17 to 18 ft bgs in the central region of the Site. Groundwater results indicate the presence of one SVOC, PAHs, and metals exceeding Ambient Water Quality Standards (AWQS). Groundwater was encountered between 26 and 28 ft bgs. Sub-slab soil vapor, sampled in the central and northern regions of the Site, is impacted with petroleum-related VOCs and chlorinated VOCs (CVOCs), including BTEX compounds and perchloroethylene/tetrachloroethene (PCE).

Haley & Aldrich of New York concluded that further delineation would be required to determine the extent of SVOCS and total metals in Site soils and hazardous lead in soil in the central region of the Site. Considering that VOCs were identified in Site soil, and VOCs, including PCE, were detected in sub-slab soil vapor, an on-Site source may exist. Geology and Hydrogeology

2.3.3 Historic Fill Material

The Site is underlain by a layer of urban fill consisting of brown to dark brown to light gray fine to medium sand with varying amounts of silt, fine gravel, brick, glass, concrete, and wood observed from surface grade to approximately 10 to 17 ft bgs.

2.3.4 Native Soil

The urban fill layer was underlain by a potential native layer consisting of brown to light brown fine to medium sand with varying amounts of clay, silt, fine gravel, and cobbles.

2.3.5 Bedrock

According to the U.S. Geological Survey (USGS) Bedrock and Engineering Geologic Maps of New York County and Parts of Kings and Queens Counties, New York, and Parts of Bergen and Hudson Counties, New Jersey (dated 1994), the uppermost geologic formation underlying the soils at the Site is the Hartland Formation. Bedrock was not encountered during the RI or SRI; however, depth to bedrock in this region of Brooklyn is estimated to be about 150 to 200 ft bgs.

2.3.6 Hydrogeology

Groundwater was encountered at depths ranging from approximately 26.31 to 28.2 ft btoc during the RI and from approximately 26.59 to 28.75 ft btoc during the SRI. Groundwater beneath the Site generally flows to the west, with groundwater elevations between (El.) 6.14 ft and El. 5.57 at MW-4 to El. 6.31 ft and El. 5.74 at MW-5 (North American Vertical Datum [NAVD] of 1988), as determined from the August RI and December SRI synoptic water level gauging events. Groundwater contour maps are provided as Figures 8 and 9.

2.4 CONTAMINANT CONDITIONS

A conceptual site model (CSM) was developed based on the findings of the 2025 RI and SRI. The CSM provides a framework for the distribution of impacted materials Site-wide and potential migration/exposure pathways.

2.4.1 Conceptual Site Model

Elevated concentrations of metals, SVOCs, pesticides, and PFAS are present throughout the contaminated fill layer, which extends from surface grade down to about 17 ft bgs. These contaminants are characteristic of historical fill material commonly found throughout the New York City area.

Petroleum-related VOC contamination in soil vapor on the northern portion of the Site is in the vicinity of the former tank and dispenser area. These impacts are likely originating from spills and/or leaks of fuel or oils during gasoline retail operations. The elevated concentrations of PAHs and VOCs in Site groundwater in the vicinity of the pump islands may also have been introduced through the use of petroleum products during historical Site operations.

Slightly elevated CVOCs identified in soil vapor, specifically under the convenience store, are likely the result of off-Site sources, as an on-Site source in groundwater and soil was not identified.

PFAS impacts to groundwater observed Site-wide are likely the result of an off-Site source, as PFOS in soil was identified primarily in shallow soils from 0 to 2 ft bgs, with the exception of one exceedance from 6 to 8 ft bgs in SB-08 on the western portion of the Site. PFOS detections in the shallow soil layer are likely the result of contaminated fill material and would not have resulted in Site-wide impacts to groundwater, which is encountered at 26 to 28 ft bgs. Further, the deeper detection of PFOS is located on the western portion of the Site, and groundwater flows from east to west, so the Site-wide PFAS impacts to groundwater are more likely the product of an upgradient source.

Historical operations are likely the primary source of petroleum-related contamination at the Site, and contaminated fill material is likely the source of metals and PAHs in soil. Other impacts to soil vapor and groundwater may be attributed to off-Site and upgradient sources.

2.4.2 Description of Areas Of Concern

A summary of the Areas of Concern (AOCs) identified from the 2025 RI and SRI findings is provided below:

- AOC 1 – Site-Wide Contaminated Fill in Subsurface Soils: Subsurface soils throughout the Site are impacted with elevated concentrations of metals (including arsenic, barium, copper, lead, manganese, mercury, nickel, and zinc), SVOCs (specifically PAHs), and, in some areas, pesticides and PFAS. These findings are consistent with characteristics of contaminated fill found throughout the New York City area. Contaminated fill material varies in depth throughout the Site, generally extending from surface grade down to about 17 ft bgs. Seven PAHs, four metals, and one pesticide that were identified as COCs in shallow soils are present in deeper soil directly above the water table (25 to 27 ft bgs) at concentrations above UUSCOs, with five PAHs and one metal also exceeding RRSCOs. PFAS impacts to soil were identified across the Site but primarily in shallow soil samples collected between 0 and 2 ft bgs. Hazardous lead was delineated around SB-03 both vertically to 18 ft bgs and laterally in a 5-ft by 5-ft area centralized on the boring location.
- AOC 2 – Localized VOC-Impacted Deeper Soils: VOCs, specifically ethylbenzene, total xylenes, and n-propylbenzene were detected above UUSCOs in deeper soils between 23 to 27 ft bgs, localized to the vicinity of SB-12 and SB-17, and appear to be limited to the vicinity of the

gasoline pump islands. VOC contamination in deeper soils likely resulted from historical uses at the Site and/or at nearby properties.

- AOC 3 – Groundwater Impacts: SVOCs (specifically PAHs) and PFAS were detected above AWQS in Site groundwater. PAH contamination in groundwater appears to be limited to the vicinity of the gasoline pump islands and identified in MW-01 and MW-02 (chrysene only). PFAS impacts in groundwater were encountered Site-wide. Naturally occurring metals, including iron, manganese, and sodium, were also identified in groundwater but not as COCs. Groundwater contamination likely resulted from Site-wide contaminated fill and historical uses at the Site and/or at nearby properties.
- AOC 4 – Soil Vapor Impacts: VOCs, specifically petroleum-related VOCs, are present in the vapor phase at the Site and are likely the result of historical Site use. Concentrations of petroleum-related compounds, such as BTEX, were significantly higher in the vicinity of SG-02, which was collected beneath the northern portion of the gasoline pump island. CVOC contamination in soil vapor was also observed with slightly elevated concentrations Site-wide, and the maximum total CVOCs were identified in SG-03, located beneath the convenience store building.
- AOC 5 – Drywell Sediment Impacts: Sediment sampling in the drywells identified elevated VOCs exceeding the UUSCOs, including BTEX, 1,2,4-trimethylbenzene, n-propyl benzene, and methylene chloride in DW-02. One or more metals, including copper, lead, mercury, nickel, and zinc, were also identified exceeding UUSCOs in DW-01, DW-02, and DW-03. In addition, PFOS was identified in DW-01, exceeding both the UUSCO and the Protection of Groundwater Soil Cleanup Objective (PGWSCO). Impacts to sediments in the drywells are likely the result of exposure to contaminated fill and historical uses at the Site.

2.4.3 Identification of Standards, Criteria and Guidance Values

See Table 2 of this document for Applicable SCGs. Applicable SCGs should be listed in this section with additional text as necessary.

2.4.3.1 Soil/Fill Contamination

Soil analytical results were compared to NYSDEC 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 UUSCOs and RRSCOs. When compounds were identified in groundwater above applicable standards, described below, soil analytical results were also compared to PGWSCOs. Note that no standards for PFAS in soil currently exist in New York State; however, NYSDEC published soil guidance values (GVs) for PFOA and PFOS in October 2020 (latest revision April 2023). PFOA and PFOS soil sample results are compared to the unrestricted use and restricted residential use and protection of groundwater GVs outlined in the April 2023 PFAS Guidance. Soil analytical results are summarized below.

2.4.3.2 Volatile Organic Compounds

One VOC, acetone, was detected above the UUSCOs in four samples collected between 0 and 27 ft bgs at a maximum concentration of 0.072 J mg/kg in SB-02_0-2. Ethylbenzene and total xylenes were detected in one sample, SB-12_25-27, above the UUSCOs at concentrations of 1.3 J mg/kg and 2.3mg/kg, respectively. N-propylbenzene was detected in SB-17_23-25 above its USSCO at a concentration of 38 mg/kg.

No other VOCs were detected above the UUSCOs, RRSCOs, and/or PGWSCOs in the soil samples analyzed.

2.4.3.3 Semi-Volatile Organic Compounds

Up to nine SVOCs, specifically PAHs, were detected at concentrations above the UUSCOs and RRSCOs in twenty-six soil samples collected from 0 to 2 ft bgs, 6 to 8 ft bgs, 14 to 16 ft bgs, and 25 to 27 ft bgs. Maximum concentrations of SVOCs were all detected in two soil samples, DUP-02_20250725, collected at sample SB-08_6-8 and SB-11_14-16. SVOCs detected above applicable criteria include the following with maximum concentrations at DUP-02_20250725: benzo(a)anthracene (53.8 mg/kg), benzo(a)pyrene (46.2 mg/kg), benzo(k)fluoranthene (44.8 mg/kg), and chrysene (52.3 mg/kg), and the following with maximum concentration at SB-11_14-16:benzo(b)fluoranthene (45.2 mg/kg), dibenz(a,h)anthracene (11.4 mg/kg), indeno(1,2,3-cd)pyrene (27.4 mg/kg), and pyrene (114 mg/kg). Of the PAHs found exceeding the UUSCOs, five were also found to exceed the PGWSCOs, including benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene.

No other SVOCs were detected above the UUSCOs, RRSCOs, and/or PGWSCOs in the soil samples analyzed.

2.4.3.4 Pesticides

Two pesticides were detected at concentrations exceeding the UUSCOs in ten soil samples collected between 0 to 27 ft bgs, including 4,4'-DDE in five soil samples (maximum concentration of 0.00502 mg/kg in SB-14_6-8) and 4,4'-DDT in eight soil samples (maximum concentration of 0.0384 J mg/kg in SB-16_6-8).

No other pesticides were detected above the UUSCOs or RRSCOs in the soil samples analyzed.

2.4.3.5 Metals

Up to nine metals were detected above the UUSCOs, RRSCOs, and/or PGWSCOs in thirty-eight soil samples analyzed, specifically: arsenic (maximum concentration of 13.3 mg/kg in SB-13_6-8); barium (maximum concentration of 3,160 mg/kg in SB-13_6-8); cadmium (maximum concentration of 6.79 mg/kg in SB-03_14-16), copper (maximum concentration of 305 mg/kg in SB-03_6-8; lead (maximum concentration of 3,150 mg/kg in SB-03_6-8); mercury (maximum concentration of 6.07 in SB-02_0-2); manganese (maximum concentration of 3,880 in SB-15_20); nickel (maximum concentration of 42.9 mg/kg in SB-07_6-8); and, zinc (maximum concentration of 2,270 mg/kg in SB-03_14-16).

Hazardous lead was detected above the USEPA Allowable Limit in SB-03_16-17. The area was delineated vertically as hazardous lead concentration was not identified at SB-03_18-19 and laterally as hazardous lead concentrations were not identified in the 5 ft lateral step out locations to the north, south, east, and west.

No other metals were detected above the UUSCOs, RRSCOs, or the USEPA Allowable Limit in the soil samples analyzed.

2.4.3.6 Polychlorinated Biphenyls

The PCB Aroclor 1260 was detected above the UUSCOs in eight soil samples analyzed at a maximum concentration of 0.291 mg/kg in SB-06_0-2.

No other PCBs were detected above the UUSCOs in the soil samples analyzed.

2.4.3.7 Emerging Contaminants

The emerging contaminant 1,4-dioxane was not detected above laboratory detection limits in the soil samples analyzed.

PFOS was detected above the UUSCO and PGWSCO in six soil samples at a maximum concentration of 1.98 micrograms per kilogram (µg/kg) in SB-06_0-2. PFOA was not detected above UUSCOs or PGWSCOs in the soil samples analyzed. Total PFOS and PFOA ranged from non-detect to a maximum concentration of 2.06 µg/kg in SB-06_0-2.

2.4.4 Groundwater Contamination

Groundwater analytical results were compared to 6 NYCRR Part 703.5 NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 AWQS and GVs for Class GA Water. Emerging contaminants PFOA and PFOS were compared to the GVs for PFOA and PFOS outlined in the NYSDEC April 2023 PFAS Guidance. Emerging contaminant 1,4-dioxane was compared to the GV as set by NYSDEC in March 2023. Groundwater analytical results are summarized below and shown on Figure 6.

2.4.4.1 Volatile Organic Compounds

Thirteen VOCs were detected above the AWQS in the groundwater sample collected from MW-06: 1,2,4,5-tetramethylbenzene at a concentration of 120 µg/L; 1,2,4-trimethylbenzene at a concentration of 23 µg/L; 1,3,5-trimethylbenzene at a concentration of 13 µg/L; sec-Butylbenzene at a concentration of 59 µg/L; benzene at a concentration of 3.4 µg/L; ethylbenzene at a concentration of 19 µg/L; isopopylbenzene at a concentration of µg/L; m,p-xylenes at a concentration of 30 µg/L; methyl tertiary butyl ether (MTBE) at a concentration of 11 µg/L; naphthalene at a concentration of 21 µg/L; n-butylbenzene at a concentration of 28 µg/L; n-propylbenzene at a concentration of 61 µg/L; and o-xylene at a concentration of 8.8 µg/L . Concentrations of chloroform exceeded the AWQS in two groundwater samples at a maximum concentration of 10 µg/L in MW-02.

No other VOCs were detected above the AWQS in the groundwater samples analyzed.

2.4.4.2 Semi-Volatile Organic Compounds

Six SVOCs were detected above AWQS in the groundwater samples collected from MW-01 and MW-06, where all maximum concentrations were detected in MW-06, specifically: benzo(a)anthracene (maximum concentration of 0.57 µg/L; benzo(a)pyrene (maximum concentration of 0.55 µg/L; benzo(b)flouranthene (maximum concentration of 0.7 µg/L; benzo(k)flouranthene (maximum concentration of 0.24 µg/L; chrysene (maximum concentration of 0.63 µg/L); and, indeno(1,2,3-

cd)pyrene (maximum concentration of 0.48 µg/L). In addition, chrysene was detected above the AWQS at 0.0643 µg/L in MW-02.

No other SVOCs were detected above the AWQS in the groundwater samples analyzed.

2.4.4.3 Organochlorine Pesticides

No pesticides were detected above the AWQS in the groundwater samples analyzed.

2.4.4.4 Polychlorinated Biphenyls

No PCBs were detected above the AWQS in the groundwater samples analyzed.

2.4.4.5 Total Metals

Three metals were detected above the AWQS in groundwater samples: total iron (maximum concentration of 55,800 µg/L in MW-06), total manganese (maximum concentration of 2,550 µg/L in MW-06), and total sodium (maximum concentration of 241,000 µg/L in MW-06). Four additional metals were detected in MW-06, including: chromium (concentration of 201.2 µg/L; lead (concentration of 94.14 µg/L; magnesium (concentration of 41,400 µg/L; and nickel (concentration of 102.3 µg/L).

No other total metals were detected above the AWQS in the groundwater samples analyzed.

2.4.4.6 Dissolved Metals

Three dissolved metals were detected above the AWQS in groundwater samples: dissolved iron (maximum concentration of 5,070 µg/L in MW-01), dissolved manganese (maximum concentration of 1,890 µg/L in MW-01, and dissolved sodium (maximum concentration of 238,000 R µg/L in MW-05).

No other dissolved metals were detected above the AWQS in the groundwater samples analyzed.

2.4.4.7 Emerging Contaminants

Concentrations of emerging contaminants PFOA and PFOS were compared to the NYSDEC GVs of 6.7 nanograms per Liter (ng/L) for PFOA and 2.7 ng/L for PFOS. PFOA and PFOS were both detected above the NYSDEC GVs in all six groundwater samples, including the duplicate samples, at a maximum concentration of 94.7 ng/L for PFOA in MW-04 and a maximum concentration of 31.9 ng/L for PFOS in MW-03.

Emerging contaminant 1,4-dioxane was compared to the NYSDEC GV of 350 ppt; 1,4-dioxane was not detected above laboratory detection limits in the groundwater samples analyzed.

2.4.5 Soil Vapor Contamination

No standard currently exists for soil vapor samples in New York State.

Total VOC concentrations in soil vapor samples ranged from 187.77 µg/m^3 in sample SG-01 to 79,560 µg/m^3 in sample SG-02. Total BTEX concentrations ranged from 17.6 µg/m^3 in sample SG-01 to 11,900 µg/m^3 in sample SG-02. Total CVOC concentrations in soil vapor samples ranged from 0.4 µg/m^3 in sample SG-01 to 117 µg/m^3 in sample SG-03.

CVOCs were detected in all five soil vapor samples collected during this investigation. The CVOCs detected include PCE in three soil vapor samples at a maximum diluted concentration of 86 µg/m^3 in SG-02; 1,1,1-trichlorothane in two soil vapor samples at a maximum diluted concentration of 63 µg/m^3 in SG-03; and carbon tetrachloride in one soil vapor sample (SG-01), at a diluted concentration of 0.4 µg/m^3.

2.4.6 Drywell Sediment and Water Contamination

Analytical results of drywell sediment samples were compared to UUSCOs, RRSCOs, and PGWSCOs. Analytical results of the drywell water sample were compared to the NYSDEC TOGS 1.1.1 AWQS.

2.4.6.1 Sediment

No SVOCs, pesticides, or PCBs were detected above the UUSCOs, RRSCOs, and/or PGWSCOs in the drywell sediment samples analyzed (DW-01-20250730, DW-02-20250730, and DW-04-20250805).

Six VOCs were detected above UUSCOs, and one VOC was detected above RRSCOs in the DW-02-20250730 sample: 1,2,4-trimethylbenzene (concentration of 11 mg/kg); benzene (concentration of 17 mg/kg); ethylbenzene (concentration of 3.3 mg/kg); methylene chloride (concentration of 6.1 mg/kg); n-propylbenzene (concentration of 31 mg/kg); toluene (concentration of 0.98 mg/kg); and total xylenes (concentration of 31 mg/kg).

PFOS was detected above the UUSCO and PGWSCO in one drywell sediment sample at a maximum concentration of 0.961 ppb in DW-01-20250730. PFOA was not detected above UUSCOs or PGWSCOs in the drywell sediment samples analyzed. Total PFOS and PFOA ranged from non-detect to a maximum concentration of 1.23 ppb in DW-01-20250730.

Up to five metals were detected above the UUSCOs in the three drywell sediment samples analyzed, specifically: copper (maximum concentration of 227 mg/kg in DW-01-20250730); lead (maximum concentration of 178 mg/kg in DW-01-20250730); mercury (concentration of 0.26 mg/kg in DW-02-20250730); nickel (maximum concentration of 35 mg/kg in DW-02-20250730); and zinc (maximum concentration of 642 mg/kg in DW-02-20250730).

2.4.6.2 Water

No VOCs, SVOCs, pesticides, PCBs, or PFAS were detected above the AWQS in the drywell water sample analyzed (DW-03_20250806).

Three metals were detected above the AWQS in the drywell water sample: total iron at a concentration of 11,100 µg/L, total lead at a concentration of 55.7 µg/L, and total manganese at a concentration of 457 µg/L.

2.5 QUALITATIVE HUMAN EXPOSURE ASSESSMENT

A qualitative exposure assessment consists of characterizing the exposure setting (including the physical environment and potentially exposed human populations), identifying exposure pathways, and evaluating chemical fate and transport. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has the following five elements:

1. Receptor population;
2. Contaminant source;
3. Contaminant release and transport mechanism;
4. Point of exposure; and
5. Route of exposure.

An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented but could reasonably occur. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway does not exist in the present and will not exist in the future.

2.5.1 Receptor Population

The receptor population includes the people who are or may be exposed to contaminants at a point of exposure. The identification of potential human receptors is based on the characteristics of the Site, the surrounding land uses, and the probable future land uses. The Site is currently vacant, paved with an impervious surface (concrete), and secured with locked gates. Since the Site is vacant, individual receptors would currently only include construction/maintenance workers who may be employed to perform work on the property.

The development will consist of the development of a multi-story, mixed-use commercial and residential building encompassing the entire Site footprint with a one-level cellar, which is consistent/compatible with surrounding property use and zoning. Exposed receptors under the future use scenario may comprise residents of the future building, indoor employees, outdoor employees (e.g., groundskeepers or maintenance staff), and construction workers who may be employed at or perform work on the property. Site visitors may also be considered receptors; however, their exposure would be similar to that of the indoor employees but at a lesser frequency and duration. In addition, residents or employees in off-Site adjoining buildings have the potential to be exposed to vapors.

2.5.2 Contaminant Sources

The source of contamination is defined as either the source of contaminant release to the environment (such as a waste disposal area or point of discharge) or the impacted environmental medium (soil, air, and/or water) at the point of exposure.

Contaminated fill material is present throughout the Site from surface grade down to 5 to 17 ft bgs. Impacts to the fill material include elevated metals, PAHs, and PFOA and are consistent with characteristics of contaminated fill found throughout the New York City area. Deeper native soil was encountered at approximately 10 ft bgs throughout most of the Site. VOC impacts were observed in soil, groundwater, and soil vapor on the northern boundary of the Site and are likely attributed to the former use of the Site as a filling station.

2.5.3 Contaminant Release and Transport

Contaminant release and transport mechanisms carry contaminants from the source to points where people may be exposed and are specific to the type of contaminant and site use. This would include the indoor vapor intrusion pathway, also referred to as "soil vapor intrusion" (SVI). Additional pathways could include skin contact, inhalation, and incidental ingestion of VOCs present in groundwater when and where construction workers are involved in subsurface activities where volatiles are present at elevated concentrations.

2.5.4 Point of Exposure

The point of exposure is a location where actual or potential human contact with a contaminated medium may occur. Based on the exceedances of applicable criteria in soil, groundwater, and soil vapor, the point of exposure is defined as the entire Site.

2.5.5 Route of Exposure

The route of exposure is the manner in which a contaminant actually enters or contacts the human body (e.g., ingestion, inhalation, and/or dermal absorption). Based on the types of receptors and point of exposure identified above, potential routes of exposure are listed below:

2.5.5.1 Current Use Scenario

The Site building is currently vacant and secured with locked gates, preventing access to the entire Site. The risk of exposure to contaminated soil and contaminated groundwater is very low. Release and transport mechanisms include contaminated surface soil transported as dust, contaminated groundwater flow, and volatilization of contaminants from soil and/or groundwater into the vapor phase. Persons at risk of exposure, via the indicated exposure routes, are noted below:

- Occupant/Employee/Visitor – skin contact, inhalation, and incidental ingestion
- Construction/Utility Worker – skin contact, inhalation, and incidental ingestion

2.5.5.2 Construction/Remediation Scenario

In the continued absence of Engineering Controls (ECs) and Institutional Controls (ICs), there will be continued exposure pathways during construction/remediation, specifically related to surface soil. Planned construction/remedial activities include removal of the impervious Site cover, removal of USTs (if present), excavation and off-Site disposal of soil, and dewatering of impacted groundwater (if required) to facilitate the construction of the foundation elements. Release and transport mechanisms include disturbed and exposed soil during excavation, contaminated soil transported as dust,

contaminated groundwater flow (during dewatering, if required), and volatilization of contaminants from soil and/or groundwater into the vapor phase. Persons at risk of exposure, via the indicated exposure routes, are noted below:

- Construction/Utility Worker – skin contact, inhalation, and incidental ingestion
- Public Adjacent to the Site – inhalation

2.5.5.3 Future Use Scenario

The anticipated future use as a redeveloped property with a multi-story, mixed-use commercial and residential building will include a cellar. In the absence of remedial removal of impacted material, remaining contaminant release and transport would include potential migration of contaminated groundwater and volatilization of contaminants from soil and/or groundwater into the vapor phase. However, with remedial removal of impacted material, routes of future exposure include cracks in the foundation or slab, or emergency repairs to the foundation walls or slab. Persons at risk of exposure, via the indicated exposure routes, are noted below:

- Construction/Utility Worker – skin contact, inhalation, and incidental ingestion
- Occupant/Employee/Visitor – inhalation
- Public Adjacent to the Site – inhalation.

2.5.6 Exposure Assessment

Based on the above assessment, the potential exposure pathways for the current and future use conditions are discussed below.

2.5.6.1 Current Use Scenario

Site COCs include metals, SVOCs (specifically PAHs), three VOCs, and PFOA in soil; VOCs, SVOCs (specifically PAHs) and PFOA in groundwater; and petroleum-related VOCs in soil vapor. Under current conditions, the likelihood of exposure to soil or groundwater is limited as groundwater is encountered at greater than 26 ft bgs. The Site is currently vacant and secured with locked gates, with Site access only granted to personnel associated with the planned development. Potable water for Brooklyn, including the Site, will continue to be sourced from reservoirs in the Catskill and Delaware watersheds. Intrusive work on the Site will be performed in accordance with a Site-specific Health and Safety Plan (HASP) and the donning of personal protective equipment (PPE).

2.5.6.2 Construction/Remediation Scenario

The exposure element exists for each element during the construction/remediation phase. The overall risk will be minimized by the implementation of a Site-specific Construction Health and Safety Plan (CHASP), localized monitoring of organic vapors, community air monitoring on the Site perimeter for particulates and VOCs, vapor and dust suppression techniques, installation of a stabilized entrance, cleaning truck tires and undercarriages, and use of appropriate PPE. Additionally, the Site will be remediated under this RAWP, which will include a Soil/Materials Management Plan (S/MMP) that will highlight measures for PPE, covering of stockpiles, housekeeping, suppression techniques (particulates

and vapor), and measures to prevent off-Site migration of contaminants. In addition, the Site will be secured and inaccessible to the public during remedial construction.

2.5.6.3 Future Use Scenario

Under the proposed future condition (after construction/remediation), residual contaminants may remain on the Site depending on the remedy achieved. The remaining contaminants would include those listed in the current conditions. If contaminants remain on the Site after construction/ remediation, the route of exposure will be mitigated by proper installation of ECs, such as a sub-slab depressurization system (SSDS) or a Site composite cover system, and implementation of ICs, such as land use and groundwater use restrictions.

2.5.7 Fish and Wildlife Remedial Impact Analysis

NYSDEC DER-10 requires an on-Site and off-Site Fish and Wildlife Resource Impact Analysis (FWRIA) if certain criteria are met. The Site, which was developed as early as the late 1800s as dwellings, operated as various manufacturing uses, including a chair manufacturer with paint spraying, an upholsterer, a dentist, a scrap iron business, a plumbing supply business, and a shoe store. The Site is located in the Bedford-Stuyvesant neighborhood of Brooklyn, New York. The Site provides little or no wildlife habitat or food value and/or access to the detected subsurface contamination. No natural waterways are present on or adjacent to the Site. The proposed future use of the Site is for residential and commercial purposes. Based on the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, there was no need to prepare a FWRIA for the Site.

2.6 REMEDIAL ACTION OBJECTIVES

Based on the results of the 2025 RI, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.6.1 Soil

RAOs for Public Health Protection:

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation exposure to contaminants volatilizing from soil.

RAOs for Environmental Protection:

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.6.2 Groundwater

RAOs for Public Health Protection:

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

2.6.3 Soil Vapor

- Mitigate impacts to public health resulting from existing or potential soil vapor intrusion into buildings at the Site.

3. Summary of Remedial Action

3.1 ALTERNATIVE I – TECHNICAL DESCRIPTION

The Track 1 (Alternative 1) remedy will include the following tasks:

1. Development and implementation of a CHASP and Community Air Monitoring Plan (CAMP) for the protection of on-Site workers, the community, residents, and the environment during remediation and construction activities.
2. Design and construction of a support of excavation (SOE) system to facilitate the Track 1 remediation and provide hydraulic control.
3. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
4. Removal of the existing concrete cover and miscellaneous debris on the Site.
5. Decommissioning of on-Site monitoring wells, as necessary, in accordance with NYSDEC Commissioner Policy (CP)-43: Groundwater Monitoring Well Decommissioning Policy.
6. Excavation, stockpiling, off-Site transport, and disposal of contaminated soil/fill material Site-wide that exceeds UUSCOs as defined by 6 NYCRR Part 375-6.8. Site-wide excavation will extend to 18 ft bgs, or two feet below the majority of Site UUSCO exceedances, with hotspot excavations to at least 28 feet bgs centered on SB-11, SB-12, and to at least 21 ft bgs centered on SB-15 to address PAHs and metals in deeper soil, and to at least 26 ft bgs centered on SB-17 to address one VOC in deeper soil. An estimated 7,130 cubic yards (cu yd) of soil/fill will be removed for Track 1 excavation.
7. Removal, decommissioning, and off-Site disposal of two 12,000-gallon gasoline USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduit) during redevelopment in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
8. Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
9. Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to a New York City Department of Environmental Protection (NYCDEP)-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.
10. Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
11. Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
12. Appropriate off-Site disposal of material removed from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.

13. Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), recycled concrete aggregate (RCA), and/or virgin, native crushed stone.
14. Collection and analysis of confirmation soil samples from the excavation base and sidewalls of the hotspot excavation areas, in accordance with DER-10, to document post-excavation conditions to confirm a Track 1 remedy was achieved.
15. Completion of an SVI Evaluation in accordance with DER-10 and the NYSDOH Final Guidance on Soil Vapor Intrusion following remedial excavation activities and prior to occupancy.

3.1.1 On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix D) and will be implemented during excavation and foundation construction to protect on-Site workers from accidents and acute and chronic exposures to the identified contaminated media. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP will include continuous perimeter monitoring of dust and organic vapor using TSI DustTrak® Environmental Monitor (DustTrak) aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel will monitor Site perimeters for visible dust and odors.

3.1.2 Support of Excavation

To accommodate removal of soil that exceeds Track 1 UUSCOs, an SOE system will be required. The SOE elements will be designed and installed as per the New York City Department of Buildings (NYCDOB) Code. Additional SOE to support the hotspot excavation area throughout the Site may be constructed, as necessary.

3.1.3 Waste Characterization

Waste characterization will be performed for off-Site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC results will be reported. Data available for excavated material to be disposed of at a given facility will be submitted to the disposal facility with a suitable explanation prior to shipment and receipt.

Hazardous soil will be managed in accordance with applicable federal, state, and local regulations. As such, the handling, transport, and disposal of hazardous fill material is subject to USEPA and Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. The excavated material would be segregated in the field and temporarily placed in stockpiles, or direct loaded and transported by Part 364-permitted trucks to a facility permitted by the Resource Conservation and Recovery Act (RCRA) to accept hazardous waste.

3.1.4 Fill and Soil Removal

Metals, SVOCs, and in some areas, one VOC, pesticides and PFAS that exceed UUSCOs were detected in subsurface fill and soils throughout the Site. Excavation will extend from the surface to at least 18 ft bgs across the Site, two feet below the majority of UUSCO exceedances, to remove material exceeding

UUSCOs. Localized areas surrounding SB-11 and SB-12 will be over-excavated to at least 28 feet bgs and the area centered on SB-15 will be over-excavated to at least 21 ft bgs to address PAHs and metals in deeper soil exceeding UUSCOs. The area centered on SB-17 will be over-excavated to at least 26 to address one VOC in deeper soil exceeding UUSCOs. The Alternative I excavation plan is shown in Figure 10.

The estimated volume of material requiring removal and off-Site disposal for an Alternative I (Track 1) cleanup is approximately 7,130 cu yd. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts. Further, to address soil vapor concerns, additional excavation will be conducted for development purposes to approximately 28 ft bgs. This will facilitate development and have the cellar slab base below the water table to remove source material and avoid the need for a long-term EC for vapor mitigation.

3.1.5 UST Removal

Two 12,000-gallon gasoline USTs and associated appurtenances (e.g., fill lines, vent lines, and electrical conduit), along with any other unanticipated USTs, will be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5, 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances registrations (2-603518) will be updated and administratively closed with the NYSDEC Petroleum Bulk Storage (PBS) unit. If encountered, petroleum-impacted soil will be excavated and disposed of off the Site at a permitted disposal facility in accordance with applicable regulations. Closure documentation, such as contractor affidavits, bills of lading for sludge disposal, and tank disposal receipts, would be provided as appendices in the Final Engineering Report (FER). Documentation samples beneath the USTs will not be collected, as excavation under this alternative would extend well below the anticipated base; however, if impacts are observed, such as staining, odors, and elevated PID readings, additional samples will be taken for CP-51 gasoline compounds.

3.1.6 Excavation Backfill

To the extent required for construction purposes, imported material will consist of clean fill that meets the RRSCOs or other acceptable fill material, such as virgin stone from a quarry or RCA. If RCA is imported to the Site, it will come from an NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of RCA acquisition. RCA imported from compliant facilities will not require chemical testing unless required by NYSDEC under its terms for operation of the source facility. Imported RCA must be derived from recognizable and uncontaminated concrete (less than 10 percent by weight passing through a No. 80 sieve). RCA is not acceptable for, and will not be used as, Site cover or drainage material. NYSDEC Request to Import/Reuse forms will be submitted, and a template is provided in Appendix E.

3.1.7 Confirmation Soil Sampling

Per NYSDEC DER-10, confirmation soil samples will be collected from the bottom of the proposed remedial excavation at a frequency of one sample per 900 sq ft, and sidewall samples and bottom samples will be collected from the hotspot excavation to confirm Track 1 UUSCOs were achieved. An estimated 12 confirmation soil samples, three hotspot bottom confirmation samples, and 12 sidewall confirmation samples from locations SB-11, SB-12, and SB-15, plus QA/QC samples, would be collected

and analyzed for the Part 375 list of VOCs, SVOCs, pesticides, PCBs, metals, PFAS, and 1,4-dioxane. If the proposed endpoint sample does not meet Track 1 UUSCOs, over-excavation and sampling will be performed to ensure that impacted material above Track 1 UUSCOs has been removed from the Site.

3.1.8 Fluids Management

The water table is estimated between 26.31 and 28.75 ft bgs. Dewatering, characterization, and treatment of water accumulated in excavations will occur prior to discharge to an NYCDEP-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.

3.1.9 Post-Remedy Soil Vapor Intrusion Evaluation

VOC contamination, specifically petroleum-related compounds, is observed in the northern portion of the Site in the vicinity of the former pump island. Following remedial actions and prior to occupancy, an SVI Evaluation will be conducted at the Site and submitted to NYSDEC and NYSDOH. The SVI would include indoor air sampling only, as development depth would extend into groundwater. Should the SVI Evaluation indicate SVI, a potential remedial alternative/element may be proposed.

3.2 ALTERNATIVE II – TECHNICAL DESCRIPTION

The Track 2 (Alternative 2) remedy will include the following tasks:

1. Development and implementation of a CHASP and CAMP for the protection of on-Site workers, the community, residents, and the environment during remediation and construction activities.
2. Design and construction of an SOE system to facilitate the Track 2 remediation and provide hydraulic control.
3. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
4. Removal of the existing concrete cover and miscellaneous debris on the Site.
5. Decommissioning of on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy.
6. Excavation, stockpiling, off-Site transport, and disposal of contaminated soil/fill material that exceeds RRSCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet. Excavation and off-site disposal of contaminated soil will extend to approximately 10 feet bgs across the majority of the Site, with deeper localized excavations down to 15 ft bgs. As per the Track 2 remedy, impacts above the RRSCOs at the Site may be left in place below 15 ft. Approximately 3,990 cu yd of soil/fill will be removed as part of this Track 2 remedial excavation.
7. Removal, decommissioning, and off-Site disposal of two 12,000-gallon gasoline USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduit) during redevelopment in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
8. Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.

9. Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to an NYCDEP-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.
10. Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
11. Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
12. Appropriate off-Site disposal of material removed from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
13. Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), RCA, and/or virgin, native crushed stone.
14. Collection and analysis of confirmation soil samples from the excavation base and sidewalls of the source material hotspot excavation areas, in accordance with DER-10, to document post-excavation conditions to confirm a Track 2 remedy was achieved. If the proposed confirmation endpoint sample exceeds the Track 2 RRSCOs in the upper 15 feet, over-excavation and resampling may be performed up to 15 feet, as necessary, to meet Track 2 standards.
15. Documentation samples will be collected at the base of the PAH and metals hotspots (at 15 ft bgs), and confirmation samples will be taken on the sidewalls of the PAH and metals hotspots. If the proposed confirmation sidewall samples exceed the Track 2 RRSCOs, over-excavation and resampling may be performed, as necessary, to meet RRSCOs.
16. Installation of a Soil Vapor Extraction (SVE) system to address elevated petroleum-related VOCs in soil vapor from the proposed cellar development depth of 14 ft bgs to 25 ft bgs, terminating slightly above the observed groundwater depth, in the northeastern portion of the Site and an active SSDS beneath the building footprint.
17. Completion of an SVI Evaluation in accordance with DER-10 and the NYSDOH Final Guidance on Soil Vapor Intrusion following remedial excavation activities and prior to occupancy.
18. Recording of an Environmental Easement (EE), including ICs, to prevent future exposure to any residual contamination remaining at the Site;
19. Publication of a Site Management Plan (SMP) for long-term management of residual contamination as required by the EE, including plans for: (1) ICs and ECs, (2) monitoring, (3) operation and maintenance, and (4) reporting;
20. All responsibilities associated with the RA, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.

3.2.1 On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix D) and will be implemented during excavation and foundation construction to protect on-Site workers from accidents and acute and chronic exposures to the identified contaminated media. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included

in the CAMP. The CAMP will include continuous perimeter monitoring of dust and organic vapor using TSI DustTrak® Environmental Monitor (DustTrak) aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel will monitor Site perimeters for visible dust and odors.

3.2.2 Support of Excavation

To accommodate removal of soil that exceeds Track 2 RRSCOs, a SOE system will be required. The SOE elements will be designed and installed as per the NYCDOB Code. Additional SOE to support the hotspot excavation area throughout the Site may be constructed, as necessary.

3.2.3 Waste Characterization

Waste characterization will be performed for off-Site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC results will be reported. Data available for excavated material to be disposed of at a given facility will be submitted to the disposal facility with a suitable explanation prior to shipment and receipt.

Hazardous soil, if present, will be managed in accordance with applicable federal, state, and local regulations. As such, the handling, transport, and disposal of hazardous fill material is subject to USEPA and OSHA HAZWOPER regulations. The excavated material would be segregated in the field and temporarily placed in stockpiles, or direct loaded and transported by Part 364-permitted trucks to a facility permitted by the RCRA to accept hazardous waste.

3.2.4 Fill and Soil Removal

Metals and SVOCs that exceed RRSCOs were detected in fill material throughout the Site. Excavation will extend from the surface to at least 10 ft bgs across the Site to remove material exceeding RRSCOs. Fill and soil removal will include excavation and off-site disposal of contaminant source areas, including: soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G. Localized areas surrounding SB-11 and SB-06 will be over-excavated to 15 ft bgs to address PAHs source material impacts in deeper soil. An additional hotspot will be excavated to 15 ft bgs at SB-03 to address cadmium, barium, and hazardous lead in deeper soil. However, to meet the Track 2 RRSCOs, all the hot spots samples will be analyzed for the Part 375 list of VOCs, SVOCs, pesticides, PCBs, metals, PFAS, and 1,4-dioxane. The estimated volume of material requiring removal and off-Site disposal for an Alternative II (Track 2) cleanup is approximately 3,990 cu yd. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts. The Alternative II excavation plan is shown in Figure 11.

3.2.5 UST Removal

Two 12,000-gallon gasoline USTs and associated appurtenances (e.g., fill lines, vent lines, and electrical conduit), along with any other unanticipated USTs, will be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5, 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances registrations (2-603518) will be updated and administratively closed with the NYSDEC PBS unit. If encountered, petroleum-impacted soil will be

excavated and disposed of off the Site at a permitted disposal facility in accordance with applicable regulations. Closure documentation, such as contractor affidavits, bills of lading for sludge disposal, and tank disposal receipts, would be provided as appendices in the FER. Documentation samples beneath the USTs will not be collected, as excavation under this alternative would extend well below the anticipated base; however, if impacts are observed, such as staining, odors, and elevated PID readings, additional samples will be taken for CP-51 gasoline compounds.

3.2.6 Excavation Backfill

To the extent required for construction purposes, imported material will consist of clean fill that meets the RRSCOs or other acceptable fill material, such as virgin stone from a quarry or RCA. If RCA is imported to the Site, it will come from an NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of RCA acquisition. RCA imported from compliant facilities will not require chemical testing unless required by NYSDEC under its terms for operation of the source facility. Imported RCA must be derived from recognizable and uncontaminated concrete (less than 10 percent by weight passing through a No. 80 sieve). RCA is not acceptable for, and will not be used as, Site cover or drainage material. NYSDEC Request to Import/Reuse forms will be submitted, and a template is provided in Appendix E.

3.2.7 Confirmation and Documentation Soil Sampling

Per NYSDEC DER-10, confirmation soil samples will be collected from the bottom of the proposed remedial excavation at a frequency of one sample per 900 sq ft, and sidewall samples and bottom samples will be collected from the hotspot excavations (surrounding SB-11, SB-06, and SB-03) to confirm RRSCOs were achieved in the upper 15 feet. An estimated 12 Site-wide and 15 hotspot confirmation soil samples, plus QA/QC samples, would be collected and analyzed for the Part 375 list of VOCs, SVOCs, pesticides, PCBs, metals, PFAS, and 1,4-dioxane. If the proposed endpoint sample does not meet the applicable RRSCOs in the upper 15 feet, over-excavation and sampling will be performed to ensure that impacted material above Track 2 requirements has been removed from the Site.

Collection and analysis of confirmation samples at the 10-foot remedial excavation depth will be used to verify that SCOs for the site have been achieved. **If confirmation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify NYSDEC, submit the sample results and, in consultation with NYSDEC, determine if further remedial excavation is necessary**. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the Site have been achieved. In addition, documentation samples will be collected from the 15-foot excavation depth in the northwest and central portion of the Site.

Should documentation samples taken at the base of the hotspots at 15 feet indicate exceedances of RRSCOs, this will be documented in the FER and material left in place beneath 15 ft bgs with a demarcation layer, such as orange snow fence or equivalent, installed prior to backfilling or composite cover placement.

When tanks are excavated, if contaminated soil is removed beyond the 10-foot remedial depth, the number and location of confirmation samples beneath the tank areas should be collected pursuant to paragraph 5.4(b)5 of DER-10.

During remedial action, confirmation samples should be biased toward locations with the highest expected contamination based on previous investigation (i.e. areas including tank area and hotspot locations) and based on field indicators.

3.2.8 Fluids Management

The water table is estimated between 26.31 and 28.75 ft bgs. Dewatering, characterization, and treatment of water accumulated in excavations will occur prior to discharge to an NYCDEP-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.

3.2.9 Soil Vapor Extraction System and Pilot Test

Based on the remedial investigation results, petroleum-related VOCs (BTEX) were identified in the deeper vadose zone, with exceedances of UUSCOs observed between approximately 23 and 27 ft bgs, localized in the vicinity of SB-12 and SB-17. In addition, elevated BTEX concentrations were detected in soil vapor (SG-02) at the depth of 20 to 22 ft bgs, indicating the potential remaining contamination within the deeper vadose zone. No VOC exceedances were observed in shallower soils above these intervals, suggesting that the impacts are vertically limited to the deeper vadose zone and are not present in the upper soil profile. Furthermore, site excavation will be extended to approximately 14 ft to 16 ft bgs, and an SSDS will be installed below the proposed slab to mitigate potential vapor intrusion pathways to the proposed building. Therefore, an SVE system will be installed throughout the unsaturated soil in the northern portion of the Site from approximately 19 to 24 ft bgs to address the potential remaining contamination in the deeper vadose zone (the approximate depth of the groundwater table is 26 ft bgs).

A conceptual SVE system layout is shown on Figure 12 and an SVE pilot test location plan is shown on Figure 12A. An SVE Pilot Study will be performed to determine the vapor extraction point (VEP) radius of influence (ROI) and the vacuum required to achieve the desired flow rates.

Prior to the pilot test, the four proposed vacuum extraction points (VEPs) will be installed in the excavated area to approximately 25 ft bgs where the VEP wells will be screened from approximately 19 to 24 ft bgs. The VEPs will be at least 2-inch diameter, schedule 40 PVC, and have 0.010-inch slot screens. Each VEP well pipe will enter the basement area through sealed penetrations in the basement concrete floor. Additionally, SVE pilot test monitoring points will be installed at a depth of approximately 21-22 ft bgs and consist of 12-inch stainless steel screens, connected to the surface with Teflon tubing. For each VEP well, three monitoring points (1-inch PVC wells) will be installed and screened from 21 to 22 ft bgs at distances of 5 ft, 10 ft, and 15 ft from the SVE well (**Figure 12A**). Monitoring points will be used to collect vacuum readings during blower operation. Once installed, a pilot test would be conducted on each VEP with a regenerative blower. Vacuum readings will be collected at the MPs at different applied vacuums and flow rates to achieve an effective ROI based on a vacuum reading of 0.1 inches of water column (IWC). The SVE pilot test results will be incorporated into a remedial design report and submitted to the NYSDEC for review and approval before implementation at the Site.

After the pilot test, additional VEPs would be installed if the results of Pilot Testing indicate more would be required and the above-grade components of the SVE system will be installed. Each 2-inch diameter pipe will each have a dedicated sample port and valve prior to being plumbed to a 4-inch header pipe

that will be connected to the SVE system. The pipe will be sloped such that any condensate in the lines will drain back to the VEPs. The extraction points will be valved independently.

The above-grade SVE system will have an air-water separator, blower, and vapor treatment system. The air-water separator will be used to separate condensate from the vapor stream. The extracted water will be pumped from the separator to a tank. Any collected water will be analyzed for VOCs and properly disposed of off the Site. Off-gas from the SVE blower would be treated with two drums of granular activated carbon in series. The exhaust point of the SVE system shall be at least 12 inches above the highest roof surface and at least 10 ft away from any adjacent building or heating, ventilation, and air conditioning (HVAC) intakes.

The SVE system blower will be sized based on the results of the Pilot Test to remove at least four to six pore volumes of soil vapor per day. For the conceptual design and using an ROI of 15 ft, a treatment thickness of 5 ft, and a porosity of 30 percent, the soil vapor pore volume is approximately 1,060 cubic feet (cf) for each VEP. The flow rate to remove at least four pore volumes per day is approximately 5 cubic feet per minute (cfm). The SVE system blower will therefore need a total flow rate of at least 20 cfm. The vacuum of the blower is unknown at this time, since no SVE Pilot Test has been performed; however, once the VEPs have been installed, the Pilot Test will be performed to determine the appropriate vacuum required to remove at least 20 cfm from the system. To account for system losses and operational flexibility, the blower should be sized with a capacity of approximately 25 to 50 cfm at an appropriate vacuum.

Confirmation of the SVE system influence will be determined by measuring the vacuum in newly installed monitoring points (MPs) to be installed within the SVE treatment system footprint. The MPs will consist of 12-inch stainless steel screens, connected to the surface with Teflon tubing. The proposed locations of these MPs are shown on Figure 12. It is noted that MP locations will be subject adjustment in the field to account for site-specific conditions.

3.2.10 Active Sub-Slab Depressurization System

An active SSDS will be installed in the proposed building as an engineering control. The SSDS will consist of a horizontal perforated piping installed in a permeable layer under the vapor barrier. The permeable layer will be 6-in. thick ¾ -in. washed aggregate, or similar permeable material. The horizontal piping will consist of 3-in. diameter perforated Schedule 40 PVC pipes with leader pipes connecting to the vertical risers. The vertical risers will be constructed of solid steel pipe risers and exit through the cover systems with sealed penetrations. Each riser will have a sample port assembly installed in the cellar. The exhaust point of the riser shall be at least 12-in. above the highest roof surface and at least 10-ft away from any adjacent building or heating, ventilation, and air conditioning (HVAC) intakes. It will be complete with a check valve, to prevent air flow into the SSDS, and a rain cap. Up to seven permanent sub-slab vapor / vacuum monitoring points will be installed in the permeable layer 2 to 3 in. below the vapor barrier to allow for the collection of sub-slab vacuum measurements.

The preliminary location and layout of the active SSDS are shown in Figure 13. Typical SSDS design details are shown in Figure 14.

3.2.11 Post- Mitigation Confirmatory Sampling

VOC contamination, specifically petroleum-related compounds, is observed in the northern portion of the Site in the vicinity of the former pump island. Following RAs and prior to occupancy, post-mitigation confirmatory sampling will be conducted to confirm the system's efficacy. It is noted that post-mitigation confirmatory sampling will occur when the mitigation system has been fully operational for a minimum of 30 days, when the building is complete and operating under normal conditions, and will occur prior to occupancy. The sampling event will include the measurement of sub-slab vacuum from the monitoring points and collection of indoor/ambient air samples. It is noted that this sampling may be performed in the heating season to confirm effectiveness of addressing this potential exposure pathway. Sub-slab vapor samples are not required to evaluate the system's effectiveness.

3.2.11.1 Indoor/Ambient Air Sampling Plan

Six indoor air samples and one ambient air sample will be collected. The indoor and ambient air samples will be collected from breathing height (3 to 5 ft above the floor) from within the Site building and outside the Site building, respectively. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for 24 hours in residential spaces and eight hours in commercial spaces. Indoor air samples will be collected in laboratory-supplied 2- or 6-liter SUMMA® canisters using 24-hour regulators. All indoor air sample containers will be appropriately labeled and closed. Chain of custody documents will be completed before shipment. All indoor air samples will be analyzed for VOCs by USEPA Method TO-15 and sent to an Environmental Laboratory Accreditation Program-certified laboratory. While post-mitigation indoor air sampling is conducted, field parameters such as PID readings and sub-slab vacuum will be measured at each sub-slab vapor monitoring point to confirm the system efficacy. The results of the pressure and indoor air testing will be submitted to NYSDEC and NYSDOH. Figure 13 shows the conceptual SSDS layout/design, the locations of sub-slab vapor monitoring points, indoor air samples, and the ambient air sample.

3.2.12 Site Management Plan and Environmental Easement

An EE would be recorded referencing ICs that are part of the selected remedy, which would be binding upon all subsequent owners and occupants of the property. The ICs would: 1) restrict the Site's use to restricted residential, commercial, and industrial uses, although land use is subject to local zoning laws; 2) restrict the use of groundwater as a source of potable or process water, unless it undergoes necessary water quality treatment as determined by the NYSDEC or NYSDOH; 3) require implementation of an NYSDEC-approved SMP; 4) require the completion and submission to the NYSDEC of a periodic certification of ICs and ECs in accordance with Part 375; and 5) include notice-of-use restrictions of the Site's soil. The SVE and active SSDS systems would function as a temporary EC/remedial element requiring monitoring prior to decommissioning, with approval from NYSDEC and NYSDOH. This alternative would require no permanent ECs for the Site.

The SMP would identify all use restrictions and long-term monitoring and maintenance requirements to ensure the ICs and remedial systems remain in place and are effective. The SMP will include, but may not be limited to:

1. An IC and EC Plan that includes:

a. Descriptions of the provisions of the ICs, including any land use, and/or groundwater use restrictions;
b. Provisions for the management and inspection of the identified ICs and ECs;
c. Provisions to add the EE or deed restrictions;
d. Maintaining Site access controls and NYSDEC notification;
e. The steps necessary for the periodic reviews and certification of the ICs and/or ECs;
f. An Excavation Work Plan which details the provisions for management of future excavations in areas of remaining contamination;
g. Media-specific implementation plans, including, but not limited to, cap system management, installation/operation, etc.; and,
h. The HASP and CAMP.

2. A monitoring plan to assess the performance and effectiveness of the remedy. The monitoring plan includes, but may not be limited to:
    a. Periodic monitoring of SVE and SSDS; and,
    b. A schedule of monitoring and frequency of submittals to the NYSDEC.
3. An Operation and Maintenance Plan as may be required by the EC Plan discussed above.

3.3 ALTERNATIVE III – TECHNICAL DESCRIPTION

The Track 4 (Alternative 3) remedy will include the following tasks:

1. Development and implementation of a CHASP and CAMP for the protection of on-Site workers, the community, residents, and the environment during remediation and construction activities.
2. Design and construction of an SOE system to facilitate hotspot excavations required to achieve a Track 4 remediation.
3. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
4. Removal of the existing concrete cover and miscellaneous debris on the Site.
5. Decommissioning of on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy.
6. Excavation, stockpiling, off-Site transport, and disposal of contaminated soil/fill material Site-wide that exceeds RRSCOs in shallow soils as defined by 6 NYCRR Part 375-6.8. Site-wide excavation will extend to 2 ft bgs with hotspot excavations to at least 28 feet bgs centered on SB-11 and to at least 17 ft bgs centered on SB-06 to address PAH source material impacts in deeper soil. An additional hotspot will be excavated to 18 ft bgs at SB-03 to address hazardous lead in deeper soil. An estimated 885 cu yd of soil/fill will be removed for Track 4 excavation.
7. Removal, decommissioning, and off-Site disposal of two 12,000-gallon gasoline USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduit) during redevelopment in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.

8. Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
9. Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to an NYCDEP-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.
10. Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
11. Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
12. Appropriate off-Site disposal of material removed from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
13. Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), RCA, and/or virgin, native crushed stone.
14. Collection and analysis of confirmation soil samples from the excavation base and sidewalls of the source material hotspot excavation areas, in accordance with DER-10, to document post-excavation conditions to confirm source material was removed. If the proposed confirmation endpoint samples exceed the applicable RRSCOs, over-excavation and resampling may be performed, as necessary.
15. Documentation samples will be collected at the base of the excavation to document residual contamination remaining on the Site.
16. Installation of an active SSDS to control elevated petroleum-related VOCs in the northeastern portion of the Site.
17. Completion of an SVI Evaluation in accordance with DER-10 and the NYSDOH Final Guidance on Soil Vapor Intrusion following remedial excavation activities and prior to occupancy.
18. Recording of an EE, including ICs, to prevent future exposure to any residual contamination remaining at the Site.
19. Publication of an SMP for long-term management of residual contamination as required by the EE, including plans for: (1) ICs and ECs, (2) monitoring, (3) operation and maintenance, and (4) reporting.
20. All responsibilities associated with the RA, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.

3.3.1 On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix D) and will be implemented during excavation and foundation construction to protect on-Site workers from accidents and acute and chronic exposures to the identified contaminated media. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP will include continuous perimeter monitoring of dust and organic vapor using

TSI DustTrak® Environmental Monitor (DustTrak) aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel will monitor Site perimeters for visible dust and odors.

3.3.2 Support of Excavation

To accommodate removal of soil under a Track 4 remedy, an SOE system will be required specifically for hotspot excavation. The SOE elements will be designed and installed as per the NYCDOB Code.

3.3.3 Waste Characterization

Waste characterization will be performed for off-Site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC results will be reported. Data available for excavated material to be disposed of at a given facility will be submitted to the disposal facility with a suitable explanation prior to shipment and receipt.

Hazardous soil, if present, will be managed in accordance with applicable federal, state, and local regulations. As such, the handling, transport, and disposal of hazardous fill material is subject to USEPA and OSHA HAZWOPER regulations. The excavated material would be segregated in the field and temporarily placed in stockpiles, or direct loaded and transported by Part 364-permitted trucks to a facility permitted by the RCRA to accept hazardous waste.

3.3.4 Fill and Soil Removal

Metals and SVOCs that exceed RRSCOs were detected in fill material throughout the Site. Excavation will extend from the surface to at least 2 ft bgs across the Site to remove material exceeding RRSCOs. Localized areas surrounding SB-11, SB-06, and SB-03 will be over-excavated to 28 ft bgs, 17 ft bgs, and 18 ft bgs, respectively, to address PAH and lead source material impacts in deeper soil. The Alternative III excavation plan is shown in Figure 15.

The estimated volume of material requiring removal and off-Site disposal for an Alternative III (Track 4) cleanup is approximately 885 cu yd. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts.

3.3.5 UST Removal

Two 12,000-gallon gasoline USTs and associated appurtenances (e.g., fill lines, vent lines, and electrical conduit), along with any other unanticipated USTs, will be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5, 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances registrations (2-603518) will be updated and administratively closed with the NYSDEC PBS unit. If encountered, petroleum-impacted soil will be excavated and disposed of off the Site at a permitted disposal facility in accordance with applicable regulations. Closure documentation, such as contractor affidavits, bills of lading for sludge disposal, and tank disposal receipts, would be provided as appendices in the FER. Documentation samples beneath and along the sidewalls of the USTs will be collected as per the frequency required by DER-10 and analyzed for CP-51 gasoline compounds.

3.3.6 Excavation Backfill

To the extent required for construction purposes, imported material will consist of clean fill that meets the RRSCOs or other acceptable fill material, such as virgin stone from a quarry or RCA. If RCA is imported to the Site, it will come from an NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of RCA acquisition. RCA imported from compliant facilities will not require chemical testing unless required by NYSDEC under its terms for operation of the source facility. Imported RCA must be derived from recognizable and uncontaminated concrete (less than 10 percent by weight passing through a No. 80 sieve). RCA is not acceptable for, and will not be used as, Site cover or drainage material. NYSDEC Request to Import/Reuse forms will be submitted, and a template is provided in Appendix E.

3.3.7 Confirmation and Documentation Soil Sampling

Per NYSDEC DER-10, documentation soil samples will be collected from the bottom of the proposed remedial excavation at a frequency of one sample per 900 sq ft, and confirmation sidewall samples and bottom samples will be collected from the hot spot excavations (surrounding SB-11, SB-06, and SB-03) to confirm RRSCOs were achieved. An estimated 12 confirmation soil samples, three hotspot bottom confirmation samples, and twelve sidewall confirmation samples, plus QA/QC samples, would be collected and analyzed for the Part 375 list of VOCs, SVOCs, pesticides, PCBs, metals, PFAS, and 1,4-dioxane. If the proposed endpoint sample does not meet the applicable RRSCOs, over-excavation and sampling will be performed to ensure that source material has been removed from the Site.

3.3.8 Fluids Management

The water table is estimated between 26.31 and 28.75 ft bgs. Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to an NYCDEP-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.

3.3.9 Composite Cover and Waterproofing/Vapor Barrier System

A composite cover system will be installed, consisting of an 8-inch layer of clean sub-base (i.e., virgin stone), overlain by an 8-inch concrete slab and installation of a waterproofing/vapor barrier (20-mil thick minimum). Under the Alternative III – Track 4 cleanup, this composite cover system would be considered an EC to be monitored under the SMP.

3.3.10 Sub-Slab Vapor Extraction System

An active SSDS will be installed as a permanent EC. The SSDS will consist of horizontal perforated piping installed in a permeable layer under the vapor barrier. The permeable layer will be 6-inch thick 3/4-inch washed aggregate, or similar permeable material. The horizontal piping will consist of 3-inch diameter perforated schedule 40 PVC pipes with leader pipes connecting to the vertical risers. The vertical risers will be constructed of solid steel pipe risers and exit through the cover systems with sealed penetrations. Each riser will have a blower fan to actively remove sub-slab vapor from below the building. The exhaust point of the riser shall be at least 12 inches above the highest roof surface and at

least 10 ft away from any adjacent building or HVAC intakes and be complete with a rain cap. At least four sub-slab vapor monitoring points will be installed in the permeable layer below the vapor barrier to allow for the collection of sub-slab vapor samples.

3.3.11 Post-Remedy Soil Vapor Intrusion Evaluation

VOC contamination, specifically petroleum-related compounds, is observed in the northern portion of the Site in the vicinity of the former pump island. Following RAs and prior to occupancy, an SVI Evaluation will be conducted at the Site and submitted to NYSDEC and NYSDOH. Should the SVI Evaluation indicate SVI, a potential remedial alternative/element may be proposed.

3.3.12 Site Management Plan and Environmental Easement

An EE would be recorded referencing ICs that are part of the selected remedy, which would be binding upon all subsequent owners and occupants of the property. The ICs would: 1) restrict the Site's use to restricted residential, commercial, and industrial uses, although land use is subject to local zoning laws; 2) restrict the use of groundwater as a source of potable or process water, unless it undergoes necessary water quality treatment as determined by the NYSDEC or NYSDOH; 3) require implementation of an NYSDEC-approved SMP; 4) require the completion and submission to the NYSDEC of a periodic certification of ICs and ECs in accordance with Part 375; and 5) include notice-of-use restrictions of the Site's soil. The ECs for the Site would include the composite cover system (including concrete foundation) and SSDS.

The SMP would identify all use restrictions, ECs, and long-term monitoring and maintenance requirements to ensure the ICs and/or ECs remain in place and are effective. The SMP will include, but may not be limited to:

1. An IC and EC Plan that includes:
    a. Descriptions of the provisions of the ICs including any land use, and/or groundwater use restrictions;
    b. Provisions for the management and inspection of the identified ICs and ECs;
    c. Provisions to add the EE or deed restrictions;
    d. Maintaining Site access controls and NYSDEC notification;
    e. The steps necessary for the periodic reviews and certification of the ICs and/or ECs;
    f. An Excavation Work Plan which details the provisions for management of future excavations in areas of remaining contamination;
    g. Media-specific implementation plans including, but not limited to cap system management, installation/operation, etc.; and,
    h. The HASP and CAMP.
2. A monitoring plan to assess the performance and effectiveness of the remedy. The monitoring plan includes, but may not be limited to:
    a. Periodic monitoring of SSDS; and,
    b. A schedule of monitoring and frequency of submittals to the NYSDEC.

3. An Operation and Maintenance Plan as may be required by the EC Plan discussed above.

3.4 EVALUATION OF REMEDIAL ALTERNATIVES

The following is an evaluation of the proposed remedy based on the BCP remedy evaluation criteria listed below. The first two criteria are considered "threshold criteria," and the remaining criteria are "balancing criteria."

A remedial alternative must meet the threshold criteria to be considered and evaluated further under the balancing criteria:

1. Protection of human health and the environment
2. Compliance with SCG
3. Short-term effectiveness and impacts
4. Long-term effectiveness and permanence
5. Reduction of toxicity, mobility, or volume of contaminated material
6. Implementability
7. Cost-effectiveness
8. Community acceptance
9. Green and Sustainable Remediation (including climate resiliency)
10. Land use

3.4.1 Protection of Human Health and the Environment

All three alternatives will be protective to human health and the environment, with Alternative I (Track 1) being most protective by removing all source material and material exceeding UUSCOs. Alternative II would be the next most protective by removing all material exceeding RRSCOs and treating residual soil vapor contamination via SVE and active SSDS. Alternative III (Track 4) would be the least protective but would still remove soil impacted above RRSCOs in the top 2 ft of material at the Site, remove source material, and control soil vapor impacts via active SSDS.

3.4.2 Compliance with Standards, Criteria, and Guidance

All three alternatives will be in compliance with applicable SCGs listed in Section 4.1 by removing Site sources of contamination to achieve the RAOs. While implementing either remedy, the protection of public health and the environment will be maintained by enforcing a Site-specific CHASP and CAMP. OSHA requirements for on-Site construction safety will be followed by Site contractors performing work.

3.4.3 Short-Term Effectiveness and Impacts

Alternative I would have greater short-term impacts due to the longevity of construction to excavation and achieve a Track 1 remedy. Increasing excavation increases the longevity of and noise during

construction activities. Additional materials, equipment, and machinery will be required for Alternative I in comparison to the other two alternatives due to the required depths of excavation.

Short-term construction activities of all three remedial alternatives include soil excavation, structure installation, and off-Site trucking. Remediation under all three remedial alternatives will involve ground-intrusive work that would potentially cause dust, odor, and VOC migration from the Site to off-Site receptors, as well as require off-Site trucking for contaminated soil disposal, resulting in automobile emissions to the environment. Under Alternative I, the excavated soil would require approximately 355 20-cu-yd truck trips for disposal. Under Alternative II, the excavated soil and fill would require approximately 200 20-cu-yd truck trips for disposal. Under Alternative III, the excavated soil would require approximately 42 20-cu-yd truck trips for disposal. Alternative I would require five to seven months of effort (assuming normal work hours). Alternative II would require four to six months of effort (assuming normal work hours). Alternative III would require three to five months of effort (assuming normal work hours). Therefore, the short-term impacts with respect to excavation for all three alternatives are very similar.

The most significant short-term adverse impacts and risks to the community for all three alternatives will be the potential complications and risks involved with designing and constructing the SOE and underpinning for the building and structures adjoining the Site. Short-term construction activities of all three remedial alternatives include Site-wide soil excavation for development purposes. Alternative I would include excavation to the greatest depths of 18 ft bgs and 28 ft bgs in one hotspot area, resulting in a moderate increase in short-term adverse impacts from excavation.

Truck traffic will be routed on the most direct course using major thoroughfares where possible and appropriate (see Section 5.4.4 for a full discussion of truck routing), and flaggers will be used to protect pedestrians at Site entrances and exits. Waiting times associated with the analysis of confirmation sampling and resampling may delay construction, leaving soil exposed for a longer time, resulting in a potential increase in dust, odors, and/or organic vapor from the excavation and construction-related noise. The effects of these potential adverse impacts on the community, workers, and the environment will be minimized by implementing the respective control plans.

Under all three remedial alternatives, dust suppression efforts, such as slowing the pace of work, applying foam and/or dust suppressant, and/or covering portions of the excavation, will be used to mitigate odors/dust when required. Work will be modified or stopped according to the action levels defined in the CAMP.

3.4.4 Long-Term Effectiveness and Performance

Alternative I will remove contaminated soil from the Site that exceeds UUSCOs and treat the contamination in groundwater via dewatering. The building foundation would be installed into the groundwater table in this scenario as well, eliminating the viability of a vapor treatment system. Alternative II will remove contaminated soil from 0 to 10 ft bgs that exceeds RRSCOs, along with source material hotspots to 28 ft bgs. Alternative III will remove contaminated soil from 0 to 2 ft bgs that exceeds RRSCOs, along with source material hotspots to 28 ft bgs. Alternatives I, II, and III will require post-remediation soil documentation/confirmation sampling to document soil quality and residual contamination below the Site. All alternatives will require a post-construction SVI Evaluation to evaluate the potential for vapor intrusion into the newly constructed building. For Alternatives II and III, ICs will

be in place for long-term protection of human health and the environment. Short-term ECs and ICs will be in place for Alternative II for the protection of human health and the environment until the SVE treatment is complete. Long-term ECs will be in place for Alternative III for protection of human health and the environment, including ongoing maintenance of the SSDS. All alternatives are effective long term; however, Alternative I requires the least performance monitoring.

3.4.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

All three remedial alternatives would permanently and significantly reduce the toxicity, mobility, and volume of contamination through removal of contaminated fill and buried solid waste through excavation and off-Site disposal.

3.4.6 Implementability

Implementing a Track 1 remedy will require more effort due to the increased excavation and dewatering, which require additional personnel, equipment, and space for excavation rigs and equipment and material staging. If deeper contamination above UUSCOs is encountered, requiring unanticipated over-excavation, the implementability of Alternative I will become more challenging in comparison to the installation of ECs for Alternatives II and III due to the challenges and unknown conditions that may be encountered at greater depths.

Implementing the Track 2 and Track 4 remedies will require effort to install the vapor mitigation systems (SVE and SSDS, respectively), which will require equipment, qualified contractors, startup testing, and monitoring to confirm

All three Alternatives will be technically challenging because of SOE requirements associated with the protection of the neighboring buildings and streets; however, the SOE requirements will be comparable to those required for construction. All three remedies would consist primarily of excavation with standard bucket excavators. The availability of local contractors, personnel, and equipment suitable for working in a structurally challenging environment is high due to the frequency of this type of remediation in the region. The excavation and SOE are not expected to require schedule extensions or incur additional costs.

All three Alternatives are considered feasible.

3.4.7 Cost Effectiveness

Alternative I – Based on the assumptions detailed for Alternative I, the estimated remediation cost of a Track 1 cleanup is approximately $6,774,000. As the Site will reach a Track 1 cleanup level, there would not be costs incurred over the first five years post-remedy for maintenance, Site management, and monitoring activities upon the completion of remedial activities. Table 3 details the individual cost components used to derive this cost estimate.

Alternative II – Based on the assumptions detailed for Alternative II, the estimated remediation cost of a Track 2 cleanup is approximately $4,579,000. As the Site will reach a Track 2 cleanup level, there would be some costs incurred over the first five years post-remedy for maintenance, Site management,

temporary ECs/remedial systems (SVE), and monitoring activities upon the completion of remedial activities. Table 4 details the individual cost components used to derive this cost estimate.

Alternative III – Based on the assumptions detailed for Alternative III, the estimated remediation cost of a Track 4 cleanup is approximately $3,673,000. Although Alternative III is more cost-effective in the short term, Alternative II is more cost-effective in the long term, as it will not require long-term operations, maintenance, or a permanent EC (SSDS). Table 5 details the individual cost components used to derive this cost estimate.

3.4.8 Community Acceptance

All three remedial alternatives should be acceptable to the community because the potential exposure pathways to on-Site contamination will be addressed upon completion of the respective remedies, and the Site will be remediated to allow for a higher-level use. The selected remedy will be subject to a 45-day public comment period in accordance with the Citizen Participation Plan (CPP), included as Appendix F. Substantive public comments will be addressed before the remedy is approved.

3.4.9 Green and Sustainable Remediation

An environmental footprint analysis was conducted for Alternative I (Track I remedy) and Alternative II (Track 2 remedy). Alternative I would potentially export a slightly greater volume (approximately 10,695 tons) of non-hazardous waste off the Site to a recycling facility than Alternative II, a Track 2 remedy (approximately 5,985 tons), due to the hotspot excavation. Additionally, Alternative I will result in slightly more air emissions than Alternatives II and III due to drill rig operations during groundwater injections, as well as the potential for additional excavation and off-Site disposal to achieve UUSCOs.

3.4.10 Land Use

The current, intended, and reasonably anticipated future residential land use of the Site and its surroundings is compatible with both remedial alternatives. The proposed development will include the construction of a mixed-use commercial/residential building with a top of cellar slab situated approximately 11 ft bgs. Low- to mid-rise residential and commercial use buildings are located at properties surrounding the Site.

3.5 SELECTION OF THE PREFERRED REMEDY

All Alternatives will be protective of human health and the environment and meet the remedy selection criteria. Alternative I is feasible but very challenging due to the potential for extensive excavation to achieve a Track 1 remedy. Alternative II achieves the RAOs established for the project and is effective in the short and long term. Alternative II effectively reduces contaminant mobility, toxicity, and volume. Alternative II is also more cost-effective in the long term because it achieves restricted residential land use requirements and lower long-term costs compared to Alternative III. The SOE requirements for all three Alternatives are comparable and have similar remedial costs; however, the potential for increased costs due to deeper excavation may increase the cost for Alternative I. Alternative II is preferred over Alternatives I and III, as it provides a similar protection to human health and the environment and is more defined in comparison to Alternative I and at a slightly reduced cost. Therefore, Alternative II is the recommended remedial alternative for this Site.

Figure 10 depicts the Alternative I cleanup plan; Figure 11 depicts the Alternative II cleanup plan; and Figure 15 depicts the Alternative III cleanup plan. The Alternative I, II, and III remediation extent is based on data presented in the RIR.

3.5.1 Zoning

The Site is located within an R6A residential zoning district with a C2-4 overlay, characterized by low-rise commercial and residential buildings and multi-family high-rise buildings. The preferred remedy will support the proposed development that is under current zoning.

3.5.2 Applicable Comprehensive Community Master Plans or Land Use Plans

While there are no applicable comprehensive community master plans or land use plans associated with the Bushwick neighborhood, where the Site is located, development trends include the promotion of housing preservation, encouragement of economic development, and creation of pedestrian-friendly streets. The proposed housing components and redevelopment plan are consistent with the reasonably anticipated development patterns of the area. A copy of the zoning map is included in Appendix B.

3.5.3 Surrounding Property Uses

The current, intended, and reasonably anticipated future land use of the Site and its surroundings is compatible with the selected remedy. The construction of a mixed-use commercial and residential building conforms to recent development patterns in the area and current zoning.

3.5.4 Citizen Participation

All three remedial alternatives should be acceptable to the community because the potential exposure pathways to on-Site contamination will be addressed upon completion of the respective remedies, and the Site will be remediated to allow for a higher-level use. The selected remedy will be subject to a 45-day public comment period in accordance with the CPP, included as Appendix F. Substantive public comments will be addressed before the remedy is approved.

3.5.5 Environmental Justice Concerns

Per the “Potential Environmental Justice Areas in Kings County, New York,” the Site is in a potential Environmental Justice area, identified as Census Block Group 15000US360470389001, with 22.7 percent of the population below the poverty level and a minority population of 78.23 percent. The NYSDEC’s Office of Environmental Justice acts as an advocate on behalf of these areas, which are disproportionately affected by environmental burdens. The proposed remedy will best reduce the environmental burden on the surrounding area.

3.5.6 Land Use Designations

There are no federal or state land use designations.

3.5.7 Population Growth Patterns

The population growth patterns and projections support the current and anticipated future land use.

3.5.8 Accessibility to Existing Infrastructure

The Site is accessible to existing infrastructure.

3.5.9 Proximity To Cultural Resources

The Site is not in close proximity to a registered landmark.

3.5.10 Proximity to Natural Resources

The Site is not located in close proximity to important federal, state, or local natural resources, including waterways, wildlife refuges, wetlands, and critical habitats of endangered or threatened species.

3.5.11 Off—Site Groundwater Impacts

Municipal water supply wells are not present in this area of New York City; therefore, groundwater from the Site does not affect municipal water supply wells or recharge areas.

3.5.12 Proximity to Floodplains

The Site is not located in a floodplain.

3.5.13 Geography and Geology of the Site

The Site geology is described in Section 2.3 and will not pose greater challenges to the implementation of the preferred remedy than to the alternative.

3.5.14 Current Institutional Controls

There are currently no ICs being implemented at the Site.

3.6 SUMMARY OF THE SELECTED REMEDIAL ACTION

The selected Track 2 (Alternative II) remedy will include the following tasks:

1. Development and implementation of a CHASP and CAMP for the protection of on-Site workers, the community, residents, and the environment during remediation and construction activities.
2. Design and construction of an SOE system to facilitate the Track 2 remediation and provide hydraulic control.
3. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
4. Removal of the existing concrete cover and miscellaneous debris on the Site.

5. Decommissioning of on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy.
6. Excavation, stockpiling, off-Site transport, and disposal of contaminated soil/fill material that exceeds RRSCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet. Excavation and off-site disposal of contaminated soil will extend to approximately 10 feet bgs across the majority of the Site, with deeper localized excavations down to 15 ft bgs. As per the Track 2 remedy, impacts above the RRSCOs at the Site may be left in place below 15 ft. Approximately 3,990 cu yd of soil/fill will be removed as part of this Track 2 remedial excavation.
7. Removal, decommissioning, and off-Site disposal of two 12,000-gallon gasoline USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduit) during redevelopment in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
8. Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
9. Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to an NYCDEP-approved sewer/sanitary line (pending the Long Island Water Well and Water Withdrawal permits if required), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.
10. Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
11. Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
12. Appropriate off-Site disposal of material removed from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
13. Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), RCA, and/or virgin, native crushed stone.
14. Collection and analysis of confirmation soil samples from the excavation base and sidewalls of the source material hotspot excavation areas, in accordance with DER-10, to document post-excavation conditions to confirm a Track 2 remedy was achieved. If the proposed confirmation endpoint sample exceeds the Track 2 RRSCOs in the upper 15 feet, over-excavation and resampling may be performed up to 15 feet, as necessary, to meet Track 2 standards.
15. Documentation samples will be collected at the base of the PAH and metals hotspots (at 15 ft bgs), and confirmation samples will be taken on the sidewalls of the PAH and metals hotspots. If the proposed confirmation sidewall samples exceed the Track 2 RRSCOs, over-excavation and resampling may be performed, as necessary, to meet RRSCOs.
16. Installation of an SVE system to address elevated petroleum-related VOCs in soil vapor from the proposed cellar development depth of 14 ft bgs to 25 ft bgs, terminating slightly above the observed groundwater depth, in the northeastern portion of the Site and an active SSDS beneath the building footprint.
17. Completion of an SVI Evaluation in accordance with DER-10 and the NYSDOH Final Guidance on Soil Vapor Intrusion following remedial excavation activities and prior to occupancy.

18. Recording of an EE, including ICs, to prevent future exposure to any residual contamination remaining at the Site;
19. Publication of an SMP for long-term management of residual contamination as required by the EE, including plans for: (1) ICs and ECs, (2) monitoring, (3) operation and maintenance, and (4) reporting;
20. All responsibilities associated with the RA, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.

Remedial activities will be performed in accordance with this RAWP and the NYSDEC-issued Decision Document under the oversight of a New York State-licensed Professional Engineer. Deviations from the RAWP and/or Decision Document will be promptly reported to the NYSDEC for approval and explained in the FER.

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and Site management of the remedy per DER-31. The major green remediation components are as follows:

1. Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
2. Reducing direct and indirect greenhouse gases and other emissions;
3. Increasing energy efficiency and minimizing the use of non-renewable energy;
4. Conserving and efficiently managing resources and materials;
5. Reducing waste, increasing recycling, and increasing reuse of materials which would otherwise be considered a waste;
6. Maximizing habitat value and creating habitat when possible;
7. Fostering green and healthy communities and working landscapes which balance ecological, economic, and social goals;
8. Integrating the remedy with the end use where possible and encouraging green and sustainable redevelopment; and
9. Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this Site, any future on-Site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the Remedial Design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis was completed and is included in Appendix G. The environmental footprint analysis was completed using USEPA's Spreadsheets for Environmental Footprint Analysis (SEFA), which is an NYSDEC-accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction, and material use were estimated for both alternatives. Goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, are incorporated into the Remedial Design program, as

appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during the implementation of the RA and reported in the FER, including a comparison to the goals established during the Remedial Design program.

Additionally, the Remedial Design program includes a climate change vulnerability assessment to evaluate the impact of climate change on the project Site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress, and drought), flooding, and sea level rise will be identified, and the Remedial Design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities. Climate change is not expected to have a significant impact on the remedial system.

4. Remedial Action Program

4.1 GOVERNING DOCUMENTS

The primary documents governing the RA are summarized in this section.

4.1.1 Standards, Criteria, and Guidance

- 29 Code of Federal Regulations (CFR) Part 1910.120 – HAZWOPER
- 6 NYCRR Part 364 – Waste Transporter Permits
- 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities
- 6 NYCRR Subpart 373-4 – Facility Standards for the Collection of Household Hazardous Waste and Hazardous Waste from Conditionally Exempt Small Quantity Generators
- 6 NYCRR Subpart 374-1 – Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
- 6 NYCRR Subpart 374-3 – Standards for Universal Waste
- 6 NYCRR Part 375 – Environmental Remediation Programs
- 6 NYCRR Part 376 – Land Disposal Restrictions
- 6 NYCRR Part 750 – State Pollution Discharge Elimination System (SPDES) Permits
- CFR Title 29 Part 1926 – Safety and Health Regulations for Construction
- CP-43 – Commissioners Policy on Groundwater Monitoring Well Decommissioning (December 2009)
- NYSDEC Spill Response Guidance Manual
- NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSDEC's Part 375 Remedial Programs (April 2023)
- CP-51 – Soil Cleanup Guidance (2010)
- DER-10 – Technical Guidance for Site Investigation and Remediation (May 3, 2010)
- DER-23 – Citizen Participation Handbook for Remedial Programs (March 2010)
- DER-31 – Green Remediation (2011)
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006)
- Technical and Operational Guidance Series (TOGS) 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations
- Screening and Assessment of Contaminated Sediment (Division of Fish, Wildlife and Marine Resources, June 2014)

4.1.2 Site-Specific Construction Health & Safety Plan

A site-specific CHASP has been prepared (Appendix D). The CHASP will apply to remedial and construction-related work on the Site. The CHASP provides a mechanism for establishing on-Site safe working conditions, safety organization, procedures, and PPE requirements during the implementation of the remedy. The CHASP meets the requirements of 29 CFR §1910 and 29 CFR §1926 (which includes 29 CFR §1910.120 and 29 CFR §1926.65, respectively). The CHASP includes, but is not limited to, the following components:

- Organization and identification of key personnel;
- Training requirements;
- Medical surveillance requirements;
- List of Site hazards;
- Excavation safety;
- Drill rig safety;
- Work zone descriptions and monitoring procedures;
- Personal safety equipment and PPE requirements;
- Decontamination requirements;
- Standard operating procedures;
- Contingency plan;
- CAMP; and
- Safety data sheets (SDS).

The Volunteer and associated parties preparing the remedial documents submitted to the State of New York and those performing the construction work are completely responsible for the preparation of an appropriate CHASP and for the performance of the work according to the CHASP and applicable laws. The CHASP and requirements defined in this RAWP pertain to all remedial and ground-intrusive work performed at the Site until the issuance of a Certificate of Completion. The Haley & Aldrich of New York Safety Coordinator will be Brian Ferguson; project personnel resumes are provided in the Quality Assurance Project Plan (QAPP), which is attached as Appendix H. If required, confined space entry will comply with OSHA requirements to address the potential risk posed by combustible and toxic gases. All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated federally by OSHA. Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gases.

4.1.3 Quality Assurance Project Plan

A QAPP has been prepared that describes the QC components that will ensure that the proposed remedy accomplishes the remedial goals and RAOs and is completed in accordance with the design specifications. The QAPP is provided as Appendix H and includes:

- Responsibilities of key personnel and their organizations for the proposed remedy.

- Qualifications of the QA Officer.
- Sampling requirements, including methodologies, quantity, volume, locations, frequency, and acceptance and rejection criteria.
- Description of the reporting requirements for QA activities, including weekly QA review reports.

4.1.4 Construction Quality Assurance Plan

A Construction Quality Assurance Plan (CQAP) has been prepared that describes the QC components that will ensure that the proposed remedy accomplishes the remedial goals and RAOs and is completed in accordance with the design specifications. Because the remedy will be accomplished concurrently with building construction, the Contractor and Construction Manager will have the primary responsibility to provide construction QC. A list of engineering personnel involved in the implementation of the CQAP and procedures that will be carried out by the remedial engineering team are listed in Section 4.2.1. Project personnel resumes are provided in the QAPP, which is attached as Appendix H.

4.1.5 Soil/Materials Management Plan

An S/MMP has been prepared that includes detailed plans for managing soils/materials that are disturbed at the Site, including excavation, handling, storage, transport, and disposal. The S/MMP also includes controls that will be applied to these efforts to facilitate effective, nuisance-free performance in compliance with applicable federal, state, and local laws and regulations (see Section 5.4).

4.1.6 Stormwater Pollution Prevention Plan

Erosion and sediment controls will be implemented as necessary in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Best management practices for soil erosion and sediment control will be selected to minimize erosion and sedimentation off the Site from the outset of remediation to the completion of development. Stormwater pollution prevention will be implemented as described below in Section 5.4.9. A Stormwater Pollution Prevention Plan (SWPPP) is not necessary because the project will disturb less than 1 acre, and stormwater discharge will be to a combined sewer in accordance with the New York City generic SPDES permit.

4.1.7 Community Air Monitoring Program

Details of the CAMP are discussed in Section 5.4.11.

4.1.8 Contractors' Site Operations Plan

The Remedial Engineer (RE) has reviewed all plans and submittals for this remedial project (including those listed above and contractor and subcontractor document submittals) and confirms that they comply with this RAWP. The RE is responsible for ensuring that all later document submittals for this remedial project, including contractor and subcontractor document submittals, comply with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work associated with the RA.

4.1.9 Citizen Participation Plan

Document repositories were established at the following locations and contain the applicable project documents:

1. Brooklyn Community Board 1
   Attn: Johana Pulgarin, District Manager
   435 Graham Avenue
   Brooklyn, New York 11211
   Phone: 718.389.0009
   Email: bk01@cb.nyc.gov
   Hours: Monday to Friday – 9 a.m. to 5 p.m.

2. Brooklyn Community Board 4
   Attn: Celestina Leon
   1420 Bushwick Avenue, Suite 270
   Brooklyn, New York 11207
   Phone: 718.628.8400
   Email: Bk04@cb.nyc.gov
   Hours: Monday to Friday – 9 a.m. to 5 p.m.

3. Brooklyn Public Library-Bushwick Branch
   Attn: Marc Waldron, District Manager
   340 Bushwick Avenue
   Brooklyn, New York 11206
   Phone: 718. 602.1348
   Email: mwaldron@bklynlibrary.org
   Hours: Monday, Wednesday, Friday – 10 a.m. to 6 p.m.
   Tuesday – 1 p.m. to 8 p.m.
   Thursday – 10 a.m. to 8 p.m.
   Saturday – 10 a.m. to 5 p.m.
   Sunday – Closed

4. NYSDEC
   Central Office
   625 Broadway, 12th Floor
   Albany, New York 12233-7016
   Hours: Monday to Friday – 9 a.m. to 5 p.m.

In addition, an electronic repository can be accessed via DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/C224424/.

A certification of mailing will be sent by the Volunteer to the NYSDEC Case Manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed; (2) the date they were mailed; (3) a copy of the Fact Sheet; (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (date to be determined) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without the written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

4.2 GENERAL REMEDIAL CONSTRUCTION INFORMATION

4.2.1 Project Organization

A project team for the Site was created based on qualifications and experience with personnel suited for the successful completion of the project.

The following project personnel are anticipated for oversight of the RAWP implementation. Project personnel resumes are provided in the QAPP, which is attached as Appendix H.

NYSDEC Case Manager	Nour Haredy
NYSDOH Case Manager	Kari Pollard
RE	Zhan Shu, Ph.D., P.E.
Principal/Qualified Environmental Professional (QEP)	Mari Cate Conlon, P.G.
Project Manager	Luke McCartney, P.G.
Haley & Aldrich of New York Health & Safety Director	Brian Fitzpatrick, CHMM
Health & Safety Officer	Brian Ferguson
Field Team Leader/QA Officer	Owen Hennigan

Haley & Aldrich of New York personnel, under the direct supervision of the QEP and the RE, will be on Site during the implementation of the RAWP to monitor particulates and organic vapors in accordance with the CAMP. CAMP results that exceed specified action levels will be reported to the NYSDEC and NYSDOH.

Haley & Aldrich of New York personnel will meet with the Construction Superintendent daily to discuss the plans for that day and schedule upcoming activities. Field personnel will document remedial activities. Field activities will be forwarded to the Field Team Leader and Project Manager daily and to the QEP and the RE weekly. Daily reports will also be submitted to the NYSDEC and NYSDOH Case Managers by noon the following business day.

Field personnel will screen excavations with a PID during ground-intrusive work. PID readings, including specifically elevated readings, will be recorded in the project field book (or on separate logs) and reported to the NYSDEC and NYSDOH. Field personnel under the direct supervision of the RE and QEP will collect endpoint samples from the base and sidewalls of the excavation in accordance with this RAWP.

Field observations and laboratory tests will be recorded in the project field book or on separate logs. Recorded field observations may take the form of notes, charts, sketches, and/or photographs. A photo log will be kept to document construction activities during remediation.

The Field Team Leader will maintain original field paperwork during performance of the remedy. Remedial activities will be documented in the monthly BCP progress reports. The Project Manager will maintain the field paperwork after completion and will maintain submittal document files.

4.2.2 Resident Engineer

The RE for this project will be Zhan Shu. The RE is a registered Professional Engineer licensed by the State of New York. The RE will have primary direct responsibility for the implementation of the remedial program at the Site. The RE will certify in the FER that the remedial activities were observed by QEPs under their supervision and that the remediation requirements set forth in this RAWP and other relevant provisions of ECL 27-1419 have been achieved in substantial conformance with the RAWP.

Under the direction of the RE, the work of other contractors and subcontractors involved in aspects of the remedial construction will be documented, including soil excavation, stockpiling, confirmation sample collection, air monitoring, emergency spill response services, import of backfill, and management of waste transport and disposal. The RE will be responsible for all appropriate communications with NYSDEC and NYSDOH.

The RE will review the pre-remedial plans submitted by contractors and subcontractors for substantial conformance with this RAWP and will provide a certification in the FER. The RE will provide the certifications listed below in Section 9.1.

4.2.3 Remedial Action Construction Schedule

The RA construction schedule is discussed below in Section 10 and included in Appendix I. The NYSDEC will be promptly notified of proposed changes, delays, and/or deviations to the schedule.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the NYCDOB Code requirements or according to specific variances issued by that agency. The NYSDEC will be notified by the Volunteer of any variances issued by the NYCDOB. The NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

Site access will be controlled by gate entrances to the property. The Site perimeter will be secured with gated and signed plywood fencing with restricted points of entry in accordance with the NYCDOB and New York City Department of Transportation (NYCDOT) permits and requirements. The purpose of the fencing is to limit Site access to authorized personnel, protect pedestrians from Site activities, and maintain Site security.

4.2.6 Traffic Control

Site traffic will be controlled through designated points of access along Flushing Avenue and Bushwick Avenue. Access points will be continuously monitored, and if necessary, a flagging system will be used to protect workers, pedestrians, and authorized guests. Traffic will also be required to adhere to applicable local, state, and federal laws.

4.2.7 Contingency Plan

Contingency plans, as described below, have been developed to effectively deal with the potential unexpected discovery of additional contaminated media or USTs.

4.2.8 Worker Training and Monitoring

Worker training and monitoring will be conducted in accordance with the Site-specific CHASP.

4.2.9 Agency Approvals

Permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction.

4.2.10 NYSDEC BCP Signage

Signs are optional for BCP sites and will be discussed with the NYSDEC Case Manager. If a sign is to be displayed, it will follow NYSDEC specifications for design and content. The NYSDEC Case Manager will provide details on signage protocol as necessary.

4.2.11 Pre-Construction Meeting with the NYSDEC

Prior to the start of remedial construction, a meeting will be held among the NYSDEC, the RE, the Volunteer, the Construction Manager, and the Remediation Contractor to discuss project roles, responsibilities, and expectations associated with this RAWP.

4.2.12 Emergency Contact Information

An emergency contact sheet that states the specific project contacts (with names and phone numbers) for use by NYSDEC and NYSDOH in the case of an emergency is included in the CHASP.

4.2.13 Remedial Action Costs

Detailed summaries of the total estimated costs of the Track 1, Track 2, and Track 4 remedies are included in Tables 2, 3, and 4, respectively.

4.3 SITE PREPARATION

4.3.1 Mobilization

Prior to commencing remedial construction, the Remediation Contractor will mobilize to the Site and prepare for remedial activities.

Mobilization and Site preparation activities may include the following:

- Identifying the location of aboveground and underground utilities (e.g., power, gas, water, sewer, and telephone), equipment, and structures as necessary to implement the remediation;

- Mobilizing necessary remediation personnel, equipment, and materials to the Site;
- Constructing one or more stabilized construction entrance(s) consisting of non-hazardous material at or near the Site exit, which takes into consideration the Site setting and Site perimeter;
- Constructing an equipment decontamination pad for trucks, equipment, and personnel that come into contact with impacted materials during remediation; and/or
- Mark-out hotspot areas (as identified during the RI or preliminary waste characterization sampling event).

4.3.2 Monitoring Well Decommissioning

Monitoring wells will be decommissioned in accordance with NYSDEC CP-43 by an experienced driller with oversight from Haley & Aldrich of New York. Decommissioning documentation will be provided in the FER.

4.3.3 Erosion and Sedimentation Controls

Since the planned earthwork activities will be below the adjacent sidewalk grade, full-time erosion and sedimentation measures are not anticipated. Best management practices for soil erosion will be implemented to minimize erosion and sedimentation off Site.

4.3.4 Temporarily Stabilized Construction Entrance(s)

Temporary stabilized construction entrances will be installed along Flushing Avenue and/or Bushwick Avenue. The entrance(s) will be covered with NYSDEC-approved gravel or RCA and graded so that runoff water will be directed on the Site. Vehicles exiting construction areas will be cleaned using clean water or dry brushing, as needed, to remove Site soil from the tires and undercarriages. The Contractor will protect and maintain the existing sidewalks and roadways at both Site access points.

4.3.5 Utility Marker and Easement Layouts

The Volunteer and its Contractors are solely responsible for the identification of utilities and/or easements that might be affected by work under this RAWP and implementation of the required, appropriate, or necessary health and safety measures during the performance of the work under this RAWP. The Volunteer and its Contractors are solely responsible for the safe execution of the work performed under this RAWP. The Volunteer and its Contractors must obtain the necessary local, state, and/or federal permits or approvals that may be required to perform the work detailed in this RAWP. Approval of this RAWP by the NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the RE. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

4.3.6 Excavation Support

Appropriate management of the structural stability of on-Site or off-Site structures during Site activities is the sole responsibility of the Volunteer and its Contractors. The Volunteer and its Contractors are solely responsible for the safe execution of the work performed under this RAWP. The Volunteer and its Contractors must obtain the necessary local, state, and/or federal permits or approvals that may be required to perform the work detailed in this RAWP. Additionally, the Volunteer and its Contractors are solely responsible for the implementation of the required, appropriate, and necessary health and safety measures during the performance of work conducted under this RAWP.

4.3.7 Equipment and Material Staging

The Contractor will notify the RE and the Volunteer in writing with receipt confirmed at least 30 calendar days in advance of pending Site work mobilization. During mobilization, construction equipment will be delivered to the Site, temporary facilities constructed, and temporary utilities installed. The Contractor will place and maintain temporary toilet facilities within the work areas for use by Site personnel.

4.3.8 Truck-Inspection/Decontamination Station

An outbound-truck inspection station will be set up at or near the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. If observed, soil and debris will be removed. Brooms, shovels, and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary. The Contractor is responsible for collecting soil that is tracked immediately off the Site and returning the soil to the Site.

4.3.9 Site Fencing

The Site will be secured with a gated fence with appropriate signage maintained by the Contractor. The fence will limit access to authorized personnel and protect pedestrians from Site activities.

4.3.10 Demobilization

After remediation and construction are completed, the Contractor will be responsible for demobilizing equipment and materials not designated for off-Site disposal. The RE's representative will document that the Contractor performs follow-up coordination and maintenance for the following activities:

- Removal of sediment and erosion control measures and disposal of materials in accordance with applicable rules and regulations;
- Equipment decontamination;
- Refuse disposal; and
- Removal of remaining contaminated material or waste.

4.4 REPORTING

Periodic reports and an FER will be required to document the RA. The RE, Zhan Shu, will be responsible for certifying the FER and is licensed to practice engineering in the State of New York. Should Ms. Shu become unable to fulfill this responsibility, another suitably qualified New York State Professional Engineer will take her place. Field reports will be included as appendices to the FER. In addition to the periodic reports and the FER, copies of the relevant Contractor documents will be submitted to the NYSDEC.

4.4.1 Daily Reports

Reports providing a summary of activities for each day of active remedial work will be emailed to the NYSDEC and NYSDOH Case Managers daily. These reports will include:

- The project number, statement of activities, an update of the progress made, locations of excavation, and other remedial work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of citizen complaints, including relevant details (i.e., name, phone number, basis of complaint, and actions taken);
- A summary of CAMP results, noting exceedances; and
- Photographs of notable Site conditions and activities.

Reports are not intended to be the primary mode of communication for notifying NYSDEC of emergencies, requests for changes to the RAWP, or time-critical information. However, if these conditions occur, information will be included in the daily reports. Emergency conditions and changes to the RAWP will be directly communicated to the NYSDEC Case Manager.

Daily reports will include a description of daily activities with a Site Map that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public. The NYSDEC-assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Case Managers by the 10th of the following month of the reporting period and will include:

- Investigative or remedial actions relative to the Site during the reporting period;
- Actions relative to the Site anticipated for the next reporting period;
- Approved changes of work scope or schedule, if applicable;
- Results of sampling or testing;
- Deliverables submitted during the reporting period;

- The approximate percentage of completion of the project at the Site;
- Unresolved delays encountered that may affect the schedule;
- CPP activities during this reporting period and activities anticipated in support of the CPP for the next reporting period; and
- All daily reports submitted to NYSDEC during the reporting period.

4.4.3 Other Reporting

Photographs of the remedial activities will be taken and included in the daily reports and FER with descriptions of the representative photographs.

Progress with respect to green and sustainable remediation metrics will be tracked during the implementation of the RA and reported in the FER, including a comparison to the analyses provided in this RAWP. The climate screening process and results will be documented in the form of a completed checklist and brief letter report. A completed climate screening checklist for the remediation phase is provided in Appendix G. An updated checklist will be included in the FER to document the post-remediation status of the Site.

4.4.4 Complaint Management Plan

Complaints from the public regarding nuisance or other Site conditions will be addressed by notifying the NYSDEC of the complaint and investigating the cause/source of the issue. Records will be maintained regarding the date and time of the complaint, the nature of the complaint, the type of communication (i.e., telephone, email, letter, etc.), and the name and contact information of the complaint provider. Corrective measures will then be formulated and put into place to address the complaint as soon as possible. The resolution will be documented and submitted to the NYSDEC. A representative of the Volunteer will reply within two weeks of receipt to the complaint provider to ensure resolution.

4.4.5 Deviations from the RAWP

Deviations from the RAWP will be communicated to and coordinated with the NYSDEC in advance. Notification will be provided to the NYSDEC by telephone and email for conditions requiring immediate action (e.g., conditions judged to be a danger to the surrounding community). Based on the significance of the deviation, an addendum to this RAWP may be necessary and will include:

- Reasons for deviating from the approved RAWP;
- Approval process to be followed for changes/editions to the RAWP; and
- Effect of the deviations on the overall remedy.

5. Remedial Action: Material Removal From Site

Remediation will include the following material removal:

- Excavation, stockpiling, off-Site transport, and disposal of contaminated soil/fill material that exceeds RRSCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet. Excavation and off-site disposal of contaminated soil will extend to approximately 10 feet bgs across the majority of the Site, with deeper localized excavations down to 15 ft bgs. As per the Track 2 remedy, impacts above the RRSCOs at the Site may be left in place below 15 ft. Approximately 3,990 cu yd of soil/fill will be removed as part of this Track 2 remedial excavation.

5.1 SOIL CLEANUP OBJECTIVES

The Soil Cleanup Objectives (SCOs) for this Site are the RRSCOs listed in Table 1.

Soil and materials management on Site and off Site will be conducted in accordance with the S/MMP as described below.

A spider map that shows all soil samples that exceed the SCOs proposed for this RA is shown in Figure 4 6. UST closures (if necessary) will, at a minimum, conform to criteria defined in DER-10.

5.2 REMEDIAL PERFORMANCE EVALUATION (CONFIRMATION SAMPLING)

5.2.1 Soil Sampling Frequency

One confirmation soil sample will be collected for every 900 sq ft of excavation base Site-wide, in accordance with NYSDEC DER-10, or at an alternative frequency approved by NYSDEC. Endpoint samples will be collected to confirm that RRSCOs have been achieved.

Confirmation soil samples will be collected from the bottom and four sidewalls of the hotspot excavations, including one from the bottom of the localized areas surrounding SB-11, SB-06, and SB-03 VOCs, SVOCs, pesticides, metals, PCBs, PFAS, and 1,4-dioxane to confirm that RRSCOs have been achieved.

Documentation samples will also be collected at the base of the PAH and metals hotspots and confirmation samples will be taken on the sidewalls of these hotspots. If the proposed confirmation sidewall samples exceed the Track 2 RRSCOs, over-excavation laterally and resampling may be performed, as necessary, to meet RRSCOs. Should documentation samples taken at the base of the hotspots indicate exceedances of RRSCOs at 15 feet, this will be documented in the FER and material left in place beneath 15 ft bgs with a demarcation layer, such as orange snow fence or equivalent, installed prior to backfilling or composite cover placement.

The proposed endpoint sample locations are shown on Figure 16.

5.2.2 Methodology

Confirmation and documentation soil samples will be collected from the base of the remedial excavations and sidewalls and bottom of hotspots surrounding SB-03, SB-06, and SB-11 in accordance with NYSDEC DER-10 to document remedial performance and will be analyzed for the Part 375 list of VOCs, SVOCs, pesticides, metals, PCBs, PFAS, and 1,4-dioxane.

When tanks are excavated, if contaminated soil is removed beyond the 10-foot remedial depth, the number and location of confirmation samples beneath the tank areas should be collected pursuant to paragraph 5.4(b)5 of DER-10.

During remedial action, confirmation samples should be biased toward locations with the highest expected contamination based on previous investigation (i.e. areas including tank area and hotspot locations) and based on field indicators.

Samples will be collected into laboratory-provided bottle ware. VOCs will be collected into Terra Cores® or Encores®. Samples will be transported under chain of custody protocol to an Environmental Laboratory Accreditation Program (ELAP)-certified laboratory. Should additional soil samples be deemed necessary (e.g., additional tank closure, an unknown environmental condition through visual evidence of a remaining source, or over-excavation of a failed confirmation sample), confirmation sampling will be conducted in accordance with NYSDEC DER-10.

5.2.3 Reporting of Results

Analytical laboratories that analyze confirmation soil samples, prepare results, and perform contingency sampling will be NYSDOH ELAP-certified.

5.2.4 QA/QC

QC procedures for confirmation soil sampling are included in the QAPP (refer to Appendix H). Confirmation analytical results will be provided in the NYSDEC's electronic data deliverable (EDD) format for EQuIS™. Guidance on the sampling frequency is presented in NYSDEC DER-10 Section 5.4.

The QA/QC procedures required by the NYSDEC Analytical Services Protocol (ASP) and SW-846 methods will be followed. This will include instrument calibration, standard compound spikes, surrogate compound spikes, and analysis of QC samples. The laboratory will provide sample bottles, which will be pre-cleaned and preserved. Where there are differences in the SW-846 and NYSDEC ASP requirements, the NYSDEC ASP will take precedence.

5.2.5 Data Usability Summary Reports and Electronic Data Deliverables

ASP Category B deliverables will be prepared for remedial performance samples collected during the implementation of this RAWP. Data Usability Summary Reports (DUSRs) will be prepared by a qualified data validator, and the findings will be reported in the FER. EDDs will be prepared based on validated data in the NYSDEC format and submitted to NYSDEC via zipfile.

5.2.6 Reporting of Endpoint Data in FER

Analytical laboratories used for all confirmation/documentation sample results and contingency sampling will be NYSDOH ELAP-certified. Sampling will be performed in accordance with DER-10 sample frequency requirements. Sidewall samples will be collected surrounding hotspots and, if necessary, at a minimum of every 30 linear feet. Bottom samples will be collected at a rate of one for every 900 sq ft from the base of the remedial excavation. The FER will provide a tabular and map summary of all sample results and exceedances of SCOs.

5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

A summary of anticipated material types to be excavated and disposed of off Site is provided below:

1. Excavation, stockpiling, off-Site transport, and disposal of up to approximately 3,990 cu yd of contaminated fill/material that exceeds RRSCOs as defined by 6 NYCRR Part 375-6.8.

5.4 SOIL/MATERIALS MANAGEMENT PLAN

This section presents the approach to management, disposal, and reuse of soil, fill, and materials excavated from the Site. This plan is based on the current knowledge of Site conditions and will be altered as necessary. Field personnel, under the direction of the RE, will monitor and document the handling and transport of material removed from the Site for disposal as a regulated solid waste. Field personnel, under the direction of the RE, will assist the Remediation Contractor in identifying impacted materials during remediation, determining materials suitable for direct load-out versus temporary on-Site stockpiling, selection of samples for waste characterization, if necessary, and determining the proper off-Site disposal facility. Separate stockpile areas will be constructed as needed for the various materials to be excavated or generated to avoid commingling impacted with non-impacted soil.

5.4.1 Soil Screening Methods

Visual, olfactory, and instrumental soil screening and assessment will be performed during remediation and development-related ground-intrusive activities into known or potentially contaminated material. Soil screening will be performed regardless of when the invasive work is performed and will include excavation and invasive work performed during the remedy and development, such as excavations for foundations and utility work.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, the RI, and RA will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the FER. Screening will be performed by QEPs. Resumes are provided in the QAPP (Appendix H) for personnel responsible for field screening (i.e., those representing the RE) of invasive work for unknown contaminant sources during remediation and development work.

5.4.2 Stockpile Methods

Stockpiles will be used as necessary to separate and stage excavated material pending loading or characterization sampling. Separate stockpile areas will be constructed to avoid commingling materials. Stockpile areas will meet the following minimum requirements:

- Excavated soil will be placed onto a minimum thickness of 6-mil low-permeability liner of sufficient strength and thickness to prevent puncture during use; separate stockpiles will be created where material types are different. The use of multiple layers of thinner liners is permissible.
- Efforts will be made to place and remove the soil to minimize the potential to jeopardize the integrity of the liner.
- Stockpiles will be covered at the designated times (see below) with minimum 6-mil plastic sheeting or tarps, which will be securely anchored to the ground. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced.
- Stockpiles will be inspected at a minimum of once daily and after every storm event.
- Stockpiles will be covered upon reaching their capacity (approximately 1,000 cu yd) until ready for loading. Stockpiles that have not reached their capacity will be covered at the end of each workday.
- Long-term stockpiles will be encircled with silt fences and hay bales, as needed, to contain and filter particulates from rainwater that has drained off the soils and to mitigate the potential for surface water runoff.
- If hazardous material is encountered, stockpiling on the Site will be avoided to the extent possible, in favor of live-loading into trucks permitted to transport hazardous waste.
- Water will be available on the Site at a suitable supply and pressure for use in dust control.

5.4.3 Materials Excavation and Load Out

Field personnel, under the supervision of the RE, will monitor all ground-intrusive work and the excavation and load-out of excavated material.

The Volunteer and its Contractors are solely responsible for the safe performance of all invasive and other work performed under this RAWP.

The presence of utilities and easements on the Site has been investigated by the RE. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate federal, state, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements).

A truck wash will be operated on the Site. The RE will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the remedial construction is complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking. The RE will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

The Volunteer and its Contractors are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Volunteer and associated parties will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

The Volunteers and associated parties will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP. Development-related grading cuts and fills will not interfere with, or otherwise impair or compromise, the performance of remediation required by this RAWP. Mechanical processing of historical fill and contaminated soil on the Site is prohibited unless otherwise approved by NYSDEC.

Each hotspot and structure to be remediated will be removed, and remedial performance sampling will be completed before excavations related to Site development commence proximal to the hotspot or structure.

5.4.4 Materials Transport Off-Site

Transport of materials will be performed by licensed haulers in accordance with appropriate local, state, and federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed, and trucks will be properly placarded. Trucks heading to disposal facilities will travel west on Flushing Avenue, continue on to Nassau Street, north onto Manhattan Bridge/Manhattan Bridge Upper Roadway, west on Canal Street, north on 6th Avenue, west on Watts Street, and continue onto I-78 West/Holland Tunnel (or other NYSDEC-approved routes). Truck routes are shown on Figure 17.

Loaded trucks will exit in the vicinity of the Site using approved truck routes. These routes are the most appropriate route to and from the Site and consider the following:

- Limiting transport through residential areas and past sensitive sites;
- Use of City-mapped truck routes;
- Prohibiting off-Site queuing of trucks entering the facility;
- Limiting total distance to major highways;
- Promoting safety in access to highways;
- Overall safety in transport; and

- Community input (where necessary).

Trucks will be prohibited from excessive stopping and idling in the neighborhood outside of the Site. Material transported by trucks exiting the Site will be secured with tight-fitting, opaque covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, or hazardous metals-impacted material, truck liners will be used. Trucks will be washed as necessary prior to leaving the Site. Truck wash waters will be collected and disposed of off Site in an appropriate manner.

5.4.5 Materials Disposal Off-Site

Disposal location(s) will be established at a later date and will be reported to the NYSDEC Case Manager. About 3,990 cu yd of historic fill and solid waste that exceeds UUSCOs and RRSCOs will be excavated and disposed, and an additional approximately 1,260 cu yd of historic fill and soil will be removed as part of redevelopment, totaling approximately 5,250 cu yd of historical fill and soil.

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed of in accordance with all local, state (including 6 NYCRR Part 360), and federal regulations. If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to NYSDEC's Case Manager. Unregulated off-Site management of materials from this Site is prohibited without formal NYSDEC approval.

Excavated material that does not meet UUSCOs, such as non-hazardous historical fill material, contaminated soil, and hazardous lead-impacted material, is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360.15 Registration Facility).

If hazardous soil is identified, it will be managed in accordance with applicable federal, state, and local regulations. As such, the handling, transport, and disposal of hazardous fill material is subject to USEPA and OSHA HAZWOPER regulations. The presence of hazardous waste requires compliance with both federal and state regulations and the following requirements:

1. Hazardous waste disposal requires obtaining a USEPA RCRA generator ID number;
2. Hazardous waste must be transported to an RCRA-permitted facility to accept hazardous waste;
3. Hazardous waste must be segregated and cannot be commingled with other Site material; and
4. Hazardous waste must be transported and disposed of by properly permitted (Part 364) transporters and facilities.

The following documentation will be obtained and reported by the RE for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws:

- A letter from the RE or Volunteer to the receiving facility describing the material to be disposed of and requesting formal written acceptance of the material. This letter will state that the material to be disposed of is contaminated material generated at an environmental remediation site in New York State. The letter will provide the project identity and the name and phone

number of the RE. The letter will include, as an attachment, a summary of all chemical data for the material being transported (including Site Characterization data).

- A letter from each receiving facility stating it is in receipt of the correspondence (above) and is approved to accept the material.

These documents will be included in the FER.

Non-hazardous historical fill and contaminated soils taken off the Site will be handled, at a minimum, as Municipal Solid Waste per 6 NYCRR Part 360.2. The RE is responsible for assuring material is properly characterized and determining the appropriate disposal methods based on the characterization results.

Historical fill and contaminated soils from the Site are prohibited from being disposed of at Part 360.15 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the NYSDEC Division of Materials Management (DMM) to be construction and demolition (C&D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C&D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DMM. This material is prohibited from being sent or redirected to a Part 360-15 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C&D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated, and that it must not be redirected to an off-Site Soil Recycling Facility. The letter will provide the project identity and the name and phone number of the RE. The letter will include, as an attachment, a summary of all chemical data for the material being transported.

The FER will include an accounting of the destination of all material removed from the Site during this RA, including excavated soil, contaminated soil, historical fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with the disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

A bill of lading system or equivalent will be used for off-Site movement of non-hazardous wastes and contaminated soils. This information will be reported in the FER. Hazardous wastes derived from the Site will be stored, transported, and disposed of in full compliance with applicable local, state, and federal regulations. Appropriately licensed haulers will be used for material removed from this Site and will be in full compliance with all applicable local, state, and federal regulations.

Waste characterization sampling will be performed exclusively for the purposes of off-Site soil disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state, and local laws, rules, regulations, and facility-specific permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC associated with waste characterization activities will be reported in the FER. All data available for soil/material to be disposed of at a given facility must be submitted to the disposal facility with a suitable explanation prior to shipment and receipt. Waste characterization data will be used solely for complying with requirements for off-Site disposal. Waste characterization sampling cannot be utilized for:

- Delineating the extent of contamination required for remediation at a Site.
- Replacing or substituting data collected as part of Site Characterization and/or RI.
- Replacing or substituting confirmation or documentation sampling as described in NYSDEC DER-10, Section 5.4.
- Modifying remedial decisions as formalized in an NYSDEC-approved Decision Document or Record of Decision.

5.4.6 Materials Reuse On-Site

- Materials reuse is not anticipated at the Site. If on-Site material is proposed for reuse, the chemical criteria for on-Site reuse of material will be approved by NYSDEC. The RE will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on the Site. A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC Case Manager for review and approval prior to material reuse on the Site. A copy of the form is presented in Appendix E.

Organic matter (e.g., wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on the Site. Demolition material reuse is not anticipated at the Site. Concrete crushing or processing on the Site is prohibited unless NYSDEC has specifically approved on-Site processing and reuse of acceptable demolition material.

Contaminated on-Site material, including historical fill and contaminated soil, removed for grading or other purposes, will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressed in the final SMP.

5.4.7 Fluids Management

Liquids to be removed from the Site, including dewatering fluids, will be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by the NYCDEP. Based on the depth to water, localized dewatering is anticipated to facilitate the excavation of material in hotspots. If necessary, a dewatering and treatment system will be designed by the Remediation Contractor's New York State-licensed Professional Engineer.

If generated, dewatered fluids will not be recharged back to the land surface or subsurface. Dewatering fluids will be managed off Site. Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, and/or river) is prohibited without a SPDES permit.

5.4.8 Backfill from Off-Site Sources

If imported materials are proposed, documentation of the material will be provided to NYSDEC for approval prior to its use on the Site. Imported soil for backfill must meet the requirements of 6 NYCRR Part 375-6.7(d) and NYSDEC DER-10 Section 5.4(e), Table 5.4(e)10. Material from industrial sites, spill sites, other environmental remediation sites, or other potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

Backfill material will consist of clean fill (as described in the following paragraph) or other acceptable fill material, such as virgin stone from a quarry or RCA. If RCA is imported to the Site, it will be from an NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require chemical testing unless required by the NYSDEC under the terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete, with no more than 10 percent by weight passing through a No. 80 sieve. RCA is not acceptable for and will not be used as cover or drainage material.

Imported soil (i.e., clean fill) will meet the Allowable Constituents Levels of Imported Fill or Soil defined in DER-10 Appendix 5. Non-compliant soils will not be imported to the Site. Clean fill will be segregated at a source/facility that is free of environmental contaminants. Qualified environmental personnel will collect representative samples at a frequency consistent with NYSDEC CP-51. The samples will be analyzed for Part 375 VOCs, SVOCs, pesticides/herbicides, PCBs, cyanide, metals (including trivalent and hexavalent chromium), 1,4-dioxane, and PFAS by an NYSDOH ELAP-certified laboratory. Upon meeting these criteria, the certified-clean fill will be transported to the Site and segregated from impacted material, as necessary, on plastic sheeting until used as backfill. Trucks entering the Site with imported soils will be secured with tight-fitting covers.

Soils that meet “general fill” requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this RAWP should be construed as an approval for this purpose.

A “Request to Import/Reuse Fill Material” form will be filed with the NYSDEC Case Manager for review and approval prior to import to the Site. A copy of the form is presented in Appendix E. All materials proposed for import onto the Site will be approved by the RE and will be in compliance with provisions in this RAWP prior to receipt at the Site. Material from industrial sites, spill sites, other environmental remediation sites, or other potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

The FER will include the following certification by the RE: “I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.”

5.4.9 Stormwater Pollution Prevention

A silt fence or hay bales will be installed around the perimeter of the remedial construction area, as required. Barriers and hay bale checks will be installed and inspected once per week and after every storm event. Results of inspections will be recorded in a logbook maintained at the Site and available for inspection by the NYSDEC. Necessary repairs to the silt fence and/or hay bales will be made immediately. Accumulated sediments will be removed as required to keep the barriers and hay bale checks functional. The manufacturer's recommendations will be followed for replacing the silt fence damaged due to weathering. Erosion and sediment control measures identified in the RAWP will be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to the sewer system.

5.4.10 Contingency Plan

As discussed above in Section 4.2.7, if USTs or other previously unidentified contaminant sources are found during on-Site remedial excavation or development-related construction, sampling will be performed on the product, if encountered, and surrounding subsurface materials (e.g., soil and stone). Chemical analyses will include CP-51 VOCs and SVOCs. Analyses will not be otherwise limited without NYSDEC approval. Identification of unknown or unexpected contaminated media identified by screening during ground-intrusive work will be promptly communicated by phone to the NYSDEC Case Manager. These findings will also be detailed in the monthly BCP progress report.

5.4.10.1 Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include the dislocation of soil and stockpiled materials, the dislocation of Site structures, construction materials, and equipment, and the dislocation of SOE structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures, and cause downed power lines, creating dangerous Site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the Volunteer will undertake the following steps for Site preparedness prior to the event and in response to the event.

5.4.10.2 Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment, such as excavators and generators, will be removed from excavated areas, trenches, and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions of the Site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights, such as sandbags, for added security, and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary, cleaning and repositioning silt fences and hay bales; storm sewer filters and traps will be cleaned; and pumps and hosing will be secured and protected.

5.4.10.3 Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A Site Inspection Report will be submitted to NYSDEC at the completion of the Site inspection and after the Site security is assessed, as necessary. Site conditions will be compared to the inventory of Site conditions and materials performed prior to the storm event, and significant differences will be noted. Damage from storm conditions that results in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures, or equipment, will be reported to public safety authorities via appropriate means, such as calling 911.

Petroleum spills will be reported to NYSDEC within two hours of identification and consistent with New York State regulations. Public safety structures, such as construction security fences, will be repaired promptly to eliminate public safety threats. Debris will be collected and removed.

Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil, including unsafe slopes, will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. SOE structures will be inspected and fortified as necessary. Impacted stockpiles will be contained, and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary.

If soil or fill materials are discharged off the Site to adjacent properties, property owners and NYSDEC will be notified, and a Corrective Measure Plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of Site access by the property owner. Impacted off-Site areas may require characterization based on Site conditions, at the discretion of NYSDEC.

If on-Site petroleum spills are identified, a QEP will determine the nature and extent of the spill and report the incident to NYSDEC's spill hotline at 800.457.7362 within statutorily defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be performed safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

5.4.10.4 Storm Response Reporting

A Site Inspection Report will be submitted to NYSDEC at the completion of the Site inspection. Site conditions will be compared to the inventory of Site conditions and materials performed prior to the storm event, and significant differences will be noted. The Site Inspection Report will be sent to the NYSDEC Case Manager and will include the Site name, address, tax block and lot, the Site's primary and alternate contact name and phone number.

Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the Site was dislocated and whether any of the soil left the Site; estimates of the volume of soil that left the Site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the SOE; presence of on-Site or off-Site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; and a schedule for corrective actions.

This report should be completed and submitted to the NYSDEC Case Manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.4.11 Community Air Monitoring Plan

The CAMP will require real-time monitoring for particulates (i.e., dust) and VOCs at the upwind and downwind perimeters when ground-intrusive activities, including soil/waste excavation, soil handling, test pit excavation, and/or trenching, are in progress at the Site during remedial construction activities. The CAMP aims to provide protection for residents in the designated work area and residents of the downwind community from potential airborne releases that directly result from the remedial construction activities conducted at the Site. Adherence to the monitoring action levels specified in the CAMP requires monitoring, and when necessary, corrective actions to abate emissions and/or shut

down work. The CAMP also helps to confirm that work activities do not spread contamination off the Site through the air. In addition, visual and olfactory observations will be made to keep dust and odors to a minimum around the work areas. VOCs will be monitored using PIDs, and particulates will be monitored using DustTrak equipment. Readings will be recorded every 15 minutes at the Site by field personnel.

The following actions will be taken based on monitoring of particulate concentrations:

- If the downwind inhalable particles with diameters generally less than 10 micrometers and smaller (PM-10) particulate level is 100 µg/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 µg/m^3 above the upwind level, work will be stopped, and a re-evaluation of activities initiated. Work will resume if dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

The following actions will be taken based on VOC monitoring:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume, provided that the total organic vapor level 200 ft downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less, but in no case less than 20 ft, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Case Managers within 24 hours of the exceedance and will include the reason(s) for the exceedance and steps taken to address the exceedance. CAMP exceedances will be included in the daily report. Should it be required, special CAMP requirements, as outlined in Appendix J, will be employed.

5.4.12 Odor, Dust, and Nuisance Control Plan

Dust, odor, and nuisance controls will be accomplished by the Remediation Contractor as described in this section.

The FER will include the following certification by the RE: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

5.4.12.1 Odor Control Plan

This Odor Control Plan is capable of controlling emissions of nuisance odors off the Site. Specific odor control methods to be used, if needed, will include the application of foam suppressants or tarps over the odor or VOC source areas. If nuisance odors are identified, work will be halted, and the source of the odors will be identified and corrected. Work will not resume until nuisance odors have been abated. The NYSDEC and NYSDOH will be notified of odor events and other complaints about the project. Implementation of odor controls is the responsibility of the Contractor. Monitoring odor emissions, including the halt of work, will be the responsibility of the RE or his/her designated representative.

Necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-Site disposal; (b) use of chemical odorants in spray or misting systems (e.g., Blanket 510 Wintergreen™); and (c) use of staff to monitor odors in surrounding neighborhoods. Odor control suppressant will be available on the Site during ground-intrusive work. The SDS for an odor control suppressant is provided in Appendix K.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

5.4.12.2 Dust Control Plan

A dust control plan that addresses dust management during ground-intrusive on-Site work will include, at a minimum: (a) the use of a dedicated water distribution system, an on-Site water truck for road wetting, or an alternate water source with suitable supply and pressure for use in dust control; (b) the use of gravel for on-Site roads to provide a clean and dust-free road surface; and (c) the limiting of the total area of on-Site roads to minimize the area required for water spraying.

5.4.12.3 Other Nuisances

A plan for rodent control will be developed and used by the Remediation Contractor during Site preparation (including clearing and grubbing) and during remedial work. A plan for noise control will be developed and used by the Remediation Contractor during Site preparation and remedial work and will conform, at a minimum, to NYCDEP noise control standards.

6. Residual Contamination to Remain on the Site

After completing a Track 2 remedy, residual soils with concentrations exceeding UUSCOs and potentially RRSCOs will remain beneath the Site. Residual contaminated soil vapor will be addressed via SVE and active SSDS.

The following Site management elements will be implemented prior to the Certificate of Completion:

- Establishment of an approved SMP to ensure long-term management of ICs, including the performance of periodic inspections and certification that the controls are performing as they were intended; and
- Recording of an EE to ensure future owners of the Site maintain the required ICs.

7. Engineering Controls

Alternative II will include ECs, and it is anticipated to achieve Track 2 cleanup levels. The following ECs have been designed for incorporation into the RA.

7.1 SOIL VAPOR EXTRACTION AND ACTIVE SUB-SLAB DEPRESSURIZATION SYSTEMS

An SVE system will be installed to address subsurface impacts as well as off-site migration. The conceptual design is provided in Figure 12. The petroleum-impacted soil vapor removed with the SVE system will be treated with granular activated carbon (GAC) prior to discharge to the atmosphere.

An active SSDS will be installed to mitigate SVI into buildings. The conceptual design is provided in Figure 13. The post-mitigation confirmation sampling will be conducted as described in Section 3.2.11. Any deviations from Figure 13 and Section 3.2.11 will be communicated to NYSDEC and NYSDOH, including notifying both Departments of the use of the lowest level of the space to assist in fine-tuning appropriate indoor air sample locations, per Section 4.4.5 of the RAWP.

As part of the Track 2 remedy, an SMP will be established for ICs and monitoring that includes an IC Plan, a Monitoring Plan, and an Operations and Maintenance Plan. The following will be discussed in the SMP as part of the remedy:

- Post-remedy SVE monitoring and maintenance.
- Completion of an SVI Evaluation in accordance with DER-10 and NYSDOH's "Final Guidance on Soil Vapor Intrusion" following remedial activities and prior to occupancy.

8. Institutional Controls

After the remedy is complete, the Site will have residual contamination remaining in place. ECs for the residual contamination have been incorporated into the remedy to render the overall Site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an EE and an SMP.

All as-built drawings, diagrams, calculations, and manufacturer documentation for treatment systems will be presented in the FER. A Site-specific EE will be recorded with Kings County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the EE and the grantor's successors and assigns adhere to all ECs and ICs placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs. The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the EE. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the EE and the grantor's successors and assigns.

8.1 ENVIRONMENTAL EASEMENT

An EE, as defined in Article 71 Title 36 of the ECL, is required when residual contamination is left on the Site after the RA is complete. As part of this remedy, an EE approved by NYSDEC will be filed and recorded with the Kings County Office of the City Register. The EE will be submitted as part of the FER.

The EE renders the Site a Controlled Property. The EE must be recorded with Kings County before the Certificate of Completion can be issued by NYSDEC. A series of ICs are required under this remedy to implement, maintain, and monitor these EC systems to prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to residential and commercial use(s) only. These ICs are requirements or restrictions placed on the Site that are listed in, and required by, the EE. ICs can, generally, be subdivided between controls that support ECs, and those that place general restrictions on Site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides all of the methods and procedures to be followed to comply with this remedy.

The ICs that support ECs are:

- Compliance with the EE by the Grantee and the Grantee's successors and adherence to all elements of the SMP are required;
- All ECs must be operated and maintained as specified in the SMP;
- A soil vapor treatment system consisting of an SVE system in the northern portion of the Site must be inspected, certified, operated, and maintained as required by the SMP;
- All ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Environmental or public health monitoring must be performed as defined in the SMP;

- Data and information pertinent to Site management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-Site environmental monitoring devices must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP; and
- ECs may not be discontinued without an amendment or extinguishment of the EE.

Adherence to these ICs for the Site is mandated by the EE and will be implemented under the SMP (discussed in the next section). The Controlled Property (Site) will also have a series of ICs in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for its intended purpose;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;
- The Controlled Property may be used for residential and commercial use only, provided the long-term ECs and ICs included in the SMP are employed;
- The Controlled Property may not be used for a higher level of use without an amendment or extinguishment of this EE;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This periodic statement must be certified by an expert whom the NYSDEC finds acceptable.

9. Final Engineering Report

An FER will be submitted to NYSDEC following implementation of the RA defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site, including the surveyed map(s) of all sources. The FER will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, bills of lading, as well as the complete SMP. The FER will provide a description of the changes in the RA from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results, all material characterization results, and other sampling and chemical analyses performed as part of the RA. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance, and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the FER review.

The FER will include written and photographic documentation of all remedial work performed under this remedy.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete; residual contamination includes all contamination that exceeds the Track 1 UUSCOs in 6 NYCRR Part 375-6. A table that shows exceedances from Track 1 UUSCOs for all soil/fill remaining at the Site after the RA and a map that shows the locations and summarizes exceedances from Track 1 UUSCOs for all soil/fill remaining at the Site after the RA will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in this RAWP and must provide an explanation for why the material was not removed as part of the RA. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site for remedial purposes, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with the disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

The FER must include a discussion of the green remediation practices/technologies employed throughout the remedial program. A final footprint analysis using a DER-accepted model, and any tracking methods used through the construction, including restoration activities. Before approval of an FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

9.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the FER.

The FER will be prepared, stamped, and the following certification will be signed by an individual licensed or otherwise authorized in accordance with Article 145 of the New York Education Law to practice the profession of engineering.

The certification will include the following statements:

I, _____, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

If the RAWP or RD identifies time frames to be achieved by the remedial program:

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the [Remedial Action Work Plan or Remedial Design] and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

If financial assurance is required:

I certify that any financial assurance mechanisms required by the Department pursuant to Environmental Conservation Law have been executed.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

10. Schedule

Mobilization for implementation of the RAWP is expected to take place in about one to two weeks from receipt of the Decision Document. Once mobilization is complete, remediation of the Site will proceed. The remedy, which will be implemented in accordance with this RAWP, is anticipated to take approximately three to four months to complete. After completion of the remedy, the FER will be drafted and subsequently submitted to the NYSDEC for review and approval. A proposed project schedule is included in Appendix I.

References

1. Merritt Environmental Consulting Corp., 2023. *Phase I Environmental Site Assessment*, Prepared for Flushing Holdings NY LLC. November.

2. Haley & Aldrich of New York, 2024. Phase I Environmental Site Assessment, 860 Flushing Avenue, Prepared for Flushing Holdings NY LLC. September.

3. Haley & Aldrich of New York, 2024. Limited Phase II Environmental Site Investigation Report, 860 Flushing Avenue, Prepared for Flushing Holdings NY LLC. November.

4. H & A of New York Engineering and Geology, LLP, 2024. NYSDEC Brownfield Cleanup Application, 860 Flushing Avenue, Prepared for Flushing Holdings NY LLC. December.

5. H & A of New York Engineering and Geology, LLP, 2025. Remedial Investigation Report, 860 Flushing Avenue, Prepared for Flushing Holdings NY LLC. September.

6. New York State Department of Environmental Conservation, 2010. Program Policy DER-10, "Technical Guidance for Site Investigation and Remediation." May.

7. New York State Department of Environmental Conservation, 2022a. Guidelines for Sampling and Analysis of PFAS. November.

8. New York State Department of Environmental Conservation, 2022b. Sampling for 1,4-dioxane and Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs. November.

9. New York State Department of Environmental Conservation, 2023. Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs. April.

10. New York State Department of Environmental Conservation, Part 375 of Title 6 of the New York Compilation of Codes, Rules, and Regulations, Effective December 14, 2006.

11. New York State Department of Health, 2006. Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October.

12. New York State Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1) dated June 1998.

13. United States Environmental Protection Agency, 2017. "Low Flow Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells," EQASOP-GW 001. September 19.

TABLES

TABLE 1.
SCO EXCEEDANCE SUMMARY
860 FLUSHING AVENUE, BROOKLYN, NEW YORK
BCP SITE NO. C224424

Soil						
Analyte	**PGWSCO**	**RRSCO**	**UUSCO**	**USEPA Toxicity Limit**	**Max Concentration (mg/kg)**	**Sample**
Acetone	0.05	100	0.05	-	0.072 J	SB-02_0-2
Ethylbenzene	1	41	1	-	1.3 J	SB-12_25-27
Total xylenes	1.6	100	0.26	-	2.3	SB-12_25-27
Benzo(a)anthracene	1	1	1	-	53.8	DUP-02_20250725
Benzo(a)pyrene	22	1	1	-	46.2	DUP-02_20250725
Benzo(b)fluoranthene	1.7	1	1	-	43.6	DUP-02_20250725
Benzo(k)fluoranthene	1.7	3.9	0.8	-	44.8	DUP-02_20250725
Chrysene	1	3.9	1	-	52.3	DUP-02_20250725
Dibenz(a,h)anthracene	1000	0.33	0.33	-	10.5	DUP-02_20250725
Fluoranthene	1000	100	100	-	141	DUP-02_20250725
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.5	-	22.8	DUP-02_20250725
Pyrene	1000	100	100	-	105	DUP-02_20250725
Arsenic	16	16	13	-	13.3	SB-13_6-8
Barium	820	400	350	-	3,160	SB-13_6-8
Cadmium	7.5	4.3	2.5	-	6.79	SB-03_14-16
Copper	1720	270	50	-	305	SB-03_6-8
Lead	450	400	63	-	3,150	SB-03_6-8
Mercury	0.73	0.81	0.18	-	6.07	SB-02_0-2
Nickel	130	310	30	-	42.9	SB-07_6-8
Zinc	2480	10000	109	-	2,270	SB-03_14-16
Lead (hazardous)	-	-	-	5	5.54 mg/L	SB-03_16-17
4,4'-DDE	17	8.9	0.0033	-	0.00502	SB-14_6-8
4,4'-DDT	136	7.9	0.0033	-	0.0264	SB-14_6-8
Polychlorinated biphenyls (PCBs)	3.2	1	0.1	-	0.291	SB-06_0-2
Perfluorooctanesulfonic acid (PFOS)	1	44	0.88	-	1.98	SB-06_0-2

Groundwater			
Analyte	**AWQS**	**Max Concentration (µg/L)**	**Sample**
Chloroform	7	10	MW-02
Benzo(a)anthracene	0.002	0.226	MW-01
Benzo(a)pyrene	0.002	0.088	MW-01
Benzo(b)fluoranthene	0.002	0.0857	MW-01
Benzo(K)fluoranthene	0.002	0.0976	MW-01
Chrysene	0.002	0.266	MW-01
Iron	300	8,720	MW-01
Magnesium	35000	1,860	MW-01
Sodium	20000	238000 R	MW-05
Perfluorooctanesulfonic acid (PFOS)	2.7	26.6 ng/L	MW-03
Perfluorooctanoic acid (PFOA)	6.7	94.7 ng/L	MW-04

Notes:
Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCO), Restricted-Use Residential Soil Cleanup Objectives (RRSCO), and Protection of Groundwater Soil Cleanup Objectives (PGWSCO).
Groundwater Analytical Results Compared to New York TOGS 111 Ambient Water Quality Standards (AWQS)
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
µg/L = micrograms per liter
ng/L = nanograms per liter
J = Value is estimated
R = Rejected

TABLE 2.

TRACK 2 SOIL CLEANUP OBJECTIVES

860 FLUSHING AVENUE, BROOKLYN, NEW YORK

NYSDEC BCP SITE C224424

PCBs/Pesticides (mg/kg)	
4,4'-DDD	5
4,4'-DDE	3.4
4,4'-DDT	3.8
Aldrin	0.044
alpha-BHC	0.18
alpha-Chlordane (cis)	0.65
beta-BHC	0.18
delta-BHC	100
Dieldrin	0.075
Endosulfan I	35
Endosulfan II	35
Endosulfan sulfate	35
Endrin	5.3
gamma-BHC (Lindane)	0.21
Heptachlor	0.53
Polychlorinated biphenyls (PCBs)	1

Volatile Organic Compounds (mg/kg)	
1,1,1-Trichloroethane	100
1,1-Dichloroethane	47
1,1-Dichloroethene	0.98
1,2,4-Trimethylbenzene	100
1,2-Dichlorobenzene	100
1,2-Dichloroethane	5.8
1,3,5-Trimethylbenzene	100
1,3-Dichlorobenzene	38
1,4-Dichlorobenzene	24
1,4-Dioxane	5.7
2-Butanone (Methyl Ethyl Ketone)	100
2-Phenylbutane (sec-Butylbenzene)	100
Acetone	100
Benzene	3.7
Carbon tetrachloride	7.1
Chlorobenzene	100
Chloroform (Trichloromethane)	24
cis-1,2-Dichloroethene	41
Ethylbenzene	76
Methyl Tert Butyl Ether (MTBE)	100
Methylene chloride (Dichloromethane)	81
Naphthalene	100
n-Butylbenzene	100
n-Propylbenzene	100
tert-Butylbenzene	100
Tetrachloroethene	18
Toluene	100
trans-1,2-Dichloroethene	100
Trichloroethene	6.4
Vinyl chloride	0.48
Xylene (Total)	100

Semivolatile Organic Compounds (mg/kg)	
1,2-Dichlorobenzene	100
1,3-Dichlorobenzene	38
1,4-Dichlorobenzene	24
1,4-Dioxane	5.7
2-Methylphenol (o-Cresol)	100
Acenaphthene	100
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1.4
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1.4
Benzo(g,h,i)perylene	4.9
Benzo(k)fluoranthene	4.9
Chrysene	4.9
Dibenz(a,h)anthracene	0.33
Dibenzofuran	18
Fluoranthene	100
Fluorene	100
Hexachlorobenzene	0.33
Indeno(1,2,3-cd)pyrene	1.4
Naphthalene	100
Pentachlorophenol	1.3
Phenanthrene	4.9
Phenol	100
Pyrene	100

Metals (mg/kg)	
Arsenic	16
Barium	400
Beryllium	43
Cadmium	2.5
Chromium VI (Hexavalent)	1
Copper	280
Lead	400
Manganese	2000
Mercury	0.3
Nickel	320
Selenium	110
Silver	110
Zinc	6,600

Notes:

1. Criteria are 6 NYCRR Part 375 Restricted Residential Soil Cleanup Objectives (December 2025)

2. mg/kg: milligram per kilogram

TABLE 3.
ALTERNATIVE I REMEDIAL COST ESTIMATE
860 FLUSHING AVENUE, BROOKLYN, NEW YORK
BCP SITE NO. C224424

Consulting/Engineering Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Waste Characterization	Lump Sum	$ 75,000	1	$ 75,000
2	Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.)	Month	$ 15,000	10	$ 150,000
3	Remedial Oversight	Month	$ 38,000	6	$ 228,000
4	Confirmation Sampling	Sample	$ 2,000	35	$ 70,000
5	Soil Vapor Intrusion Evaluation	Allowance	$ 5,000	1	$ 5,000
6	Soil Vapor Intrusion Reporting	Lump Sum	$ 3,000	1	$ 3,000
7	Final Engineering Report and COC Coordination	Allowance	$ 50,000	1	$ 50,000
				Consulting/Engineering Subtotal	$ 581,000
Contractor Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Mobilization/Demobilization, Site Maintenance, Security, etc.	Allowance	$ 200,000	1	$ 200,000
2	Truck Wash Station	Month	$ 25,000	6	$ 150,000
3	Management/Handling Contaminated Material	Cubic Yard	$ 40	7,100	$ 284,000
4	Support of Excavation ($4,000/Linear Foot X Site Perimeter 460 ft = $1,840,000)	Linear Foot	$ 1,840,000	1.29	$ 2,373,600
5	Add. Support of Excavation ($4,000/Linear Foot X SOE for SB-11 and SB-12 Hotspots 145 ft = $580,000)	Linear Foot	$ 580,000	2.14	$ 1,241,200
6	Transport and Disposal of Non-Hazardous Contaminated Material	Ton	$ 50	10,695	$ 534,750
7	Transport and Disposal of Hazardous Material (F Listed and/or Lead)	Ton	$ 275	50	$ 13,750
8	Dewatering	Allowance	$ 500,000	1	$ 500,000
9	Backfill Procurement, Placement and Compaction	Cubic Yard	$ 30	400	$ 12,000
10	Underground Storage Tank (Contingency Budget)	Allowance	$ 75,000	0	$ -
				Contractor Subtotal	$ 5,309,300
				Total	$ 5,890,300
				15% Contingency	$ 883,545
				Estimated Total (Rounded to the nearest $1,000)	$ 6,774,000

Notes:
1. Assuming a conditional Track 1 Remedy requiring excavation to 2 ft bgs and to 28 ft bgs for the SB-11 and SB-12 hotspots to remove soils exceeding UUSCOs.
2. Assumes density of 1.5 tons per cubic yard of fill/soil.
3. Assumes residual soil will meet Track 1 Unrestricted Use Soil Cleanup Objectives.
4. Assumes dewatering of water accumulated in excavations will be required.
5. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks.
6. Costs are estimated and subject to change. Costs do not include new building construction.
7. RAWP implementation is assumed to take 6 months.
8. This cost estimate was prepared to compare various remedial alternatives as was based on available information at the time of preparation. The estimate may be +/- 30-50% of the actual cost. This estimate was not prepared for financial or legal consulting purposes and was not intended for use regarding compliance with financial reporting requirements or liability services.
9. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.

TABLE 4.
ALTERNATIVE II REMEDIAL COST ESTIMATE
860 FLUSHING AVENUE, BROOKLYN, NEW YORK
BCP SITE NO. C224424

Consulting/Engineering Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Waste Characterization	Lump Sum	$ 50,000	1	$ 50,000
2	Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.)	Month	$ 15,000	8	$ 120,000
3	Remedial Oversight	Month	$ 38,000	4	$ 152,000
4	Confirmation Sampling	Sample	$ 2,000	45	$ 90,000
5	SVE System Design	Lump Sum	$ 15,000	1	$ 15,000
6	Soil Vapor Intrusion Evaluation	Allowance	$ 5,000	1	$ 5,000
7	Soil Vapor Intrusion Reporting	Lump Sum	$ 3,000	1	$ 3,000
8	Final Engineering Report, Site Management Plan and COC Coordination	Allowance	$ 75,000	1	$ 75,000
9	Annual Site Management (engineering control monitoring, reporting)	Year	$ 25,000	2	$ 50,000
				Consulting/Engineering Subtotal	$ 560,000
Contractor Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Mobilization/Demobilization, Site Maintenance, Security, etc.	Allowance	$ 200,000	1	$ 200,000
2	Truck Wash Station	Month	$ 25,000	8	$ 200,000
3	Management/Handling Contaminated Material	Cubic Yard	$ 40	4,000	$ 160,000
4	Support of Excavation ($4,000/Linear Foot X Site Perimeter 460 ft = $1,840,000)	Linear Foot	$ 1,840,000	0.7	$ 1,288,000
5	Add. Support of Excavation ($4,000/Linear Foot X SOE for SB-06, SB-11 and SB-12 Hotspots 145 ft = $580,000)	Linear Foot	$ 580,000	2.14	$ 1,241,200
6	Transport and Disposal of Non-Hazardous Contaminated Material	Ton	$ 50	5,985	$ 299,250
7	Transport and Disposal of Non-Hazardous Petroleum Impacted Fill Material	Ton	$ 55	100	$ 5,500
8	Transport and Disposal of Hazardous Material (F Listed and/or Lead)	Ton	$ 275	50	$ 13,750
9	Dewatering	Allowance	$ 350,000	1	$ 350,000
10	Backfill Procurement, Placement and Compaction	Cubic Yard	$ 30	800	$ 24,000
11	Underground Storage Tank (Contingency Budget)	Allowance	$ 75,000	1	$ -
12	Active SVE System	Lump Sum	$ 150,000	1	$ 150,000
				Contractor Subtotal	$ 3,931,700
				Total	$ 3,981,700
				15% Contingency	$ 597,255
				Estimated Total (Rounded to the nearest $1,000)	$ 4,579,000

Notes:

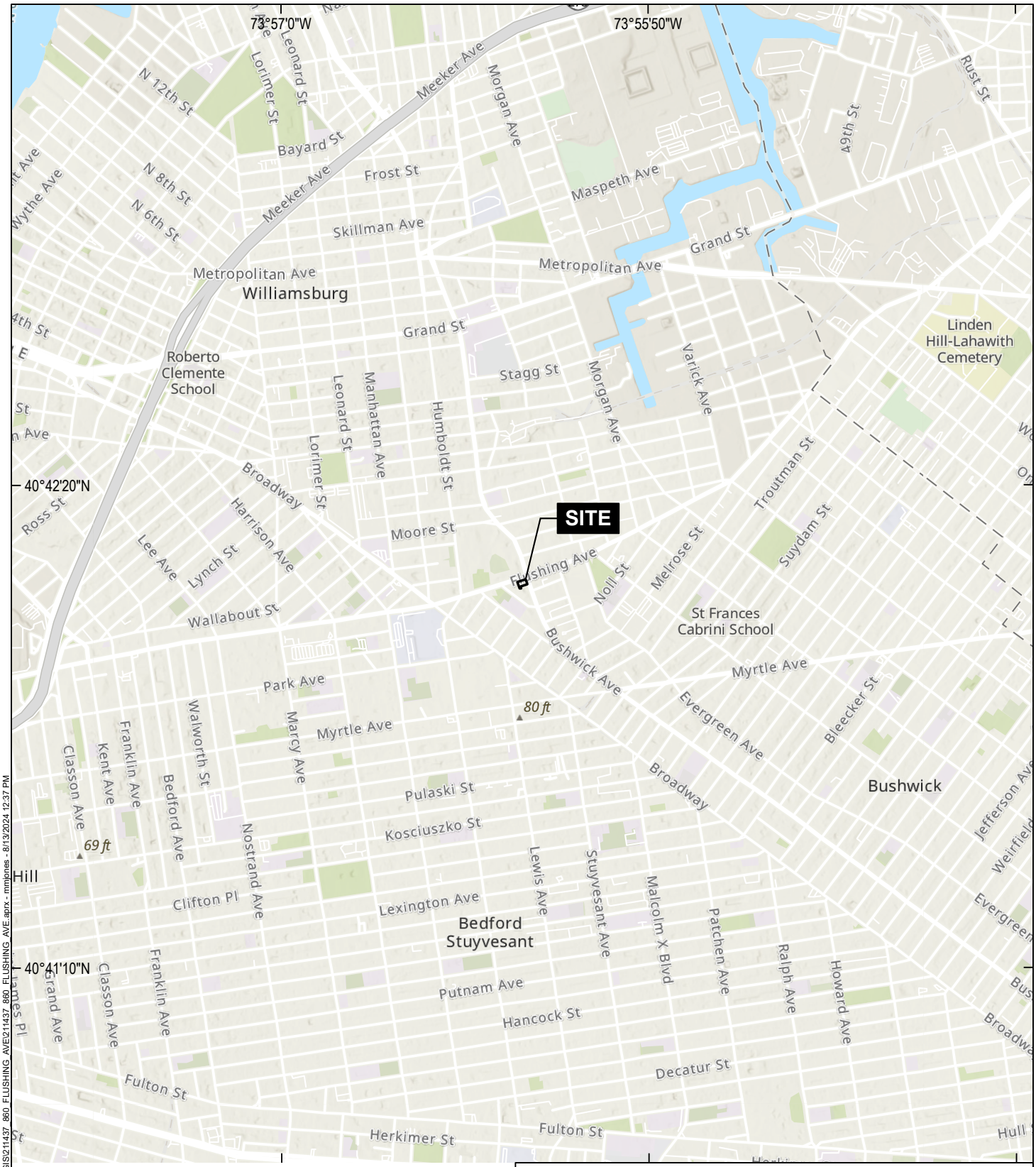
1. Assuming a Track 2 Remedy with site management requiring excavation to 10 ft bgs and to 15 ft bgs for the SB-06, 15 ft bgs for the SB-11, and 15 ft bgs for the SB-12 hotspots to remo
2. Assumes density of 1.5 tons per cubic yard of fill/soil.
3. Assumes residual soil will meet Track 2 Restricted Residential Soil Cleanup Objectives.
4. Assumes dewatering of water accumulated in excavations will be required.
5. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks.
6. Costs are estimated and subject to change. Costs do not include new building construction.
7. RAWP implementation is assumed to take 4 months.
8. This cost estimate was prepared to compare various remedial alternatives as was based on available information at the time of preparation. The estimate may be +/- 30-50% of the actual cost. This estimate was not prepared for financial or legal consulting purposes and was not intended for use regarding compliance with financial reporting requirements or
9. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.

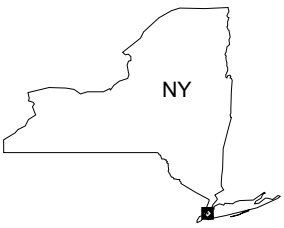
TABLE 5.
ALTERNATIVE III REMEDIAL COST ESTIMATE
860 FLUSHING AVENUE, BROOKLYN, NEW YORK
BCP SITE NO. C224424

Consulting/Engineering Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Waste Characterization	Lump Sum	$ 35,000	1	$ 35,000
2	Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.)	Month	$ 15,000	8	$ 120,000
3	Remedial Oversight	Month	$ 38,000	4	$ 152,000
4	Confirmation Sampling	Sample	$ 2,000	30	$ 60,000
5	SSDS System Design	Lump Sum	$ 15,000	1	$ 15,000
6	Soil Vapor Intrusion Evaluation	Allowance	$ 5,000	1	$ 5,000
7	Soil Vapor Intrusion Reporting	Lump Sum	$ 3,000	1	$ 3,000
7	Final Engineering Report, Site Management Plan and COC Coordination	Allowance	$ 75,000	1	$ 75,000
9	Annual Site Management (engineering control monitoring, reporting)	Year	$ 40,000	10	$ 400,000
				Consulting/Engineering Subtotal	$ 865,000
Contractor Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Mobilization/Demobilization, Site Maintenance, Security, etc.	Allowance	$ 200,000	1	$ 200,000
2	Truck Wash Station	Month	$ 25,000	2	$ 50,000
3	Management/Handling Contaminated Material	Cubic Yard	$ 40	825	$ 33,000
4	Support of Excavation ($4,000/Linear Foot X Site Perimeter 460 ft = $1,840,000)	Percentage	$ 1,840,000	0.14	$ 257,600
5	Add. Support of Excavation ($4,000/Linear Foot X SOE for SB-06 and SB-11 Hotspots 90 ft = $360,000)	Linear Foot	$ 360,000	2.14	$ 770,400
6	Transport and Disposal of Urban Fill	Ton	$ 46	1,088	$ 50,048
7	Transport and Disposal of Non-Hazardous Petroleum Impacted Fill Material	Ton	$ 55	100	$ 5,500
8	Transport and Disposal of Hazardous Material (F Listed and/or Lead)	Ton	$ 275	50	$ 13,750
9	Dewatering	Allowance	$ 250,000	1	$ 250,000
10	Backfill Procurement, Placement and Compaction	Cubic Yard	$ 30	800	$ 24,000
11	Underground Storage Tank (Contingency Budget)	Allowance	$ 75,000	0	$ -
12	Active Sub-slab Depressurization System (SSDS) Installation	Lump Sum	$ 150,000	1	$ 150,000
13	SSDS Startup Testing	Lump Sum	$ 25,000	1	$ 25,000
14	Composite Cover System (inc. vapor barrier/waterproofing membrane)	Allowance	$ 500,000	1	$ 500,000
				Contractor Subtotal	$ 2,329,298
				Total	$ 3,194,298
				15% Contingency	$ 479,145
				Estimated Total	$ 3,673,000

Notes:
1. Assuming a Track 4 Remedy with site management requiring excavation to 2 ft bgs and to 17 ft bgs for the SB-06 and 28 ft bgs for the SB-11 hotspots to remove soils exceeding RRSC
2. Assumes density of 1.5 tons per cubic yard of fill/soil
3. Assumes residual soil will meet Track 4 Restricted Residential Soil Cleanup Objectives.
4. Assumes dewatering of water accumulated in excavations will be required.
5. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks.
6. Costs are estimated and subject to change. Costs do not include new building construction.
7. RAWP implementation is assumed to take 4 months.
8. This cost estimate was prepared to compare various remedial alternatives as was based on available information at the time of preparation. The estimate may be +/- 30-50% of the actual cost. This estimate was not prepared for financial or legal consulting purposes and was not intended for use regarding compliance with financial reporting requirements or
9. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.

FIGURES





MAP SOURCE: ESRI
SITE COORDINATES: 40°42'06"N, 73°56'14"W

HALEY ALDRICH

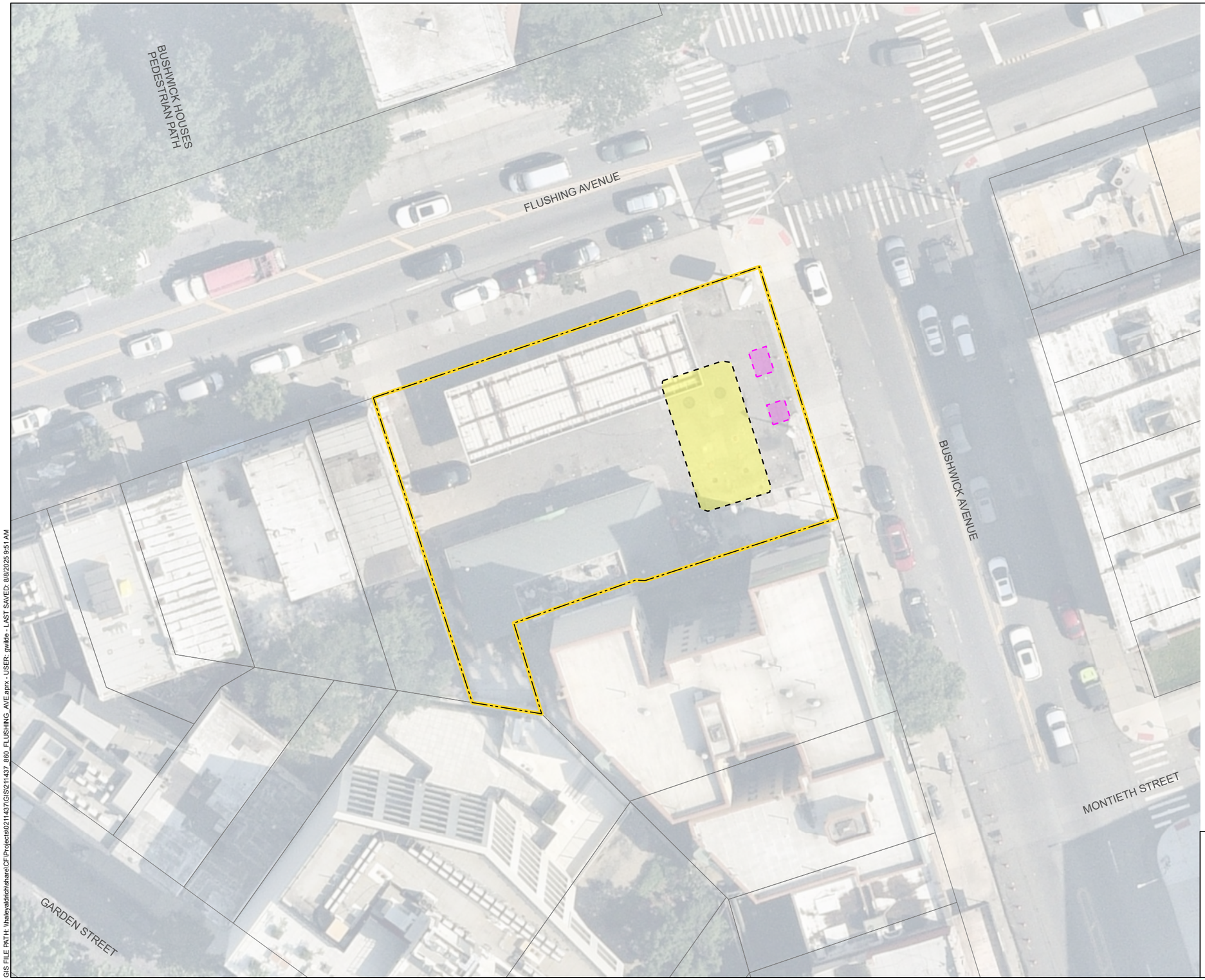
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
SEPTEMBER 2025

FIGURE 1

GIS: \\haleyaldrich.com\share\CF\Projects\021143\7\GIS\211437_860_FLUSHING_AVE\211437_860_FLUSHING_AVE aprx - mmjones - 8/13/2024 12:37 PM



LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- LOCATION OF TWO EXISTING 12,000-GALLON DOUBLE-WALLED FIBERGLASS UNDERGROUND STORAGE TANKS - ASSUMED LOCATION OF THREE FORMER 4,000-GALLON STEEL UNDERGROUND STORAGE TANKS
- SUBSURFACE ANOMALIES DETECTED DURING GROUND-PENETRATING RADAR SURVEY ON JULY 21, 2025

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

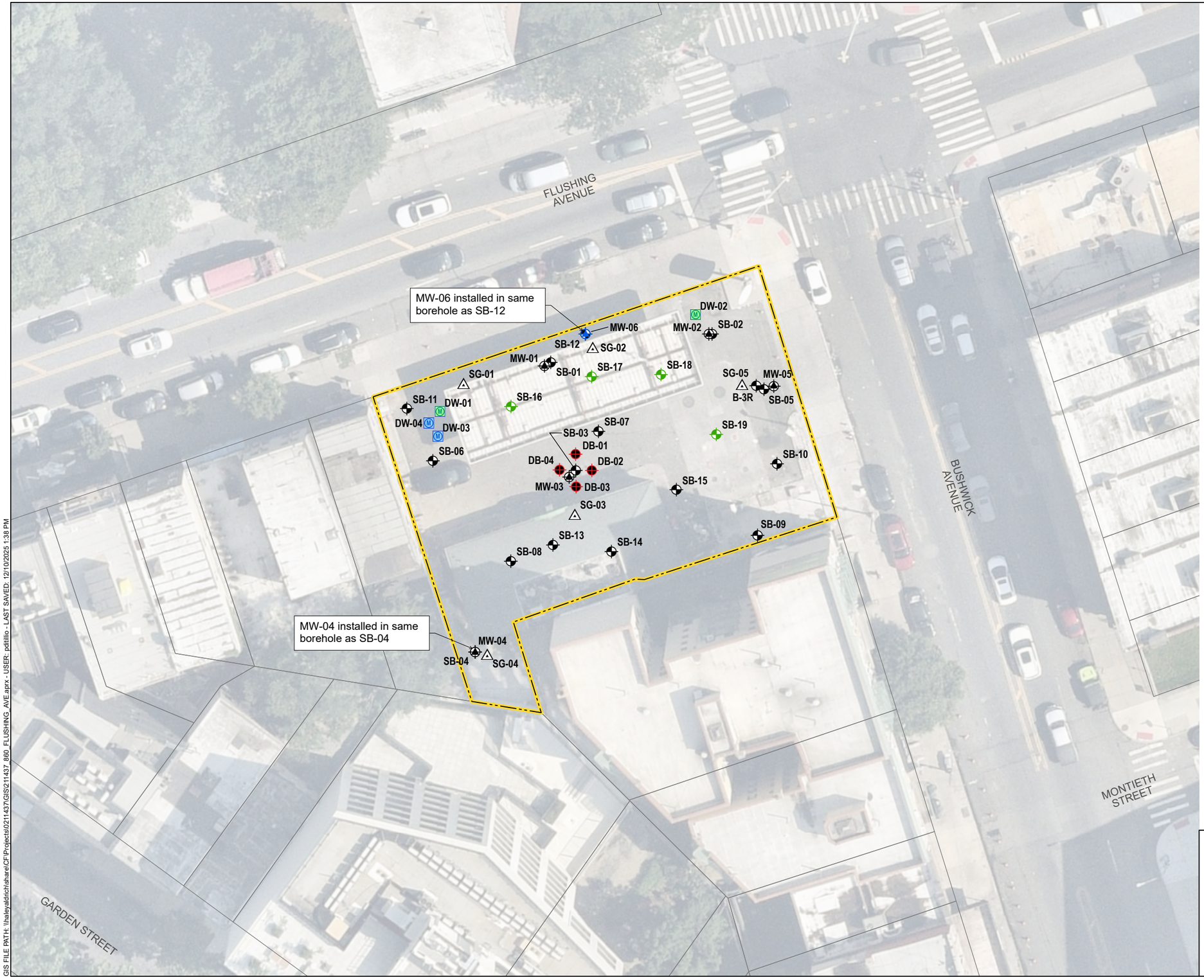
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

SITE MAP

DECEMBER 2025

FIGURE 2

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilkie - LAST SAVED: 8/8/2025 9:51 AM



LEGEND

- MONITORING WELL (2025 RI)
- MONITORING WELL (2025 SRI)
- SOIL BORING (2025 RI)
- SOIL BORING (2025 SRI)
- HAZARDOUS LEAD SOIL DELINEATION BORING (2025 RI)
- SOIL VAPOR SAMPLE (2025 RI)
- DRYWELL SYSTEM MANHOLE - CLOSED COVER (2025 RI)
- DRYWELL SYSTEM MANHOLE - OPEN GRATE (2025 RI)
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. 2025 SRI = SUPPLEMENTAL REMEDIAL INVESTIGATION COMPLETED IN NOVEMBER AND DECEMBER 2025.

3. 2025 RI = REMEDIAL INVESTIGATION COMPLETED IN JULY AND AUGUST 2025

4. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION

5. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

SAMPLE LOCATION MAP

DECEMBER 2025

FIGURE 3

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: pdilillo - LAST SAVED: 12/10/2025 1:38 PM

SB-16	11/20/2025 6 - 8 (ft) Primary	11/20/2025 14 - 16 (ft) Primary	11/20/2025 25 - 27 (ft) Primary
Pesticides (mg/kg)			
4,4'-DDE	0.00433	ND (0.00178)	ND (0.00172)
4,4'-DDT	0.0364 J	ND (0.00178)	ND (0.00172)
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	5.4 J	3.6	0.2
Benzo(a)pyrene	4.7 J	2.9	0.18
Benzo(b)fluoranthene	6.2 J	3.6	0.2
Benzo(k)fluoranthene	2.1 J	1.2	0.079 J
Chrysene	5.4 J	3.9	0.21
Dibenz(a,h)anthracene	0.76	0.46 J	0.028 J
Indeno(1,2,3-cd)pyrene	3.2 J	1.8	0.1 J
Total Metals (mg/kg)			
Barium	879	46.3	48.2
Lead	308	9.55	7.75
Mercury	1.09	ND (0.081)	ND (0.085)
Zinc	448	26.2	29.8
Volatile Organic Compounds (mg/kg)			
Acetone	ND (0.062) J	ND (0.013)	ND (0.013)

SB-01	07/22/2025 0 - 2 (ft) Primary	07/22/2025 6 - 8 (ft) Primary	07/22/2025 14 - 16 (ft) Primary
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	1.91	1.42	ND (0.0928)
Benzo(a)pyrene	1.73	1.04	ND (0.0928)
Benzo(b)fluoranthene	1.82	0.791	ND (0.0928)
Benzo(k)fluoranthene	1.64	0.872	ND (0.0928)
Chrysene	1.87	1.48	ND (0.0928)
Dibenz(a,h)anthracene	0.389	0.165	ND (0.0928)
Indeno(1,2,3-cd)pyrene	1.33	0.573	ND (0.0928)
Total Metals (mg/kg)			
Copper	77.8	67.3	35.6
Lead	264 J	299 J	12.2 J
Mercury	2.71	0.187	ND (0.0335)
Nickel	19 J	15.7 J	40.9 J
Zinc	324 J	679 J	112 J

SB-12	07/24/2025 0 - 2 (ft) Primary	07/24/2025 6 - 8 (ft) Primary	07/24/2025 14 - 16 (ft) Primary	07/24/2025 25 - 27 (ft) Primary
Pesticides (mg/kg)				
4,4'-DDE	0.00386 J	ND (0.00181)	ND (0.0018)	ND (0.00186)
Semi-Volatile Organic Compounds (mg/kg)				
Benzo(a)anthracene	5.97	1.11	0.0474 J	0.0921 J
Benzo(a)pyrene	6.25	1.28	0.0546 J	0.143
Benzo(b)fluoranthene	7.72	1.53	0.0747 J	0.187
Benzo(k)fluoranthene	2.59	0.527	ND (0.0899)	0.0617 J
Chrysene	6.33	1.28	0.0532 J	0.103
Dibenz(a,h)anthracene	1.16	0.185	ND (0.0899)	ND (0.093)
Indeno(1,2,3-cd)pyrene	3.83	0.788	0.0467 J	0.109
Total Metals (mg/kg)				
Barium	386	59.4	38.9	399
Copper	88.8 J+	30.1 J+	20.7 J+	47.5 J+
Lead	343	8.59	7.2	315
Mercury	2.6	ND (0.0331)	ND (0.0331)	1.42
Zinc	234	39.9	29.1	722
Volatile Organic Compounds (mg/kg)				
Ethylbenzene	ND (0.0061)	ND (0.0045)	0.031 J	1.3 J
Xylene (Total)	ND (0.018)	ND (0.013)	ND (0.015)	2.3

SB-17	11/20/2025 6 - 8 (ft) Primary	11/20/2025 14 - 16 (ft) Duplicate	11/20/2025 14 - 16 (ft) Primary	11/20/2025 23 - 25 (ft) Primary	11/20/2025 25 - 27 (ft) Primary
Total Metals (mg/kg)					
Lead	132	5.16	5.41	7.65	3.44 J
Mercury	0.844	ND (0.077)	ND (0.078)	ND (0.076)	ND (0.087)
Volatile Organic Compounds (mg/kg)					
n-Propylbenzene	0.0083	ND (0.054)	ND (0.0009)	39	0.0017

SB-02	07/23/2025 0 - 2 (ft) Duplicate	07/23/2025 0 - 2 (ft) Primary	07/23/2025 6 - 8 (ft) Primary	07/23/2025 14 - 16 (ft) Primary
PCBs (mg/kg)				
Polychlorinated biphenyls (PCBs)	0.25	0.246	ND (0.0192)	0.0195
Semi-Volatile Organic Compounds (mg/kg)				
Benzo(a)anthracene	5.23 J	0.322 J	10.5	ND (0.0883)
Benzo(a)pyrene	5.15 J	0.391 J	11.1	ND (0.0883)
Benzo(b)fluoranthene	6.97 J	0.521 J	13.5	ND (0.0883)
Benzo(k)fluoranthene	2.29 J+	0.214 J	3.7+	ND (0.0883)
Chrysene	5.8 J	0.335 J	11.7	ND (0.0883)
Dibenz(a,h)anthracene	0.774 J+	0.0752 J	1.33 J+	ND (0.0883)
Indeno(1,2,3-cd)pyrene	3.76 J	0.295 J	6.79	ND (0.0883)
Total Metals (mg/kg)				
Barium	1250	619	536	24.7
Copper	44.5	47.2	57.3	18.6
Lead	806	588	521	5.39
Mercury	3.96	6.07	2.64	ND (0.0325)
Zinc	544	341	427	25.6
Volatile Organic Compounds (mg/kg)				
Acetone	0.016 J	0.072 J	ND (0.011)	0.018
PFAS (ug/kg)				
Perfluorooctanesulfonic acid (PFOS)	1.09	0.384	0.181 J	ND (0.2)

SB-07	07/21/2025 0 - 2 (ft) Primary	07/21/2025 6 - 8 (ft) Primary	07/21/2025 14 - 16 (ft) Primary	07/30/2025 25 - 27 (ft) Primary
Total Metals (mg/kg)				
Copper	32.4	41.5	51.5	9.05
Lead	326	9.97	10.3	2.11 J
Manganese	379	2480	762	335
Mercury	0.316	ND (0.0321)	ND (0.0306)	ND (0.0309)
Nickel	14.5	42.9	28	5.94
Zinc	260	59.8	29.7	11.6

SB-18	11/20/2025 6 - 8 (ft) Primary	11/20/2025 14 - 16 (ft) Primary	11/20/2025 25 - 27 (ft) Primary
Total Metals (mg/kg)			
Lead	230	8.02	7.93
Mercury	1.12	ND (0.07)	ND (0.077)
Zinc	221	27.3	33.2

B-3R	07/21/2025 0 - 2 (ft) Primary
Total Metals (mg/kg)	
Mercury	0.237

SB-11	07/24/2025 0 - 2 (ft) Primary	07/24/2025 6 - 8 (ft) Primary	07/24/2025 14 - 16 (ft) Primary	07/24/2025 25 - 27 (ft) Primary
Pesticides (mg/kg)				
4,4'-DDT	ND (0.00183)	0.00372	ND (0.0018)	0.0054
Semi-Volatile Organic Compounds (mg/kg)				
Benzo(a)anthracene	18.9	8.29	3.14	2.36 J+
Benzo(a)pyrene	13.8	10.3	3	2.09 J+
Benzo(b)fluoranthene	10.2	12.4	45.2	1.85 J+
Benzo(k)fluoranthene	9.82	2.7	16.6	1.59 J+
Chrysene	19.1	9.84	3.13	2.67 J+
Dibenz(a,h)anthracene	1.12	1.96	11.4	0.381 J+
Indeno(1,2,3-cd)pyrene	7.53 J	6.15	27.4	0.932 J+
Pyrene	ND (0.0924)	16.9	114	3.58
Total Metals (mg/kg)				
Lead	225	295	10.6	7.43
Mercury	0.528	0.465	ND (0.0331)	ND (0.034)
Zinc	147	716	37.6	29.7
Volatile Organic Compounds (mg/kg)				
Acetone	0.0099	0.021	0.015	0.053

SB-05	07/23/2025 0 - 2 (ft) Primary	07/23/2025 6 - 8 (ft) Primary	07/28/2025 14 - 16 (ft) Primary
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(b)fluoranthene	1.02	ND (0.092)	ND (0.0894)
Indeno(1,2,3-cd)pyrene	0.529	ND (0.092)	ND (0.0894)
Total Metals (mg/kg)			
Lead	217	5.65	6.32
Mercury	1.97	ND (0.0335)	ND (0.0329)
Zinc	185	24.2	26.7

SB-06	07/24/2025 0 - 2 (ft) Primary	07/24/2025 6 - 8 (ft) Primary	07/24/2025 14 - 16 (ft) Primary
PCBs (mg/kg)			
Polychlorinated biphenyls (PCBs)	0.291	0.0838	0.117
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	0.107	0.0963	3.5
Benzo(a)pyrene	0.0818 J	0.0963	3.47
Benzo(b)fluoranthene	0.0561 J	0.13	4
Benzo(k)fluoranthene	0.0721 J	ND (0.0893)	1.86
Chrysene	0.112	0.0949	4.24
Dibenz(a,h)anthracene	ND (0.0867)	ND (0.0893)	0.68
Indeno(1,2,3-cd)pyrene	ND (0.0867)	0.0792 J	2.73
Total Metals (mg/kg)			
Lead	183	215	229
Mercury	0.325	0.501	0.05
Zinc	153	212	466
Volatile Organic Compounds (mg/kg)			
Acetone	0.059	ND (0.013)	0.027
PFAS (ug/kg)			
Perfluorooctanesulfonic acid (PFOS)	1.98	0.449	0.0954 J

SB-10	07/24/2025 0 - 2 (ft) Primary	07/24/2025 6 - 8 (ft) Primary	07/24/2025 14 - 16 (ft) Primary
Pesticides (mg/kg)			
4,4'-DDT	0.0111	0.0156	ND (0.00185)
Total Metals (mg/kg)			
Copper	36 J+	31.8 J+	70.8 J+
Lead	99.8	110	25.4
Mercury	0.252	0.219	ND (0.0342)
Zinc	106	134	115

SB-15	07/24/2025 20 (ft) Primary	07/24/2025 25 (ft) Primary
Total Metals (mg/kg)		
Manganese	3880	132

SB-08	07/25/2025 0 - 2 (ft) Primary	07/25/2025 6 - 8 (ft) Duplicate	07/25/2025 6 - 8 (ft) Primary	08/05/2025 14 - 16 (ft) Primary
PCBs (mg/kg)				
Polychlorinated biphenyls (PCBs)	0.124	0.106	0.172	ND (0.0186)
Semi-Volatile Organic Compounds (mg/kg)				
Benzo(a)anthracene	16.2	53.8	5.02	0.0929 R
Benzo(a)pyrene	15.1	46.2	2.06	0.0929 R
Benzo(b)fluoranthene	11	43.6	4	0.0929 R
Benzo(k)fluoranthene	12.2	44.8	3.83	0.0929 R
Chrysene	15.5	52.3	5.2	0.0929 R
Dibenz(a,h)anthracene	0.888	10.5	0.57	0.0929 R
Fluoranthene	28.7	141	11	0.0929 R
Indeno(1,2,3-cd)pyrene	8.67 J	22.8	1.94	0.0929 R
Pyrene	26.8	105	9.44	0.0929 R
Total Metals (mg/kg)				
Barium	608	433	551	39.3
Copper	112	41.1	59.5	18.4 J
Lead	390	242	515	4.44
Mercury	0.878	1.39	2.52	ND (0.0336)
Zinc	416	241	473	23.1
PFAS (ug/kg)				
Perfluorooctanesulfonic acid (PFOS)	1.56	0.142 J	1.16 J	0.134 J

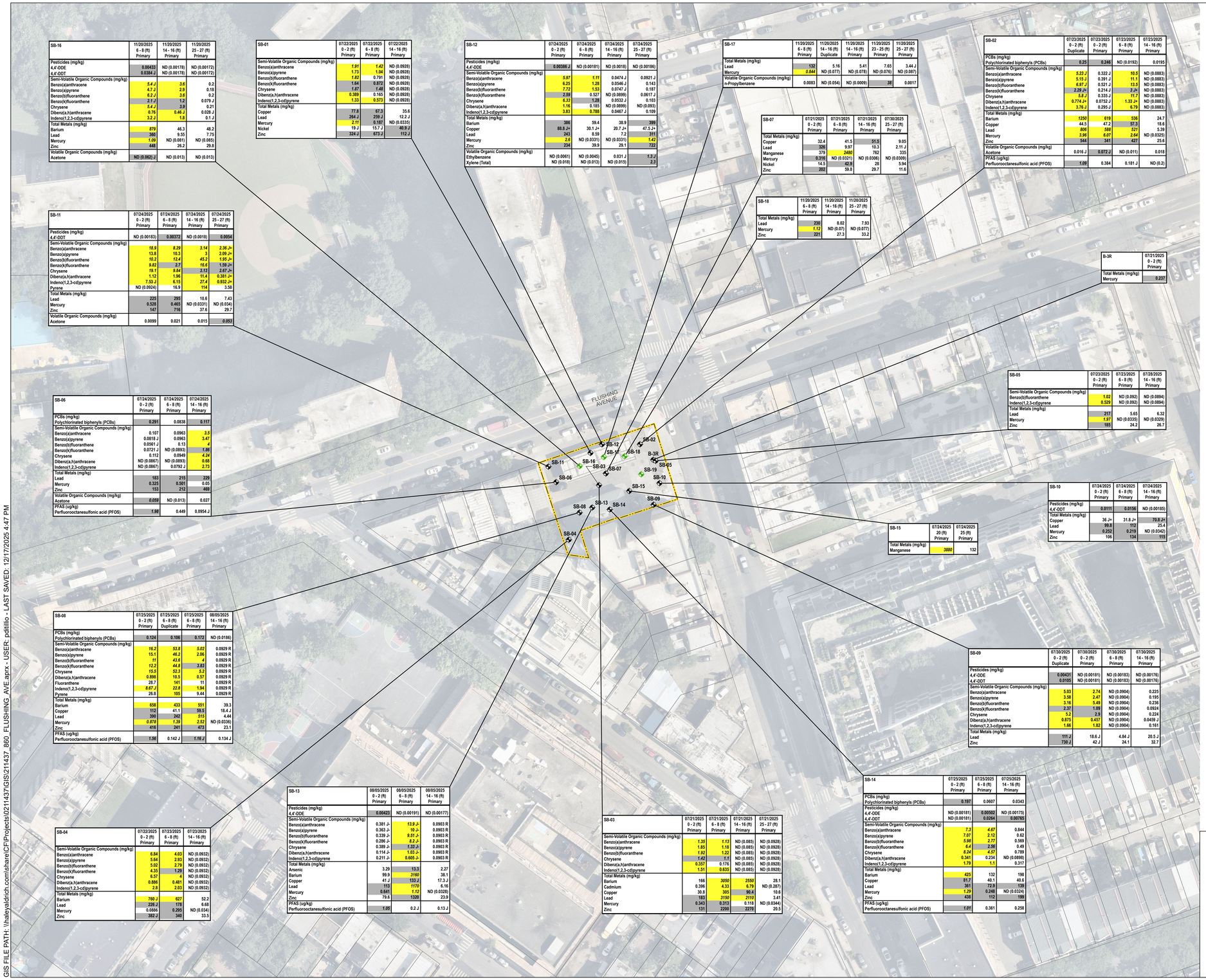
SB-09	07/30/2025 0 - 2 (ft) Duplicate	07/30/2025 0 - 2 (ft) Primary	07/30/2025 6 - 8 (ft) Primary	07/30/2025 14 - 16 (ft) Primary
Pesticides (mg/kg)				
4,4'-DDE	0.00431	ND (0.00181)	ND (0.00183)	ND (0.00176)
4,4'-DDT	0.0105	ND (0.00181)	ND (0.00183)	ND (0.00176)
Semi-Volatile Organic Compounds (mg/kg)				
Benzo(a)anthracene	5.03	2.74	ND (0.0904)	0.225
Benzo(a)pyrene	3.58	2.47	ND (0.0904)	0.195
Benzo(b)fluoranthene	3.16	5.49	ND (0.0904)	0.236
Benzo(k)fluoranthene	2.37	1.09	ND (0.0904)	0.0924
Chrysene	5.2	2.9	ND (0.0904)	0.224
Dibenz(a,h)anthracene	0.875	0.457	ND (0.0904)	0.0459 J
Indeno(1,2,3-cd)pyrene	1.66	1.82	ND (0.0904)	0.161
Total Metals (mg/kg)				
Lead	111 J	18.6 J	4.84 J	20.5 J
Zinc	739 J	42 J	24.1	32.7

SB-04	07/22/2025 0 - 2 (ft) Primary	07/23/2025 6 - 8 (ft) Primary	07/23/2025 14 - 16 (ft) Primary
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	5.84	4.03	ND (0.0932)
Benzo(a)pyrene	5.64	2.93	ND (0.0932)
Benzo(b)fluoranthene	5.02	2.79	ND (0.0932)
Benzo(k)fluoranthene	4.35	1.29	ND (0.0932)
Chrysene	6.57	4	ND (0.0932)
Dibenz(a,h)anthracene	0.886	0.481	ND (0.0932)
Indeno(1,2,3-cd)pyrene	2.8	2.03	ND (0.0932)
Total Metals (mg/kg)			
Barium	760 J	627	52.2
Lead	226 J	178	6.68
Mercury	0.0886	0.295	ND (0.034)
Zinc	382 J	340	33.5

SB-13	08/05/2025 0 - 2 (ft) Primary	08/05/2025 6 - 8 (ft) Primary	08/05/2025 14 - 16 (ft) Primary
Pesticides (mg/kg)			
4,4'-DDE	0.00423	ND (0.00191)	ND (0.00177)
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	0.381 J-	13.9 J-	0.0903 R
Benzo(a)pyrene	0.363 J-	10 J-	0.0903 R
Benzo(b)fluoranthene	0.339 J-	9.51 J-	0.0903 R
Benzo(k)fluoranthene	0.286 J-	8.2 J-	0.0903 R
Chrysene	0.389 J-	1.33 J-	0.0903 R
Dibenz(a,h)anthracene	0.114 J-	1.03 J-	0.0903 R
Indeno(1,2,3-cd)pyrene	0.211 J-	0.605 J-	0.0903 R
Total Metals (mg/kg)			
Arsenic	3.29	13.3	2.37
Barium	90.9	3160	38.1
Copper	41 J	133 J	17.3 J
Lead	115	1170	6.16
Mercury	0.641	1.12	ND (0.0328)
Zinc	79.6	1320	23.9
PFAS (ug/kg)			
Perfluorooctanesulfonic acid (PFOS)	1.05	0.2 J	0.13 J

SB-03	07/21/2025 0 - 2 (ft) Primary	07/21/2025 6 - 8 (ft) Primary	07/21/2025 14 - 16 (ft) Primary	07/21/2025 25 - 27 (ft) Primary
Semi-Volatile Organic Compounds (mg/kg)				
Benzo(a)anthracene	1.35	1.13	ND (0.085)	ND (0.0928)
Benzo(a)pyrene	1.85	1.16	ND (0.085)	ND (0.0928)
Benzo(b)fluoranthene	1.92	1.22	ND (0.085)	ND (0.0928)
Chrysene	1.43	1.1	ND (0.085)	ND (0.0928)
Dibenz(a,h)anthracene	0.357	0.176	ND (0.085)	ND (0.0928)
Indeno(1,2,3-cd)pyrene	1.51	0.635	ND (0.085)	ND (0.0928)
Total Metals (mg/kg)				
Barium	166	3050	2550	28.1
Cadmium	0.396	4.33	6.79	ND (0.287)
Copper	30.8	305	90.4	10.6
Lead	183	3150	2110	3.41
Mercury	0.343	0.313	0.118	ND (0.0344)
Zinc	131	2200	2270	20.5

SB-14	07/25/2025 0 - 2 (ft) Primary	07/25/2025 6 - 8 (ft) Primary	07/25/2025 14 - 16 (ft) Primary
PCBs (mg/kg)			
Polychlorinated biphenyls (PCBs)	0.197	0.0607	0.0343
Pesticides (mg/kg)			
4,4'-DDE	ND (0.00181)	0.00502	ND (0.00173)
4,4'-DDT	ND (0.00181)	0.0264	0.00765
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	7.3	4.67	0.844
Benzo(a)pyrene	7.07	3.12	0.62
Benzo(b)fluoranthene	5.98	2.77	0.569
Benzo(k)fluoranthene	6.4	2.56	0.49
Chrysene	8.24	4.57	0.789
Dibenz(a,h)anthracene	0.341	0.234	ND (0.0898)
Indeno(1,2,3-cd)pyrene	1.79	1.1	0.317
Total Metals (mg/kg)			
Barium	425	132	198
Copper	81.7	40.1	40.6
Lead	361	72.8	139
Mercury	1.29	0.248	ND (0.0324)
Zinc	438	112	199
PFAS (ug/kg)			
Perfluorooctanesulfonic acid (PFOS)	1.01	0.361	0.258



	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	NY Part 375 Restricted Residential Use Soil Cleanup Objectives	NY Part 375 Unrestricted Use Soil Cleanup Objectives
Pesticides (mg/kg)			
4,4'-DDE	17	8.9	0.0033
4,4'-DDT	136	7.9	0.0033
Polychlorinated Biphenyls (mg/kg)			
Polychlorinated biphenyls (PCBs)	3.2	1	0.1
Semi-Volatile Organic Compounds (mg/kg)			
Benzo(a)anthracene	1	1	1
Benzo(a)pyrene	22	1	1
Benzo(b)fluoranthene	1.7	1	1
Benzo(k)fluoranthene	1.7	3.9	0.8
Chrysene	1	3.9	1
Dibenz(a,h)anthracene	1000	0.33	0.33
Fluoranthene	1000	100	100
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.5
Pyrene	1000	100	100
Total Metals (mg/kg)			
Arsenic	16	16	13
Barium	820	400	350
Cadmium	7.5	4.3	2.5
Copper	1720	270	50
Lead	450	400	63
Manganese	2000	2000	1600
Mercury	0.73	0.81	0.18
Nickel	130	310	30
Zinc	2480	10000	109
Volatile Organic Compounds (mg/kg)			
Acetone	0.05	100	0.05
Ethylbenzene	1	41	1
n-Propylbenzene	3.9	100	3.9
Xylene (Total)	1.6	100	0.26
PFAS (ug/kg)			
Perfluorooctanesulfonic acid (PFOS)	1	44	0.88

LEGEND

- SOIL BORING (2025 RI)
- SOIL BORING (2025 SRI)
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SOIL ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (NYCRR) PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (SCO), RESTRICTED-USE RESIDENTIAL SCOS, AND PROTECTION OF GROUNDWATER SCO'S.
3. SOIL ANALYTICAL RESULTS FOR PFOS AND PFOA ARE COMPARED TO THE NYSDEC APRIL 2023 GUIDANCE VALUES.
4. DEFINITIONS:
   ND (2.5): NOT DETECTED, NUMBER IN PARENTHESES IS THE LABORATORY REPORTING LIMIT
   J: VALUE IS ESTIMATED.
   J-: VALUE IS ESTIMATED, LOW BIAS
   J+: VALUE IS ESTIMATED, HIGH BIAS
   R: REJECTED
   PFAS: PER- AND POLYFLUOROALKYL SUBSTANCES
5. EXCEEDANCES OF THE PROTECTION OF GROUNDWATER CRITERIA ARE SHOWN IN *ITALICS*.
6. EXCEEDANCES OF THE UNRESTRICTED SCOS ARE SHADED GRAY.
7. EXCEEDANCES OF THE RESTRICTED SCOS (SCOS FOR THIS SITE) ARE SHADED YELLOW.
8. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025.

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SCALE IN FEET

HALEY ALDRICH

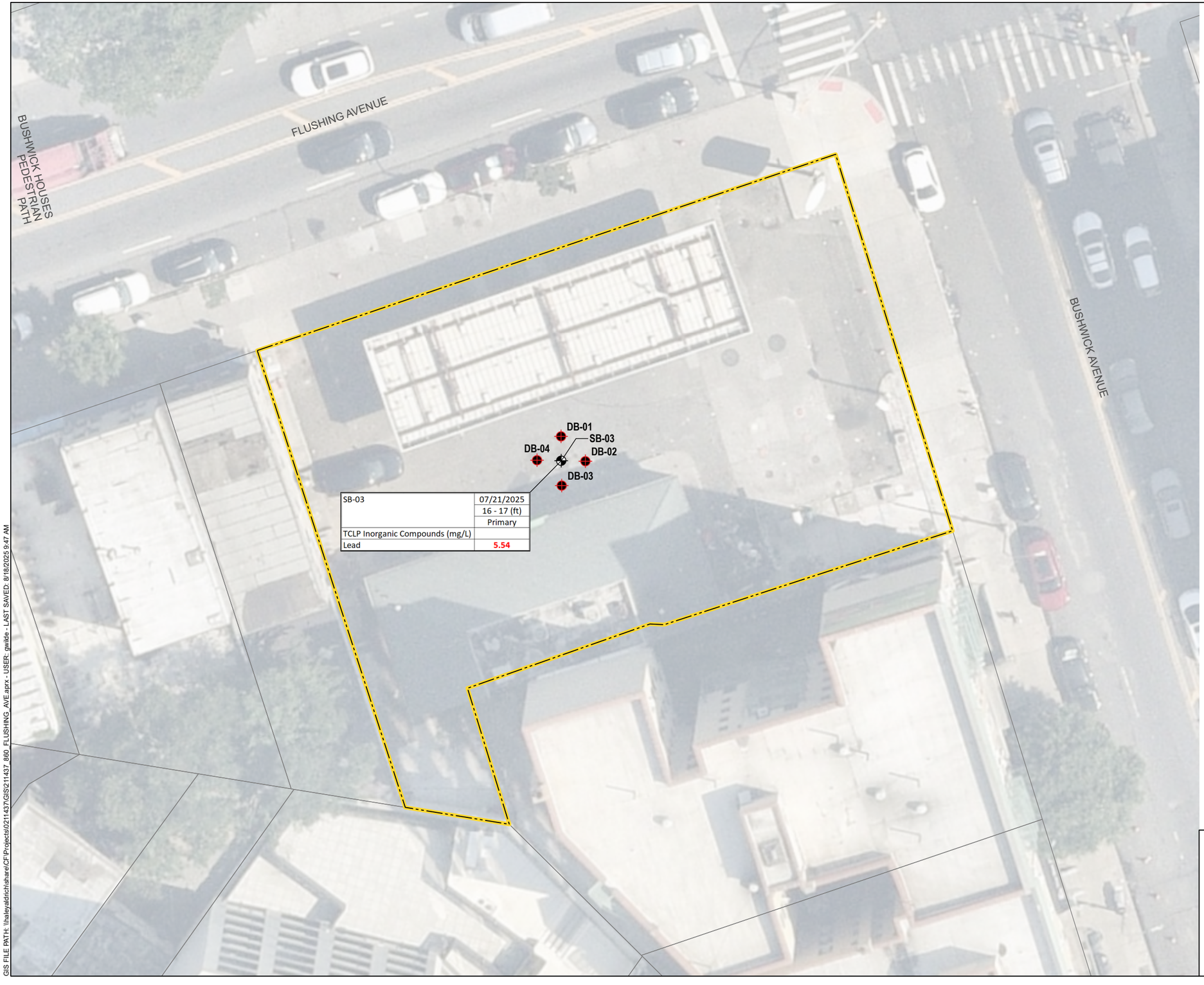
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

SOIL RESULTS EXCEEDANCE MAP

DECEMBER 2025

FIGURE 4

GIS FILE PATH: \\haleyaldrich.com\share\CFIProjects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: pdilillo - LAST SAVED: 12/17/2025 4:47 PM



LEGEND

- SOIL BORING
- HAZARDOUS LEAD SOIL DELINEATION BORING
- SITE BOUNDARY
- PARCEL BOUNDARY

	EPA TCLP Limit
TCLP Inorganic Compounds (mg/L)	
Lead	5

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025
4. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO 40 CFR 261 SUBPART C AND TABLE 1 OF 40 CFR 261.24
5. EXCEEDANCES OF THE US EPA HAZARDOUS LIMIT ARE SHOWN IN RED

N

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SCALE IN FEET

HALEY ALDRICH

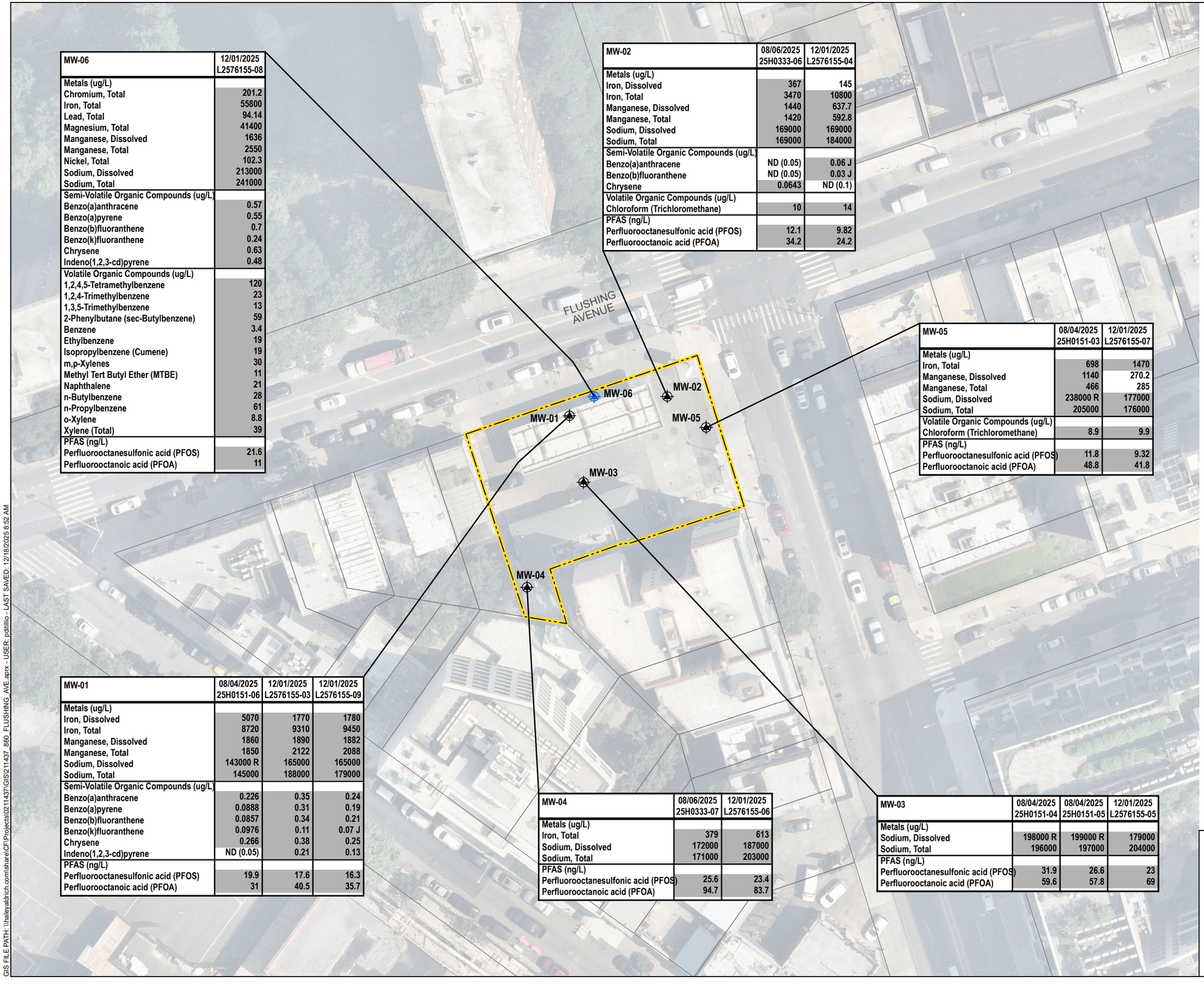
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

HAZARDOUS LEAD DELINEATION MAP

AUGUST 2025

FIGURE 5

GIS FILE PATH: \\haleyaldrich\share\CFPr\ojects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwikle - LAST SAVED: 8/18/2025 9:47 AM



MW-06	12/01/2025 L2576155-08
Metals (ug/L)	
Chromium, Total	201.2
Iron, Total	55800
Lead, Total	94.14
Magnesium, Total	41400
Manganese, Dissolved	1636
Manganese, Total	2550
Nickel, Total	102.3
Sodium, Dissolved	213000
Sodium, Total	241000
Semi-Volatile Organic Compounds (ug/L)	
Benzo(a)anthracene	0.57
Benzo(a)pyrene	0.55
Benzo(b)fluoranthene	0.7
Benzo(k)fluoranthene	0.24
Chrysene	0.63
Indeno(1,2,3-cd)pyrene	0.48
Volatile Organic Compounds (ug/L)	
1,2,4,5-Tetramethylbenzene	120
1,2,4-Trimethylbenzene	23
1,3,5-Trimethylbenzene	13
2-Phenylbutane (sec-Butylbenzene)	59
Benzene	3.4
Ethylbenzene	19
Isopropylbenzene (Cumene)	19
m,p-Xylenes	30
Methyl Tert Butyl Ether (MTBE)	11
Naphthalene	21
n-Butylbenzene	28
n-Propylbenzene	61
o-Xylene	8.8
Xylene (Total)	39
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	21.6
Perfluorooctanoic acid (PFOA)	11

MW-02	08/06/2025 25H0333-06	12/01/2025 L2576155-04
Metals (ug/L)		
Iron, Dissolved	367	145
Iron, Total	3470	10800
Manganese, Dissolved	1440	637.7
Manganese, Total	1420	592.8
Sodium, Dissolved	169000	169000
Sodium, Total	169000	184000
Semi-Volatile Organic Compounds (ug/L)		
Benzo(a)anthracene	ND (0.05)	0.06 J
Benzo(b)fluoranthene	ND (0.05)	0.03 J
Chrysene	0.0643	ND (0.1)
Volatile Organic Compounds (ug/L)		
Chloroform (Trichloromethane)	10	14
PFAS (ng/L)		
Perfluorooctanesulfonic acid (PFOS)	12.1	9.82
Perfluorooctanoic acid (PFOA)	34.2	24.2

MW-05	08/04/2025 25H0151-03	12/01/2025 L2576155-07
Metals (ug/L)		
Iron, Total	698	1470
Manganese, Dissolved	1140	270.2
Manganese, Total	466	285
Sodium, Dissolved	238000 R	177000
Sodium, Total	205000	176000
Volatile Organic Compounds (ug/L)		
Chloroform (Trichloromethane)	8.9	9.9
PFAS (ng/L)		
Perfluorooctanesulfonic acid (PFOS)	11.8	9.32
Perfluorooctanoic acid (PFOA)	48.8	41.8

MW-01	08/04/2025 25H0151-06	12/01/2025 L2576155-03	12/01/2025 L2576155-09
Metals (ug/L)			
Iron, Dissolved	5070	1770	1780
Iron, Total	8720	9310	9450
Manganese, Dissolved	1860	1890	1882
Manganese, Total	1850	2122	2088
Sodium, Dissolved	143000 R	165000	165000
Sodium, Total	145000	188000	179000
Semi-Volatile Organic Compounds (ug/L)			
Benzo(a)anthracene	0.226	0.35	0.24
Benzo(a)pyrene	0.0888	0.31	0.19
Benzo(b)fluoranthene	0.0857	0.34	0.21
Benzo(k)fluoranthene	0.0976	0.11	0.07 J
Chrysene	0.266	0.38	0.25
Indeno(1,2,3-cd)pyrene	ND (0.05)	0.21	0.13
PFAS (ng/L)			
Perfluorooctanesulfonic acid (PFOS)	19.9	17.6	16.3
Perfluorooctanoic acid (PFOA)	31	40.5	35.7

MW-04	08/06/2025 25H0333-07	12/01/2025 L2576155-06
Metals (ug/L)		
Iron, Total	379	613
Sodium, Dissolved	172000	187000
Sodium, Total	171000	203000
PFAS (ng/L)		
Perfluorooctanesulfonic acid (PFOS)	25.6	23.4
Perfluorooctanoic acid (PFOA)	94.7	83.7

MW-03	08/04/2025 25H0151-04	08/04/2025 25H0151-05	12/01/2025 L2576155-05
Metals (ug/L)			
Sodium, Dissolved	198000 R	199000 R	179000
Sodium, Total	196000	197000	204000
PFAS (ng/L)			
Perfluorooctanesulfonic acid (PFOS)	31.9	26.6	23
Perfluorooctanoic acid (PFOA)	59.6	57.8	69

LEGEND

- MONITORING WELL (2025 RI)
- MONITORING WELL (2025 SRI)
- SITE BOUNDARY
- PARCEL BOUNDARY

	New York TOGS 111 Ambient Water Quality Standards	New York April 2023 Ambient Water Quality Guidance Values (AWQGV)
Metals (ug/L)		
Chromium	50	NA
Iron	300	NA
Lead	25	NA
Magnesium	35000	NA
Manganese	300	NA
Nickel	100	NA
Sodium	20000	NA
Semi-Volatile Organic Compounds (ug/L)		
Benzo(a)anthracene	0.002	NA
Benzo(a)pyrene	0	NA
Benzo(b)fluoranthene	0.002	NA
Benzo(k)fluoranthene	0.002	NA
Chrysene	0.002	NA
Indeno(1,2,3-cd)pyrene	0.002	NA
Volatile Organic Compounds (ug/L)		
1,2,4,5-Tetramethylbenzene	5	NA
1,2,4-Trimethylbenzene	5	NA
1,3,5-Trimethylbenzene	5	NA
2-Phenylbutane (sec-Butylben	5	NA
Benzene	1	NA
Chloroform (Trichloromethane	7	NA
Ethylbenzene	5	NA
Isopropylbenzene (Cumene)	5	NA
m,p-Xylenes	5	NA
Methyl Tert Butyl Ether (MTBE	10	NA
Naphthalene	10	NA
n-Butylbenzene	5	NA
n-Propylbenzene	5	NA
o-Xylene	5	NA
Xylene (Total)	5	NA
PFAS (ng/L)		
Perfluorooctanesulfonic acid (	NA	2.7
Perfluorooctanoic acid (PFOA)	NA	6.7

NOTES
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ONLY RESULTS EXCEEDING NEW YORK TECHNICAL AND OPERATIONAL GUIDANCE SERIES (TOGS) 111 AMBIENT WATER QUALITY STANDARDS SHOWN.
3. J = VALUE IS ESTIMATED
4. R = REJECTED
5. PFAS: PER- AND POLYFLUOROALKYL SUBSTANCES
6. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

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SCALE IN FEET

HALEY ALDRICH

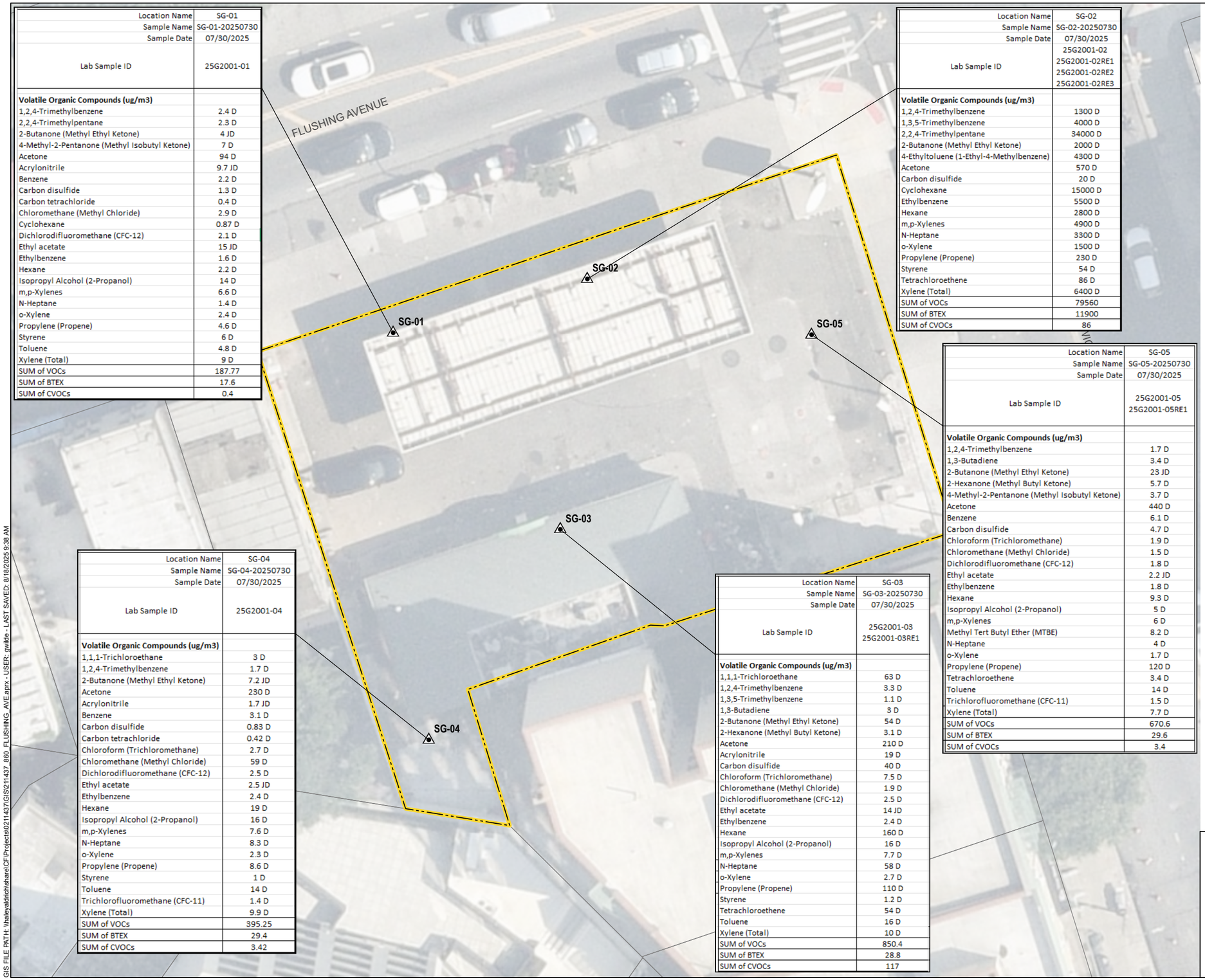
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

GROUNDWATER RESULTS EXCEEDANCE MAP

DECEMBER 2025

FIGURE 6

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\021437\GIS\211437_860_FLUSHING_AVE.aprx - USER: pdilillo - LAST SAVED: 12/18/2025 8:52 AM



Location Name	SG-01
Sample Name	SG-01-20250730
Sample Date	07/30/2025
Lab Sample ID	25G2001-01
Volatile Organic Compounds (ug/m3)	
1,2,4-Trimethylbenzene	2.4 D
2,2,4-Trimethylpentane	2.3 D
2-Butanone (Methyl Ethyl Ketone)	4 JD
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	7 D
Acetone	94 D
Acrylonitrile	9.7 JD
Benzene	2.2 D
Carbon disulfide	1.3 D
Carbon tetrachloride	0.4 D
Chloromethane (Methyl Chloride)	2.9 D
Cyclohexane	0.87 D
Dichlorodifluoromethane (CFC-12)	2.1 D
Ethyl acetate	15 JD
Ethylbenzene	1.6 D
Hexane	2.2 D
Isopropyl Alcohol (2-Propanol)	14 D
m,p-Xylenes	6.6 D
N-Heptane	1.4 D
o-Xylene	2.4 D
Propylene (Propene)	4.6 D
Styrene	6 D
Toluene	4.8 D
Xylene (Total)	9 D
SUM of VOCs	187.77
SUM of BTEX	17.6
SUM of CVOCs	0.4

Location Name	SG-02
Sample Name	SG-02-20250730
Sample Date	07/30/2025
Lab Sample ID	25G2001-02 25G2001-02RE1 25G2001-02RE2 25G2001-02RE3
Volatile Organic Compounds (ug/m3)	
1,2,4-Trimethylbenzene	1300 D
1,3,5-Trimethylbenzene	4000 D
2,2,4-Trimethylpentane	34000 D
2-Butanone (Methyl Ethyl Ketone)	2000 D
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	4300 D
Acetone	570 D
Carbon disulfide	20 D
Cyclohexane	15000 D
Ethylbenzene	5500 D
Hexane	2800 D
m,p-Xylenes	4900 D
N-Heptane	3300 D
o-Xylene	1500 D
Propylene (Propene)	230 D
Styrene	54 D
Tetrachloroethene	86 D
Xylene (Total)	6400 D
SUM of VOCs	79560
SUM of BTEX	11900
SUM of CVOCs	86

Location Name	SG-05
Sample Name	SG-05-20250730
Sample Date	07/30/2025
Lab Sample ID	25G2001-05 25G2001-05RE1
Volatile Organic Compounds (ug/m3)	
1,2,4-Trimethylbenzene	1.7 D
1,3-Butadiene	3.4 D
2-Butanone (Methyl Ethyl Ketone)	23 JD
2-Hexanone (Methyl Butyl Ketone)	5.7 D
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	3.7 D
Acetone	440 D
Benzene	6.1 D
Carbon disulfide	4.7 D
Chloroform (Trichloromethane)	1.9 D
Chloromethane (Methyl Chloride)	1.5 D
Dichlorodifluoromethane (CFC-12)	1.8 D
Ethyl acetate	2.2 JD
Ethylbenzene	1.8 D
Hexane	9.3 D
Isopropyl Alcohol (2-Propanol)	5 D
m,p-Xylenes	6 D
Methyl Tert Butyl Ether (MTBE)	8.2 D
N-Heptane	4 D
o-Xylene	1.7 D
Propylene (Propene)	120 D
Tetrachloroethene	3.4 D
Toluene	14 D
Trichlorofluoromethane (CFC-11)	1.5 D
Xylene (Total)	7.7 D
SUM of VOCs	670.6
SUM of BTEX	29.6
SUM of CVOCs	3.4

Location Name	SG-04
Sample Name	SG-04-20250730
Sample Date	07/30/2025
Lab Sample ID	25G2001-04
Volatile Organic Compounds (ug/m3)	
1,1,1-Trichloroethane	3 D
1,2,4-Trimethylbenzene	1.7 D
2-Butanone (Methyl Ethyl Ketone)	7.2 JD
Acetone	230 D
Acrylonitrile	1.7 JD
Benzene	3.1 D
Carbon disulfide	0.83 D
Carbon tetrachloride	0.42 D
Chloroform (Trichloromethane)	2.7 D
Chloromethane (Methyl Chloride)	59 D
Dichlorodifluoromethane (CFC-12)	2.5 D
Ethyl acetate	2.5 JD
Ethylbenzene	2.4 D
Hexane	19 D
Isopropyl Alcohol (2-Propanol)	16 D
m,p-Xylenes	7.6 D
N-Heptane	8.3 D
o-Xylene	2.3 D
Propylene (Propene)	8.6 D
Styrene	1 D
Toluene	14 D
Trichlorofluoromethane (CFC-11)	1.4 D
Xylene (Total)	9.9 D
SUM of VOCs	395.25
SUM of BTEX	29.4
SUM of CVOCs	3.42

Location Name	SG-03
Sample Name	SG-03-20250730
Sample Date	07/30/2025
Lab Sample ID	25G2001-03 25G2001-03RE1
Volatile Organic Compounds (ug/m3)	
1,1,1-Trichloroethane	63 D
1,2,4-Trimethylbenzene	3.3 D
1,3,5-Trimethylbenzene	1.1 D
1,3-Butadiene	3 D
2-Butanone (Methyl Ethyl Ketone)	54 D
2-Hexanone (Methyl Butyl Ketone)	3.1 D
Acetone	210 D
Acrylonitrile	19 D
Carbon disulfide	40 D
Chloroform (Trichloromethane)	7.5 D
Chloromethane (Methyl Chloride)	1.9 D
Dichlorodifluoromethane (CFC-12)	2.5 D
Ethyl acetate	14 JD
Ethylbenzene	2.4 D
Hexane	160 D
Isopropyl Alcohol (2-Propanol)	16 D
m,p-Xylenes	7.7 D
N-Heptane	58 D
o-Xylene	2.7 D
Propylene (Propene)	110 D
Styrene	1.2 D
Tetrachloroethene	54 D
Toluene	16 D
Xylene (Total)	10 D
SUM of VOCs	850.4
SUM of BTEX	28.8
SUM of CVOCs	117

LEGEND

- SOIL VAPOR SAMPLE
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025
4. SOIL VAPOR ANALYSIS - VOLATILE ORGANIC COMPOUNDS (VOCs)
5. RESULTS ARE DISPLAYED IN MICROGRAMS PER CUBIC METER (ug/m3)
6. TOTAL BTEX IS THE SUM OF ALL THE DETECTED CONCENTRATIONS OF BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES (BTEX)
7. TOTAL VOCs IS THE SUM OF ALL THE DETECTED CONCENTRATIONS
8. TOTAL CVOCs IS THE SUM OF ALL THE DETECTED CONCENTRATIONS OF CARBON TETRACHLORIDE, 1,1-DICHLOROETHENE, CIS-1,2-DISCHLOROETHENE, TRICHLOROETHENE, METHYLENE CHLORIDE, TETRACHLOROETHENE, 1,1,1-TRICHLOROETHANE, AND VINYL CHLORIDE

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SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

SOIL VAPOR RESULTS MAP

DECEMBER 2025

FIGURE 7

GIS FILE PATH: \\haleyaldrichshare\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/18/2025 9:38 AM

LEGEND

- MONITORING WELL
- SITE BOUNDARY
- PARCEL BOUNDARY
- 6.27 GROUNDWATER ELEVATION (FT NAVD88)
- 6.30 GROUNDWATER CONTOUR ELEVATION (FT NAVD88)
- GROUNDWATER CONTOUR
- INFERRED GROUNDWATER CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025
4. MONITORING WELLS WERE SURVEYED BY DPK LAND SURVEYING ON AUGUST 4, 2025
5. ELEVATION DATUM NAVD 1988

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SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP - AUGUST 2025

DECEMBER 2025

FIGURE 8

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\021437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/26/2025 7:05 PM

LEGEND

- RI MONITORING WELL
- SRI MONITORING WELL
- SITE BOUNDARY
- PARCEL BOUNDARY
- 5.73 GROUNDWATER ELEVATION (FT NAVD88)
- 5.74 GROUNDWATER CONTOUR ELEVATION (FT NAVD88)
- GROUNDWATER CONTOUR
- INFERRED GROUNDWATER CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025
4. MONITORING WELLS WERE SURVEYED BY DPK LAND SURVEYING ON AUGUST 4, 2025 AND DECEMBER 4, 2025
5. ELEVATION DATUM NAVD 1988

N

020 40
SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP - DECEMBER 1, 2025

DECEMBER 2025

FIGURE 9

GIS FILE PATH: \\haleyaldrich\share\CF Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/26/2025 7:05 PM

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- 18 FT EXCAVATION
- 21 FT EXCAVATION
- 26 FT EXCAVATION
- 28 FT EXCAVATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

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SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

ALTERNATIVE I EXCAVATION PLAN

DECEMBER

FIGURE 10

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/8/2025 9:51 AM

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- 10 FT EXCAVATION
- 15 FT EXCAVATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

N

0 30 60
SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

ALTERNATIVE II EXCAVATION PLAN

DECEMBER 2025

FIGURE 11

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilkie - LAST SAVED: 8/8/2025 9:51 AM

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- EXCAVATION TO 14 FT BGS
- SVE WELL SCREENED FROM 19 TO 24 FT BGS
- ASSUMED 15 FEET RADIUS OF INFLUENCE
- SVE MONITORING POINT

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025
4. FT BGS - FEET BELOW GROUND SURFACE

N

0 30 60
SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

CONCEPTUAL SOIL VAPOR EXTRACTION SYSTEM LAYOUT

DECEMBER

FIGURE 12

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilkie - LAST SAVED: 8/8/2025 9:51 AM

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- EXCAVATION TO 14 FT BGS
- SVE PILOT TEST WELL SCREENED FROM 19 TO 24 FT BGS
- SVE PILOT TEST MONITORING POINT (LOCATIONS MAY BE ADJUSTED BASED ON SITE CONDITIONS)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025
4. FT BGS - FEET BELOW GROUND SURFACE
5. SVE - SOIL VAPOR EXTRACTION

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SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

SVE PILOT TEST LOCATION PLAN

APRIL 2026

FIGURE 12A

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilkie - LAST SAVED: 8/8/2025 9:51 AM

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- SUB-SLAB HORIZONTAL PIPING NETWORK
- SUB-SLAB LEADER PIPE TO VERTICAL RISER
- RISER EXTENDING FROM SUB-SLAB TO THE BUILDING ROOF
- SUB-SLAB VAPOR MONITORING/PRESSURE FIELD TESTING POINT
- SUB-SLAB PIPING END CAP
- INDOOR AIR SAMPLE LOCATION
- AMBIENT AIR SAMPLE LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION

3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

4. BUILDING FOUNDATION LAYOUT SOURCE: DRAWING SOE-102.00 - DRAFT FOUNDATION SET DATED JULY 17, 2025

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0 30 60
SCALE IN FEET

HALEY ALDRICH

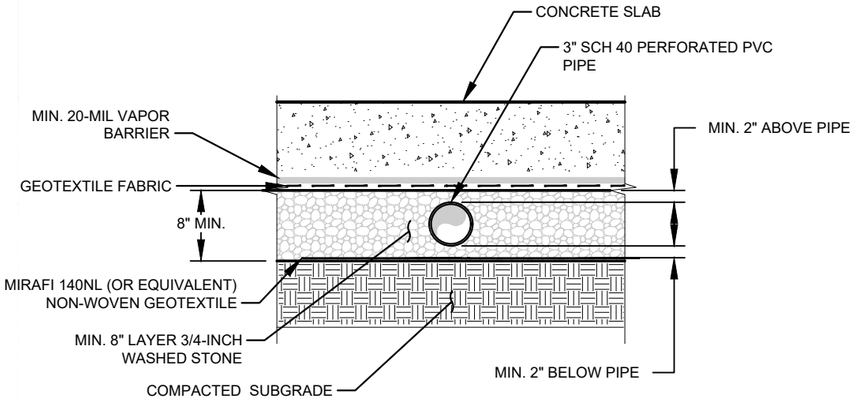
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

CONCEPTUAL SSDS SYSTEM LAYOUT WITH SVI SAMPLING PLAN

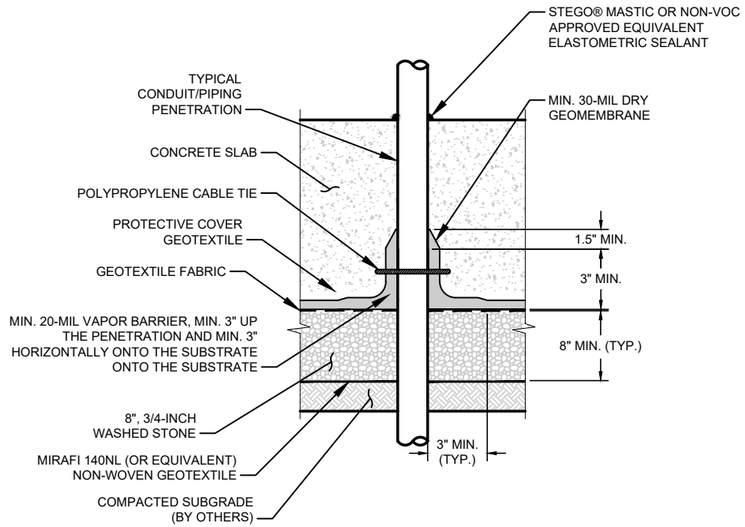
MARCH 2026

FIGURE 13

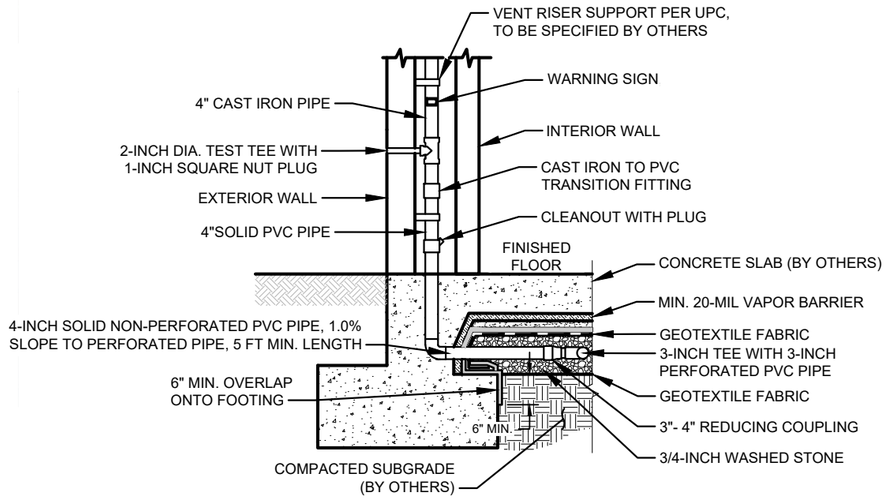
GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/8/2025 9:51 AM



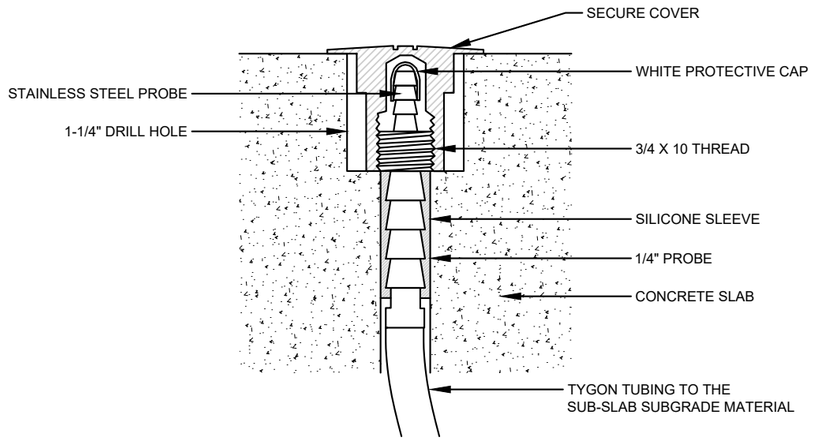
1 SUB-SLABPIPING WITHIN GAS PERMEABLE LAYER (TYP.)
NTS



2 PIPE PENETRATION SEAL - CABLE TIE (TYP.)
NTS



3 FOOTING WITH VERTICAL RISER WITHIN WALL CHASE (TYP.)
NTS



4 TYPICAL VACUUM MONITORING PROBE DETAIL - BELOW CONCRETE SLAB, ABOVE VAPOR BARRIER (VAPORPIN® TYPE OR APPROVED EQUIVALENT)
NTS

HALEY ALDRICH
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

TYPICAL SSDS DESIGN DETAILS

DECEMBER 2025

FIGURE 14

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0201577\GIS\Maps\2022_03_204642\202164_001_0002_SITE_PLAN.mxd — USER: hwachholz — LAST SAVED: 3/28/2022 3:32:12 PM

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- 2 FT EXCAVATION
- 17 FT EXCAVATION
- 18 FT EXCAVATION
- 28 FT EXCAVATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION
3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

N

0 30 60
SCALE IN FEET

HALEY ALDRICH

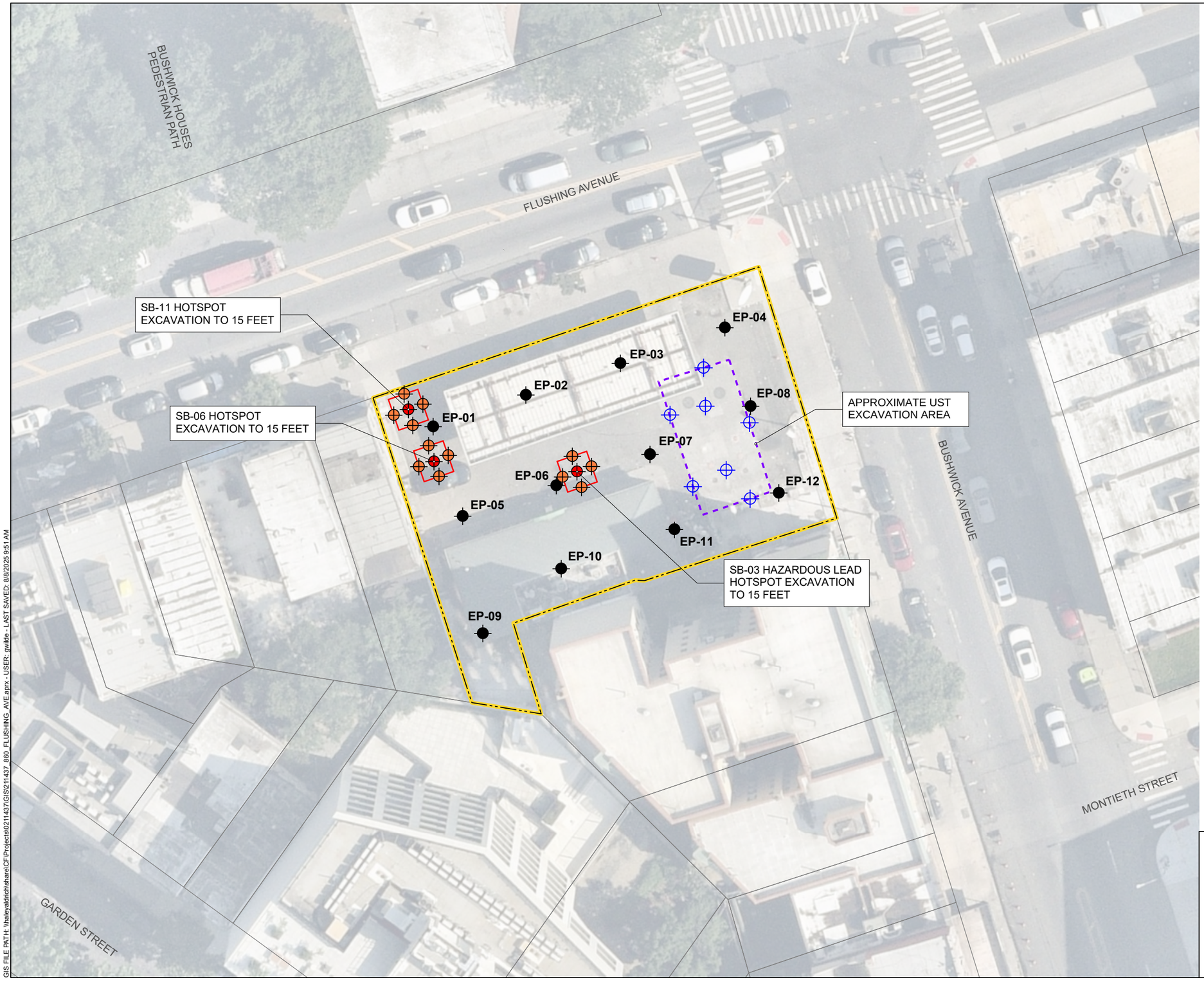
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

ALTERNATIVE III EXCAVATION PLAN

DECEMBER 2025

FIGURE 15

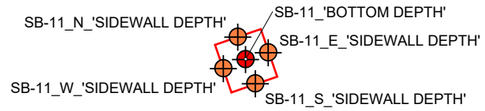
GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/8/2025 9:51 AM



LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- PROPOSED SITE-WIDE EXCAVATION BASE CONFIRMATION SAMPLE
- PROPOSED HOTSPOT BASE CONFIRMATION SAMPLE
- PROPOSED HOTSPOT SIDEWALL CONFIRMATION SAMPLE

HOTSPOT SAMPLE KEY



- PROPOSED UNDERGROUND STORAGE TANK (UST) EXCAVATION SAMPLE, IF REQUIRED (SEE NOTE 4)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION

3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

4. WHEN USTs ARE EXCAVATED, IF CONTAMINATED SOIL IS REMOVED BEYOND THE 10-FOOT REMEDIAL DEPTH, THE NUMBER AND LOCATION OF CONIRMATION SAMPLES BENEATH THE TANK AREAS SHOULD BE COLLECTED PURSUANT TO PARAGRAPH 5.4(b)5 OF DER-10 TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION.

0 30 60
SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

PROPOSED DOCUMENTATION AND CONFIRMATION SAMPLE MAP

MARCH 2026

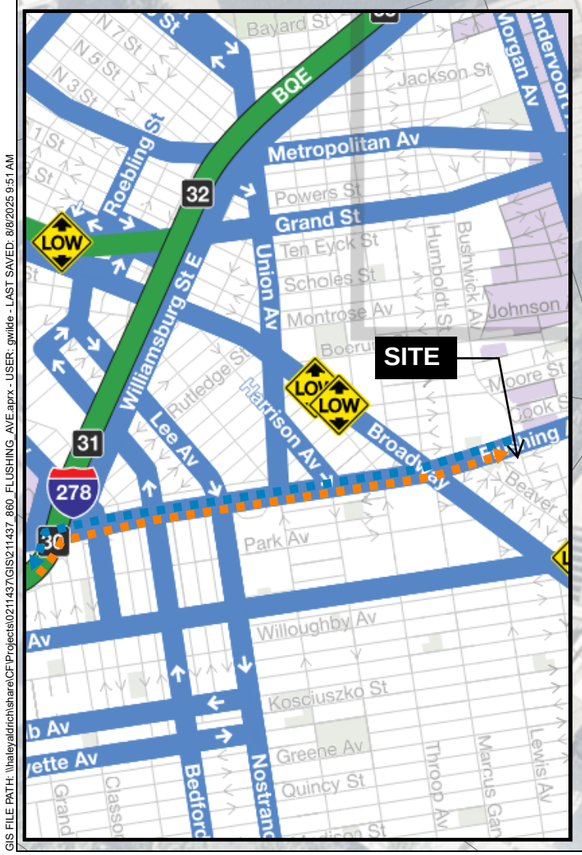
FIGURE 16

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/8/2025 9:51 AM

BUSHWICK HOUSES PEDESTRIAN PATH

FLUSHING AVENUE

BUSHWICK AVENUE



Legend

Truck Routes

Local Truck Route
Trucks with an origin or destination for the purpose of delivery, loading or servicing within the respective Borough, shall only operate on designated local routes, except that an operator may operate on a non-designated street for the purpose of arriving at their destination. This shall be accomplished by leaving a designated truck route at the intersection that is nearest to their destination, proceeding by the most direct route, and then returning to the nearest designated truck route by the most direct route. If the operator has additional destinations in the same general area, they may proceed by the most direct route to their next destination without returning to a designated truck route, provided that the operator's next destination does not require that they cross a designated truck route.

Through Truck Route
Trucks having neither an origin nor a destination within the respective Borough shall restrict the operation of such vehicles to those street segments designated as Through Truck Routes.

Through Truck Route on Expressway

53 FT Trailer Exception

Connecting Road Outside NYC

Restricted Routes

No Commercial Vehicles

Hazards

Alert: see additional information

Low Vertical Clearance (14 feet and under)

Navigation / Landmarks

Highway Exit

Major Highway

Industrial Business Zone

Parks and Open Spaces

Limited Truck Zone

LEGEND

SITE BOUNDARY

PARCEL BOUNDARY

TRUCK INGRESS

TRUCK EGRESS

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION

3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

TRUCK ROUTE MAP

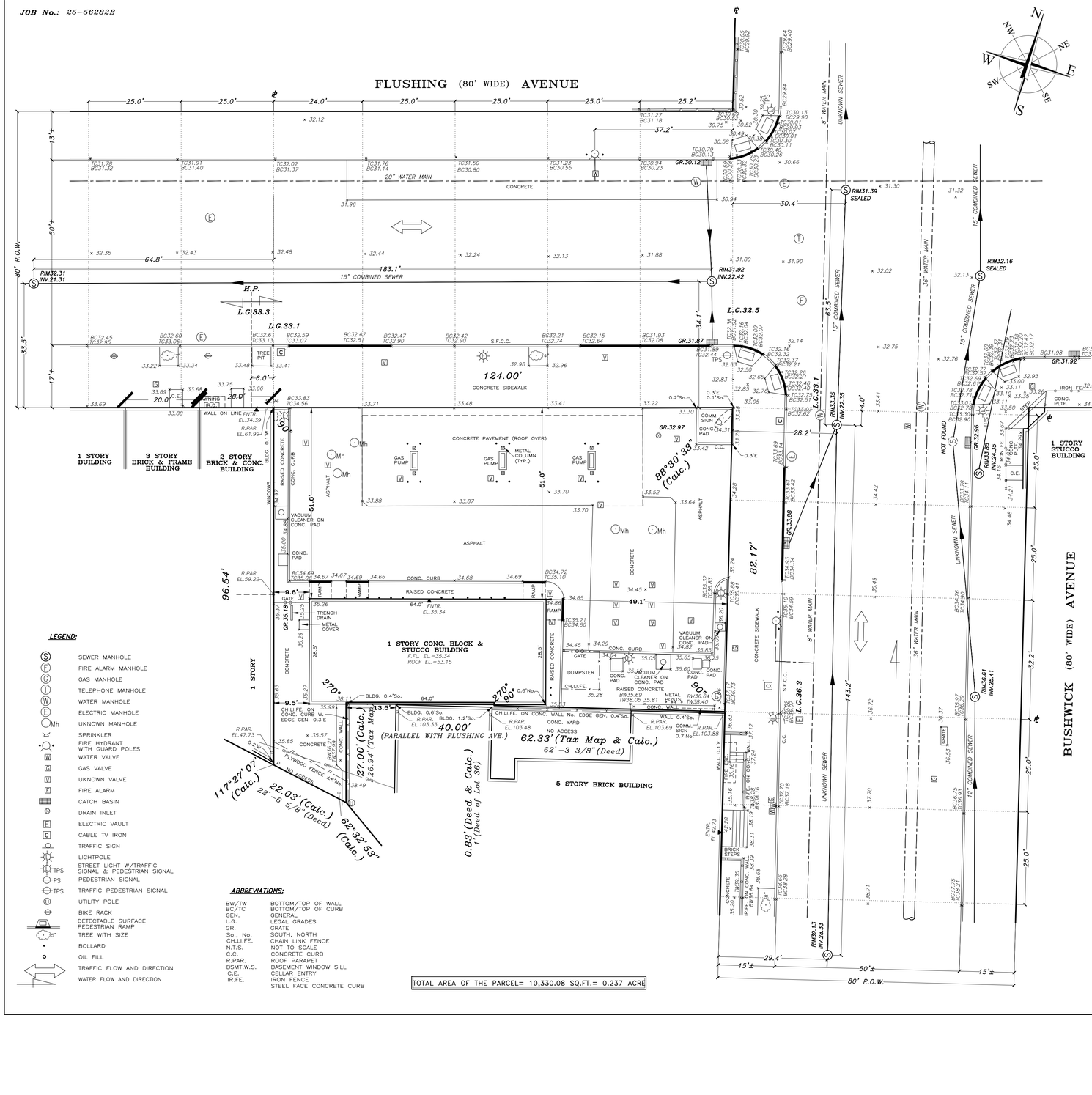
DECEMBER 2025

FIGURE 17

GIS FILE PATH: \\haleyaldrich\share\CP\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/8/2025 9:51 AM

APPENDIX A
Survey Maps & Metes and Bounds

JOB No.: 25-56282E



LEGEND:

- (S) SEWER MANHOLE
- (F) FIRE ALARM MANHOLE
- (G) GAS MANHOLE
- (T) TELEPHONE MANHOLE
- (W) WATER MANHOLE
- (E) ELECTRIC MANHOLE
- (Mh) UKNOWN MANHOLE
- SPRINKLER
- FIRE HYDRANT WITH GUARD POLES
- [W] WATER VALVE
- [G] GAS VALVE
- [V] UKNOWN VALVE
- [F] FIRE ALARM
- CATCH BASIN
- DRAIN INLET
- [E] ELECTRIC VAULT
- [C] CABLE TV IRON
- TRAFFIC SIGN
- LIGHTPOLE
- TPS STREET LIGHT W/TRAFFIC SIGNAL & PEDESTRIAN SIGNAL
- PS PEDESTRIAN SIGNAL
- TPS TRAFFIC PEDESTRIAN SIGNAL
- UTILITY POLE
- BIKE RACK
- DETECTABLE SURFACE PEDESTRIAN RAMP
- 5" TREE WITH SIZE
- BOLLARD
- OIL FILL
- TRAFFIC FLOW AND DIRECTION
- WATER FLOW AND DIRECTION

ABBREVIATIONS:

BW./TW.	BOTTOM/TOP OF WALL
BC./TC.	BOTTOM/TOP OF CURB
GEN.	GENERAL
L.G.	LEGAL GRADES
GR.	GRATE
So., No.	SOUTH, NORTH
CH.LI.FE.	CHAIN LINK FENCE
N.T.S.	NOT TO SCALE
C.C.	CONCRETE CURB
R.PAR.	ROOF PARAPET
BSMT.W.S.	BASEMENT WINDOW SILL
C.E.	CELLAR ENTRY
IR.FE.	IRON FENCE
	STEEL FACE CONCRETE CURB

ARCHITECTURAL SURVEY

OF DESCRIBED PROPERTY

LOCATED AT:
BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK

TAX DESIGNATION:
BLOCK: 3138, LOT: 32

SURVEYED ON: *MARCH 21, 2025*

ALEXANDER TSUKERMAN N.Y.S. L.S. Nº 050189

DRAWN BY: *AH* | ***CHECKED BY:*** *AT*

NOTES:

1) ELEVATIONS AND ESTABLISHED GRADES SHOWN HEREON REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
2) LEGAL GRADES SHOWN HEREON REFER TO THE TOP OF THE CURB TAKEN AT THE PROJECTION OF THE PROPERTY LINES.
3) THE INFORMATION GIVEN ON THIS SURVEY PERTAINING TO SUBSURFACE UTILITIES AND/OR SUBSTRUCTURES IS NOT CERTIFIED AS TO ACCURACY OR COMPLETENESS.
4) SIZES AND TYPES OF SEWERS SHOWN HEREON AS OBTAINED FROM NYC DEP RECORDS. SEWER MANHOLE RIM AND INVERT ELEVATIONS SHOWN HEREON OBTAINED BY FIELD MEASUREMENTS.
5) SIZE OF WATER MAIN SHOWN HEREON AS OBTAINED FROM THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION RECORDS, AS SHOWN ON DEP MAP.
6) THE OWNER, CONTRACTOR AND/OR HIS AGENTS MUST NOTIFY THE APPROPRIATE UTILITY COMPANIES AND/OR AGENCIES AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION IN ACCORDANCE WITH INDUSTRIAL CODE RULE 53.
7) THIS IS TO CERTIFY THAT THERE ARE NO STREAMS NOR NATURAL WATERCOURSES IN THE PROPERTY AS SHOWN ON THIS SURVEY.

THE OFFSETS OR DIMENSIONS SHOWN FROM THE STRUCTURES TO THE PROPERTY LINES ARE FOR A SPECIFIC PURPOSE AND USE AND THEREFORE ARE NOT INTENDED TO GUIDE THE ERECTION OF FENCES, RETAINING WALLS, POOLS, PLANTING AREAS, ADDITIONS TO STRUCTURES AND ANY OTHER CONSTRUCTION.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW.
COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

CERTIFICATION INDICATED HEREON SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS.

THE EXISTENCE OF RIGHT OF WAYS AND/OR EASEMENTS OF RECORD, IF ANY, NOT SHOWN ARE NOT CERTIFIED.

15 0 15 30 45

Scale 1" = 15'

LEONARD J. STRANDBERG AND ASSOCIATES,
CONSULTING ENGINEERS AND LAND SURVEYORS, P.C.
32 SMITH STREET, FREEPORT, NY 11520
516-378-2064 ° 212-213-4090 ° FAX 516-378-6649
EMAIL: INFO@LJSPC.COM

SCHEDULE A DESCRIPTION

All that certain plot, piece or parcel of land, with the buildings ·and improvements thereon erected, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the westerly side of Bushwick Avenue with the southerly side of Flushing Avenue;

running thence SOUTHERLY along the westerly side of Bushwick Avenue, 82 feet 2 inches;

thence WES1ERLY at 90 degrees to Bushwick Avenue, 62 feet 3-3/8 inches;

thence NORTHERLY along a line drawn at 90 degrees to Flushing Avenue, 10 inches to a point distant 80 feet southerly from the southerly side of Flushing A venue measured along said line;

thence WESTERLY parallel with Flushing Avenue, 40 feet;

thence SOUTHERLY at 90 degrees to Flushing Avenue, 26 feet 11-1/2 inches;

thence NORTHWESTERLY in a straight line, 22 feet 6-5/8 inches to a point 96 feet 6-1/2 inches southerly from Flushing Avenue measured along a line drawn at 90 degrees to Flushing Avenue at a point distant 124 feet westerly from the corner formed by the intersection of Flushing Avenue and Bushwick Avenue;

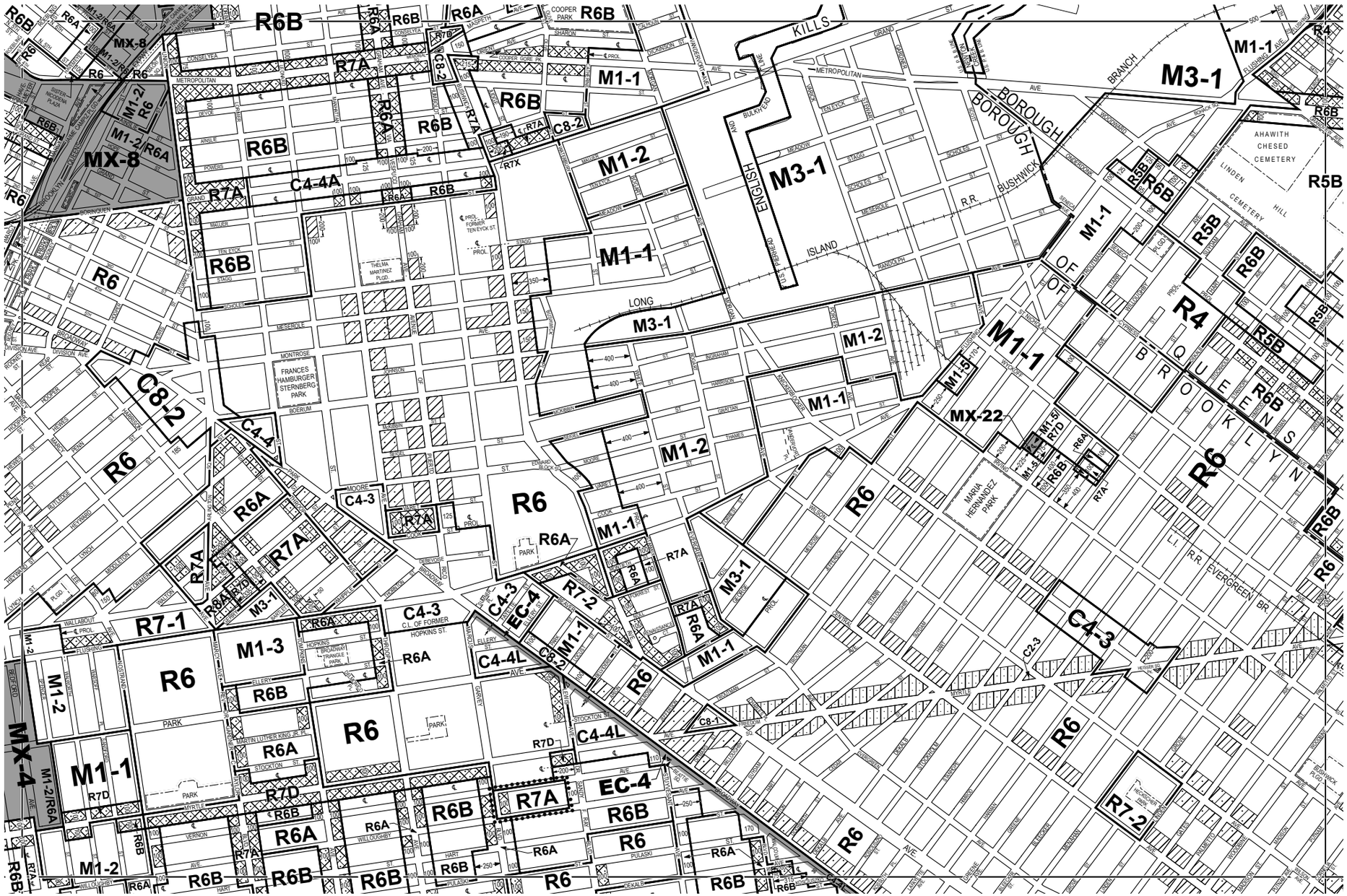
thence NORTHERLY along said line 96 feet 6-1/2 inches to the southerly side of Flushing Avenue;

thence EASTERLY along the southerly side of Flushing Avenue, 124 feet to the point or place of BEGINNING.

FOR INFORMATIONAL PURPOSES ONLY:

Said premises is known as **860 Flushing Avenue, Brooklyn, NY 11206**. **Block 3138 Lot 32**, **Kings** County

APPENDIX B
Zoning Map


R6B
R6A
R6
MX-8
M1-2/R6A
M1-2/R6
R7A
C4-4A
R6B
M1-1
M1-2
M3-1
R7X
C8-2
R6A
R7D
R6B
R7A
C4-3
C4-4
C8-2
R6
R6A
R7A
R8A
R7D
M3-1
R7-1
C4-3
C4-4L
EC-4
R7-2
M1-1
M1-3
M1-2
R6
R6B
R6A
R7D
R7A
EC-4
C4-4L
MX-4
M1-2/R6A
M1-1
R7D
M1-2
R6B
R6A
R7A
R6B
R6
R6B
R6A
R7A
R6B
R6
R6B
R6A
R7A
R6B
R6

APPENDIX C
Proposed Development Plans

860 FLUSHING AVENUE

BROOKLYN, NY 11206

PROPOSED 8 STORY MIX-USE RESIDENTIAL BUILDING

DRAWING INDEX		
1	T-001	TITLE SHEET
2	Z-001	ZONING ANALYSIS
3	Z-002	SITE PLAN
4	Z-003	ZONING DIAGRAMS
5	Z-004	ZONING MAPS
6	Z-010	GROSS FLOOR AREA DIAGRAMS
7	Z-020	FLOOR AREA DEDUCTIONS
8	Z-021	FLOOR AREA DEDUCTIONS
9	Z-022	FLOOR AREA DEDUCTIONS
10	Z-023	FLOOR AREA DEDUCTIONS
11	Z-024	FLOOR AREA DEDUCTIONS
12	Z-030	MIH UNIT SCHEDULE
13	Z-031	MIH UNIT TYPES
14	A-020	CELLAR & 1ST FLOOR EGRESS PLANS
15	A-021	2ND & 3RD FLOOR EGRESS PLANS
16	A-022	4TH & 5TH FLOOR EGRESS PLANS
17	A-023	6TH & 7TH FLOOR EGRESS PLANS
18	A-024	8TH & ROOF FLOOR EGRESS PLANS
19	A-100	PROPOSED CELLAR PLAN
20	A-101	PROPOSED FIRST FLOOR PLAN
21	A-102	PROPOSED SECOND FLOOR PLAN
22	A-103	PROPOSED THIRD - SIXTH FLOOR PLAN
23	A-105	PROPOSED SEVENTH FLOOR PLAN
24	A-106	PROPOSED EIGHTH FLOOR PLAN
25	A-107	PROPOSED ROOF PLAN
26	A-200	EAST & WEST ELEVATION
27	A-201	NORTH ELEVATION
28	A-202	SOUTH ELEVATION
29	A-301	BUILDING SECTIONS
30	A-302	BUILDING SECTIONS
31	A-400	DOOR & WINDOW LEGEND & SCHEDULE
32	A-500	WALL TYPES
33	A-501	WALL TYPES & DETAILS
34	A-601	DETAILS
35	A-700	AIR BARRIER CONTINUITY PLAN
36	A-701	AIR BARRIER CONTINUITY PLAN
37	A-702	AIR SEALANT DETAILS
38	A-800	CELLAR - 4TH FLOOR REFLECTED CEILING PLAN
39	A-801	5TH, 6TH, 7TH, & 8TH REFLECTED CEILING PLANS
40	EN-001	ENERGY WALL DIAGRAMS
41	EN-002	ENERGY COMPLIANCE REPORT
42	EN-003	TABLE 2
43	G-001	PROGRESS INSPECTIONS

ADDITIONAL FILINGS	
MECHANICAL	DOB NOW #B01204032-S5
STRUCTURAL	DOB NOW #B01204032-S2
PLUMBING/SPRINKLER	DOB NOW #B01204032-S6
FOUNDATION	DOB NOW #B01204032-S3
SOE	DOB NOW #B01204032-S4
BPP	DOB NOW #340918207
FENCE	DOB NOW #B01204032-S1
GC	DOB NOW #B01204032-I1

KAO-HWA LEE
ARCHITECTS P.C.

227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
TITLE SHEET

T-001

1 OF 43

Scale:	
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

ZONING ANALYSIS			
ADDRESS:	860 FLUSHING AVE, BROOKLYN, NY 11206		
BLOCK:	3138		
LOT:	32		
ZONING DISTRICT:	R6A/C2-4		
ZONING MAP:	13b		
COMMUNITY BOARD:	304		
USE GROUP	II (RESIDENTIAL) VI (RETAIL)		
LOT AREA:	10330.08 SF		
APPLICABLE ZR SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
ZR 35-00	APPLICABILITY AND DEFINITIONS		
ZR 32-10	USE ALLOWANCES	IN C2 DISTRICTS, USE GROUP II, IIIB, & VI IS PERMITTED	PROPOSED USES: II(RESIDENTIAL), VI (RETAIL)
ZR 35-20	APPLICABILITY OF RESIDENCE DISTRICT BULK REGULATIONS		
ZR 35-21	GENERAL PROVISIONS	IN THE DISTRICTS INDICATED, THE BULK REGULATIONS SET FORTH IN ARTICLE II, CHAPTER 3 SHALL APPLY TO ALL RESIDENTIAL PORTIONS OF BUILDINGS IN ACCORDANCE WITH THE PROVISIONS AND MODIFICATIONS SET FORTH IN THE REMAINING SECTIONS OF THIS CHAPTER. THE PURPOSE OF THESE MODIFICATIONS IS TO MAKE THE REGULATIONS SET FORTH IN ARTICLE II, CHAPTER 3, APPLICABLE TO COMMERCIAL DISTRICTS.	
	FLOOR AREA		
ZR 35-30	APPLICABILITY OF FLOOR AREA AND OPEN SPACE REGULATIONS		
ZR 35-31 ZR 33-123	FLOOR AREA RATIO	IN C2-4 DISTRICT THE COMMERCIAL FLOOR AREA RATIO IS: 2.00 PROPOSED C2-4 LOT AREA: 10330.08 2 X 10330.08 = 20660.16 SF	PROPOSED COMMERCIAL ZFA: 327.85 SF
ZR 35-31 ZR 23-22	FLOOR AREA RATIO	IN R6A THE RESIDENTIAL FLOOR AREA RATIO IS: 3.00. PROPOSED R6A LOT AREA: 10330.08 3.00 X 10330.08 = 30990.24 SF IN R6A THE RESIDENTIAL FLOOR AREA RATIO IS: 3.90 W/ INCLUSIONARY HOUSING. PROPOSED R6A LOT AREA: 10330.08 3.9 X 10330.08 = 40287.31 SF	PROPOSED R6A RESIDENTIAL ZFA: 39864.23 SF OK 39864.23 - 30990.24 = 8873.99 SF UAP AREA TO BE PROVIDED
ZR 35-31 ZR 23-22	FLOOR AREA RATIO	MAX TOTAL FAR IS : 3.9 PROPOSED R6A LOT AREA: 10330.08 3.9 X 10330.08 = 40287.31 SF	PROPOSED TOTAL ZFA: 40241.69 SF OK
ZR 23-23	SPECIAL FLOOR AREA PROVISIONS FOR MULTI-FAMILY BUILDINGS	IN DISTRICTS R1 THROUGH R12, BUILDINGS CONTAINING MULTIPLE DWELLING RESIDENCES, FLOOR SPACE ALLOCATED TO BUILDING AMENITIES SUCH AS CORRIDORS, REFUSE STORAGE OR DISPOSAL, OR ACCESS TO ELEVATED GROUND FLOOR DWELLING UNITS MAY BE EXEMPTED FROM THE DEFINITION OF FLOOR AREA PURSUANT TO SECTION 12-10; PROVIDED THAT THE PROVISIONS OF THIS SECTION, INCLUSIVE, ARE MET.	
ZR 23-231	FLOOR AREA PROVISIONS FOR AMENITIES	FLOOR SPACE IN A BUILDING ALLOCATED TO RESIDENTIAL AMENITIES MAY BE EXEMPTED FROM THE DEFINITION OF FLOOR AREA, IN AN AMOUNT NOT TO EXCEED FIVE PERCENT OF THE RESIDENTIAL FLOOR AREA OF THE BUILDING. SUCH AMENITIES MAY INCLUDE RECREATION SPACES, INCLUDING THOSE REQUIRED PURSUANT TO SECTION 23-63, OR OTHER AMENITIES, INCLUDING, BUT NOT BE LIMITED TO, CO-WORKING AREAS, LIBRARY OR READING ROOMS, OR MUSIC PRACTICE ROOMS, PACKAGE OR STORAGE ROOMS, LAUNDRY FACILITIES, OR PET-RELATED FACILITIES; HOWEVER, ANIMINTY SPACE SHALL NOT INCLUDE FLOOR SPACE FOR CIRCULATION THROUGH THE BUILDING, INCLUDING, CORRIDORS OR VERTICAL CIRCULATION SPACES. AMENITIES PROVIDED PURSUANT TO THIS SECTION SHALL BE ACCESSIBLE TO THE RESIDENTS OF THE BUILDING. MAX EXEMPTION ALLOWED: 528819.98 * 5%=2644.1	PROPOSED AMENITIES: 1487.97 SF OK PROPOSED SPACES INCLUDE PACKAGE ROOM & MAIL ROOM ALLOWED AS PER THIS ZONING SECTION, SEE Z-020
ZR 23-232	FLOOR AREA PROVISIONS FOR CORRIDORS	FLOOR SPACE IN A BUILDING ALLOCATED TO CORRIDORS MAY BE EXEMPTED FROM FLOOR AREA PURSUANT TO THE PROVISIONS OF PARAGRAPHS (a) OR (b) OF THIS SECTION. SUCH PROVISIONS MAY BE APPLIED INDIVIDUALLY OR IN COMBINATION: (a) CORRIDORS: TERMINATION FIFTY PERCENT OF THE FLOOR SPACE OF A CORRIDOR MAY BE EXEMPTED FROM THE DEFINITION OF FLOOR AREA WHERE ONE OF THE FOLLOWING CRITERIA ARE MET: (1) THE CORRIDOR ACCESS TO OUTDOOR SPACE ON A BALCONY OR TERRACE ON THE SAME STORY THAT IS ACCESSIBLE TO RESIDENTS OF THE STORY; (2) THE CORRIDOR HAS DAYLIGHTING THROUGH WINDOWS WITH A GLAZED AREA OF AT LEAST 20 SQUARE FEET, AND SUCH WINDOWS ARE LOCATED: (i) DIRECTLY WITHIN THE CORRIDOR; (ii) IN THE ENCLOSING WALLS OF A STAIRWELL ALONG SUCH CORRIDOR, AND ACCESS TO SUCH STAIRWELL FROM THE CORRIDOR IS PROVIDED THROUGH AN ENTRY DOOR ASSEMBLY WITH A MINIMUM GLAZED AREA OF AT LEAST 16 SQUARE FEET; OR (iii) WITHIN COMMON SPACE ALONG SUCH CORRIDOR THAT ACCESSIBLE TO RESIDENTS OF THE STORY; OR (3) THE CORRIDOR TERMINATES WITH A #DWELLING UNIT# THAT CONTAINS AT LEAST THREE BEDROOMS. (b) LENGTH OF CORRIDOR FIFTY PERCENT OF THE FLOOR SPACE OF A CORRIDOR MAY BE EXEMPTED FROM THE DEFINITION OF FLOOR AREA, WHERE THE LENGTH OF THE CORRIDOR, AS MEASURED FROM THE ELEVATOR CORE TO THE DOOR OF THE FURTHEST DWELLING UNIT ON THE STORY, DOES NOT EXCEED 100 LINEAR FEET.	CORRIDORS ARE COMPLYING WITH (a) & (b). SEE Z-020 & 021 FOR CALCULATIONS
ZR 23-233	FLOOR AREA PROVISIONS FOR REFUSE STORAGE AND DISPOSAL	FLOOR SPACE IN A BUILDING ALLOCATED TO REFUSE STORAGE AND DISPOSAL MAY BE EXEMPTED FROM THE DEFINITION OF FLOOR AREA IN AN AMOUNT NOT TO EXCEED A MAXIMUM OF THREE SQUARE FEET PER DWELLING UNIT IN THE BUILDING. 60 DWELLINGS X 3 SF = 180 SF	REFUSE STORAGE PROVIDED ON EACH FLOOR. SEE Z-020 & 021 FOR CALCULATIONS MAX 180 SF DEDUCTED.
ZR 12-10	DEFINITIONS		
ZR 12-10 FLOOR AREA (G/15)	FLOOR AREA	FLOOR SPACE WITHIN A FULLY ELECTRIFIED BUILDING OR AN ULTRA LOW ENERGY BUILDING, OF AN AMOUNT EQUIVALENT TO FIVE PERCENT OF THE FLOOR AREA LOCATED WITHIN SUCH BUILDING, AND EXCLUSIVE OF ANY FLOOR SPACE OTHERWISE EXCLUDED FROM FLOOR AREA;	PROPOSED BUILDING IS COMPYING WITH THIS PROVISION; 5% OF FLOOR AREA DEDUCTED, SEE ZONING TABLE ON Z-001
	DENSITY		
ZR 35-40	DENSITY REGULATIONS		
ZR 35-40 ZR 23-52	MAXIMUM NUMBER OF DWELLING UNITS	MAX RESIDENTIAL ZONING FLOOR AREA: 40287.31 SF 40287.31 / 680 = 59.25 ~ 59 DWELLING UNITS MAX	PROPOSED DWELLING UNITS : 59
	YARDS		
ZR 35-50	YARD REGULATIONS		
ZR 35-51	FRONT YARD	C1 C2 C3 C4-C5 C6, IN THE DISTRICTS INDICATED, NO FRONT YARD SHALL BE REQUIRED	PROPOSED FRONT YARD: 0'-0" OK
ZR 35-52	SIDE YARD	MIN. REQUIRED SIDE YARD IS: 0'-0" OR 5'-0"	PROPOSED SIDE YARD: 0'-0" OK
ZR 35-53 ZR 23-343	ADDITIONAL REAR YARD MODIFICATIONS	R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 IN ALL DISTRICTS, AS INDICATED, THE REAR YARD REQUIREMENTS SET FORTH IN SECTION 23-342 (REAR YARD REQUIREMENTS) SHALL BE MODIFIED AS SET FORTH IN THIS SECTION. (B) WITHIN ONE HUNDRED FEET OF CORNERS IN THE DISTRICTS INDICATED, NO REAR YARD SHALL BE REQUIRED WITHIN 100 FEET OF THE POINT OF INTERSECTION OF TWO STREET LINES INTERSECTING AT AN ANGLE OF 135 DEGREES OR LESS.	PROPOSED REAR YARD 1: 55'-11 1/4" PROPOSED REAR YARD 2: 70'-10 3/4" SEE Z-003
	HEIGHT AND SETBACK		
ZR 35-60	MODIFICATION OF HEIGHT AND SETBACK REGULATIONS		
ZR 35-63 ZR 35-631	STREET WALL LOCATION	C1 C2 C4 C5 C6 IN THE DISTRICTS INDICATED, THE APPLICABLE STREET WALL LOCATION PROVISIONS OF THIS SECTION SHALL APPLY. SUCH PROVISIONS SHALL APPLY TO THE PORTION OF A STREET WALL LOCATED BELOW THE MAXIMUM BASE HEIGHT AND BEFORE THE REQUIRED SETBACK AS SET FORTH IN SECTION 23-432 (HEIGHT AND SETBACK REQUIREMENTS). (B) PERCENTAGE-BASED RULES AT LEAST 70 PERCENT OF THE AGGREGATE WIDTH OF STREET WALLS SHALL BE LOCATED WITHIN EIGHT FEET OF THE STREET LINE AND SHALL EXTEND TO AT LEAST THE MINIMUM BASE HEIGHT SPECIFIED IN SECTIONS 23-432. OR THE HEIGHT OF THE BUILDING, WHICHEVER IS LESS. UP TO 30 PERCENT OF THE AGGREGATE WIDTH OF STREET WALLS MAY BE RECESSED BEYOND EIGHT FEET OF THE STREET LINE, PROVIDED THAT ANY SUCH RECESSES DEEPER THAN 10 FEET ALONG A WIDE STREET OR 15 FEET ALONG A NARROW STREET ARE LOCATED WITHIN AN OUTER COURT.	100% OF PROPOSED STREET WALL IS LOCATED WITHIN 8' OF THE PROPERTY LINE
ZR 35-632 ZR 23-432	HEIGHT AND SETBACK REQUIREMENTS	IN R6A DISTRICT MIN. BASE HEIGHT: 40' MAX. BASE HEIGHT: 65' MAX. BUILDING HEIGHT: 95'	PROPOSED BASE HEIGHT: 60'-4 3/8" PROPOSED BUILDING HEIGHT: 80'-4 3/8"
	PARKING		
ZR 36-20	REQUIRED ACCESSORY OFF-STREET PARKING SPACES FOR COMMERCIAL AND COMMUNITY FACILITY USE		
ZR 36-21	GENERAL PROVISIONS	IN C2-4 DISTRICTS THE REQUIRED ACCESORY OFF STREET PARKING SHOULD BE FOR 1 PER 300 SF PROPOSED COMMERCIAL: 345.10 / 300 = 1 PARKING SPACES REQUIRED	PROPOSED 0 SPACES. SEE WAIVER BELOW
ZR 36-231	WAIVER OF REQUIREMENTS FOR SPACES BELOW MINIMUM NUMBER	IN C2-4 DISTRICTS, UP TO 25 SPACES CAN BE WAIVED	PARKING SPACES WAIVED: 1
ZR 25-222	RESIDENTIAL PARKING REQUIREMENTS IN OUTER TRANSIT ZONE	IN R6 DISTRICTS, PARKING REQUIREMENT IS 25% PER DWELLING UNIT 48 NON INCLUSIONARY HOUSING UNITS * 25% = 12 PARKING SPACES REQUIRED	PROPOSED PARKING SPACES: 0, SEE WAIVER BELOW
ZR 25-222	PARKING WAIVER	IN R6 DISTRICTS, UP TO 15 PARKING SPACES MAY BE WAIVED	TOTAL PARKING SPACES WAIVED: 12 SPACES
ZR 36-70	BICYCLE PARKING		
ZR 36-711	ENCLOSED BYCICLE PARKING SPACES	IN R6 DISTRICTS, 1 PARKING SPACE PER 2 NEW DWELLING UNITS REQUIRED 60 / 2 = 30 BICYCLE PARKING SPACES REQUIRED	PROPOSED BICYCLE PARKING SPACES: 30
ZR 36-711 (d)	ENCLOSED BYCICLE PARKING SPACES	FOR GENERAL RETAIL SERVICES, 1 PARKING SPACE PER 10,000 SF REQUIRED. WAIVED IF UNER 3 SPACES REQUIRED 327.85 / 10000 = 0.03 = 0 BICYCLE SPACES REQUIRED	PROPOSED COMMERCIAL BICYCLE PARKING SPACES: 0
	RESIDENTIAL BULK		
ZR 23-00	RESIDENTIAL BULK REGULATIONS		
ZR 23-12	MINIMUM LOT AREA	R6A MIN. LOT AREA: 1700 SF	PROPOSED R6A LOT AREA: 10330.08 SF
ZR 23-12	MINIMUM LOT WIDTH	R6A MIN. LOT WIDTH: 18'-0"	PROPOSED R6A LOT WIDTH: 82'-2"
ZR 23-362 (a)	LOT COVERAGE	MAX LOT COVERAGE IN R6 CORNER LOT IS: 100% MAX LOT COVERAGE IN R6 INTERIOR LOT IS: 80% MAX ADJUSTED AVERAGE IS: (9.92% /585 Z-003)	PROPOSED LOT COVERAGE: 69.92%
ZR 23-60	ADDITIONAL DESIGN ELEMENTS		
ZR 23-61 ZR 26-41	STREET TREES AND PLANTING	IN DISTRICTS R1 TO R12, THE FOLLOWING SHALL PROVIDE STREET TRESS IN ACCORDANCE WITH SECTION 26-14 (STREET TREE PLANTING: IN ACCORDANCE WITH APPLICABILITY REQUIREMENTS OF UNDERLYING DISTRICT REGULATIONS, ONE STREET TREE, PRE-EXISTING OR NEWLY PLANTED, SHALL BE PROVIDED FOR EVERY 25 FEET OF STREET FRONTAGE OF THE ZONING LOT. FRACTIONS EQUAL TO OR GREATER THAN ONE-HALF RESULTING FROM THIS CALCULATION SHALL BE CONSIDERED TO BE ONE TREE.	TOTAL STREET FRONTAGE : 206'-2" 8 TREES REQUIRED EXISTING TREES: 0 PROPOSED TREE TO BE PAID INTO ON-SITE TREE FUNDS = 0 PROPOSED TREE TO BE PAID INTO OFF-SITE TREE FUNDS = 8
ZR 23-613	FRONT YARD PLANTING REQUIREMENTS	IN DISTRICTS R1 TO R12, THE AREA OF THE ZONING LOT BETWEEN THE STREET LINE AND ALL STREET WALLS OF THE BUILDING AND THEIR PROLONGATIONS SHALL BE PLANTED AT GROUND LEVEL, OR IN RAISED PLANTING BEDS THAT ARE PERMANENTLY AFFIXED TO THE GROUND, EXCEPT THAT SUCH PLANTINGS SHALL NOT BE REQUIRED AT THE ENTRANCES TO AND EXITS FROM THE BUILDING, WITHIN DRIVEWAYS ACCESSING OFF-STREET PARKING SPACES LOCATED WITHIN, TO THE SIDE, OR REAR OF SUCH BUILDING, IN ANY AREA WHERE THERE IS A PERMITTED OBSTRUCTION	N/A
ZR 23-62	BALCONIES	IN DISTRICTS R1 TO R12, BALCONIES MAY PROJECT INTO OR OVER ANY OPEN AREAS NOT OCCUPIED BY BUILDINGS AT THAT PARTICULAR LEVEL, PROVIDED THAT: (a) WITHIN ANY YARDS, COURTS, OR OTHER REQUIRED OPEN AREAS, SUCH BALCONY SHALL: (1) NOT PROJECT BY MORE THAN ONE THIRD OF THE DEPTH OF SUCH AREAS SPECIFIED ABOVE, OR A DISTANCE GREATER THAN SEVEN FEET, WHICHEVER IS LESS, AS MEASURED FROM THE PLANE SURFACE OF THE BUILDING WALL FROM WHICH IT PROJECTS; (2) NOT COVER MORE THAN 10 PERCENT OF ANY OPEN AREA REQUIRED PURSUANT TO SECTION 23-30, INCLUSIVE, OR ANY OUTDOOR RECREATION SPACE PROVIDED PURSUANT TO SECTION 23-63; AND (3) HAVE AN AGGREGATE WIDTH, AT THE LEVEL OF ANY STORY, NOT EXCEEDING 50 PERCENT OF THE WIDTH AT THAT LEVEL OF THE PLANE SURFACE OF THE BUILDING WALL FROM WHICH IT PROJECTS; AND (b) WITHIN ANY OPEN AREAS, WHETHER REQUIRED OR NOT, SUCH BALCONY SHALL: (1) BE UNENCLOSED EXCEPT FOR BUILDING WALLS AND PARAPETS, RAILINGS, OR SAFETY GUARDS, WHETHER APPLIED SINGLY, OR IN COMBINATION, PROVIDED THAT: (i) PARAPETS SHALL NOT EXCEED FOUR FEET IN HEIGHT; (ii) RAILINGS SHALL NOT EXCEED 4 FEET, 6 INCHES IN HEIGHT AND SHALL BE AT LEAST 50 PERCENT OPEN FOR THE PORTION THAT EXCEEDS FOUR FEET IN HEIGHT; AND (iii) SAFETY GUARDS SHALL NOT EXCEED 10 FEET IN HEIGHT AND SHALL BE AT LEAST 50 PERCENT TRANSPARENT MATERIALS FOR THE PORTION THAT EXCEEDS FOUR FEET IN HEIGHT. IN ADDITION, WHERE SUCH BALCONY HAS A ROOFED PORTION ABOVE IT, THERE SHALL BE AN OPENING THAT IS NOT LESS THAN 40 PERCENT OF THE HEIGHT BETWEEN THE BOTTOM OF THE ROOF AND THE FINISHED FLOOR LEVEL OF SUCH BALCONY. HOWEVER, SUCH BALCONIES MAY BE RECESSED INTO A BUILDING WALL UP TO A MAXIMUM DEPTH OF SIX FEET PROVIDED THAT AT LEAST 33 PERCENT OF THE PERIMETER OF SUCH BALCONY IS UNENCLOSED EXCEPT FOR A PARAPET, RAILING, OR SAFETY GUARD; AND (2) BE LOCATED AT LEAST 13 FEET ABOVE CURB LEVEL, EXCEPT THAT FOR BUILDINGS CONTAINING RESIDENCES NOT MORE THAN 35 FEET IN HEIGHT, SUCH BALCONY MAY BE LOCATED AT OR HIGHER THAN THE FLOOR LEVEL OF THE SECOND STORY PROVIDED THAT SUCH BALCONY IS LOCATED NOT LOWER THAN SEVEN FEET ABOVE CURB LEVEL OR SEVEN FEET ABOVE NATURAL GRADE, WHICHEVER IS HIGHER.	PROPOSED BALCONIES ARE IN COMPLIANCE WITH SECTION 23-63 AND ARE WITHIN THE LOT LINE AND ARE NOT GREATER THAN 50% OF THE TOTAL WALL WIDTH. REAR BALCONIES PROPOSED NOT ENCROACHING WITHIN MINIMUM INNER COURT AS PER ZR 23-352. PROPOSED INNER COURT: 24' X 65' 11 3/4" = 1583.52 SF 1583.52 > 1200 REQ. OK, SEE A-102 PROPOSED INNER COURT ABOVE 75': 30' X 51'-5 1/8" = 1542.93 SF
ZR 23-63	REQUIRED RECREATION SPACE IN MULTI-FAMILY BUILDING	ALL DEVELOPMENTS, ENLARGEMENTS EXTENSIONS OR CONVERSIONS IN BUILDINGS THAT ARE MULTIPLE DWELLING RESIDENCES THAT RESULT IN NINE OR MORE NEW DWELLING UNITS AFTER DECEMBER 5, 2024 SHALL PROVIDE RECREATION SPACE IN ACCORDANCE WITH THIS SECTION. SUCH RECREATION SPACE MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, FITNESS CENTERS, POOLS, WELLNESS SERVICES, SPORTS COURTS, GAME ROOMS, OUTDOOR SPACES, OR CHILD PLAY SPACES. THE AMOUNT OF RECREATION SPACE REQUIRED SHALL BE EQUIVALENT TO A MINIMUM OF THREE PERCENT OF THE RESIDENTIAL FLOOR AREA OF THE BUILDING. SUCH SPACE MAY BE PROVIDED INDOORS OR OUTDOORS, SINGLY OR IN COMBINATION. WHERE PROVIDED INDOORS, FLOOR SPACE MAY BE EXEMPTED FROM THE DEFINITION OF FLOOR AREA PURSUANT TO SECTION 12-10(DEFINITIONS), PROVIDED THAT THE STANDARDS OF SECTION 23-231 (FLOOR AREA PROVISIONS FOR AMINITIES) ARE MET. ADDITIONALLY, SUCH RECREATION SPACE SHALL COMPLY WITH THE FOLLOWING STANDARDS: (a) ALL RECREATION SPACE SHALL BE ACCESSIBLE TO THE RESIDENTS OF THE BUILDING. (b) ALL RECREATION SPACE PROVIDED OUTDOORS, WHETHER AT GRADE, WITHIN INDOOR OR OUTDOOR, SHALL BE 15 FEET; (c) ANY OUTDOOR RECREATION SPACE SHALL BE OPEN TO THE SKY, EXCEPT THAT: (1) BUILDING PROJECTIONS, NOT TO EXCEED SEVEN FEET IN DEPTH, MAY COVER UP TO 10 PERCENT OF THE OUTDOOR RECREATION SPACE, PROVIDED THAT THE LOWEST LEVEL OF THE PROJECTION IS AT LEAST 10 FEET ABOVE THE LEVEL OF THE OUTDOOR RECREATION SPACE; AND (2) THE COMBINATION OF BUILDING PROJECTIONS, WHERE PROVIDED, AND ANY SUN SHADING DEVICES PERMITTED PURSUANT TO 23-311, INCLUDING, BUT NOT LIMITED TO, ARBORS OR TRELLISES, AWNINGS AND OTHER SUN CONTROL DEVICES, OR CANOPIES, MAY COVER UP TO 50 PERCENT; AND (d) ANY INDOOR RECREATION ROOM SHALL HAVE AT LEAST ONE EXTERIOR WALL WITH WINDOWS, OR CEILING WITH SKYLIGHTS, THAT MEASURES NOT LESS THAN 9.5 PERCENT OF THE TOTAL FLOOR SPACE OF THE ROOM	REQUIRED RECREATION: 39913.84 X 3% = 1197.42 SF PROPOSED 157 FL RECREATION = 1388.28 SF OK
	UAP GUIDELINES		
ZR 27-10	ADMINISTRATION OF AFFORDABLE HOUSING		
ZR 27-111	ADMINISTRATION OF AFFORDABLE HOUSING - DEFINITIONS	THE RESIDENTIAL FLOOR AREA RATIO IN A UAP DEVELOPMENT MAY EXCEED THAT FOR STANDARD RESIDENCES SET FORTH IN SECTION 23-22 (FLOOR AREA REGULATIONS FOR R6 THROUGH R12 DISTRICTS) ONLY BY THE AMOUNT OF AFFORDABLE HOUSING PROVIDED, EITHER ON THE UAP ZONING LOT OR, FOR UAP DEVELOPMENTS WITHIN A UAP OFFSITE OPTION AREA, ON A UAP SITE PURSUANT TO PARAGRAPH (A) OF SECTION 27-16 (REQUIREMENTS FOR MIH SITES OR UAP SITES). STANDARD RESIDENCE FAR: 3.0	PROPOSED FAR: 3.90 (3.90 - 3.0 = 0.90 ADDITIONAL FAR) UAP AREA REQUIRED: 9251.45 SF UAP FLOOR AREA PROVIDED: 9321.08 SF
ZR 27-15	UAP ZONING LOTS	THE RESIDENTIAL FLOOR AREA RATIO OF AN MIH ZONING LOT OR A UAP ZONING LOT SHALL BE DETERMINED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 23-22 (FLOOR AREA REGULATIONS FOR R6 THROUGH R12 DISTRICTS) APPLICABLE TO QUALIFYING AFFORDABLE HOUSING.	SEE ZR 23-22 BELOW
ZR 27-16 (b)	REQUIREMENTS FOR UAP SITES - DISTRIBUTION OF AFFORDABLE HOUSING UNITS	IN NEW CONSTRUCTION AFFORDABLE HOUSING, WHERE ONE OR MORE OF THE DWELLING UNITS OR ROOMING UNITS IN AN MIH SITE OR UAP SITE, OTHER THAN ANY SUPER'S UNIT, ARE NOT AFFORDABLE HOUSING UNITS, 1) THE AFFORDABLE HOUSING UNITS SHALL BE DISTRIBUTED ON NOT LESS THAN 65 PERCENT OF THE RESIDENTIAL STORIES OF SUCH MIH SITE OR UAP SITE, OR, IF THERE ARE INSUFFICIENT AFFORDABLE HOUSING UNITS TO COMPLY WITH THIS REQUIREMENT, THE DISTRIBUTION OF AFFORDABLE HOUSING UNITS SHALL BE AS SPECIFIED IN THE GUIDELINES; AND 2) NOT MORE THAN TWO-THIRDS OF THE DWELLING UNITS AND ROOMING UNITS ON ANY STORY OF SUCH MIH SITE OR UAP SITE SHALL BE AFFORDABLE HOUSING UNITS, UNLESS NOT LESS THAN TWO-THIRDS OF THE DWELLING UNITS AND ROOMING UNITS ON EACH RESIDENTIAL STORY OF SUCH MIH SITE OR UAP SITE ARE AFFORDABLE HOUSING UNITS. HPD MAY WAIVE SUCH REQUIREMENT FOR ANY NEW CONSTRUCTION AFFORDABLE HOUSING THAT IS LOCATED ON AN INTERIOR LOT OR THROUGH LOT WITH LESS THAN 50 FEET OF FRONTAGE ALONG ANY STREET.	COMPLIES
ZR 27-16 (c)	REQUIREMENTS FOR UAP SITES - BEDROOM MIX OF AFFORDABLE HOUSING UNITS	1) IN NEW CONSTRUCTION AFFORDABLE HOUSING, WHERE ONE OR MORE OF THE DWELLING UNITS IN AN MIH SITE OR UAP SITE, OTHER THAN ANY SUPER'S UNIT, ARE NOT AFFORDABLE HOUSING UNITS, EITHER i) THE DWELLING UNITS THAT ARE AFFORDABLE HOUSING UNITS SHALL CONTAIN A BEDROOM MIX AT LEAST PROPORTIONAL TO THE BEDROOM MIX OF THE DWELLING UNITS, OTHER THAN ANY SUPER'S UNIT, THAT ARE NOT AFFORDABLE HOUSING UNITS; OR ii) NOT LESS THAN 50 PERCENT OF THE DWELLING UNITS THAT ARE AFFORDABLE HOUSING UNITS SHALL CONTAIN TWO OR MORE BEDROOMS AND NOT LESS THAN 75 PERCENT OF THE DWELLING UNITS THAT ARE AFFORDABLE HOUSING UNITS SHALL CONTAIN ONE OR MORE BEDROOMS.	COMPLIES
	REQUIREMENTS FOR UAP SITES - SIZE OF AFFORDABLE HOUSING UNITS	IN NEW CONSTRUCTION AFFORDABLE HOUSING, THE AVERAGE SIZE OF AFFORDABLE HOUSING UNITS OF A PARTICULAR BEDROOM COUNT SHALL BE NOT LESS THAN THE AVERAGE SIZE OF DWELLING UNITS THAT ARE NOT AFFORDABLE HOUSING UNITS WITH THE SAME NUMBER OF BEDROOMS, OR THE MINIMUM SIZE SPECIFIED BELOW FOR A DWELLING UNIT OF A PARTICULAR BEDROOM COUNT, WHICHEVER IS LESS: 1) 400 SQUARE FEET OF FLOOR AREA WITHIN THE PERIMETER WALLS FOR A ZERO BEDROOM DWELLING UNIT; 2) 575 SQUARE FEET OF FLOOR AREA WITHIN THE PERIMETER WALLS FOR A ONE BEDROOM DWELLING UNIT; 3) 775 SQUARE FEET OF FLOOR AREA WITHIN THE PERIMETER WALLS FOR A TWO BEDROOM DWELLING UNIT; OR 4) 950 SQUARE FEET OF FLOOR AREA WITHIN THE PERIMETER WALLS FOR A THREE BEDROOM DWELLING UNIT.	COMPLIES

ZONING FLOOR AREA 5%							
NAME	USE GROUP	GFA	DEDUCTIONS	TOTAL	5% ULTRA LOW ENERGY DEDUCTION	ZFA	FAR
CELLAR COMMERCIAL	VI	7132.03 SF	7132.03 SF	0.00 SF	0.00 SF	0.00 SF	0.00
01_1ST FL. COMMERCIAL	VI	345.10 SF	0.00 SF	345.10 SF	17.25 SF	327.85 SF	0.03
COMMERCIAL		7477.12 SF	7132.03 SF	345.10 SF	17.25 SF	327.85 SF	0.03
00 CELLAR	II	2684.33 SF	2684.33 SF	0.00 SF	0.00 SF	0.00 SF	0.00
01_1ST FL.	II	2729.75 SF	1781.10 SF	948.65 SF	47.43 SF	901.22 SF	0.09
02 2ND FL.	II	5986.09 SF	873.44 SF	5112.65 SF	255.63 SF	4857.02 SF	0.47
03_3RD FL.	II	7183.04 SF	871.91 SF	6311.13 SF	315.56 SF	5995.57 SF	0.58
04 4TH FL.	II	7183.04 SF	872.09 SF	6310.95 SF	315.55 SF	5995.40 SF	0.58
05 5TH FL.	II	7183.04 SF	872.76 SF	6310.28 SF	315.51 SF	5994.77 SF	0.58
06 6TH FL.	II	7183.04 SF	871.93 SF	6311.11 SF	315.56 SF	5995.55 SF	0.58
07 7TH FL.	II	6454.30 SF	840.34 SF	5613.96 SF	280.70 SF	5333.26 SF	0.52
08 8TH FL.	II	5588.98 SF	787.01 SF	4801.97 SF	240.10 SF	4561.87 SF	0.44
09 ROOF	II	654.95 SF	413.30 SF	241.65 SF	12.08 SF	229.57 SF	0.02
RESIDENTIAL		52830.56 SF	10868.21 SF	41962.35 SF	2098.12 SF	39864.23 SF	3.86
		60307.68 SF	18000.23 SF	42307.45 SF	2115.37 SF	40192.08 SF	3.89

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

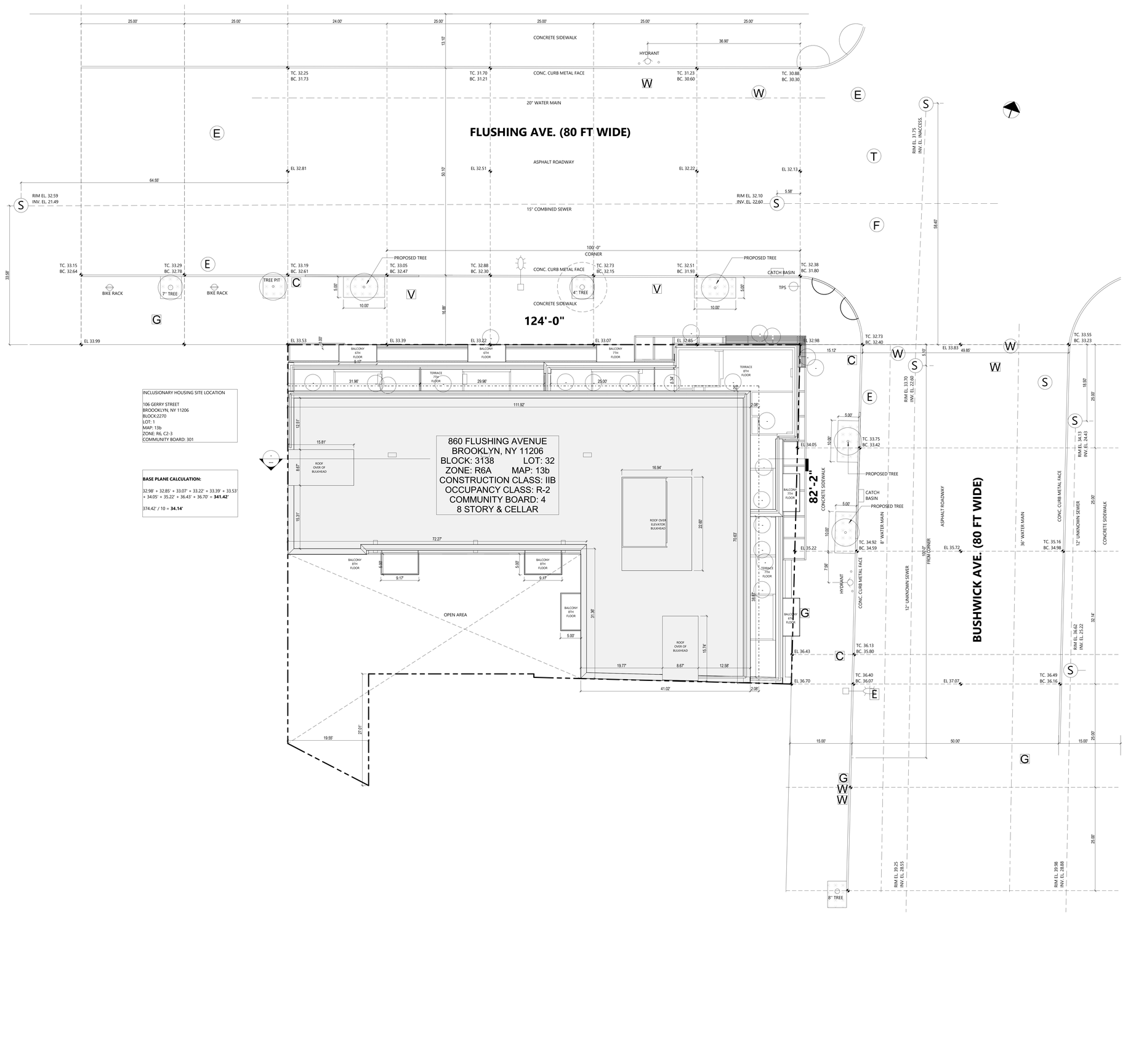
SHEET TITLE
ZONING ANALYSIS

Z-001

2 OF 43

Scale:	12" = 1'-0"
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL

DOB JOB NUMBER:
B01204032-I1



INCLUSIONARY HOUSING SITE LOCATION

106 GERRY STREET
BROOKLYN, NY 11206
BLOCK:2270
LOT: 1
MAP: 13b
ZONE: R6, C2-3
COMMUNITY BOARD: 301

BASE PLANE CALCULATION:

32.98' + 32.85' + 33.07' + 33.22' + 33.39' + 33.53' + 34.05' + 35.22' + 36.43' + 36.70' = **341.42'**

374.42' / 10 = **34.14'**

KAO-HWA LEE
ARCHITECTS P.C.

227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

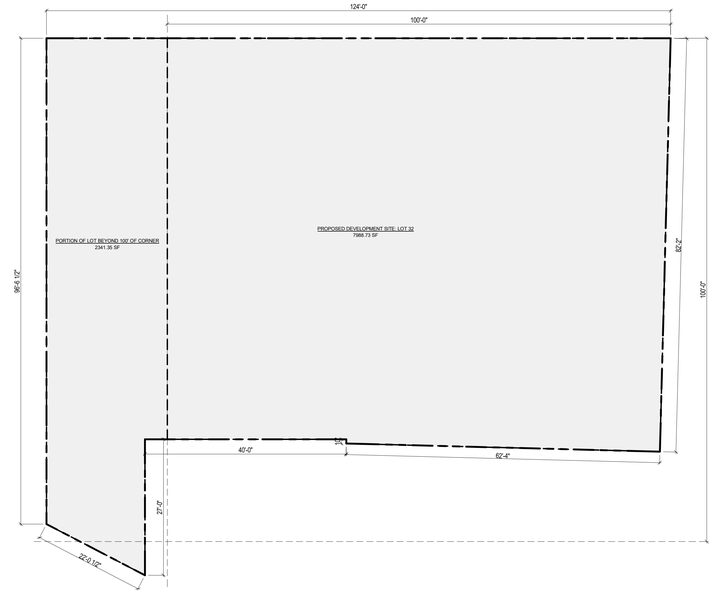
SHEET TITLE
SITE PLAN

Z-002

3 OF 43

Scale:	1/8" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

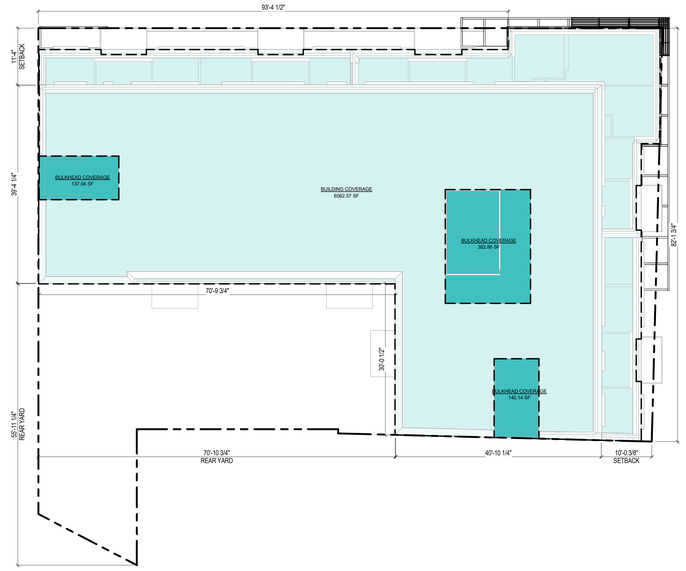
COMBINED LOT AREA	
Name	SF
PROPOSED DEVELOPMENT SITE: LOT 32	7988.73 SF
PORTION OF LOT BEYOND 100' OF CORNER	2341.35 SF
TOTAL	10330.08 SF



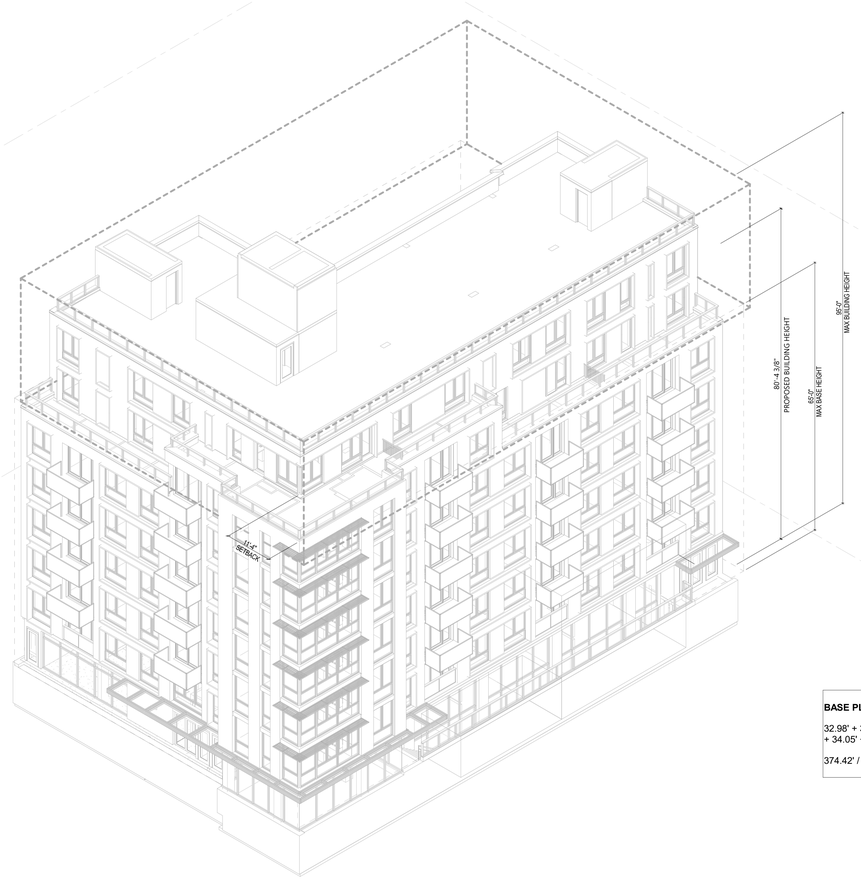
1 LOT AREA DIAGRAM
3/32" = 1'-0"

LOT COVERAGE AREA	
Name	SF
BUILDING COVERAGE	
BUILDING COVERAGE	6562.57 SF
	6562.57 SF
BULKHEAD COVERAGE	
BULKHEAD COVERAGE	137.04 SF
BULKHEAD COVERAGE	382.86 SF
BULKHEAD COVERAGE	140.14 SF
	660.04 SF
TOTAL	7222.61 SF

LOT COVERAGE FOR A CORNER LOT	
LOT AREA WITHIN 100' OF CORNER	7988.73 SF
MAX LOT COVERAGE WITHIN 100' OF CORNER	100%
79883.73 * 100%	7988.73 SF
LOT AREA BEYOND 100' OF CORNER	2341.35 SF
MAX LOT COVERAGE BEYOND 100' OF CORNER	80%
2341.35 * 80% = 1873.08	1873.08 SF
ADJUSTED MAX LOT COVERAGE AREA: 7988.73 + 1873.08 =	9861.81 SF
ADJUSTED MAX LOT COVERAGE %: 9861.81 / 10330.08	95.47%
PROPOSED LOT COVERAGE: 7222.61 / 10330.08	69.92%



2 LOT COVERAGE DIAGRAM
3/32" = 1'-0"



4 3D DIAGRAM

BASE PLANE CALCULATION:

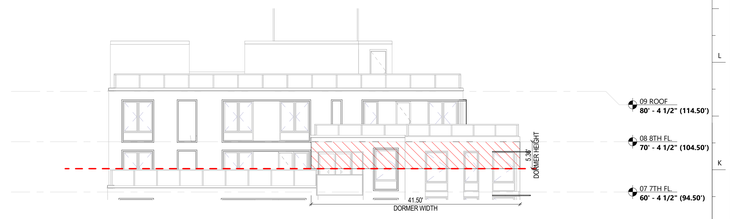
32.98' + 32.85' + 33.07' + 33.22' + 33.39' + 33.53' + 34.05' + 35.22' + 36.43' + 36.70' = **341.42'**

374.42' / 10 = **34.14'**

FLUSHING AVE. DORMERS (AS PER ZR 23-413 (b)(1)(ii))						
DORMER	STREET NAME	STREET WALL LENGTH	STREET WALL HEIGHT ABOVE MAX BASE HEIGHT	PERCENTAGE ALLOWANCE	PERMITTED MAX. WIDTH	PROPOSED WIDTH
A	FLUSHING AVE	123.23'	5.36'	60% -5.36% = 54.64%	67.55'	61.32'

3 WEST ELEVATION
3/32" = 1'-0"

BUSHWICK AVE. DORMERS (AS PER ZR 23-413 (b)(1)(ii))						
DORMER	STREET NAME	STREET WALL LENGTH	STREET WALL HEIGHT ABOVE MAX BASE HEIGHT	PERCENTAGE ALLOWANCE	PERMITTED MAX. WIDTH	PROPOSED WIDTH
A	BUSHWICK AVE	81.92'	5.36	60% -5.36% = 54.64%	44.76'	41.50'



6 EAST ELEVATION
3/32" = 1'-0"

5 1 - c
3/32" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

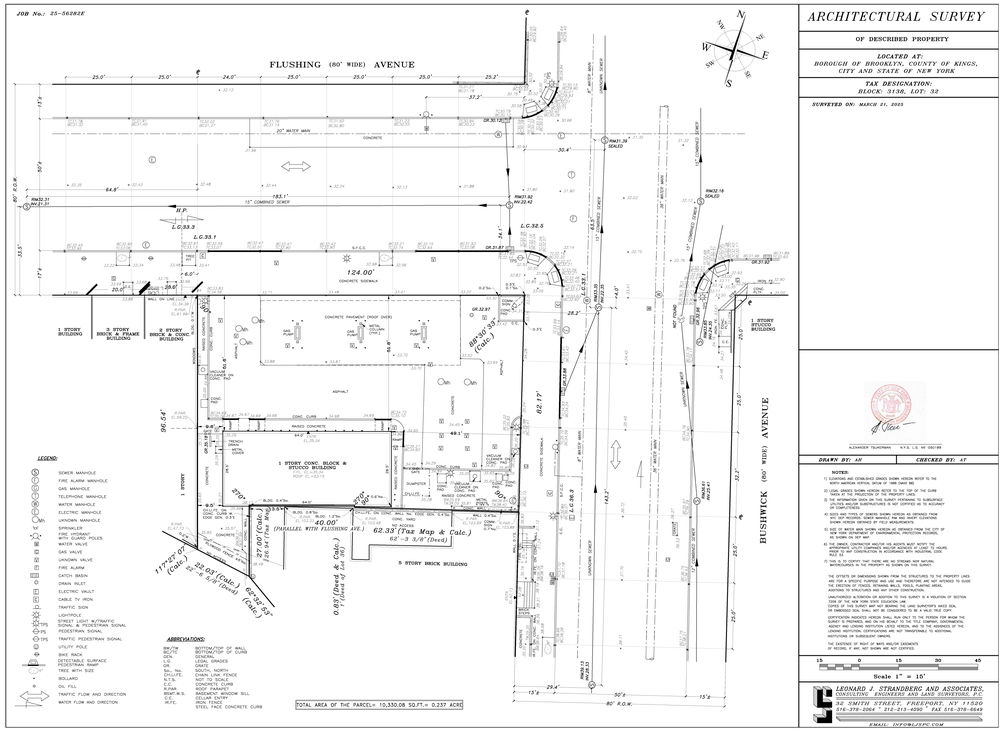
SHEET TITLE
ZONING DIAGRAMS

Z-003

4 OF 43

Scale:	3/32" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

SURVEY PLAN



ARCHITECTURAL SURVEY

OF DESCRIBED PROPERTY

LOCATED AT:
BOROUGH OF BROOKLYN, COUNTY OF KINGS, CITY AND STATE OF NEW YORK

TAX DESIGNATION:
BLOCK: 3138, LOT: 32

SURVEYED ON: MARCH 31, 2025

ALEXANDER TSUKERMAN N.Y.S. L.S. NO 050188

DRAWN BY: AR | CHECKED BY: AT

NOTES:
1) BEARINGS ARE ESTABLISHED GRADES SHOWN HEREON REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
2) LEGAL GRADES SHOWN HEREON REFER TO THE TOP OF THE CURB TWENTY-FIVE FEET (25') FROM THE PROPERTY LINE.
3) THE INFORMATION SHOWN ON THIS SURVEY PERTAINING TO SUBSURFACE UTILITIES (IF ANY) IS APPROXIMATE ONLY AND IS NOT GUARANTEED AS TO ITS ACCURACY OR COMPLETENESS.
4) SIZES AND TYPES OF SEWERS SHOWN HEREON AS OBTAINED FROM THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION RECORDS, AS SHOWN ON SITE MAP.
5) SIZE OF WATER MAIN SHOWN HEREON AS OBTAINED FROM THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION RECORDS, AS SHOWN ON SITE MAP.
6) THE OWNER, CONTRACTOR AND/OR HIS AGENTS MUST NOTIFY THE UTILITY COMPANIES AND DIG SAFELY (811) BEFORE THEY BEGIN ANY EXCAVATION OR DEMOLITION IN ACCORDANCE WITH INDUSTRIAL CODE RULE 53.
7) IT IS TO CERTIFY THAT THERE ARE NO STREAMS NOR NATURAL WATERCOURSES IN THE PROPERTY AS SHOWN ON THIS SURVEY.

THE OFFSETS OR DIMENSIONS SHOWN FROM THE STRUCTURES TO THE PROPERTY LINES ARE FOR A SPECIFIC PURPOSE AND ARE NOT INTENDED FOR USE FOR THE CREATION OF FENCES, RETAINING WALLS, POOLS, PLANTING AREAS, ADDITIONS TO STRUCTURES AND ANY OTHER CONSTRUCTION.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VIOLATION OF SECTION 7209 SUB-DIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S INKED SEAL AND ORIGINAL SIGNATURE ARE NOT TO BE CONSIDERED VALID.

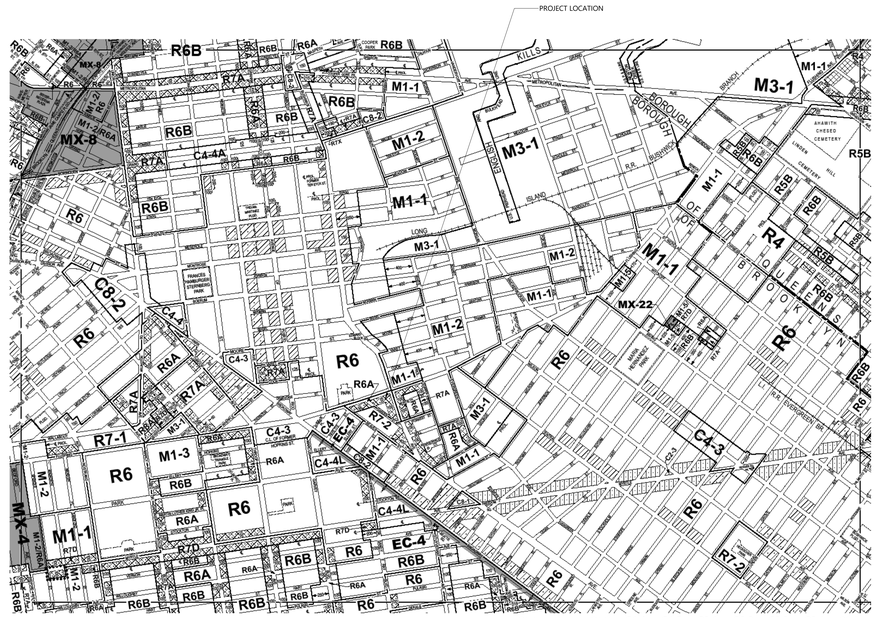
THIS SURVEY IS CERTIFIED TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS.

THE EXISTENCE OF RIGHT OF WAYS AND/OR EASEMENTS OF RECORD, IF ANY, NOT SHOWN ARE NOT CERTIFIED.

15 0 15 30 45
Scale 1" = 15'

LEONARD J. STRANDBERG AND ASSOCIATES
CONSULTING ENGINEERS AND LAND SURVEYORS, P.C.
32 SMITH STREET, FREEPORT, NY 11520
516-378-2064 * 212-213-4090 * FAX 516-378-0649
EMAIL: INFO@LJSPC.COM

ZONING MAP



NOTE: Where no dimensions for zoning district boundaries appear on the zoning maps, such dimensions are determined in Article VII, Chapter 6 (Location of District Boundaries) of the Zoning Resolution.

ZONING MAP

THE NEW YORK CITY PLANNING COMMISSION

Major Zoning Classifications:
The number(s) and/or letter(s) that follows an **R**, **C** or **M** District designation indicates use, bulk and other controls as described in the text of the Zoning Resolution.

R - RESIDENTIAL DISTRICT
C - COMMERCIAL DISTRICT
M - MANUFACTURING DISTRICT

SPECIAL PURPOSE DISTRICT
The letter(s) within the shaded area designates the special purpose district as described in the text of the Zoning Resolution.

AREA(S) REZONED

Effective Date(s) of Rezoning:
08/15/2024 C 230258 ZMK

Special Requirements:
For a list of lots subject to CEQR environmental requirements, see APPENDIX C.

For a list of lots subject to "D" restrictive declarations, see APPENDIX D.

For Inclusionary Housing designated areas and Mandatory Inclusionary Housing areas on this map, see APPENDIX F.

MAP KEY

12c	13a	13c
12d	**13b**	13d
16c	17a	17c

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ZONING MAP 13b

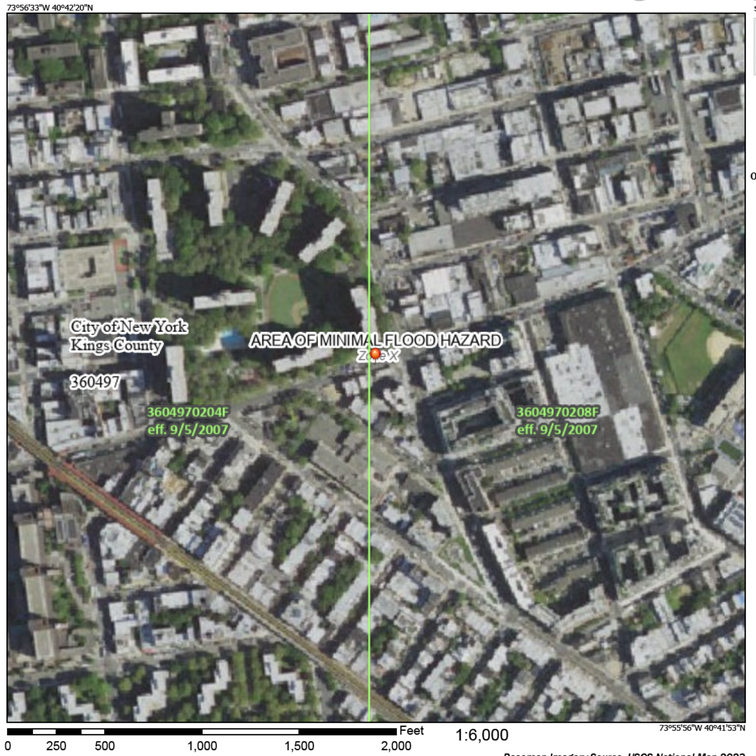
NOTE: Zoning information as shown on this map is subject to change. For the most up-to-date zoning information for this map, visit the Zoning section of the Department of City Planning website: www.nyc.gov/planning or contact the Zoning Information Desk at (212) 720-3291.

FLOOD HAZARD MAPS

National Flood Hazard Layer FIRMette

FEMA

73°56'33"W 40°42'20"N



73°55'56"W 40°41'53"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance
- Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/31/2025 at 6:27 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New York State Plane Long Island Zone (FIPSZONE 3104). The **horizontal datum** was NAD 83, GRS1980. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). These **elevations** must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3182
(301) 713-3242

To obtain current elevation, description and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the Department of Information Technology and Telecommunication, City of New York. This information was derived from digital orthophotos produced at a scale of 1:1,200 with 2-foot pixel resolution from photography dated 2004.

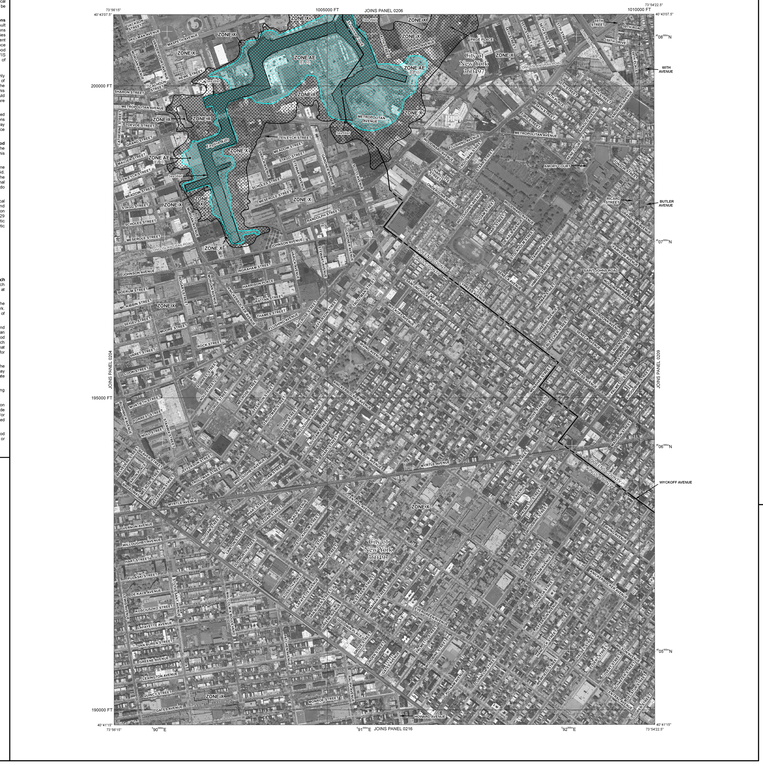
Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road centerlines and hydrography for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map showing the layout of map panels for this jurisdiction.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

- ZONE A — OTHER FLOOD AREAS
- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 17.5 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the National Geodetic Vertical Datum of 1929
- Cross section line
- Transect line
- 97°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 18N
- 600000 FT — 5000-foot grid ticks: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
June 30, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
June 11, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE
September 5, 2007

FLOOD INSURANCE RATE MAP REVISIONS
September 5, 2007 - to update map format, to change Special Flood Hazard Areas, and to reflect updated topographic information.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 250 500 1000 FEET
75 0 75 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0208F

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
NEW YORK,
NEW YORK,
KINGS, RICHMOND, NEW YORK, QUEENS, AND BRONX COUNTIES

PANEL 208 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
NEW YORK, CITY OF	360497	0208	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
3604970208F

MAP REVISED
SEPTEMBER 5, 2007

Federal Emergency Management Agency

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
ZONING MAPS

Z-004

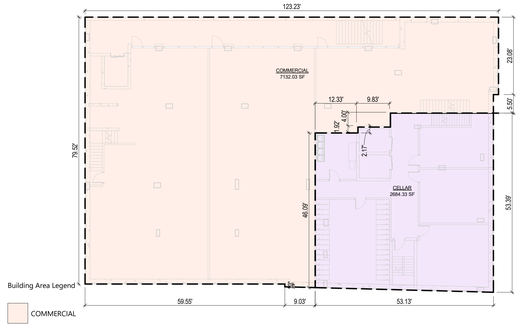
5 OF 43

Scale:
Date: 7/24/2025
Drawn by: FB
Checked by: KHL

DOB JOB NUMBER:
B01204032-I1

AREA - 00 CELLAR FLOOR	
Name	SF
CELLAR	2684.33 SF
	2684.33 SF

AREA - 00 CELLAR COMMERCIAL	
Name	SF
COMMERCIAL	7132.03 SF
	7132.03 SF



Building Area Legend

COMMERCIAL

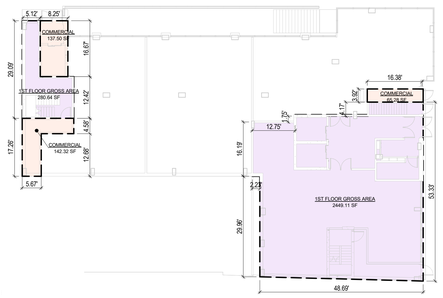
Building Area Legend

CELLAR

0 00 CELLAR GROSS AREA
1/16" = 1'-0"

AREA - 1ST FLOOR	
Name	SF
1ST FLOOR GROSS AREA	2449.11 SF
1ST FLOOR GROSS AREA	280.64 SF
	2729.75 SF

AREA - 1ST FLOOR COMMERCIAL	
Name	SF
COMMERCIAL	137.50 SF
COMMERCIAL	65.28 SF
COMMERCIAL	142.32 SF
	345.10 SF



Building Area Legend

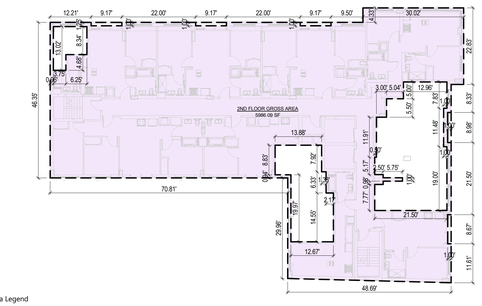
1ST FLOOR GROSS AREA

Building Area Legend

COMMERCIAL

1 01 1ST GROSS AREA
1/16" = 1'-0"

AREA - 2ND FLOOR	
Name	SF
2ND FLOOR GROSS AREA	5986.09 SF
	5986.09 SF

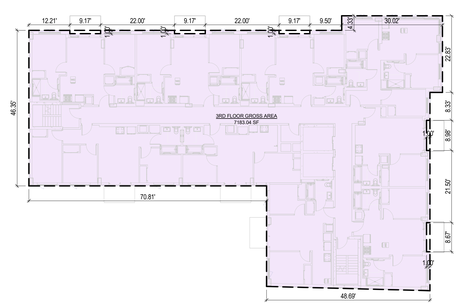


Building Area Legend

2ND FLOOR GROSS AREA

2 02 2ND GROSS AREA
1/16" = 1'-0"

AREA - 3RD FLOOR	
Name	SF
3RD FLOOR GROSS AREA	7183.04 SF
	7183.04 SF



Building Area Legend

3RD FLOOR GROSS AREA

3 03 3RD GROSS AREA
1/16" = 1'-0"

AREA - 4TH FLOOR	
Name	SF
4TH FLOOR GROSS AREA	7183.04 SF
	7183.04 SF

Building Area Legend

4TH FLOOR GROSS AREA

4 04 4TH GROSS AREA
1/16" = 1'-0"

AREA - 5TH FLOOR	
Name	SF
5TH FLOOOR GROSS AREA	7183.04 SF
	7183.04 SF

Building Area Legend

5TH FLOOOR GROSS AREA

5 05 5TH GROSS AREA
1/16" = 1'-0"

AREA - 6TH FLOOR	
Name	SF
6TH FLOOR GROSS AREA	7183.04 SF
	7183.04 SF

Building Area Legend

6TH FLOOR GROSS AREA

6 06 6TH GROSS AREA
1/16" = 1'-0"

AREA - 7TH FLOOR	
Name	SF
7TH FLOOR GROSS AREA	6454.30 SF
	6454.30 SF

Building Area Legend

7TH FLOOR GROSS AREA

7 07 7TH GROSS AREA
1/16" = 1'-0"

AREA - 8TH FLOOR	
Name	SF
8TH FLOOR GROSS AREA	5588.98 SF
	5588.98 SF

Building Area Legend

8TH FLOOR GROSS AREA

8 08 8TH GROSS AREA
1/16" = 1'-0"

AREA - ROOF	
Name	SF

9 09 ROOF
1/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
GROSS FLOOR AREA DIAGRAMS

Z-010

6 OF 43

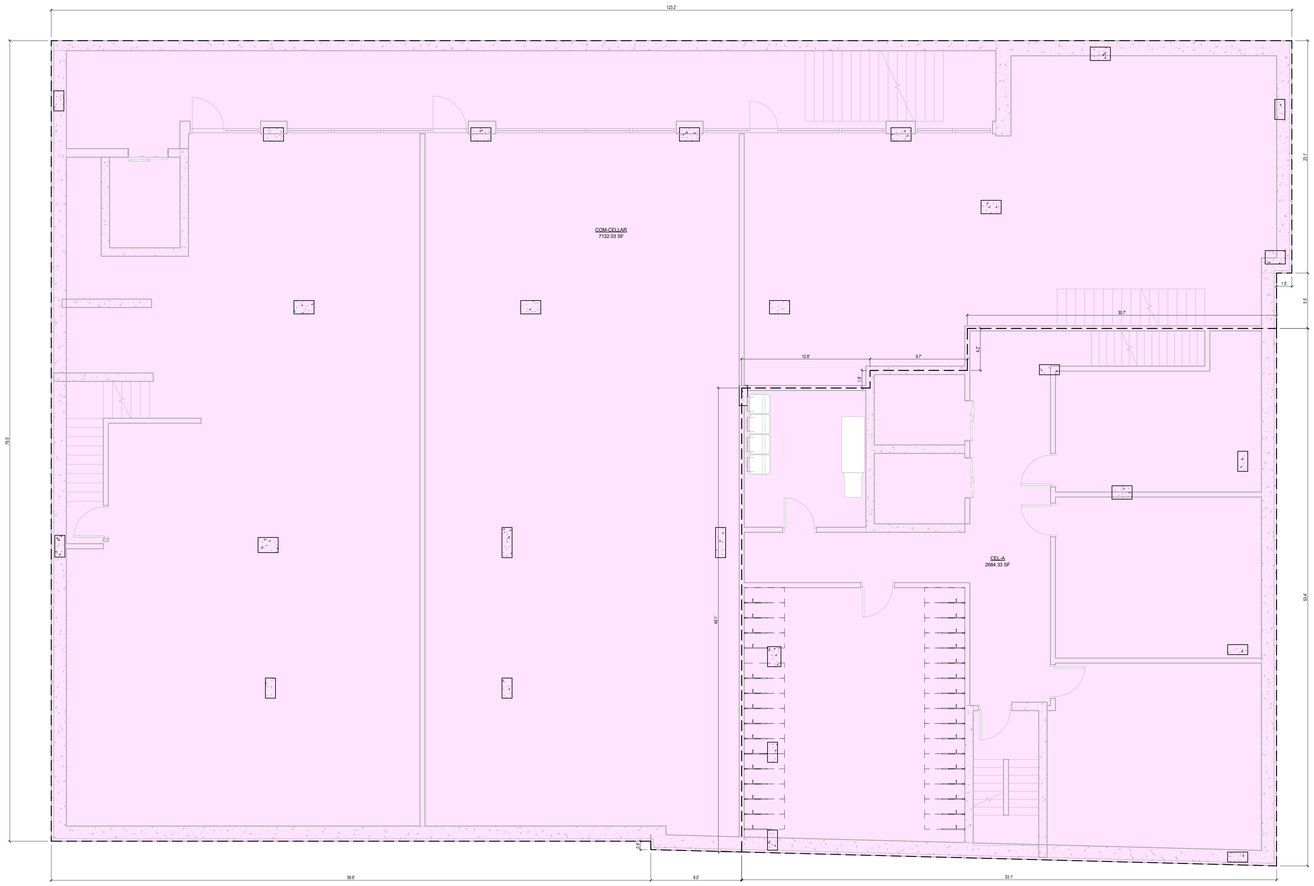
Scale:	1/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

DEDUCTIONS - 00_CELLAR		
AREA	DEDUCTION	TOTAL SF
CELLAR		
CEL-A	CELLAR	2684.33 SF
		2684.33 SF
Grand total		2684.33 SF

DEDUCTIONS - 00_CELLAR COMMERCIAL		
AREA	DEDUCTION	TOTAL SF
CELLAR		
COM-CELLAR	CELLAR	7132.03 SF
		7132.03 SF
Grand total		7132.03 SF

DEDUCTIONS LEGEND

CELLAR



1 00 CELLAR FLOOR
3/16" = 1'-0"

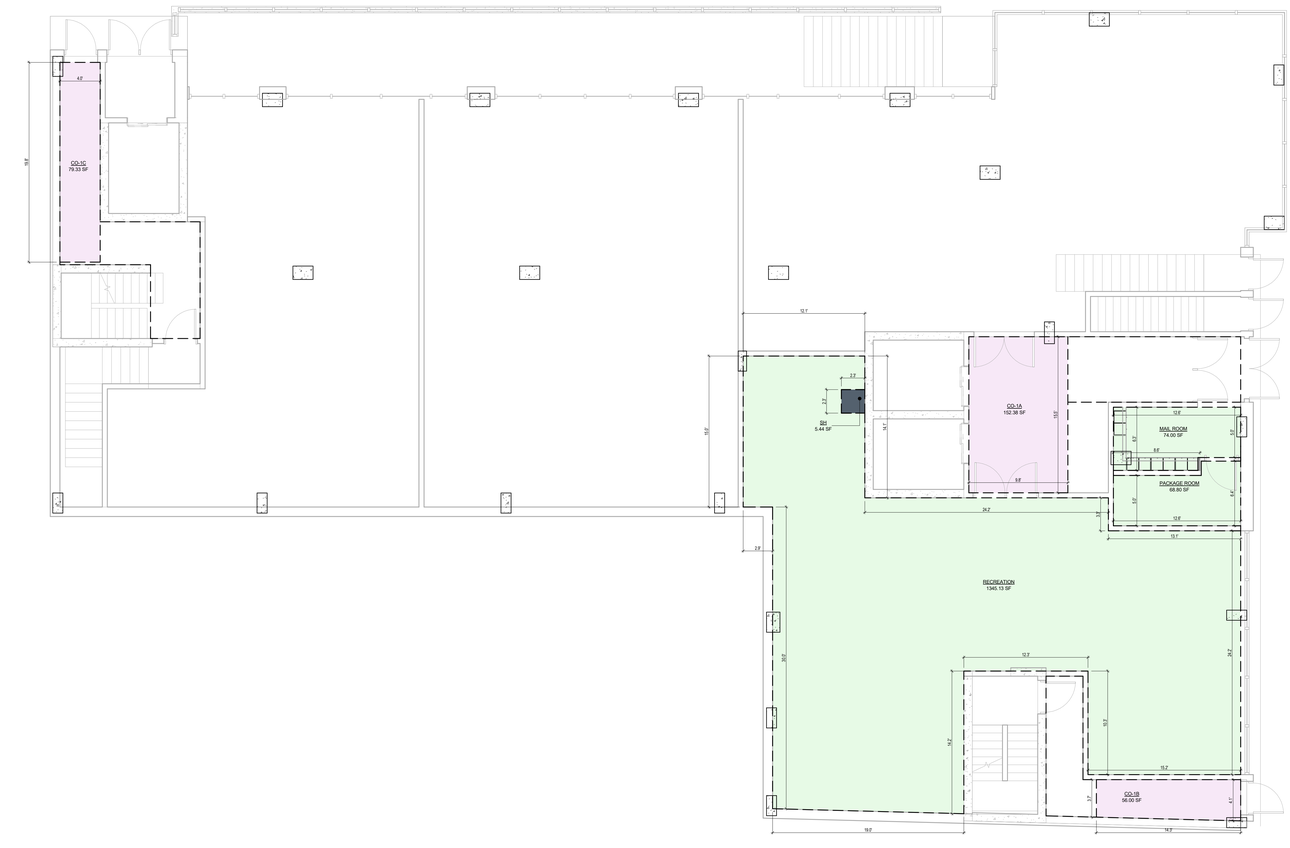
DEDUCTIONS - 1ST FLOOR		
AREA	DEDUCTION	TOTAL SF
50% DAYLIGHT IN CORRIDORS		
CO-1A	50% DAYLIGHT IN CORRIDORS	152.38 SF
CO-1B	50% DAYLIGHT IN CORRIDORS	56.00 SF
CO-1C	50% DAYLIGHT IN CORRIDORS	79.33 SF
		287.72 SF
AMENITIES		
MAIL ROOM	AMENITIES	74.00 SF
PACKAGE ROOM	AMENITIES	68.80 SF
RECREATION	AMENITIES	1345.13 SF
		1487.93 SF
SHAFT		
SH	SHAFT	5.44 SF
		5.44 SF
Grand total		1781.10 SF

DEDUCTIONS LEGEND

50% DAYLIGHT IN CORRIDORS

AMENITIES

SHAFT



2 01 FIRST FLOOR
3/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
FLOOR AREA DEDUCTIONS

Z-020

7 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

DEDUCTIONS - 2ND FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	591.28 SF
		591.28 SF
REFUSE ROOM		
RE	REFUSE ROOM	24.00 SF
		24.00 SF
SHAFT		
SH-A	SHAFT	8.74 SF
SH-AA	SHAFT	6.51 SF
SH-AB	SHAFT	3.89 SF
SH-AD	SHAFT	3.29 SF
SH-AE	SHAFT	3.66 SF
SH-AF	SHAFT	4.30 SF
SH-B	SHAFT	0.81 SF
SH-C	SHAFT	11.50 SF
SH-D	SHAFT	13.17 SF
SH-E	SHAFT	25.47 SF
SH-F	SHAFT	4.00 SF
SH-G	SHAFT	7.56 SF
SH-H	SHAFT	0.81 SF
SH-I	SHAFT	25.07 SF
SH-J	SHAFT	1.00 SF

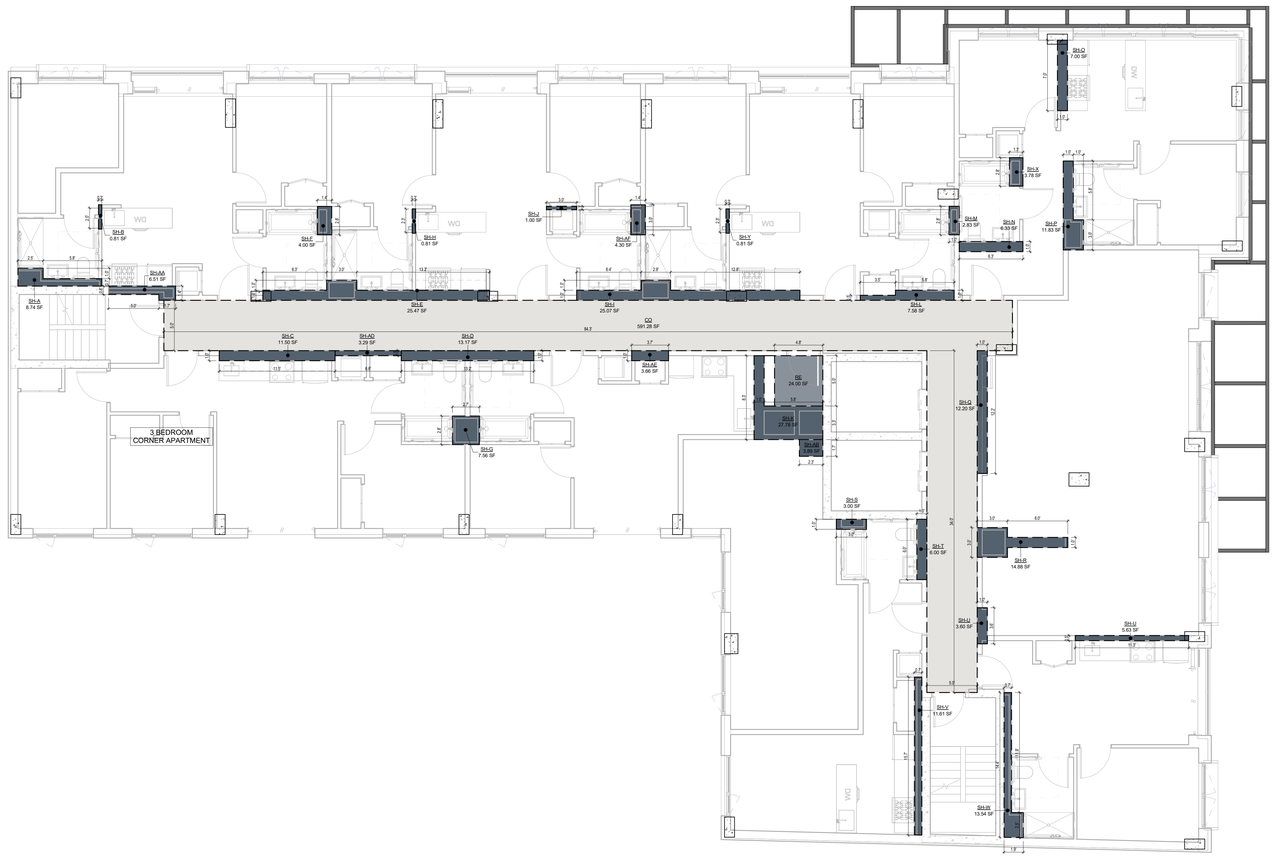
DEDUCTIONS - 2ND FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	7.58 SF
SH-M	SHAFT	2.83 SF
SH-N	SHAFT	6.33 SF
SH-O	SHAFT	7.00 SF
SH-P	SHAFT	11.83 SF
SH-Q	SHAFT	12.20 SF
SH-R	SHAFT	14.88 SF
SH-S	SHAFT	3.00 SF
SH-T	SHAFT	6.00 SF
SH-U	SHAFT	3.60 SF
SH-V	SHAFT	11.61 SF
SH-W	SHAFT	13.54 SF
SH-X	SHAFT	3.78 SF
SH-Y	SHAFT	0.81 SF
		258.16 SF
Grand total		873.44 SF

DEDUCTIONS LEGEND

100% OF CORRIDOOR

REFUSE ROOM

SHAFT



1 02 2ND FL.
3/16" = 1'-0"

DEDUCTIONS - 3RD FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	591.28 SF
		591.28 SF
REFUSE ROOM		
RE	REFUSE ROOM	27.00 SF
		27.00 SF
SHAFT		
SH-A	SHAFT	8.74 SF
SH-AA	SHAFT	6.51 SF
SH-AB	SHAFT	1.09 SF
SH-AC	SHAFT	3.89 SF
SH-AD	SHAFT	25.40 SF
SH-AE	SHAFT	1.00 SF
SH-AF	SHAFT	3.29 SF
SH-B	SHAFT	0.81 SF
SH-C	SHAFT	11.50 SF
SH-D	SHAFT	13.17 SF
SH-E	SHAFT	25.52 SF
SH-F	SHAFT	4.00 SF
SH-G	SHAFT	7.56 SF
SH-H	SHAFT	0.81 SF
SH-I	SHAFT	3.66 SF
SH-J	SHAFT	4.08 SF

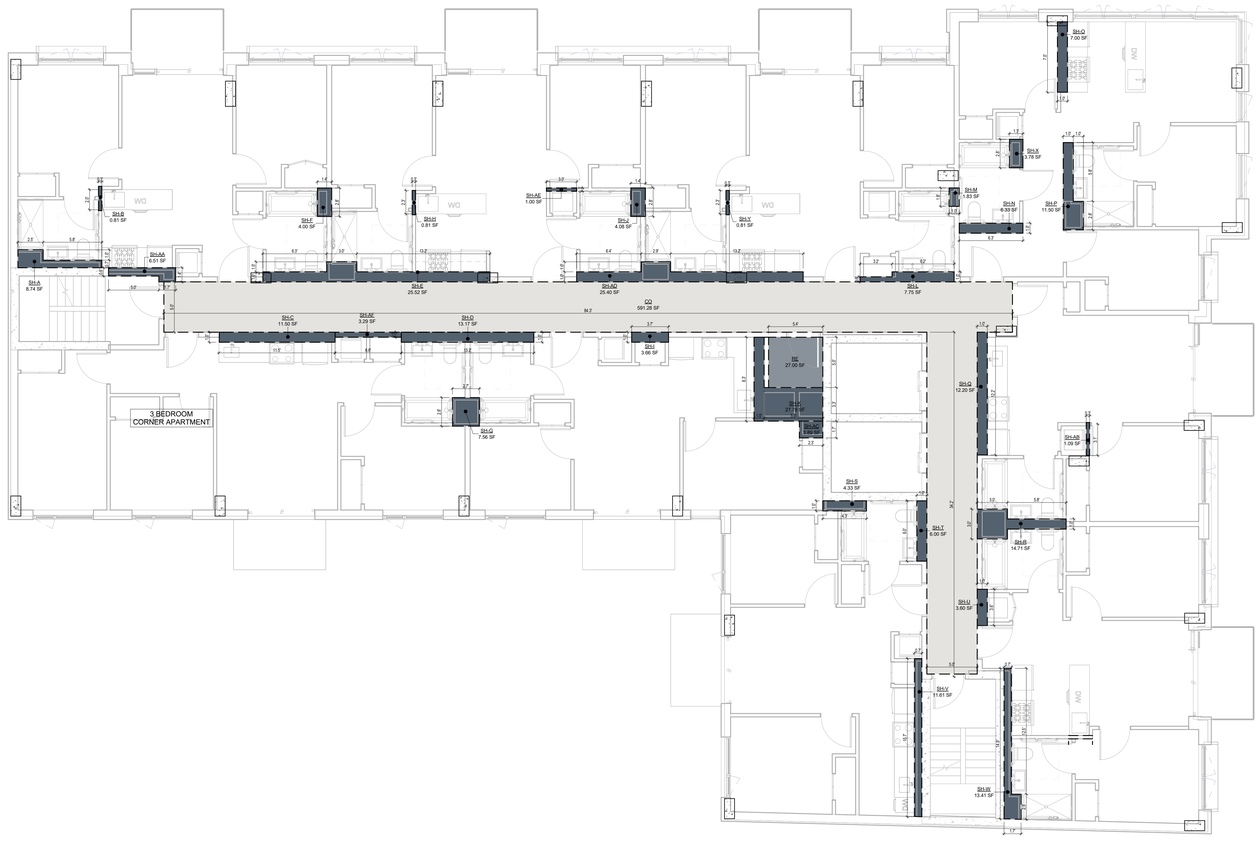
DEDUCTIONS - 3RD FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	7.75 SF
SH-M	SHAFT	1.83 SF
SH-N	SHAFT	6.33 SF
SH-O	SHAFT	7.00 SF
SH-P	SHAFT	11.50 SF
SH-Q	SHAFT	12.20 SF
SH-R	SHAFT	14.71 SF
SH-S	SHAFT	4.33 SF
SH-T	SHAFT	6.00 SF
SH-U	SHAFT	3.60 SF
SH-V	SHAFT	11.61 SF
SH-W	SHAFT	13.41 SF
SH-X	SHAFT	3.78 SF
SH-Y	SHAFT	0.81 SF
SH-Z	SHAFT	0.00 SF
		253.63 SF
Grand total		871.91 SF

DEDUCTIONS LEGEND

100% OF CORRIDOOR

REFUSE ROOM

SHAFT



2 03_3RD FL.
3/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
FLOOR AREA DEDUCTIONS

Z-021

8 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

DEDUCTIONS - 4TH FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	591.28 SF
		591.28 SF
REFUSE ROOM		
RE	REFUSE ROOM	27.00 SF
		27.00 SF
SHAFT		
SH-A	SHAFT	8.74 SF
SH-AA	SHAFT	6.51 SF
SH-AB	SHAFT	1.09 SF
SH-AC	SHAFT	3.89 SF
SH-AD	SHAFT	11.50 SF
SH-AE	SHAFT	25.40 SF
SH-AF	SHAFT	4.30 SF
SH-B	SHAFT	0.81 SF
SH-C	SHAFT	3.29 SF
SH-D	SHAFT	13.17 SF
SH-E	SHAFT	25.52 SF
SH-F	SHAFT	4.00 SF
SH-G	SHAFT	7.56 SF
SH-H	SHAFT	0.81 SF
SH-I	SHAFT	3.66 SF

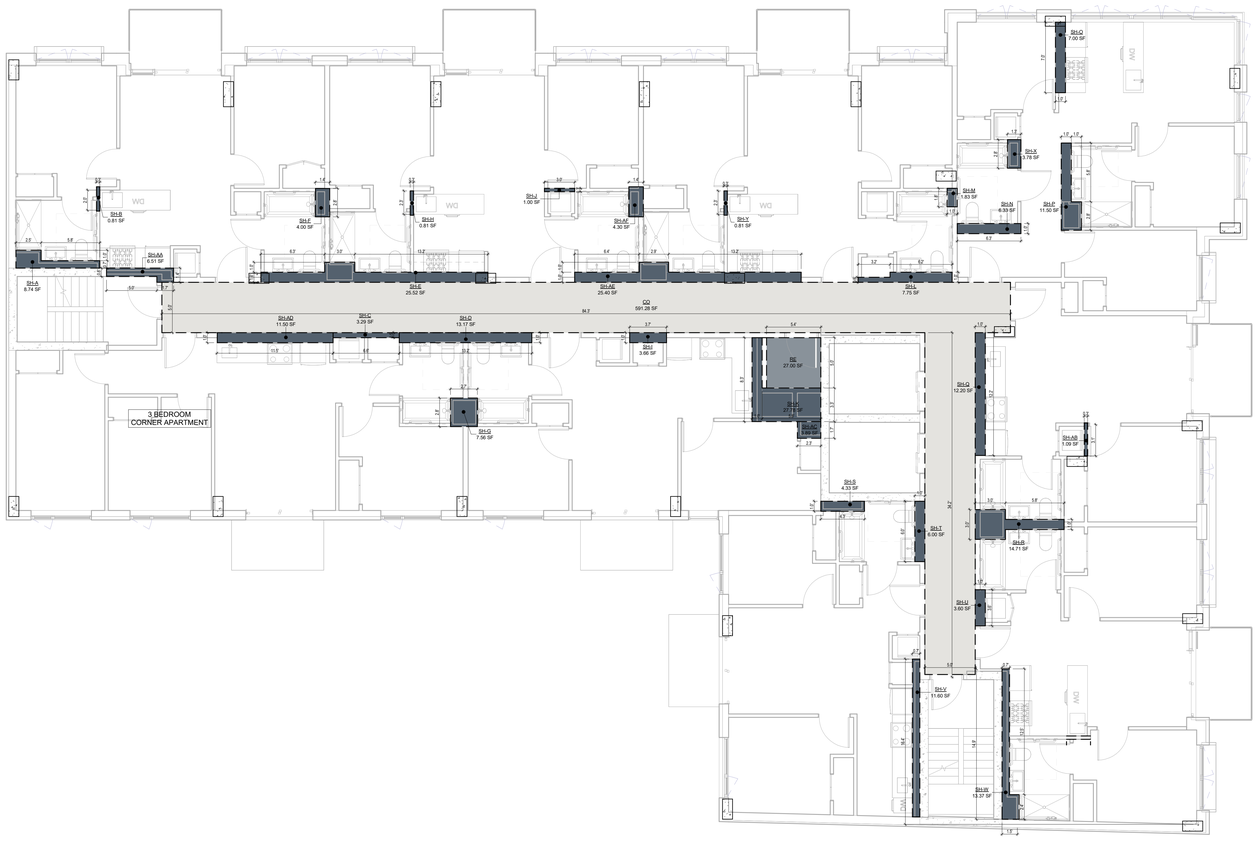
DEDUCTIONS - 4TH FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-J	SHAFT	1.00 SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	7.75 SF
SH-M	SHAFT	1.83 SF
SH-N	SHAFT	6.33 SF
SH-O	SHAFT	7.00 SF
SH-P	SHAFT	11.50 SF
SH-Q	SHAFT	12.20 SF
SH-R	SHAFT	14.71 SF
SH-S	SHAFT	4.33 SF
SH-T	SHAFT	6.00 SF
SH-U	SHAFT	3.60 SF
SH-V	SHAFT	11.60 SF
SH-W	SHAFT	13.37 SF
SH-X	SHAFT	3.78 SF
SH-Y	SHAFT	0.81 SF
SH-Z	SHAFT	0.00 SF
		253.82 SF
Grand total		872.09 SF

DEDUCTIONS LEGEND

100% OF CORRIDOOR

REFUSE ROOM

SHAFT



1 04 4TH FL.
3/16" = 1'-0"

DEDUCTIONS - 5TH FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	591.28 SF
		591.28 SF
REFUSE ROOM		
RE	REFUSE ROOM	27.00 SF
		27.00 SF
SHAFT		
SH-A	SHAFT	8.74 SF
SH-AA	SHAFT	6.51 SF
SH-AB	SHAFT	1.09 SF
SH-AC	SHAFT	3.89 SF
SH-AD	SHAFT	11.50 SF
SH-AE	SHAFT	25.40 SF
SH-AF	SHAFT	4.30 SF
SH-B	SHAFT	0.81 SF
SH-C	SHAFT	3.29 SF
SH-D	SHAFT	13.17 SF
SH-E	SHAFT	25.35 SF
SH-F	SHAFT	4.00 SF
SH-G	SHAFT	7.56 SF
SH-H	SHAFT	0.81 SF
SH-I	SHAFT	3.66 SF

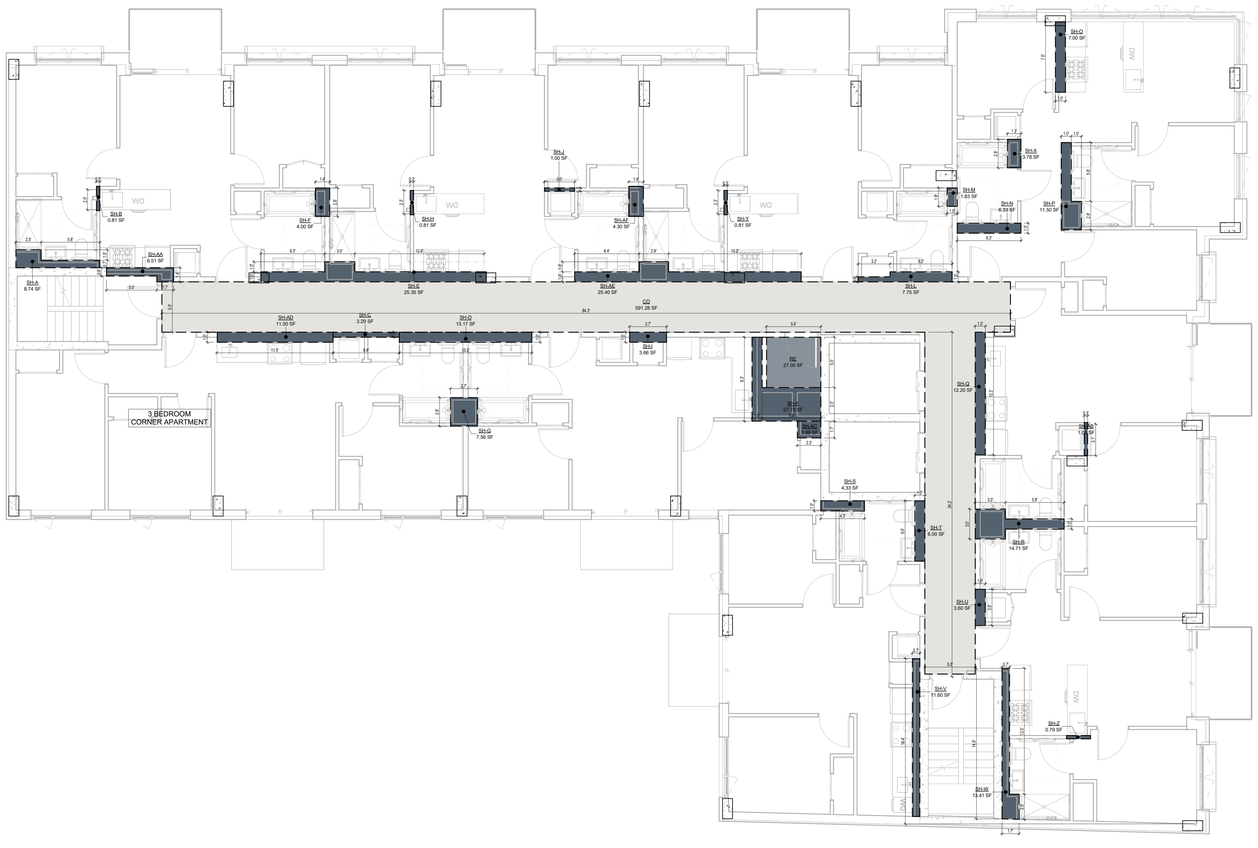
DEDUCTIONS - 5TH FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-J	SHAFT	1.00 SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	7.75 SF
SH-M	SHAFT	1.83 SF
SH-N	SHAFT	6.33 SF
SH-O	SHAFT	7.00 SF
SH-P	SHAFT	11.50 SF
SH-Q	SHAFT	12.20 SF
SH-R	SHAFT	14.71 SF
SH-S	SHAFT	4.33 SF
SH-T	SHAFT	6.00 SF
SH-U	SHAFT	3.60 SF
SH-V	SHAFT	11.60 SF
SH-W	SHAFT	13.41 SF
SH-X	SHAFT	3.78 SF
SH-Y	SHAFT	0.79 SF
		254.48 SF
Grand total		872.76 SF

DEDUCTIONS LEGEND

100% OF CORRIDOOR

REFUSE ROOM

SHAFT



2 05 5TH FL.
3/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
FLOOR AREA DEDUCTIONS

Z-022

9 OF 43

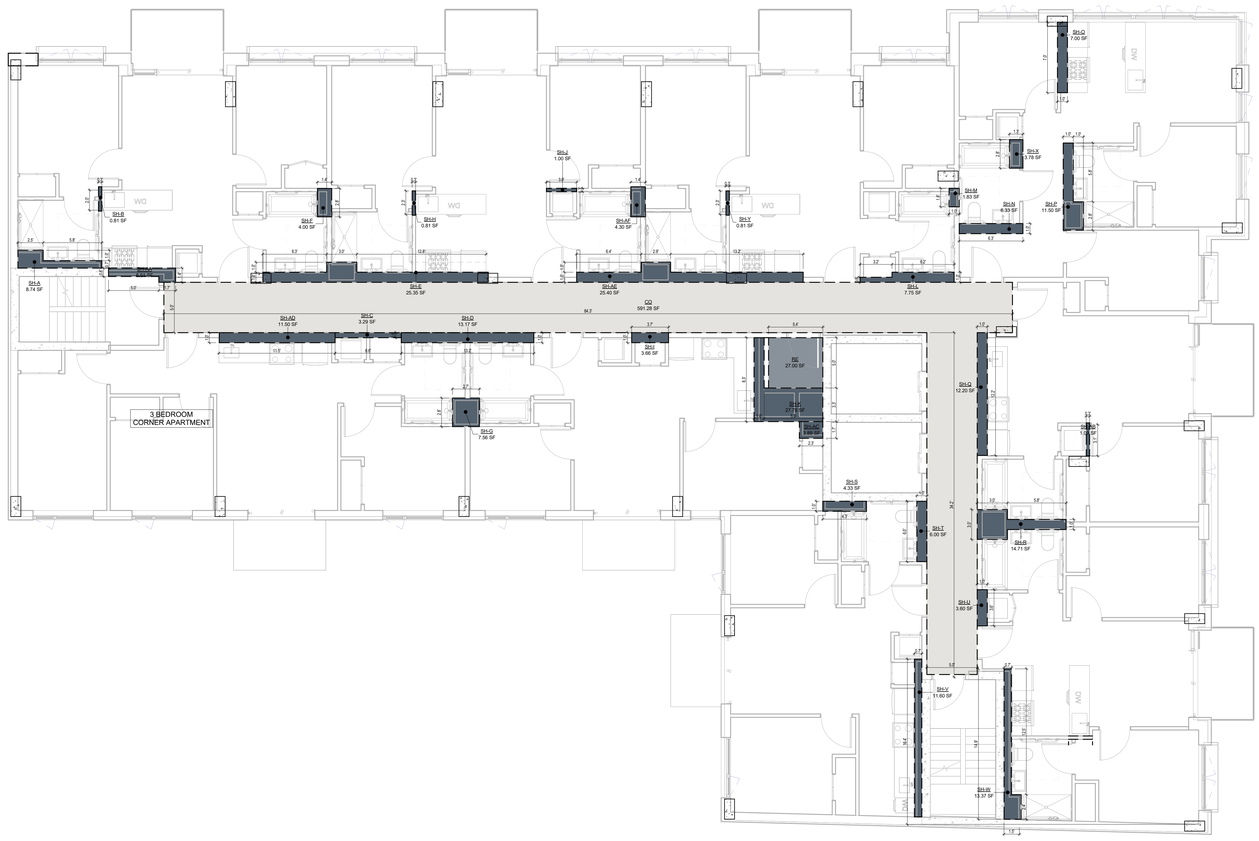
Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

DEDUCTIONS - 6TH FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	591.28 SF
		591.28 SF
REFUSE ROOM		
RE	REFUSE ROOM	27.00 SF
		27.00 SF
SHAFT		
SH-A	SHAFT	8.74 SF
SH-AA	SHAFT	6.51 SF
SH-AB	SHAFT	1.09 SF
SH-AC	SHAFT	3.89 SF
SH-AD	SHAFT	11.50 SF
SH-AE	SHAFT	25.40 SF
SH-AF	SHAFT	4.30 SF
SH-B	SHAFT	0.81 SF
SH-C	SHAFT	3.29 SF
SH-D	SHAFT	13.17 SF
SH-E	SHAFT	25.35 SF
SH-F	SHAFT	4.00 SF
SH-G	SHAFT	7.56 SF
SH-H	SHAFT	0.81 SF

DEDUCTIONS - 6TH FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-I	SHAFT	3.66 SF
SH-J	SHAFT	1.00 SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	7.75 SF
SH-M	SHAFT	1.83 SF
SH-N	SHAFT	6.33 SF
SH-O	SHAFT	7.00 SF
SH-P	SHAFT	11.50 SF
SH-Q	SHAFT	12.20 SF
SH-R	SHAFT	14.71 SF
SH-S	SHAFT	4.33 SF
SH-T	SHAFT	6.00 SF
SH-U	SHAFT	3.60 SF
SH-V	SHAFT	11.60 SF
SH-W	SHAFT	13.37 SF
SH-X	SHAFT	3.78 SF
SH-Y	SHAFT	0.81 SF
SH-Z	SHAFT	0.00 SF
		253.65 SF
Grand total		871.93 SF

DEDUCTIONS LEGEND

- 100% OF CORRIDOOR
- REFUSE ROOM
- SHAFT



1 06 6TH FL.
3/16" = 1'-0"

DEDUCTIONS - 7TH FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	589.82 SF
		589.82 SF
REFUSE ROOM		
RE	REFUSE ROOM	27.00 SF
		27.00 SF
SHAFT		
SH-A	SHAFT	10.83 SF
SH-B	SHAFT	25.33 SF
SH-C	SHAFT	3.29 SF
SH-D	SHAFT	13.17 SF
SH-E	SHAFT	7.56 SF
SH-F	SHAFT	10.83 SF
SH-G	SHAFT	19.38 SF
SH-H	SHAFT	0.97 SF
SH-I	SHAFT	3.66 SF

DEDUCTIONS - 7TH FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-J	SHAFT	7.58 SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	6.33 SF
SH-M	SHAFT	3.78 SF
SH-N	SHAFT	7.00 SF
SH-O	SHAFT	11.50 SF
SH-P	SHAFT	12.67 SF
SH-Q	SHAFT	10.36 SF
SH-R	SHAFT	6.33 SF
SH-S	SHAFT	4.33 SF
SH-T	SHAFT	11.60 SF
SH-U	SHAFT	3.89 SF
SH-V	SHAFT	11.50 SF
SH-W	SHAFT	3.83 SF
		223.52 SF
Grand total		840.34 SF

DEDUCTIONS LEGEND

- 100% OF CORRIDOOR
- REFUSE ROOM
- SHAFT

2 07 7TH FL.
3/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
FLOOR AREA DEDUCTIONS

Z-023

10 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

DEDUCTIONS - 8TH FLOOR		
AREA	DEDUCTION	TOTAL SF
100% OF CORRIDOOR		
CO	100% OF CORRIDOOR	573.78 SF
		573.78 SF
REFUSE ROOM		
RE	REFUSE ROOM	27.00 SF
		27.00 SF
SHAFT		
SH-A	SHAFT	10.83 SF
SH-B	SHAFT	10.82 SF
SH-C	SHAFT	11.54 SF
SH-D	SHAFT	2.35 SF
SH-E	SHAFT	6.17 SF
SH-F	SHAFT	2.35 SF
SH-G	SHAFT	10.83 SF
SH-H	SHAFT	6.17 SF
SH-I	SHAFT	3.66 SF
SH-J	SHAFT	9.79 SF

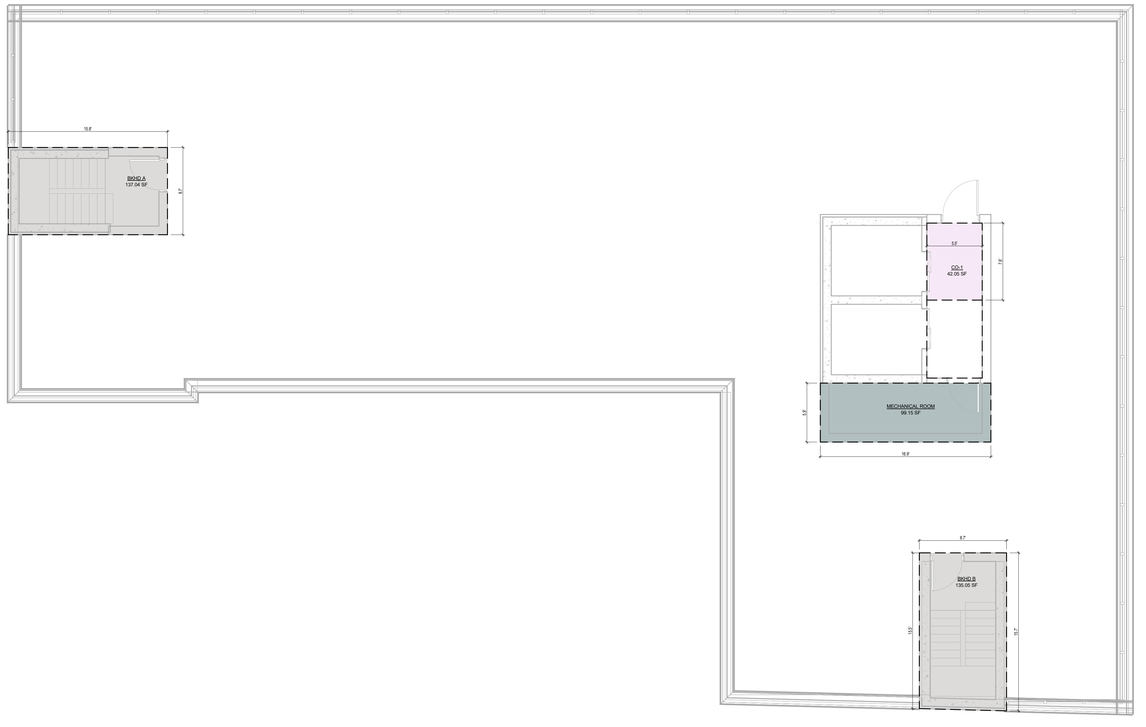
DEDUCTIONS - 8TH FLOOR		
AREA	DEDUCTION	TOTAL SF
SH-K	SHAFT	27.78 SF
SH-L	SHAFT	11.32 SF
SH-M	SHAFT	11.83 SF
SH-N	SHAFT	9.42 SF
SH-O	SHAFT	10.86 SF
SH-P	SHAFT	14.50 SF
SH-Q	SHAFT	15.25 SF
SH-R	SHAFT	3.33 SF
SH-S	SHAFT	2.36 SF
SH-T	SHAFT	1.17 SF
SH-U	SHAFT	3.89 SF
		186.24 SF
Grand total		787.01 SF

DEDUCTIONS LEGEND

- 100% OF CORRIDOOR
- REFUSE ROOM
- SHAFT

1 08 8TH FL.
3/16" = 1'-0"

DEDUCTIONS - 9TH FLOOR		
AREA	DEDUCTION	TOTAL SF



2 09 ROOF
3/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

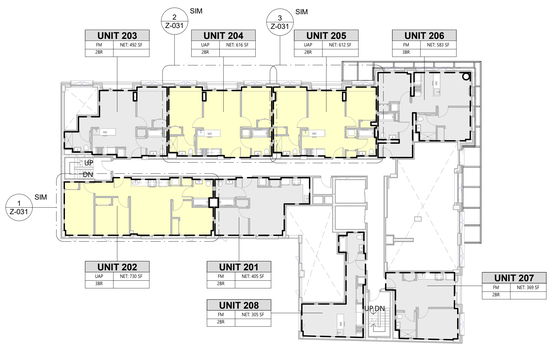
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
FLOOR AREA DEDUCTIONS

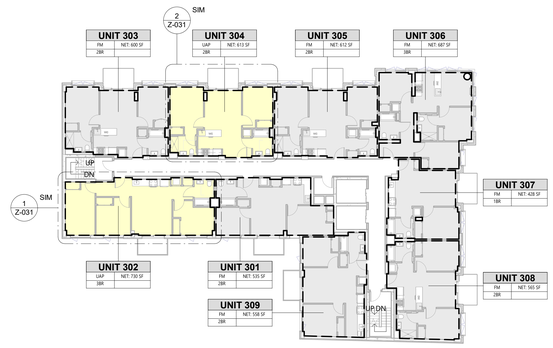
Z-024

11 OF 43

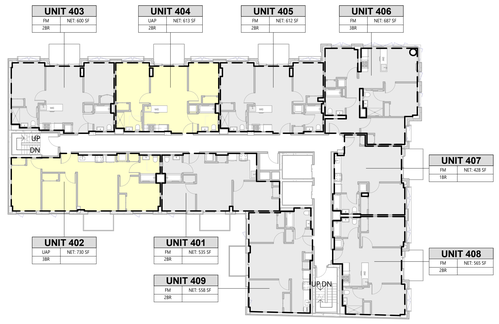
Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



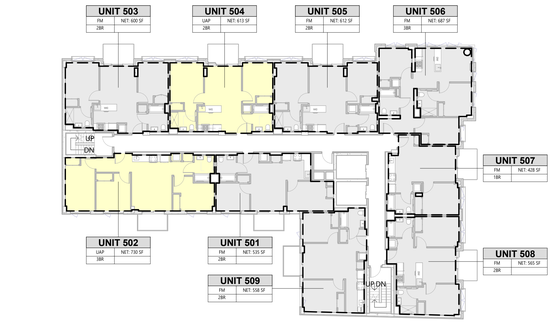
1 02 2ND FL.
1/16" = 1'-0"



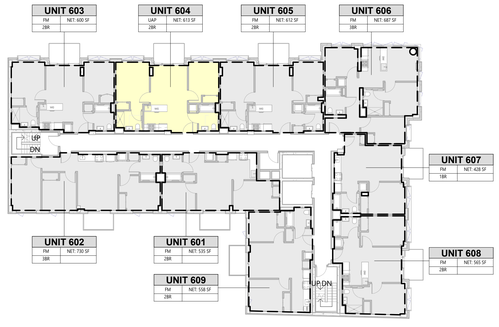
2 03_3RD FL.
1/16" = 1'-0"



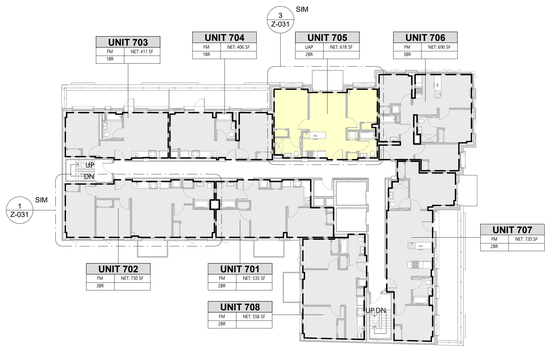
3 04 4TH FL.
1/16" = 1'-0"



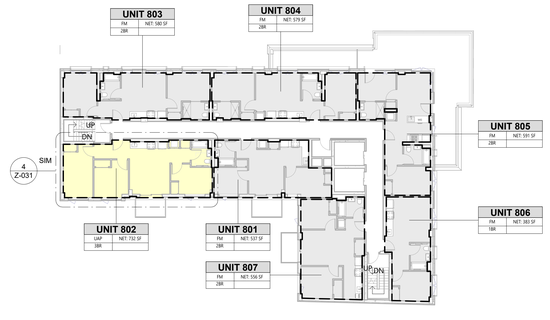
4 05 5TH FL.
1/16" = 1'-0"



5 06 6TH FL.
1/16" = 1'-0"



6 07 7TH FL.
1/16" = 1'-0"



7 08 8TH FL.
1/16" = 1'-0"

UNIT SCHEDULE			
Name	APT Type	Bedrooms	Area
02 2ND FL.			
201	FM	1BR	405 SF
202	UAP	3BR	730 SF
203	FM	1BR	492 SF
204	UAP	2BR	616 SF
205	UAP	2BR	612 SF
206	FM	3BR	583 SF
207	FM	1BR	369 SF
208	FM	STUDIO	305 SF
8			
03_3RD FL.			
301	FM	2BR	535 SF
302	UAP	3BR	730 SF
303	FM	2BR	600 SF
304	UAP	2BR	613 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
9			
04 4TH FL.			
301	FM	2BR	535 SF
302	UAP	3BR	730 SF
303	FM	2BR	600 SF
304	UAP	2BR	613 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
9			
05 5TH FL.			
301	FM	2BR	535 SF
302	UAP	3BR	730 SF
303	FM	2BR	600 SF
304	UAP	2BR	613 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
9			
06 6TH FL.			
301	FM	2BR	535 SF
302	UAP	3BR	730 SF
303	FM	2BR	600 SF
304	UAP	2BR	613 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
9			
07 7TH FL.			
701	FM	2BR	535 SF
702	FM	3BR	730 SF
703	FM	1BR	411 SF
704	FM	1BR	406 SF
705	UAP	2BR	618 SF
706	FM	3BR	687 SF
707	FM	2BR	720 SF
708	FM	2BR	558 SF
8			
08 8TH FL.			
801	FM	2BR	538 SF
802	UAP	3BR	732 SF
803	FM	2BR	580 SF
804	FM	2BR	579 SF
805	FM	2BR	591 SF
806	FM	1BR	383 SF
807	FM	2BR	556 SF
7			
Grand total: 59			

FREE MARKET UNIT SCHEDULE			
Name	APT Type	Bedrooms	Area
02 2ND FL.			
201	FM	1BR	405 SF
203	FM	1BR	492 SF
206	FM	3BR	583 SF
207	FM	1BR	369 SF
208	FM	STUDIO	305 SF
5			2154 SF
03_3RD FL.			
301	FM	2BR	535 SF
303	FM	2BR	600 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
7			3985 SF
04 4TH FL.			
301	FM	2BR	535 SF
303	FM	2BR	600 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
7			3985 SF
05 5TH FL.			
301	FM	2BR	535 SF
303	FM	2BR	600 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
7			3985 SF
06 6TH FL.			
301	FM	2BR	535 SF
303	FM	2BR	600 SF
305	FM	2BR	612 SF
306	FM	3BR	687 SF
307	FM	1BR	428 SF
308	FM	2BR	565 SF
309	FM	2BR	558 SF
7			3985 SF
07 7TH FL.			
701	FM	2BR	535 SF
702	FM	3BR	730 SF
703	FM	1BR	411 SF
704	FM	1BR	406 SF
706	FM	3BR	687 SF
707	FM	2BR	720 SF
708	FM	2BR	558 SF
7			4046 SF
08 8TH FL.			
801	FM	2BR	538 SF
803	FM	2BR	580 SF
804	FM	2BR	579 SF
805	FM	2BR	591 SF
806	FM	1BR	383 SF
807	FM	2BR	556 SF
6			3226 SF
Grand total: 46			25367 SF

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

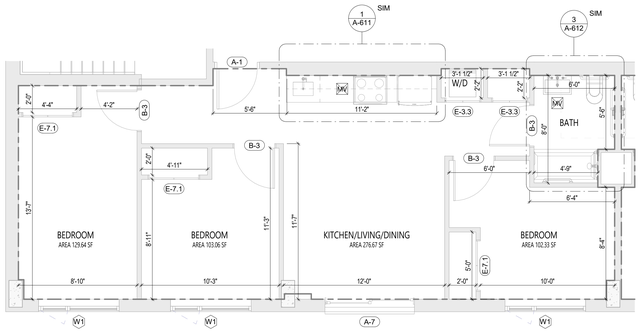
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
MIH UNIT SCHEDULE

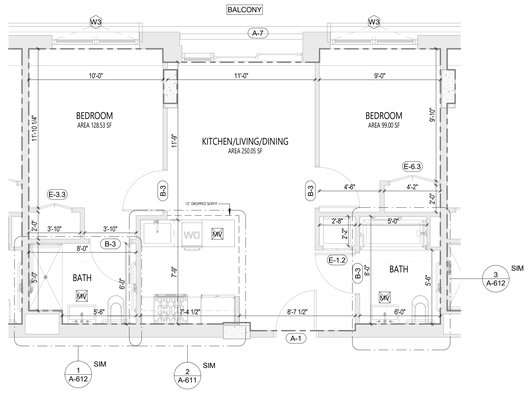
Z-030

12 OF 43

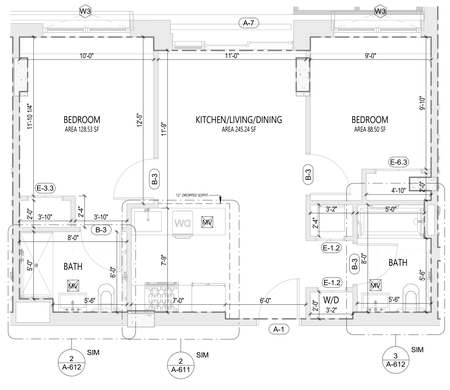
Scale:	1/16" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



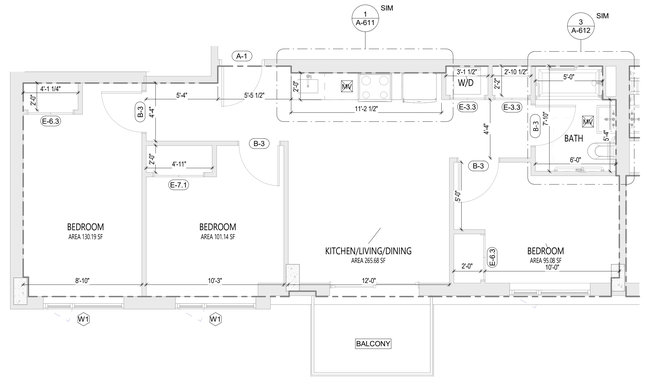
1 IH BEDROOM UNIT 202, 302, 702
1/4" = 1'-0"



2 IH BEDROOM UNIT 204, 304
1/4" = 1'-0"



3 IH BEDROOM UNIT 205, 705
1/4" = 1'-0"



4 IH BEDROOM UNIT 802
1/4" = 1'-0"

INCLUSIONARY HOUSING UNIT SCHEDULE

Name	APT Type	Bedrooms	Area
02 2ND FL.			
UNIT 202	UAP	3BR	730 SF
UNIT 204	UAP	2BR	616 SF
UNIT 205	UAP	2BR	612 SF
03_3RD FL.			
UNIT 302	UAP	3BR	730 SF
UNIT 304	UAP	2BR	613 SF
04 4TH FL.			
UNIT 402	UAP	3BR	730 SF
UNIT 404	UAP	2BR	613 SF
05 5TH FL.			
UNIT 502	UAP	3BR	730 SF
UNIT 504	UAP	2BR	613 SF
06 6TH FL.			
UNIT 604	UAP	2BR	613 SF
07 7TH FL.			
UNIT 705	UAP	2BR	618 SF
08 8TH FL.			
UNIT 802	UAP	3BR	732 SF
TOTAL: 12			

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
MIH UNIT TYPES

Z-031

13 OF 43

Scale:	1/4" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

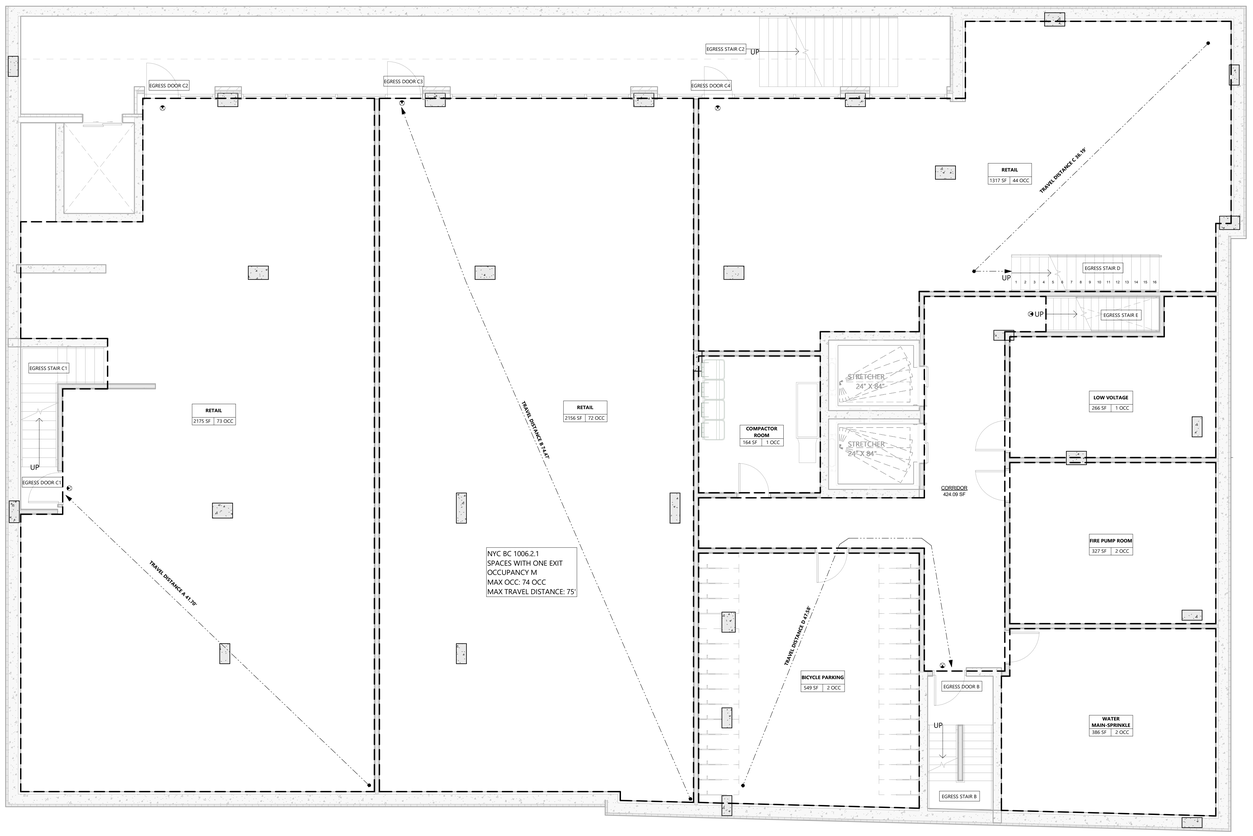
CELLAR FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR B	0.3	12	3.6	36"
EGRESS STAIR C1	0.3	37	11.1	44"
EGRESS STAIR C2	0.3	131	39.3	36"
EGRESS STAIR D	0.3	22	6.6	44"
EGRESS STAIR E	0.3	4	1.2	42"

CELLAR FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR B	0.2	12	2.4	36"
EGRESS DOOR C1	0.2	37	7.4	36"
EGRESS DOOR C2	0.2	37	7.4	38"
EGRESS DOOR C3	0.2	72	14.4	39"
EGRESS DOOR C4	0.2	22	4.4	34"

CELLAR FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	8	1.6	96"

CELLAR FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
COMMERCIAL				
RETAIL	M	2156 SF	30	72
RETAIL	M	1317 SF	30	44
RETAIL	M	2175 SF	30	73
		5649 SF		189
UTILITY AND MISCELLANEOUS				
BICYCLE PARKING	S-2	549 SF	300	2
COMPACTOR ROOM	S-2	164 SF	300	1
FIRE PUMP ROOM	S-2	327 SF	300	2
LOW VOLTAGE	S-2	266 SF	300	1
WATER MAIN-SPRINKLE	S-2	386 SF	300	2
		1693 SF		8
TOTAL		7342 SF		197

CELLAR FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
TRAVEL DISTANCE			
TRAVEL DISTANCE A	M	MAX. 200'-0"	41' - 8"
TRAVEL DISTANCE B	M	MAX. 200'-0"	74' - 6"
TRAVEL DISTANCE C	M	MAX. 200'-0"	36' - 2"
TRAVEL DISTANCE D	R-2	MAX. 200'-0"	47' - 7"



1 00 CELLAR
3/16" = 1'-0"

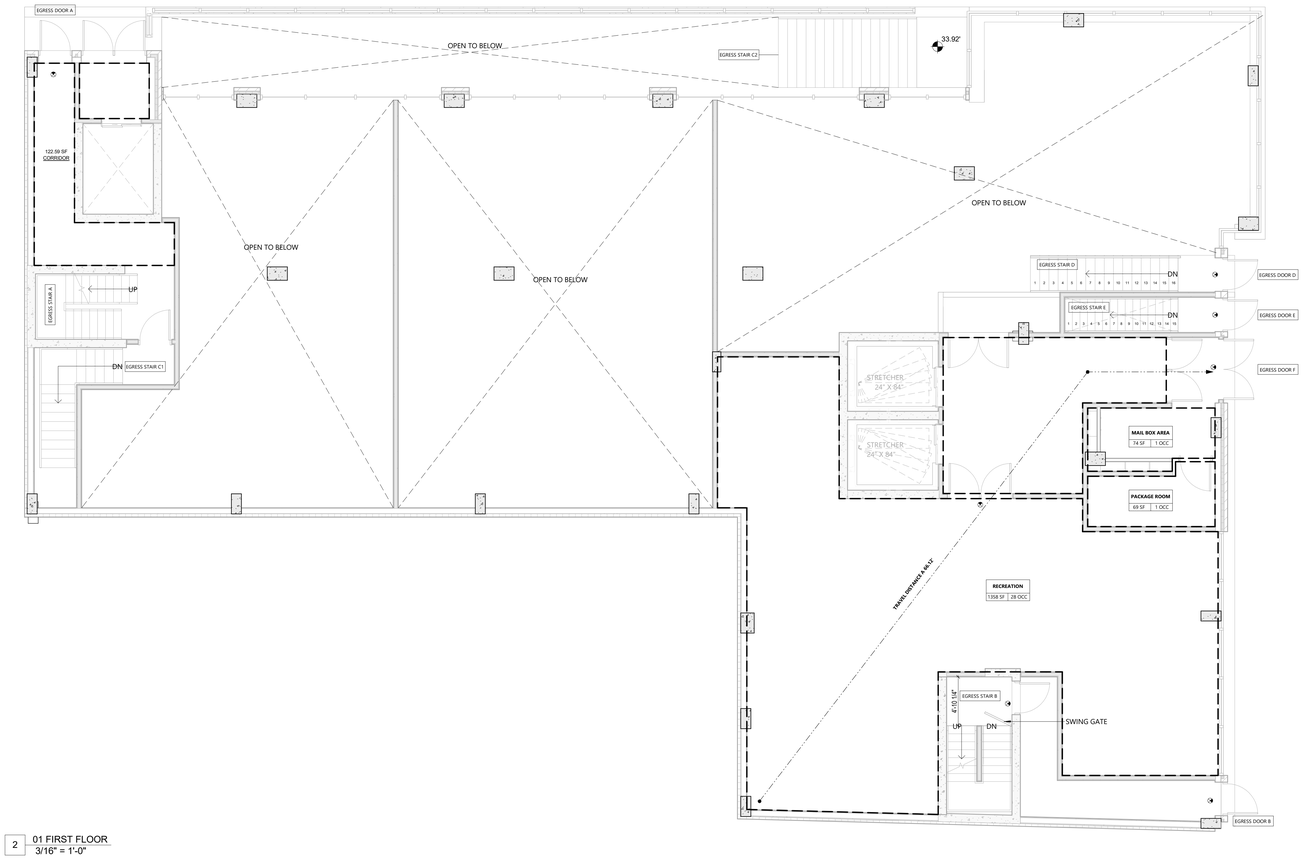
1ST FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	49	14.7	36"
EGRESS STAIR B	0.3	12	3.6	36"
EGRESS STAIR C1	0.3	37	11.1	44"
EGRESS STAIR C2	0.3	131	39.3	36"
EGRESS STAIR D	0.3	22	6.6	44"
EGRESS STAIR E	0.3	4	1.2	42"

1ST FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	49	9.8	36"
EGRESS DOOR B	0.2	12	2.4	36"
EGRESS DOOR D	0.2	22	4.4	36"
EGRESS DOOR E	0.2	4	0.8	36"
EGRESS DOOR F	0.2	15	3	72"

1ST FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	49	9.8	48"

1ST FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
RECREATION SPACE				
RECREATION	R-2	1358 SF	50	28
		1358 SF		28
RESIDENTIAL				
MAIL BOX AREA	R-2	74 SF	300	1
PACKAGE ROOM	R-2	69 SF	300	1
		143 SF		2
TOTAL		1501 SF		30

1ST FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	66' - 1"



2 01 FIRST FLOOR
3/16" = 1'-0"

EGRESS LEGEND	
	TRAVEL DISTANCE
	COMMON PATH
	DIS. B/W EXITS
	EXIT SIGN

KAO-HWA LEE
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227 CATHERINE STREET
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(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
CELLAR & 1ST FLOOR EGRESS PLANS

A-020

14 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

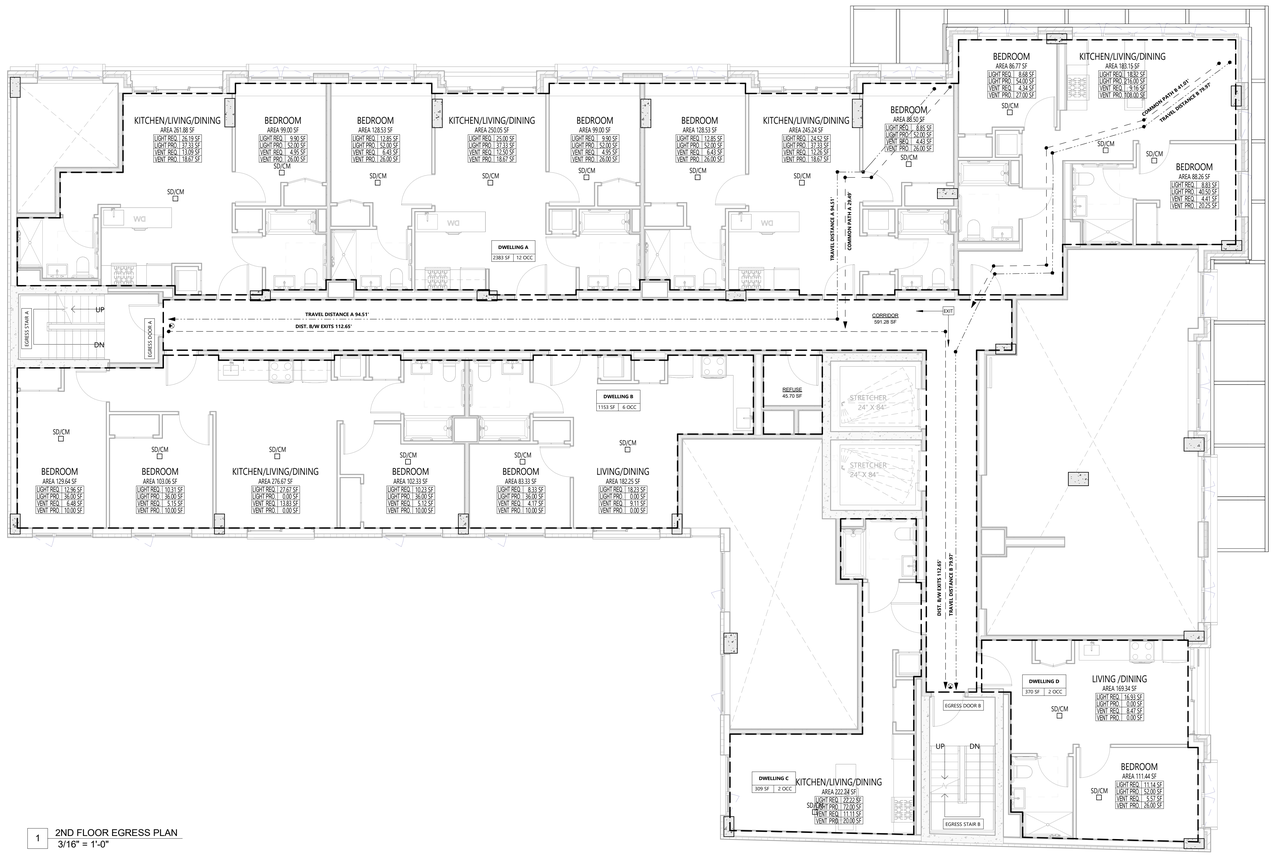
2ND FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	49	14.7	36"
EGRESS STAIR B	0.3	12	3.6	36"

2ND FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	12	2.4	36"
EGRESS DOOR B	0.2	12	2.4	36"

2ND FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	23	4.6	60"

2ND FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	2383 SF	200	12
DWELLING B	R-2	1153 SF	200	6
DWELLING C	R-2	309 SF	200	2
DWELLING D	R-2	370 SF	200	2
		4214 SF		22
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		4259 SF		23

2ND FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	29' - 6"
COMMON PATH B	R-2	MAX. 125'-0"	41' - 0"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 8"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	94' - 6"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	80' - 0"



1 2ND FLOOR EGRESS PLAN
3/16" = 1'-0"

3RD FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	15	4.5	36"
EGRESS STAIR B	0.3	15	4.5	36"

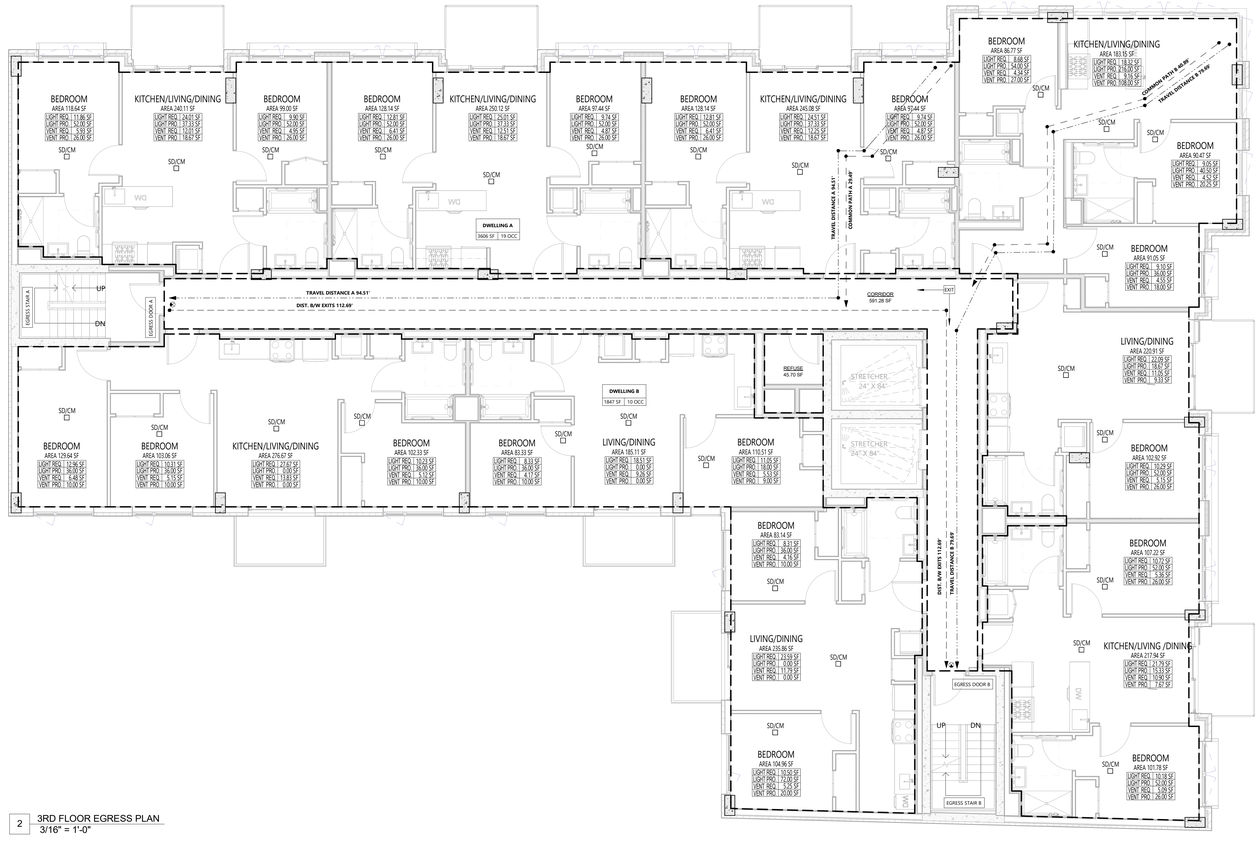
3RD FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	15	3	36"
EGRESS DOOR B	0.2	15	3	36"

3RD FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	30	6	60"

3RD FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	3606 SF	200	19
DWELLING B	R-2	1847 SF	200	10
		5453 SF		29
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		5499 SF		30

3RD FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	29' - 6"
COMMON PATH B	R-2	MAX. 125'-0"	40' - 11"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 8"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	94' - 6"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	79' - 8"

EGRESS LEGEND	
	TRAVEL DISTANCE
	COMMON PATH
	DIS. B/W EXITS
	EXIT SIGN



2 3RD FLOOR EGRESS PLAN
3/16" = 1'-0"

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No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
2ND & 3RD FLOOR EGRESS PLANS

A-021

15 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

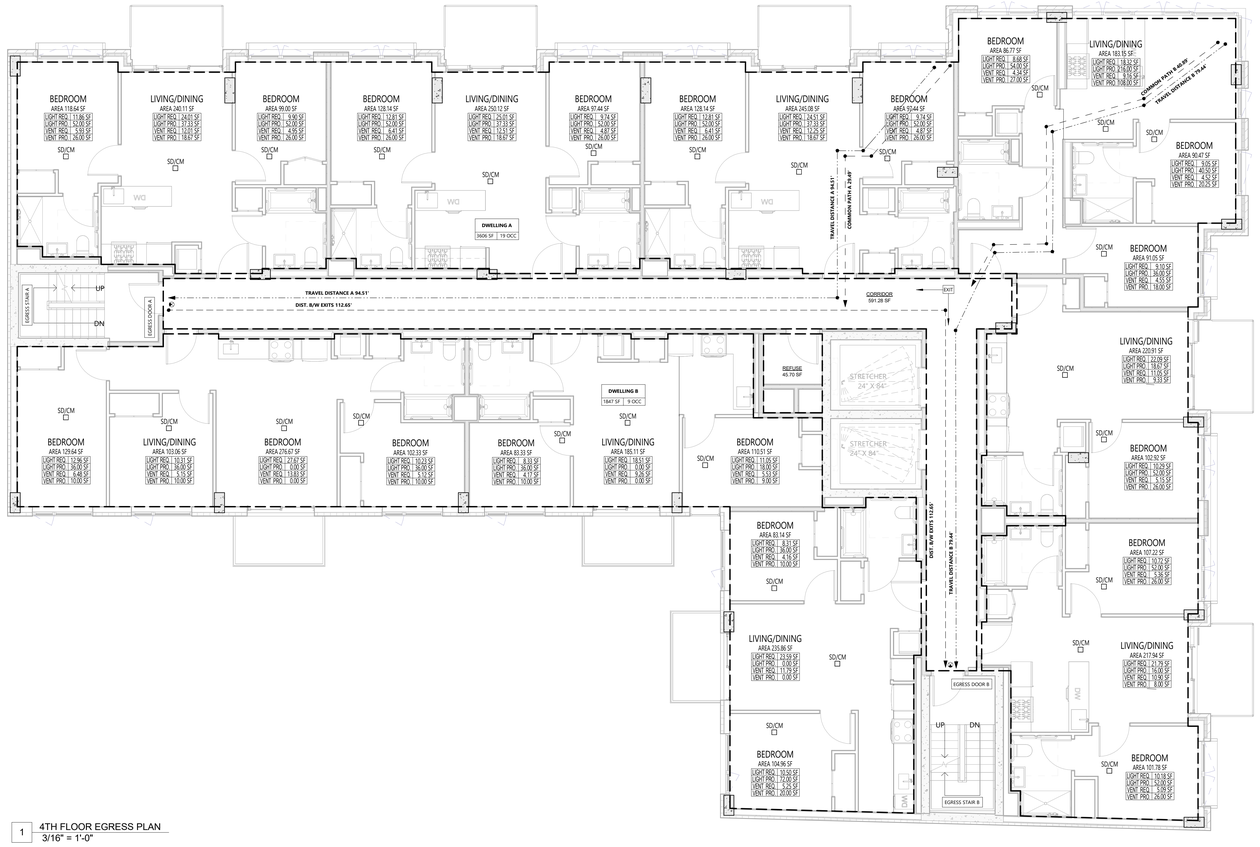
4TH FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	15	4.5	36"
EGRESS STAIR B	0.3	15	4.5	36"

4TH FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	15	3	36"
EGRESS DOOR B	0.2	15	3	36"

4TH FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	29	5.8	60"

4TH FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	3606 SF	200	19
DWELLING B	R-2	1847 SF	200	9
		5453 SF		28
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		5499 SF		29

4TH FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	29' - 6"
COMMON PATH B	R-2	MAX. 125'-0"	40' - 11"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 8"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	94' - 6"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	79' - 5"



1 4TH FLOOR EGRESS PLAN
3/16" = 1'-0"

5TH FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	15	4.5	36"
EGRESS STAIR B	0.3	15	4.5	36"

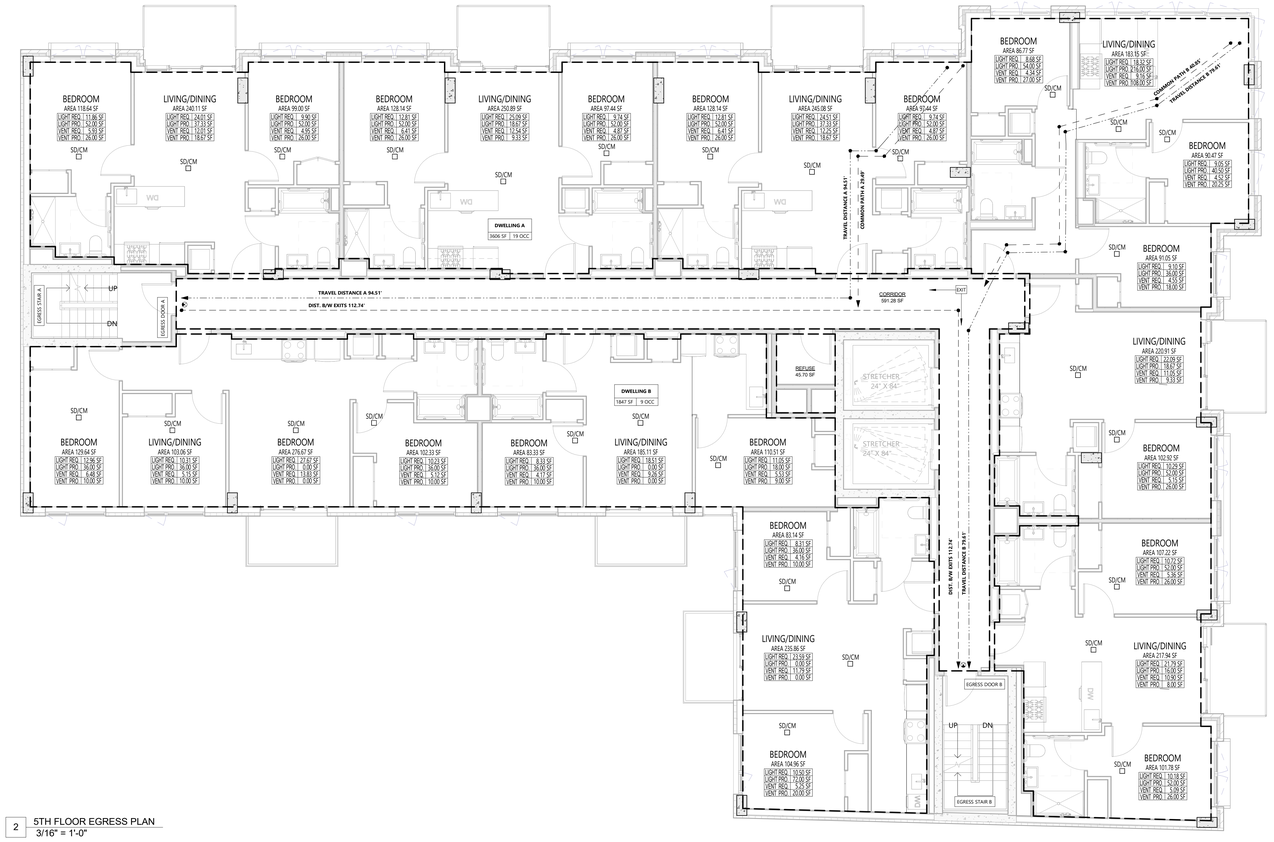
5TH FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	15	3	36"
EGRESS DOOR B	0.2	15	3	36"

5TH FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	29	5.8	60"

5TH FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	3606 SF	200	19
DWELLING B	R-2	1847 SF	200	9
		5453 SF		28
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		5499 SF		29

5TH FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	29' - 6"
COMMON PATH B	R-2	MAX. 125'-0"	40' - 10"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 9"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	94' - 6"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	79' - 7"

EGRESS LEGEND	
	TRAVEL DISTANCE
	COMMON PATH
	DIS. B/W EXITS
	EXIT SIGN



2 5TH FLOOR EGRESS PLAN
3/16" = 1'-0"

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No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
4TH & 5TH FLOOR EGRESS PLANS

A-022
16 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

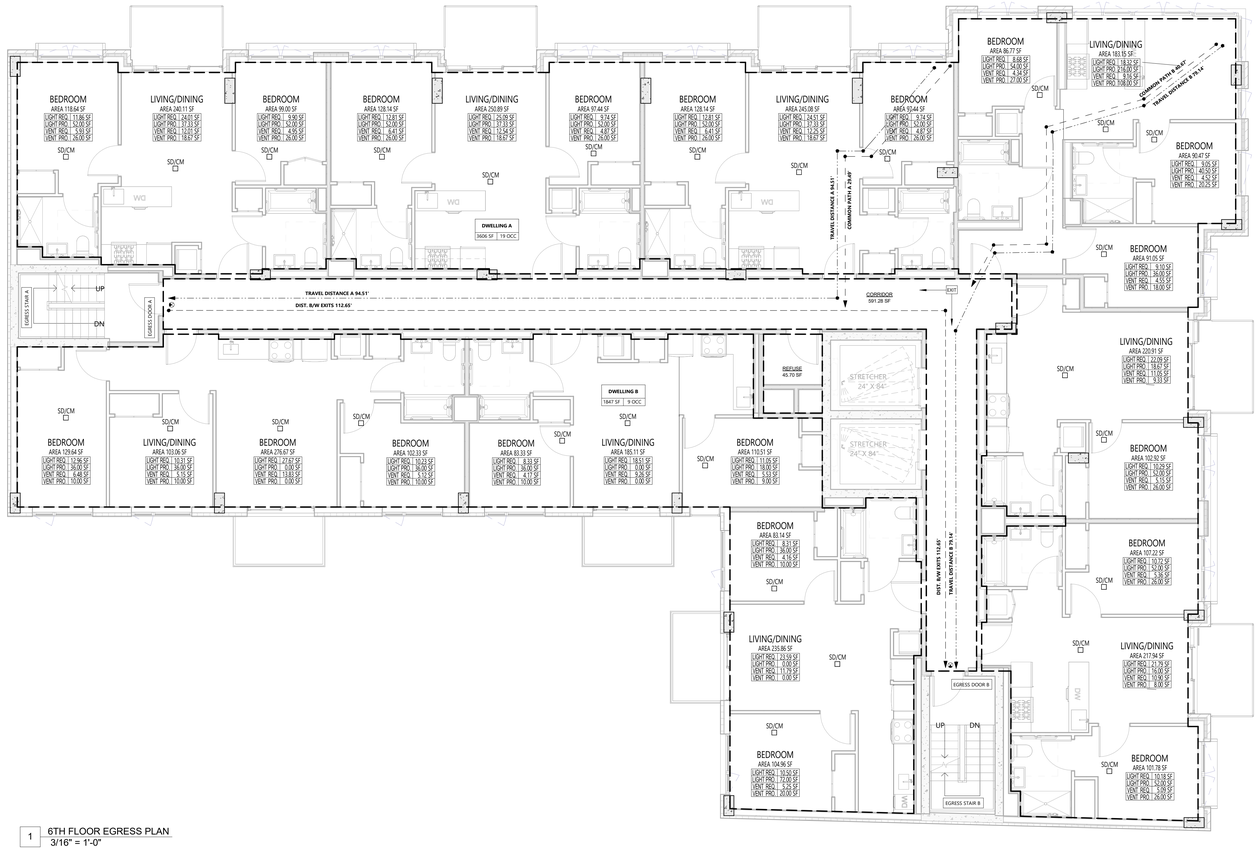
6TH FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	15	4.5	36"
EGRESS STAIR B	0.3	15	4.5	36"

6TH FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	15	3	36"
EGRESS DOOR B	0.2	15	3	36"

6TH FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	29	5.8	60"

6TH FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	3606 SF	200	19
DWELLING B	R-2	1847 SF	200	9
		5453 SF		28
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		5499 SF		29

6TH FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	29' - 6"
COMMON PATH B	R-2	MAX. 125'-0"	40' - 8"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 8"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	94' - 6"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	79' - 2"



1 6TH FLOOR EGRESS PLAN
3/16" = 1'-0"

7TH FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS DOOR A	0.3	13	3.9	36"
EGRESS DOOR B	0.3	13	3.9	36"

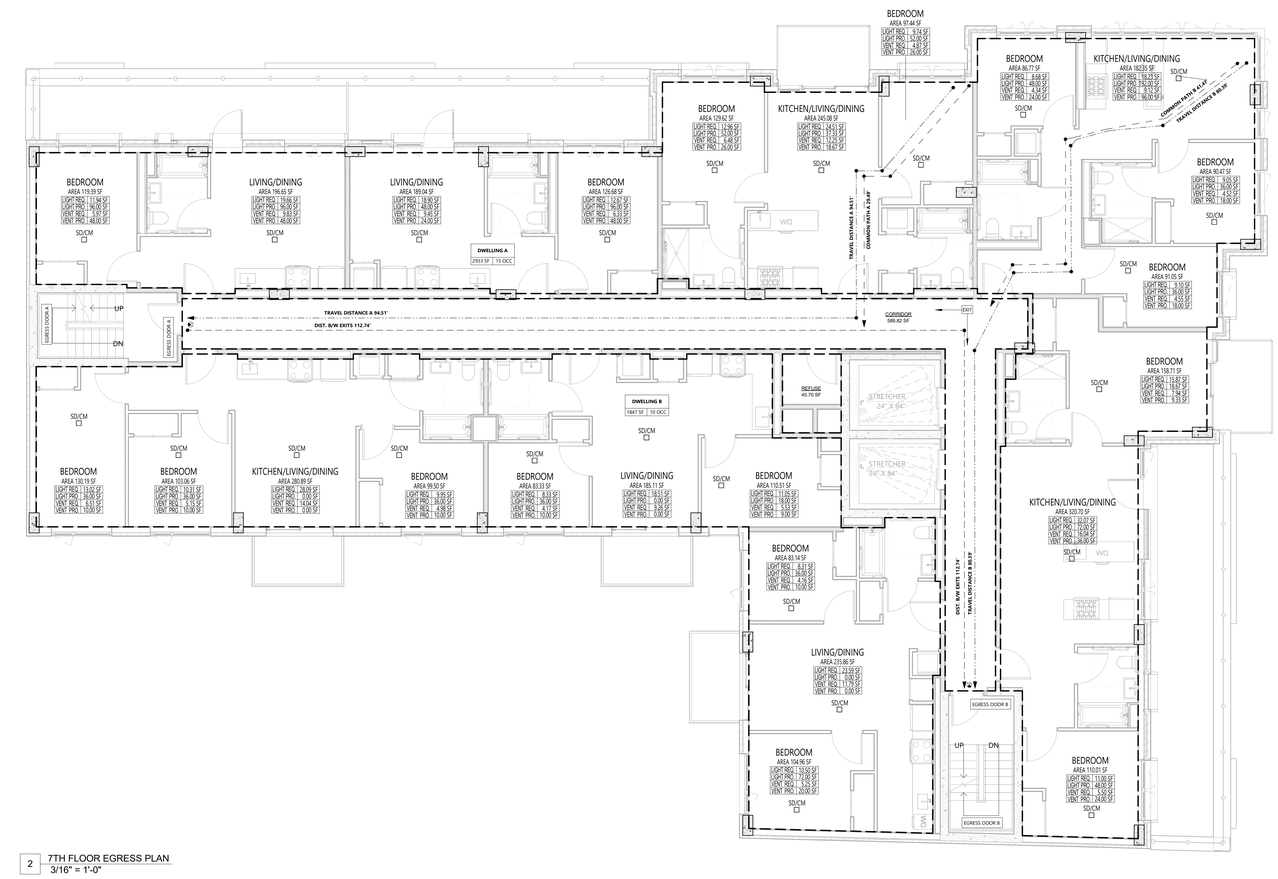
7TH FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	13	2.6	36"
EGRESS DOOR B	0.2	13	2.6	36"

7TH FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	26	5.2	60"

7TH FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	2933 SF	200	15
DWELLING B	R-2	1847 SF	200	10
		4781 SF		25
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		4826 SF		26

7TH FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	29' - 6"
COMMON PATH B	R-2	MAX. 125'-0"	41' - 6"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 9"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	94' - 6"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	80' - 5"

EGRESS LEGEND	
	TRAVEL DISTANCE
	COMMON PATH
	DIS. B/W EXITS
	EXIT SIGN



2 7TH FLOOR EGRESS PLAN
3/16" = 1'-0"

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227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
6TH & 7TH FLOOR EGRESS PLANS

A-023

17 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

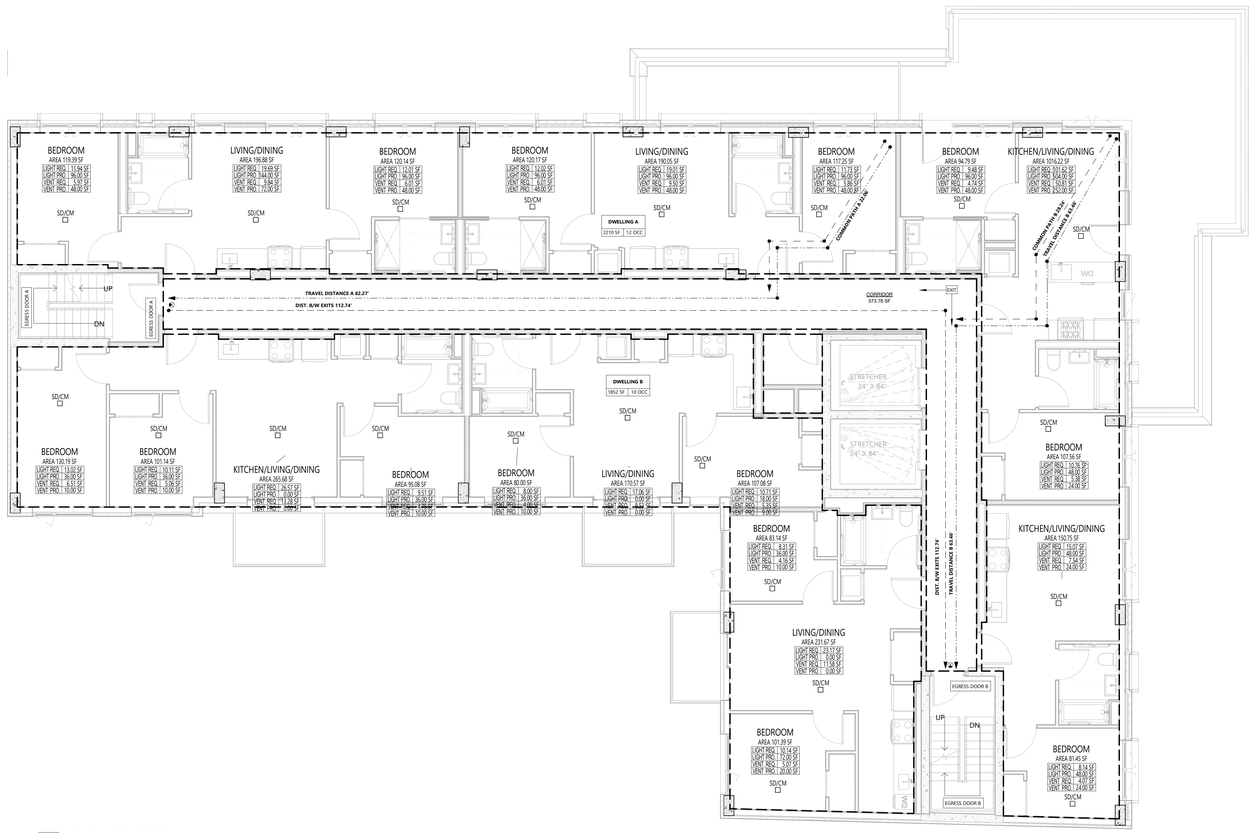
8TH FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS DOOR A	0.3	12	3.6	36"
EGRESS DOOR B	0.3	12	3.6	36"

8TH FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	12	2.4	36"
EGRESS DOOR B	0.2	12	2.4	36"

8TH FLOOR CORRIDOR CAPACITY				
Occupancy Type	Occupancy Factor	Required Corridor Capacity	Required Corridor Width	Proposed Corridor Width
CORRIDOR	0.2	23	4.6	60"

8TH FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
DWELLING				
DWELLING A	R-2	2210 SF	200	12
DWELLING B	R-2	1852 SF	200	10
		4062 SF		22
UTILITY AND MISCELLANEOUS				
REFUSE	S-2	46 SF	300	1
		46 SF		1
TOTAL		4108 SF		23

8TH FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	22' - 1"
COMMON PATH B	R-2	MAX. 125'-0"	28' - 3"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	112' - 9"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	82' - 3"
TRAVEL DISTANCE B	R-2	MAX. 200'-0"	63' - 6"



1 8TH FLOOR EGRESS PLAN
3/16" = 1'-0"

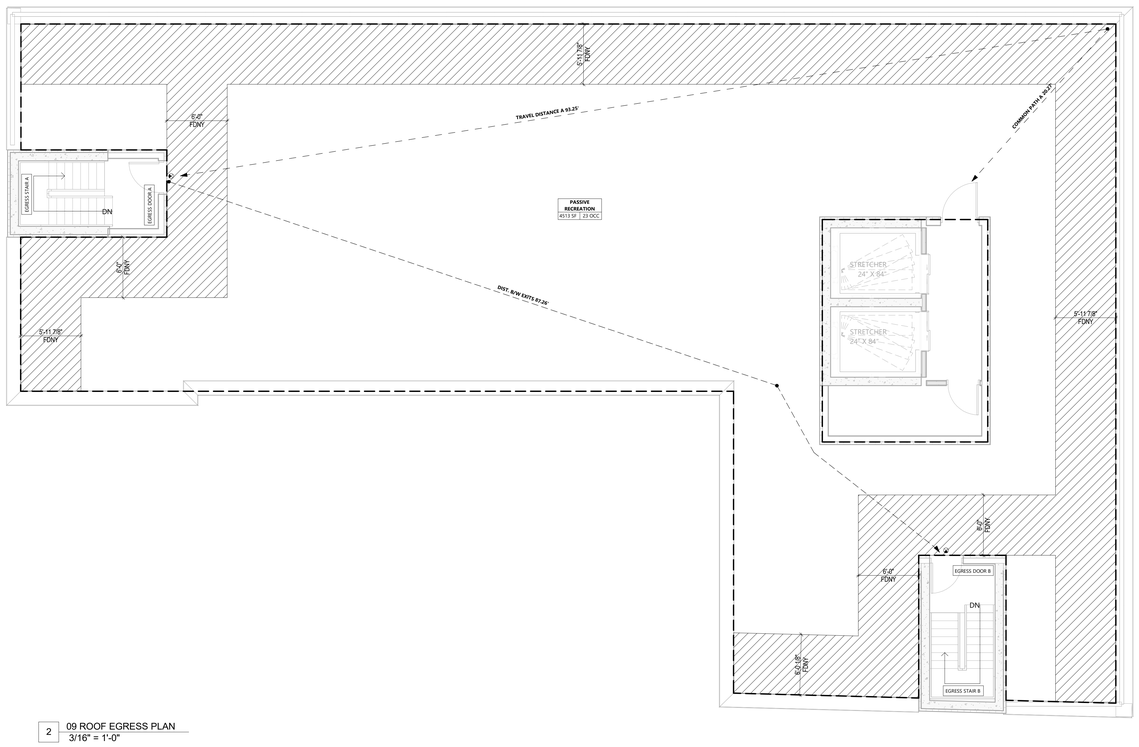
ROOF FLOOR EGRESS STAIRS				
Mark	Occupancy Factor	Required Stair Capacity	Required Stair Width	Proposed Stair Width
EGRESS STAIR A	0.3	12	3.6	36"
EGRESS STAIR B	0.3	12	3.6	36"

ROOF FLOOR EGRESS DOORS				
Name	Occupancy Factor	Required Door Capacity	Required Door Width	Proposed Door Width
EGRESS DOOR A	0.2	12	2.4	36"
EGRESS DOOR B	0.2	12	2.4	36"

ROOF FLOOR OCCUPANT LOAD				
Name	Occupancy Group	Area	SF Per Occupant	Occupant Load
OPEN SPACE RESIDENTIAL				
PASSIVE RECREATION	R-2	4513 SF	200	23
		4513 SF		23
TOTAL		4513 SF		23

ROOF FLOOR TRAVEL DISTANCE			
Name	Occupancy Group	Required Distance	Proposed Distance
COMMON PATH			
COMMON PATH A	R-2	MAX. 125'-0"	20' - 3"
DIST. B/W EXITS			
DIST. B/W EXITS	R-2	MIN. 80'-0"	87' - 3"
TRAVEL DISTANCE			
TRAVEL DISTANCE A	R-2	MAX. 200'-0"	93' - 3"

EGRESS LEGEND	
	TRAVEL DISTANCE
	COMMON PATH
	DIS. B/W EXITS
	EXIT SIGN



2 09 ROOF EGRESS PLAN
3/16" = 1'-0"

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
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No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
8TH & ROOF FLOOR EGRESS PLANS

A-024

18 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- WALL TAG
- DOOR TAG
- WINDOW TAG
- SECTION TAG
- CALLOUT TAG
- ELEVATION TAG

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

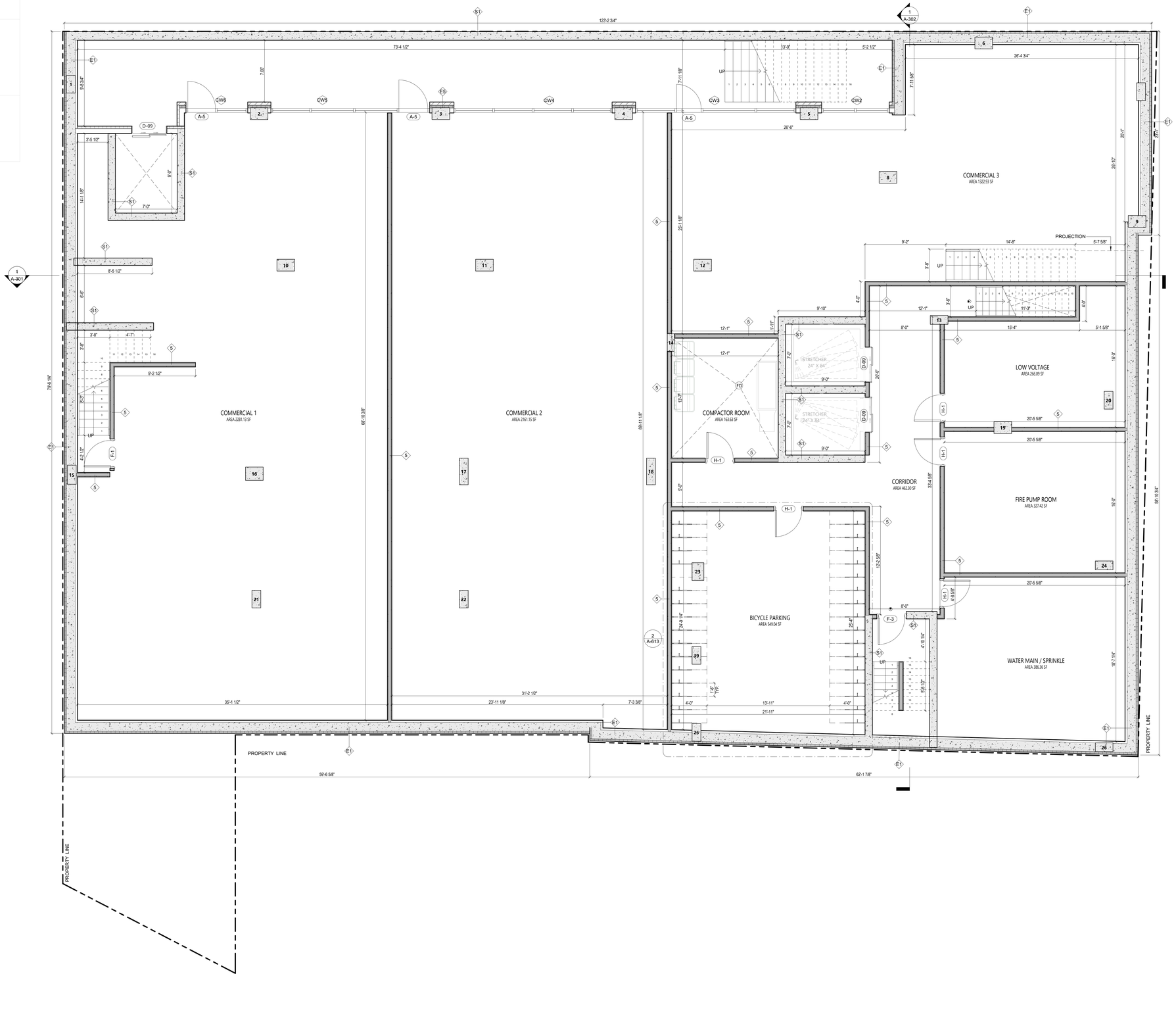
- EXIT SIGN
- FLOOR DRAIN
- SLAB DROP
- SPOT ELEVATION

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS



KAO-HWA LEE
ARCHITECTS P.C.

227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION

860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE

PROPOSED CELLAR PLAN

A-100

19 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- WALL TAG
- DOOR TAG
- WINDOW TAG
- SECTION TAG
- CALLOUT TAG
- ELEVATION TAG

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

- EXIT SIGN
- FLOOR DRAIN
- SLAB DROP
- SPOT ELEVATION

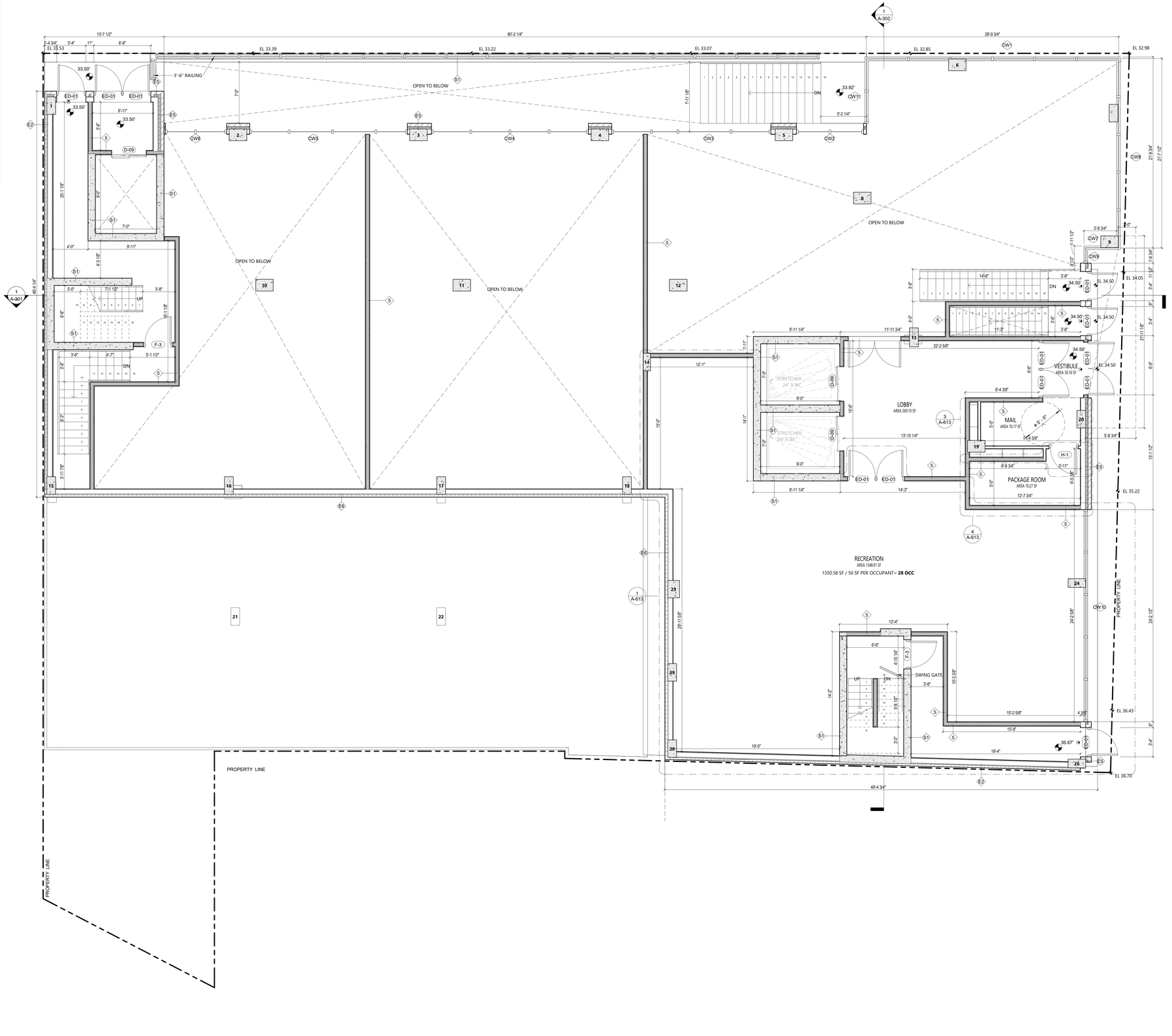
PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS

FLUSHING AVENUE



BUSHWICK AVENUE

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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
PROPOSED FIRST FLOOR PLAN

A-101

20 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- WALL TAG
- DOOR TAG
- WINDOW TAG
- SECTION TAG
- ELEVATION TAG
- CALLOUT TAG

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

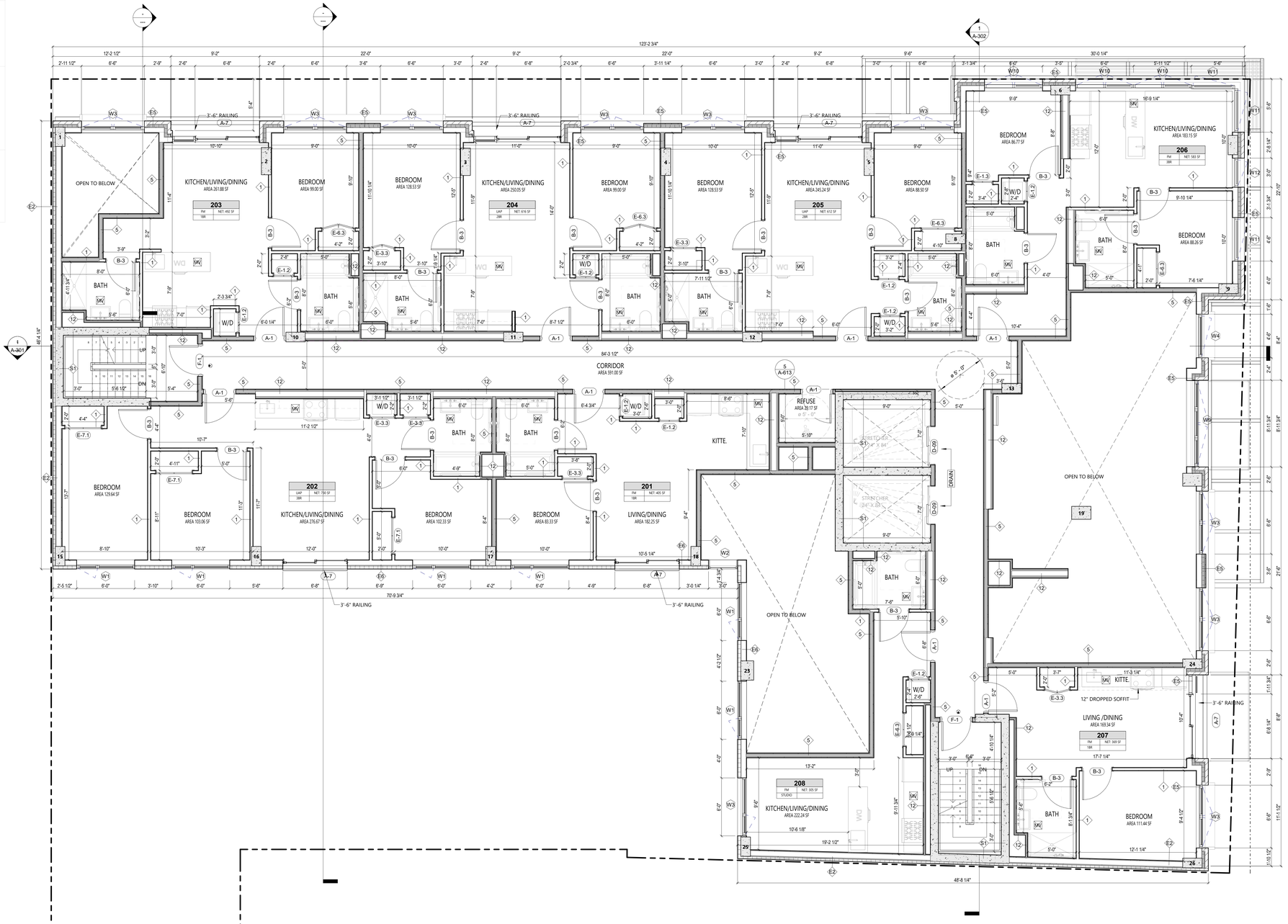
- EXIT SIGN
- FLOOR DRAIN
- SLAB DROP
- SPOT ELEVATION

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS



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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION

860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE

PROPOSED SECOND FLOOR PLAN

A-102

21 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- WALL TAG
- DOOR TAG
- WINDOW TAG
- SECTION TAG
- CALLOUT TAG
- ELEVATION TAG

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

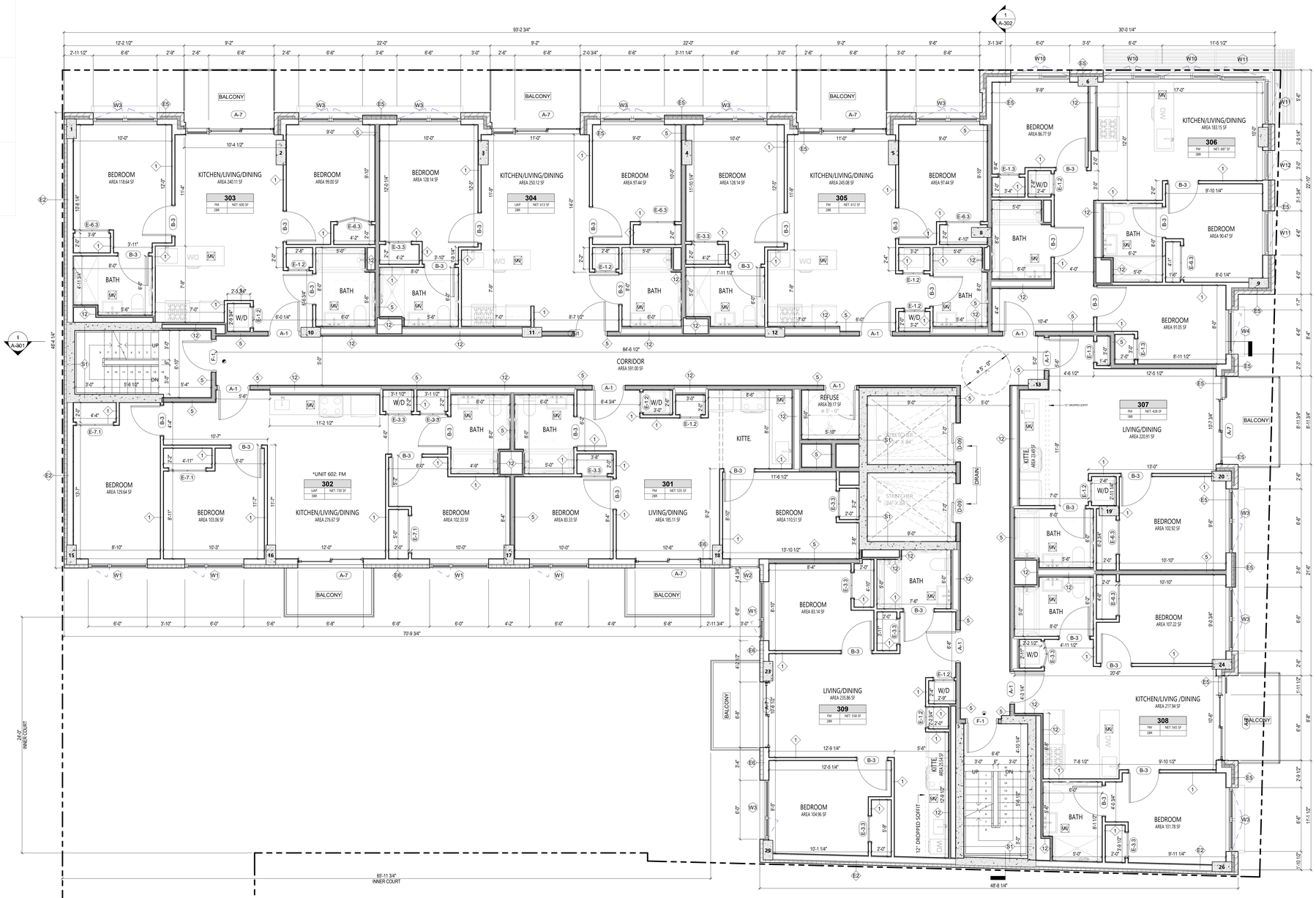
- EXIT SIGN
- FLOOR DRAIN
- SLAB DROP
- SPOT ELEVATION

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS



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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
PROPOSED THIRD - SIXTH FLOOR PLAN

A-103

22 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- 1| — WALL TAG
- Dxx — DOOR TAG
- 1| — WINDOW TAG
- SECTION TAG: 1 / A101 — SIM
- ELEVATION TAG: 1 Ref / A101 / Ref / Ref / 1 Ref
- CALLOUT TAG: 00 / X-000

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

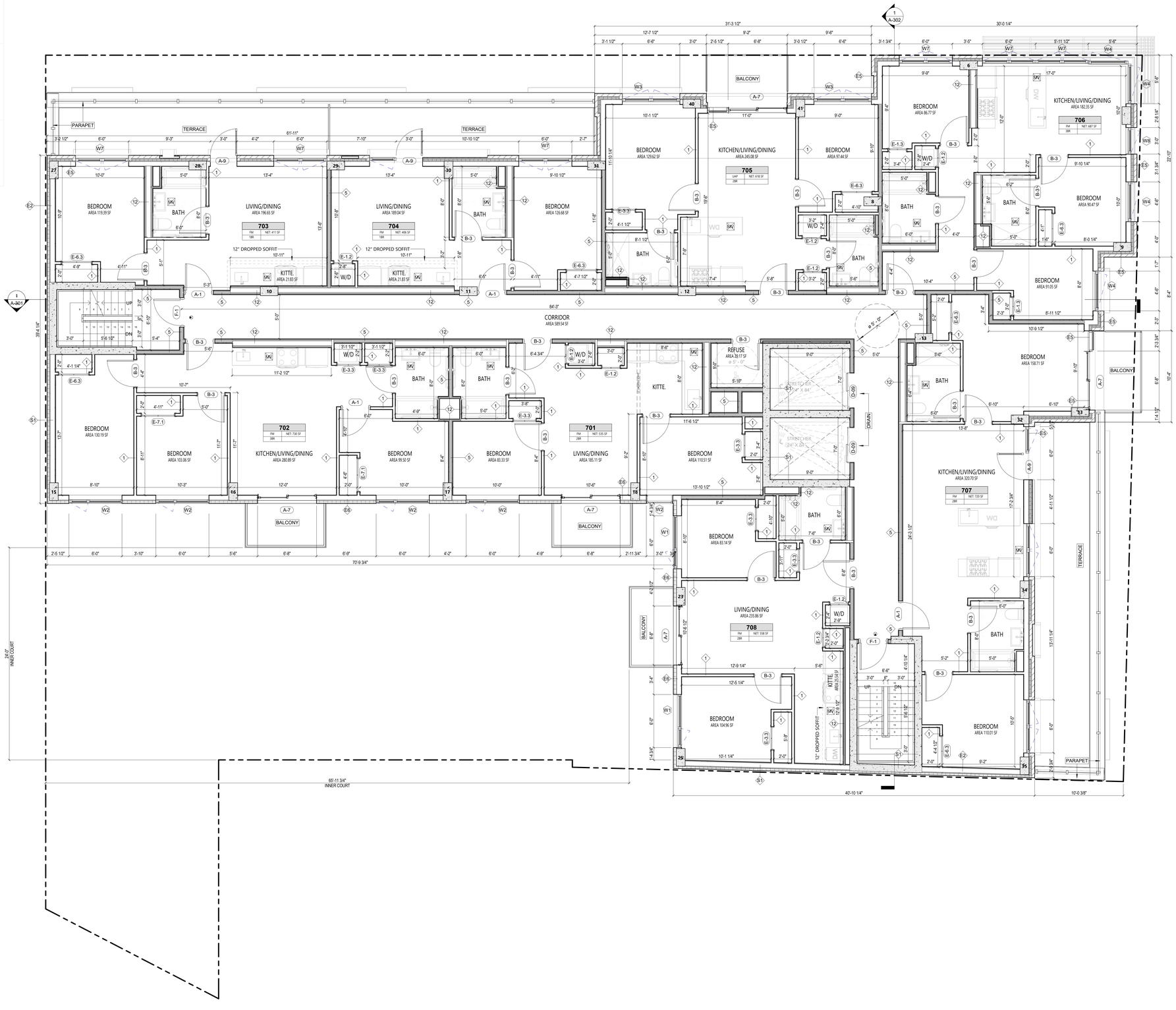
- EXIT SIGN
- FD — FLOOR DRAIN
- SLAB DROP
- 0.00 — SPOT ELEVATION

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS



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ARCHITECTS P.C.

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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
PROPOSED SEVENTH FLOOR PLAN

A-105

23 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- WALL TAG
- DOOR TAG
- WINDOW TAG
- SECTION TAG
- CALLOUT TAG
- ELEVATION TAG

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

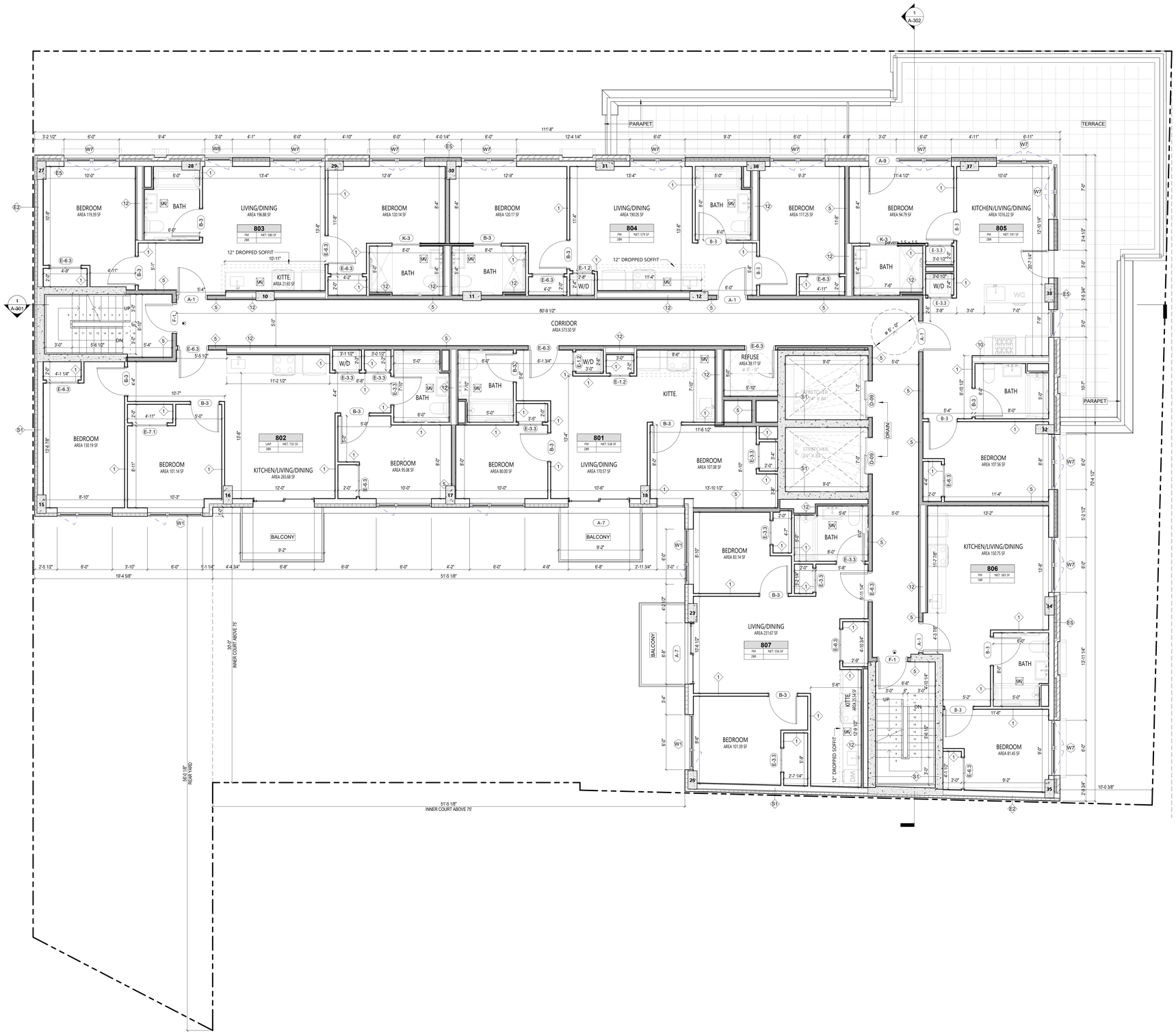
- EXIT SIGN
- FLOOR DRAIN
- SLAB DROP
- SPOT ELEVATION

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS



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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
PROPOSED EIGHTH FLOOR PLAN

A-106

24 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

GENERAL PLAN LEGEND

TAGS

- WALL TAG
- DOOR TAG
- WINDOW TAG
- SECTION TAG
- ELEVATION TAG
- CALLOUT TAG

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL

SYMBOLS

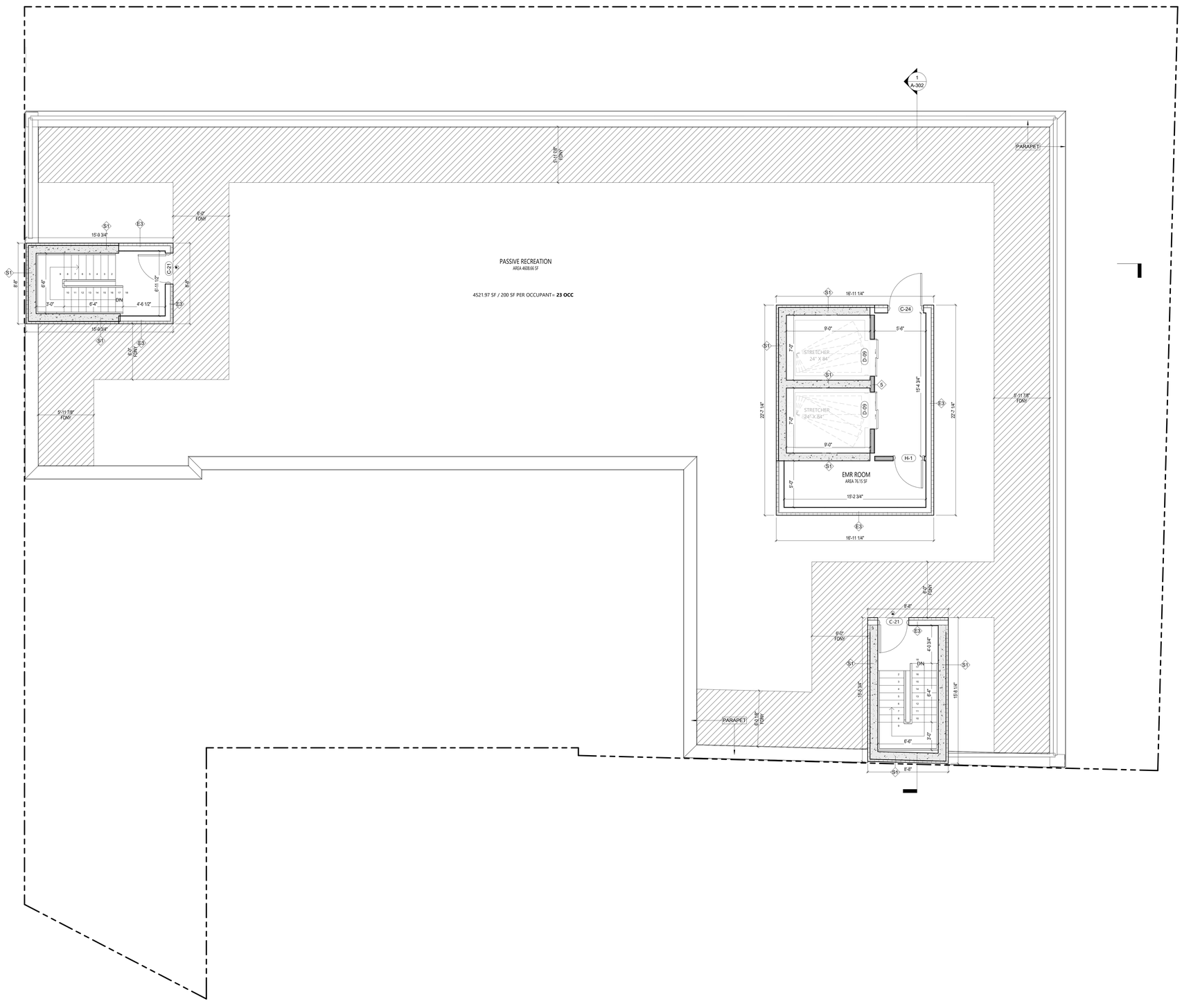
- EXIT SIGN
- FLOOR DRAIN
- SLAB DROP
- SPOT ELEVATION

PARTITIONS

- EXISTING WALL
- PROPOSED NON-RATED PARTITION
- PROPOSED 2HR RATED PARTITION
- PROPOSED 2HR RATED SHAFT
- PROPOSED EXTERIOR EIFS WALL
- DRAIN

HATCHES

- PLANTING AS SPECIFIED
- CONCRETE PAVERS



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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
PROPOSED ROOF PLAN

A-107

25 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL

DOB JOB NUMBER:
B01204032-I1

1 EAST ELEVATION
3/16" = 1'-0"

2 WEST ELEVATION
3/16" = 1'-0"

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227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
EAST & WEST ELEVATION

A-200

26 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL

DOB JOB NUMBER:
B01204032-I1

1 NORTH ELEVATION
3/16" = 1'-0"

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227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
NORTH ELEVATION

A-201

27 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

1 SOUTH ELEVATION
3/16" = 1'-0"

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ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

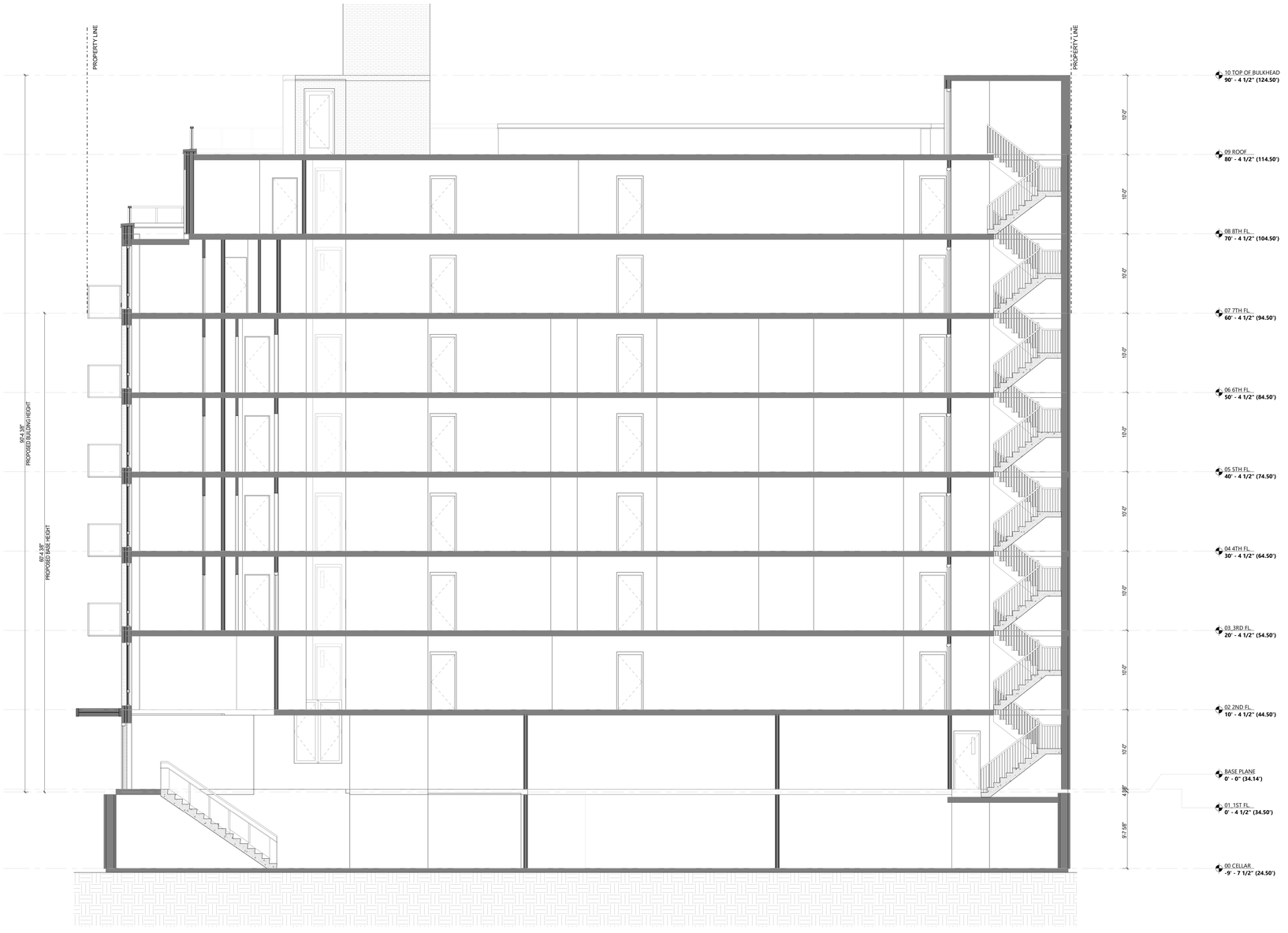
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
SOUTH ELEVATION

A-202

28 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



1 LONGITUDINAL SECTION
3/16" = 1'-0"

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227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

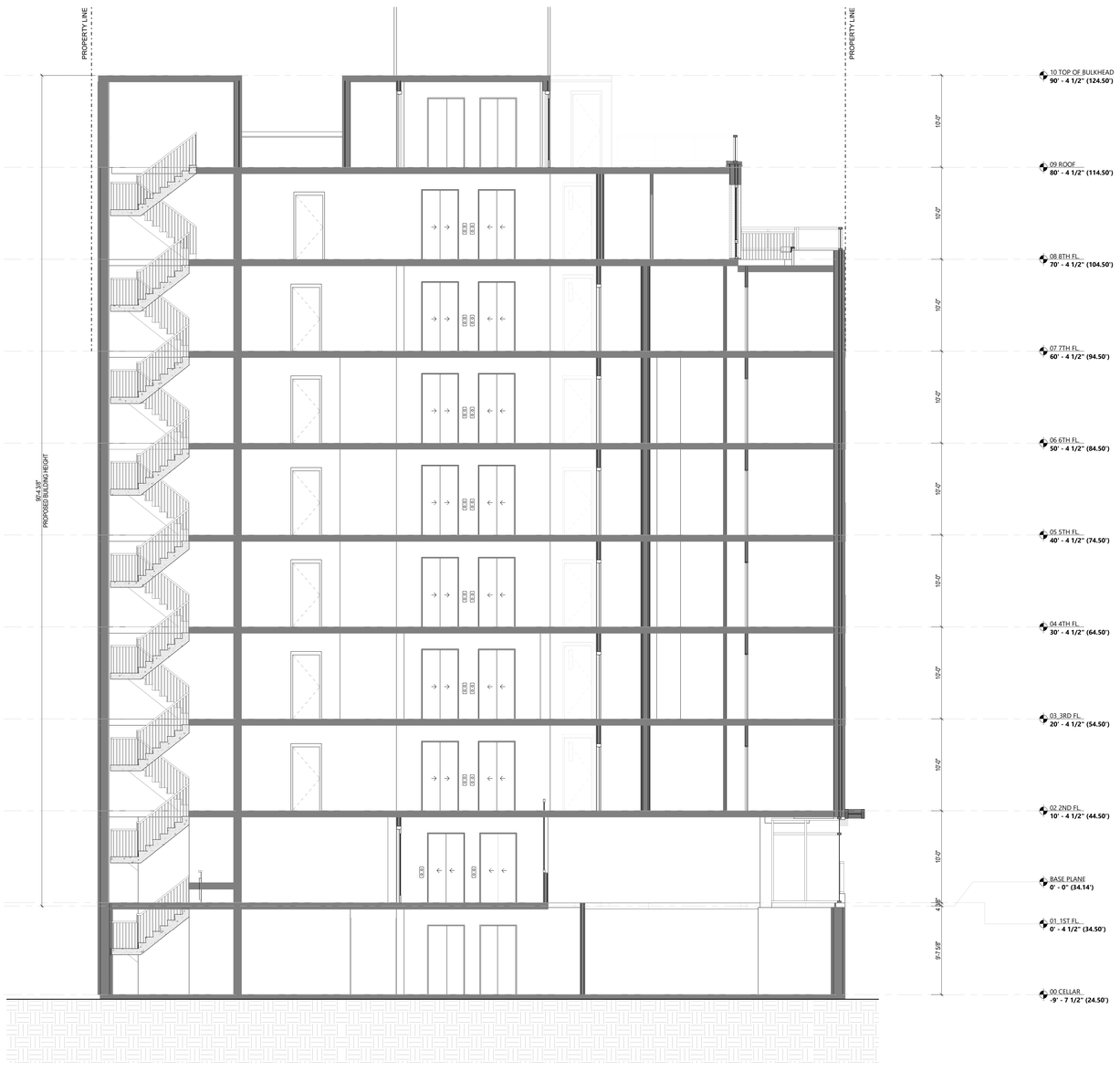
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
BUILDING SECTIONS

A-301

29 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



1 CROSS SECTION
3/16" = 1'-0"

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227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

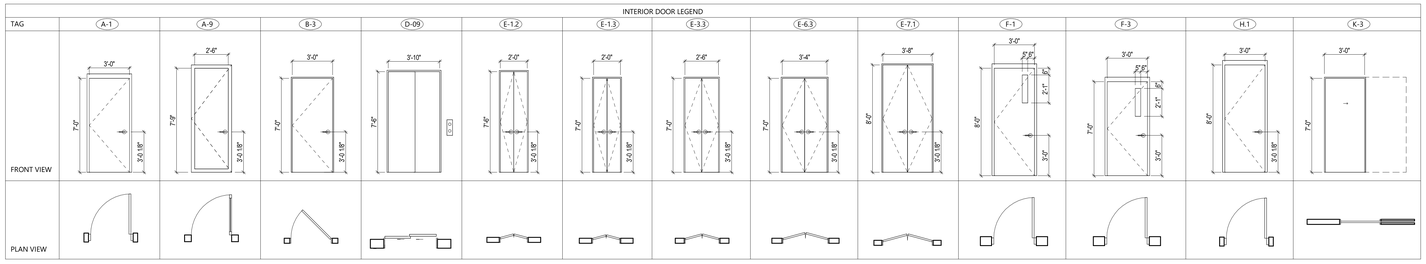
SHEET TITLE
BUILDING SECTIONS

A-302

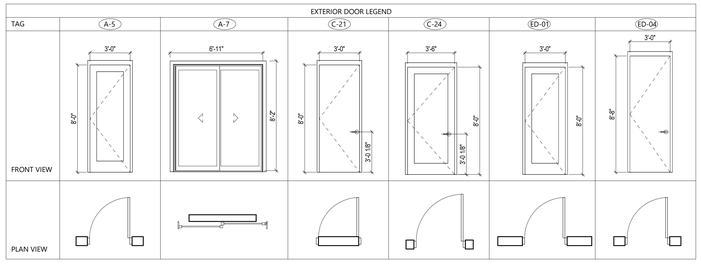
30 OF 43

Scale:	3/16" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

INTERIOR DOOR LEGEND



EXTERIOR DOOR LEGEND



INTERIOR DOOR SCHEDULE

TAG	QTY	Function	Operation	TYPE	COMMENTS	Fire Rating	WIDTH	HEIGHT
A-1	73	Interior	SINGLE SWING	HINGED DOOR	METAL APARTMENT DOOR 1-1/2 HR HSPF	1.5 HR FPSC	3' - 0"	7' - 0"
A-9	5	Interior	SINGLE SWING	HINGED DOOR			3' - 0"	8' - 0"
B-3	203	Interior	SINGLE SWING	HINGED DOOR	NON-RATED INTERIOR DOOR		3' - 0"	7' - 0"
D-09	24	Interior	SLIDING	ELEVATOR DOOR	SLIDING ELEVATOR DOOR		3' - 8"	7' - 6"
E-1.2	64	Interior	SINGLE SWING	DOUBLE HINGED DOOR	NON-RATED INTERIOR CLOSET DOOR		2' - 0"	7' - 6"
E-1.3	15	Interior	SINGLE SWING	DOUBLE HINGED DOOR	NON-RATED INTERIOR CLOSET DOOR		2' - 0"	7' - 0"
E-3.3	64	Interior	SINGLE SWING	DOUBLE HINGED DOOR	NON-RATED INTERIOR CLOSET DOOR		2' - 6"	7' - 0"
E-6.3	49	Interior	SINGLE SWING	DOUBLE HINGED DOOR	NON-RATED INTERIOR CLOSET DOOR		3' - 4"	7' - 0"
E-7.1	18	Interior	SINGLE SWING	DOUBLE HINGED DOOR	NON-RATED INTERIOR CLOSET DOOR		3' - 8"	8' - 0"
F-1	9	Interior	SINGLE SWING	HINGED DOOR	CLASS B 1.5 HR FPSC STAIR PASSAGE DOOR W/ WIRE MESH 1/4" GLASS	1.5 HR FPSC	3' - 0"	8' - 0"
F-3	5	Interior	SINGLE SWING	HINGED DOOR	CLASS B 1.5 HR FPSC STAIR PASSAGE DOOR W/ WIRE MESH 1/4" GLASS	1.5 HR FPSC	3' - 0"	7' - 0"
H-1	5	Interior	SINGLE SWING	HINGED DOOR	METAL APARTMENT DOOR 1-1/2 HR HSPF	1.5 HR FPSC	3' - 0"	8' - 0"
K-3	3	Interior	SLIDING	POCKET DOOR	NON-RATED SLIDING INTERIOR DOOR		3' - 0"	7' - 0"

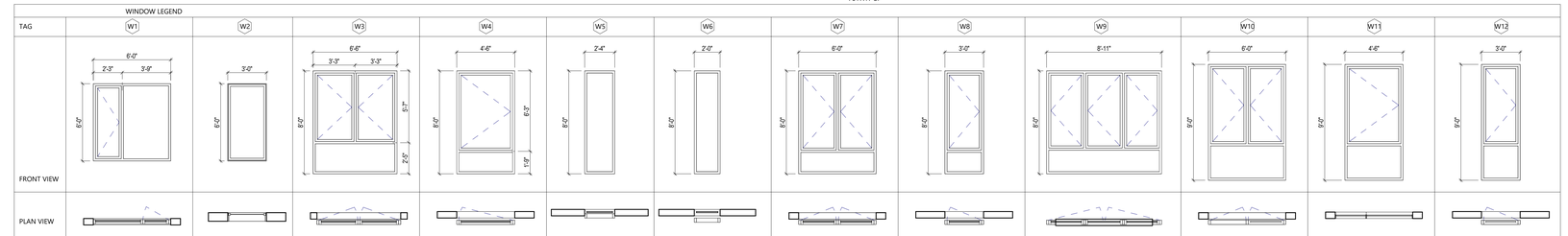
EXTERIOR DOOR SCHEDULE

TAG	COUNT	Manufacturer	Model	Construction Type	Operation	TYPE	COMMENTS	WIDTH	HEIGHT	U-FACTOR	SHGC	AIR LEAKAGE	VT	Area
A-5	3	ZEPHYR		METAL	SINGLE SWING	FULL GLASS ENTRY DOOR		<varies>	7' - 2 1/2"	.25	.24			0.00 SF
A-7	46	ZEPHYR	SLIDING OX	VINYL	SLIDING	Sliding Patio Door	GLAZED BALCONY DOOR	6' - 8"	8' - 0"	.25	.24			2453.33 SF
C-21	2			METAL	SINGLE SWING	HINGED DOOR	METAL APARTMENT DOOR 1-1/2 HR HSPF	3' - 0"	8' - 0"	0.36	.24			48.00 SF
C-24	1	PELLA	LIFESTYLE TRIPLE PANE HD AI FRENCH DOUBLE DOOR		SWINGING	FULL GLASS ENTRY DOOR		3' - 6"	8' - 0"	.25	.24		0.57	28.00 SF
ED-01	10	PELLA	LIFESTYLE TRIPLE PANE HD AI FRENCH DOUBLE DOOR	VINYL	SINGLE SWING	FULL GLASS ENTRY DOOR		3' - 0"	8' - 0"	.25	.24		0.57	240.00 SF
ED-08	2	ZEPHYR	LIFESTYLE	METAL	SWINGING	DOUBLE GLASS DOOR		6' - 0"	8' - 0"	.29	.27	<0.02 CFM SF	0.57	96.00 SF
														2865.33 SF

WINDOW SCHEDULE

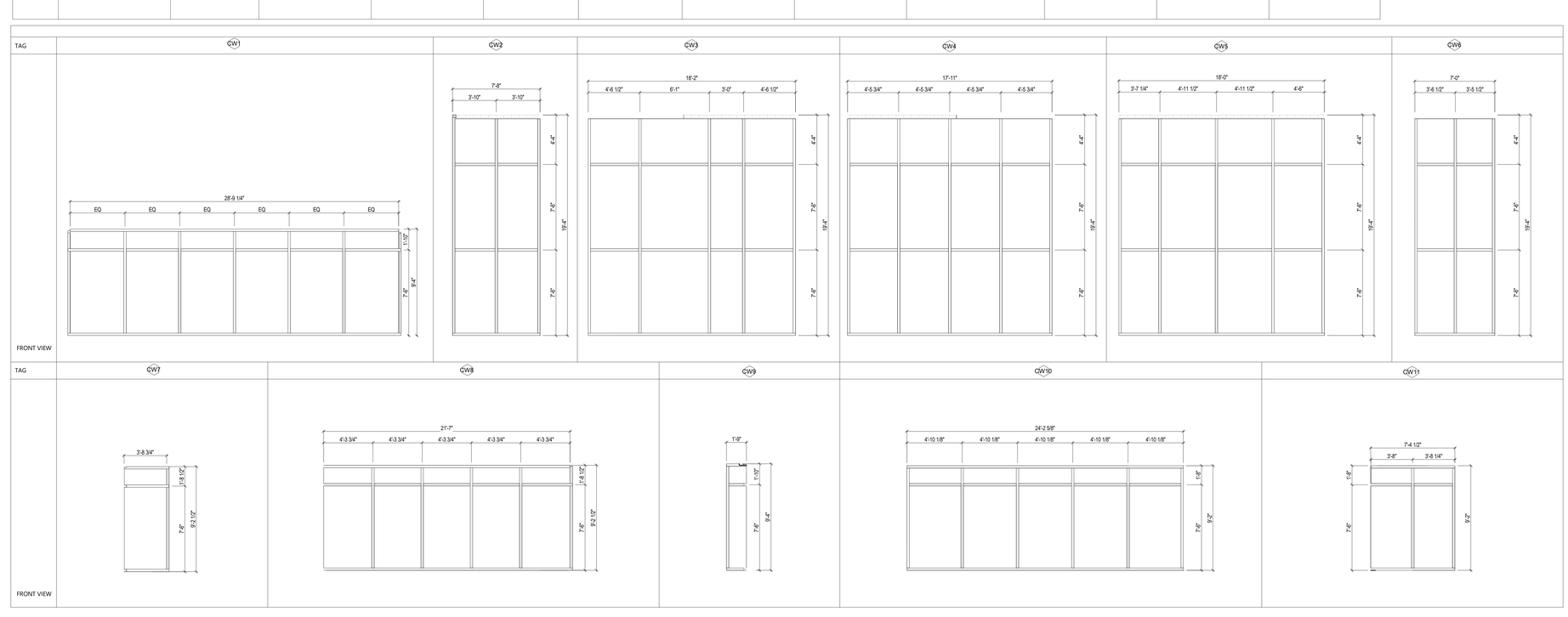
wt	COUNT	MANUFACTURER	MODEL	CONSTRUCTION TYPE	OPERATION	COMMENTS	GLAZING	WIDTH	HEIGHT	U-FACTOR	SHGC	AIR LEAKAGE	VT	TOTAL SF
W1	43	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	6' - 0"	6' - 0"	.26	.33	<0.02 CFM SF	0.57	1548.00 SF
W2	7	ZEPHYR	SUPER 82	VINYL	FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	3' - 0"	6' - 0"	.26	.33	<0.02 CFM SF	0.57	126.00 SF
W3	47	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	6' - 6"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	2444.00 SF
W4	9	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	4' - 6"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	324.00 SF
W5	21	ZEPHYR	SUPER 82	VINYL	FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	2' - 4"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	392.00 SF
W6	4	ZEPHYR	SUPER 82	VINYL	FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	2' - 0"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	64.00 SF
W7	20	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	6' - 0"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	960.00 SF
W8	5	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	3' - 0"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	120.00 SF
W9	1	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	8' - 11"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	71.33 SF
W10	15	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	6' - 0"	9' - 0"	.26	.33	<0.02 CFM SF	0.57	810.00 SF
W11	15	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	4' - 6"	9' - 0"	.26	.33	<0.02 CFM SF	0.57	607.50 SF
W12	5	ZEPHYR	SUPER 82	VINYL	OPERABLE/FIXED	BIRD FRIENDLY	Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	3' - 0"	9' - 0"	.26	.33	<0.02 CFM SF	0.57	135.00 SF
W21	1	ZEPHYR					Insulated Low-E Advanced Low-E Insulating Glass Argon Non High Altitude	1' - 11"	8' - 0"	.26	.33	<0.02 CFM SF	0.57	15.33 SF
														7617.17 SF

WINDOW LEGEND



CURTAIN WALL SCHEDULE

MARK	QTY	MANUFACTURER	MODEL	UNCONNECTED HEIGHT	LENGTH	COMMENTS	GLAZING	U-FACTOR	SHGC	AIR LEAKAGE	VT	TOTAL SF
CW1	1	ZEPHIR	ALU 86	9' - 4"	28' - 9 1/4"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	268.56 SF
CW2	1	ZEPHIR	ALU 86	19' - 4"	7' - 8"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	148.22 SF
CW3	1	ZEPHIR	ALU 86	19' - 4"	18' - 2"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	351.22 SF
CW4	1	ZEPHIR	ALU 86	19' - 4"	17' - 11"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	346.39 SF
CW5	1	ZEPHIR	ALU 86	19' - 4"	18' - 0"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	348.00 SF
CW6	1	ZEPHIR	ALU 86	19' - 4"	7' - 0"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	135.33 SF
CW7	1	ZEPHIR	ALU 86	9' - 2 1/2"	3' - 8 3/4"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	34.37 SF
CW8	1	ZEPHIR	ALU 86	9' - 2 1/2"	21' - 7"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	198.75 SF
CW9	1	ZEPHIR	ALU 86	9' - 4"	1' - 9"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	16.33 SF
CW10	1	ZEPHIR	ALU 86	9' - 2"	24' - 8 5/8"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	222.00 SF
CW11	1	ZEPHIR	ALU 86	9' - 2"	8' - 0"		32 mm IG (8 mm [44.2] laminated exterior, 20 mm argon, 4mm annealed), Glass temperature 23.8°C	0.26	0.33	<0.02 CFM SF	0.57	67.60 SF
Grand total: 11												2136.78 SF



COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

Pre-Grown Tray System
Product Name: Tray
Product Numbers: 41xxxx

Description:
The tray system also provides a turnkey solution that includes the growing medium by Green Roots. The trays are easy to install and feature interlocking edges to ensure proper alignment and to help water enter the roof membrane. At 24" x 24" (2' x 2'), 6.625" (Bkg. 4in pre-grown tray is appropriate for most roof applications and can be installed dry. The modules are designed with plastic mesh underneath to allow for drainage. The trays can be stapled to the job site with approximately 4000 staples per pallet.

Connected to many solar racking manufacturers, the Columbia Green Technologies' Tray system is designed to be used with solar racking systems and pedestals. It can replace both the ballast and other layers of stormwater run-off and is capable of retaining up to 1.5" of stormwater. Please contact your solar racking system manufacturer and Hydrogardens on available options.

Planting Options:
- Plants are grown per the project specifications, provided they are appropriate for the local climate zone and sufficient soil has been provided. Please consult Columbia Green Technologies for more information.

LEED Information:
- Manufactured by Recycled Content: 88%
- Manufacturing location: Pennsauken, New Jersey, NJ 08073

Declare Label for Materials Transparency:

The Declare Label is a voluntary disclosure of building material ingredients which offers Living Building Challenge and LEED v4 credits for material transparency. Declare Label is a product of the International Living Future Institute. To discover if an item has earned a Red List free label, search Declare's product "hearts in here" materials. Columbia Green Technologies' products have been verified to be human health and the planet conducive.

Wind Uplift
- See ASTM WF-24 Wind Design Standard for Vegetative Roof Systems in the area. Wind Uplift standard for the United States.
- Due to the interlocking design, The Pocket-In-Place Tray is considered a #1 Ballast system (increased wind uplift resistance).
- Please request a copy of the ANSI/SPRI WF-24 User Guide.

Columbia Green Technologies | 1 R.D. Hoyle Dr. | Lake City Pennsauken, NJ 08110 | 1-(800)-523-0727 | www.columbiagreen.com Columbia Green Technologies is always striving to improve our products. Please visit us for current specifications. Page 2 of 2 Version 2.0 08/2014

COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

System Weights:
Please refer to the chart below for wet/ saturated weight

Tray Type	Dry Weight	Saturated Weight
4" Tray	4.5 lbs.	11 lbs. - 14 lbs.

Saturated weights may change due to temperature or growing media. Please consult your local representative for more information.

Packaging/Component Size:

Single Tray	
Material	HDPE
Dimension	24" W x 24"L X 4.625"
Quantity	1
Pallet Size	48" x 40"
Packaging	Packed - 400 trays/pallet
Pallet Weight	Approximately 1,800 lbs.
Pre-Grown Tray Technical Purposes Only	24" x 24" (2' x 2') - 400 lbs. each

Installation:
1. Prior to installation, it is the Project Representative's responsibility to consult with a registered structural engineer to determine whether the structure is adequately reinforced to withstand the weight of a fully saturated vegetative tray.
2. Installation of the Columbia Green Technologies' Pre-Grown Tray System must be performed by a roofing contractor familiar with the membrane manufacturer's specifications.
3. Ensure the vegetative trays directly on the roofing membrane or protective layer as determined by the membrane manufacturer.
4. Using the interlocking sides, overlap the vegetative trays.
5. Ensure that the trays have interlocked, tighter joints to minimize growth.

Storage:
- Upon delivery, move pallet out of direct sun to a cool location and remove cellophane wrapping.
- Water 1-2 times per week until the trays are installed on the roof.
- Water 1-2 times per week until the trays are installed on the roof.
- Store away from sources of ignition and extremely high temperatures.

Precautions:
- Confirm with a certified Structural Engineer that the structures can support the saturated weight of the vegetative roof system.
- To facilitate drainage a minimum roof slope of 1/8" (1/2" min. must be provided.
- System components should not be installed when the weather is below 40 °F (5 °C) or above 90 °F (35 °C).
- Do not walk on trays when dry.
- Use caution when lifting trays.
- Check roof drains regularly to ensure there are no obstructions to impede water flow.
- Do not walk on trays when they are saturated with water. Trays will be slippery when wet.
- Wear responsible protective clothing, eye wear and soft-contacted breathing apparatus when cutting trays.

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KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

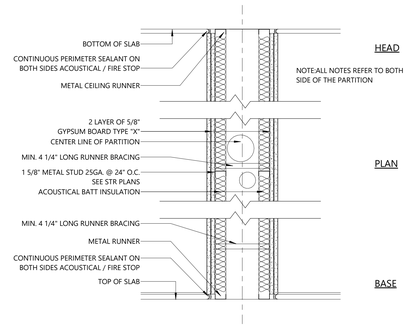
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
DOOR & WINDOW LEGEND & SCHEDULE

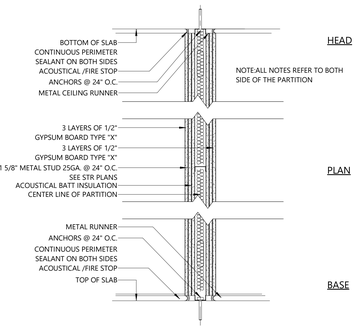
A-400

31 OF 43

Scale:	1/4" = 1'-0"
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



12__PIPE CHASE
SCALE: 1 1/2" = 1'-0"
FIRE RATING: 2 HR
FIRE TEST: UL. DESIGN NO: U420
STC: +50 STC



9__INTERIOR PARTITION
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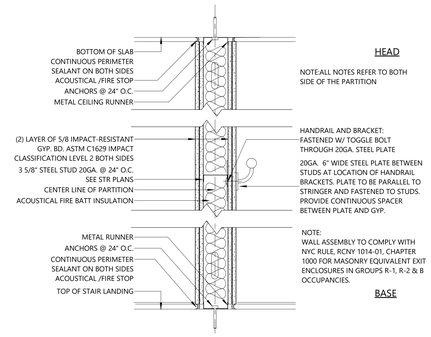
FIRE TEST: UL. DESIGN NO: U455
STC: +50 STC



6__EXIT ENCLOSURE_RCNY 1014-01
SCALE: 1 1/2" = 1'-0"
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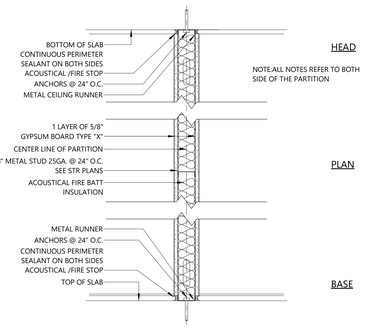
FIRE TEST: UL. DESIGN NO: U419 & U411
STC: +50 STC



3___INTERIOR
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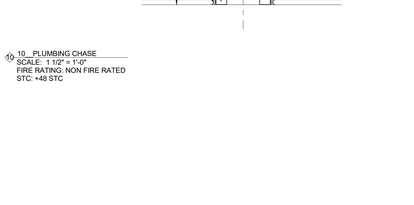
FIRE TEST: UL. DESIGN NO: U417 & U465
STC: +48 STC



11__PIPE CHASE
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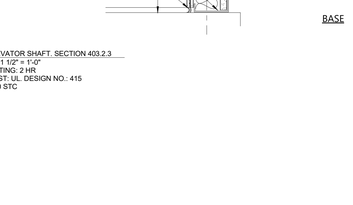
FIRE RATING: 1 HR
FIRE TEST: UL. DESIGN NO: U420
STC: +50 STC



8___MECHANICAL DUCT SHAFT WALL
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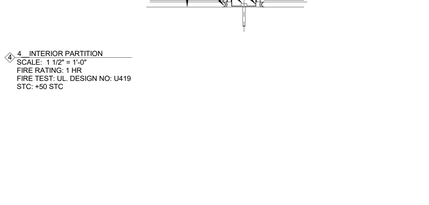
FIRE TEST: UL. DESIGN NO.: 415
STC: +50 STC



5___INTERIOR PARTITION
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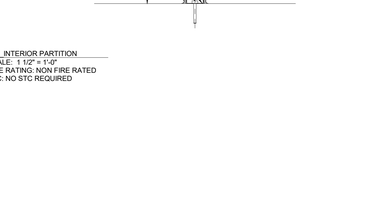
FIRE TEST: UL. DESIGN NO: U419 & U411
STC: +50 STC



2___INTERIOR__PARTITION
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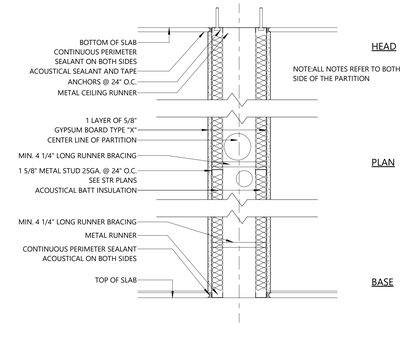
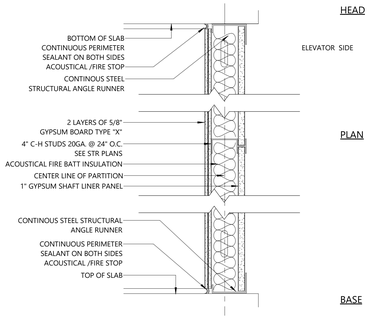
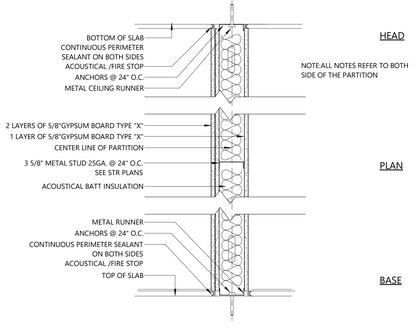
FIRE RATING: NON FIRE RATED
STC: +48 STC



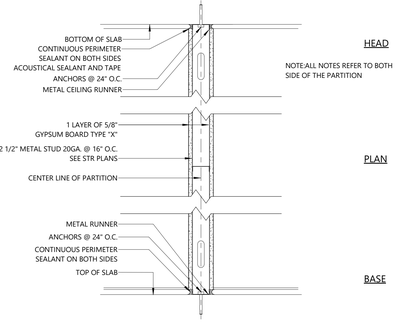
10__PLUMBING CHASE
SCALE: 1 1/2" = 1'-0"
FIRE RATING: NON FIRE RATED
STC: +48 STC



7___ELEVATOR SHAFT. SECTION 403.2.3
SCALE: 1 1/2" = 1'-0"
FIRE RATING: 2 HR
FIRE TEST: UL. DESIGN NO.: 415
STC: +50 STC



4___INTERIOR PARTITION
SCALE: 1 1/2" = 1'-0"
FIRE RATING: 1 HR
FIRE TEST: UL. DESIGN NO: U419
STC: +50 STC



1___INTERIOR PARTITION
SCALE: 1 1/2" = 1'-0"
FIRE RATING: NON FIRE RATED
STC: NO STC REQUIRED

KAO-HWA LEE
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(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

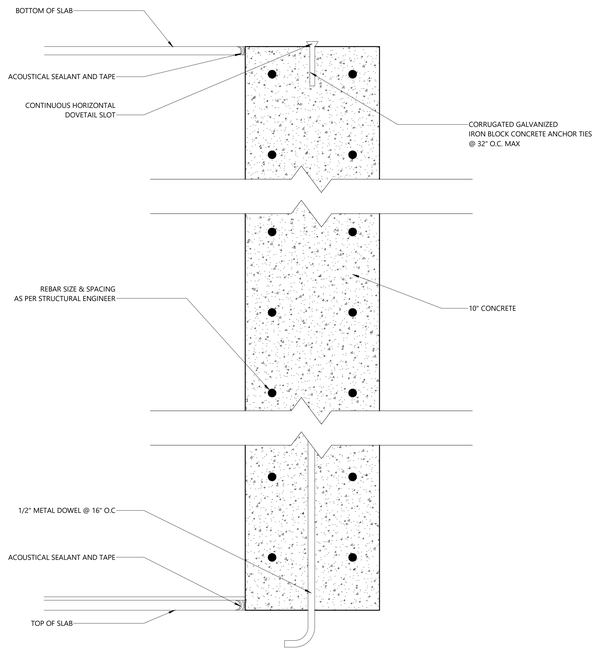
SHEET TITLE
WALL TYPES

A-500

32 OF 43

Scale:	1 1/2" = 1'-0"
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL

DOB JOB NUMBER:
B01204032-I1



NEW INTERIOR SHEAR WALL
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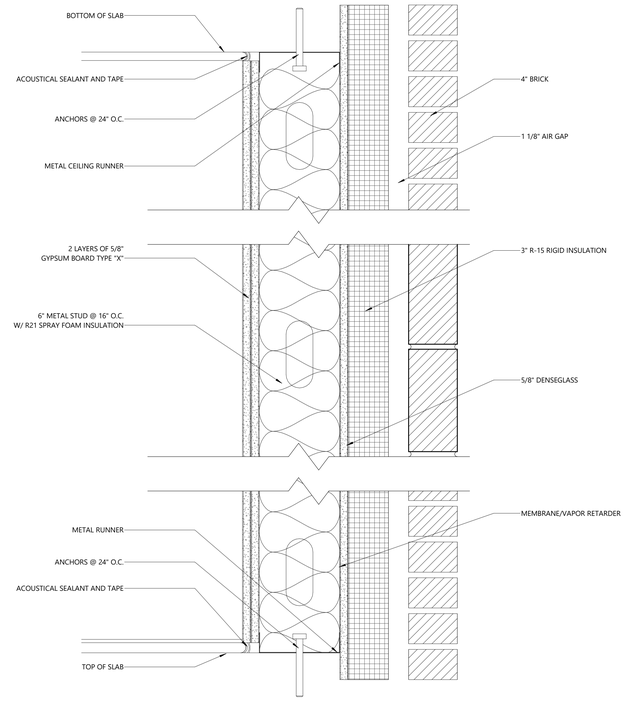
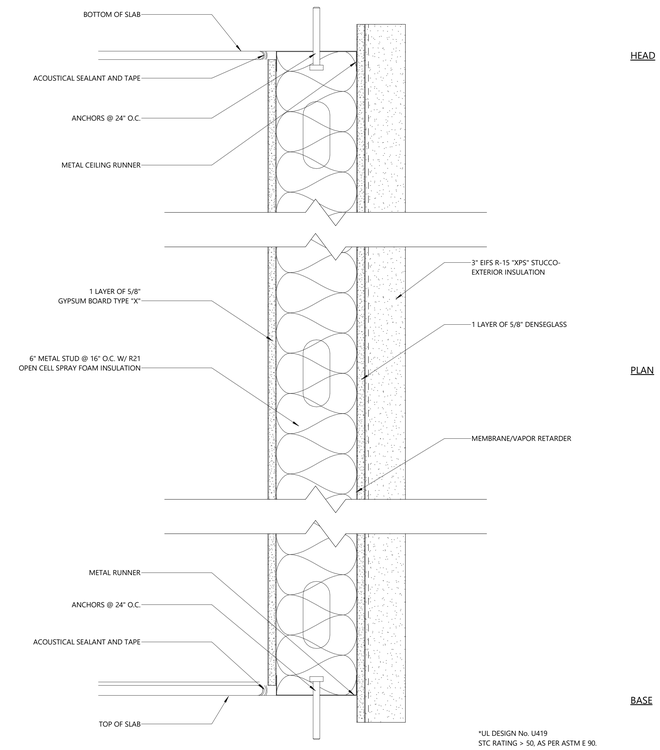
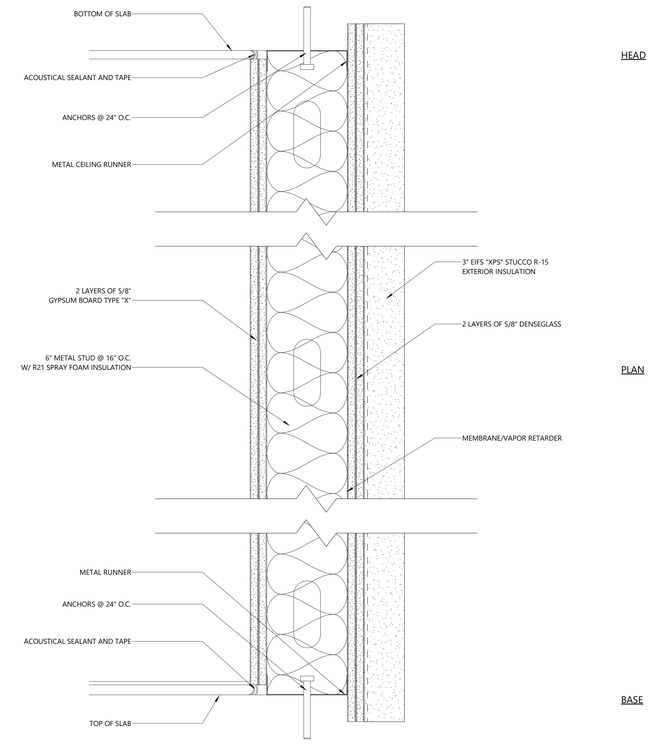


NEW EXTERIOR BRICK WALL
SCALE: 3" = 1'-0"

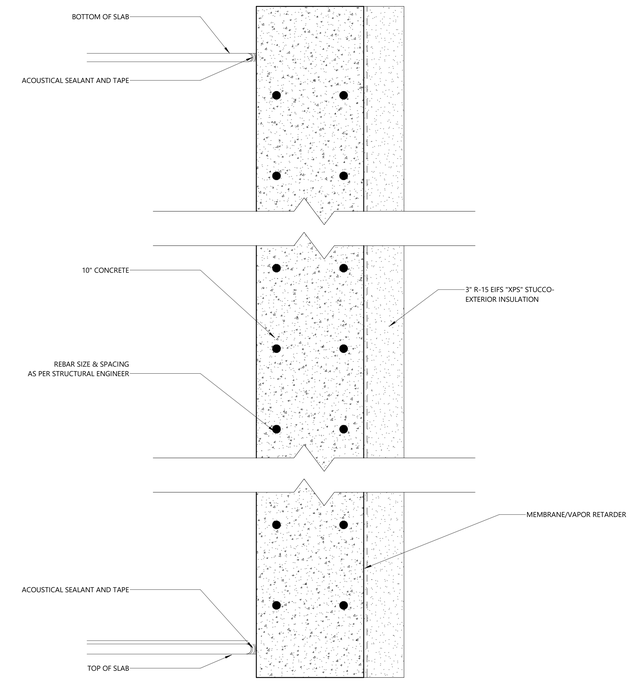


*UL DESIGN No. U419
STC RATING > 50, AS PER ASTM E 90.

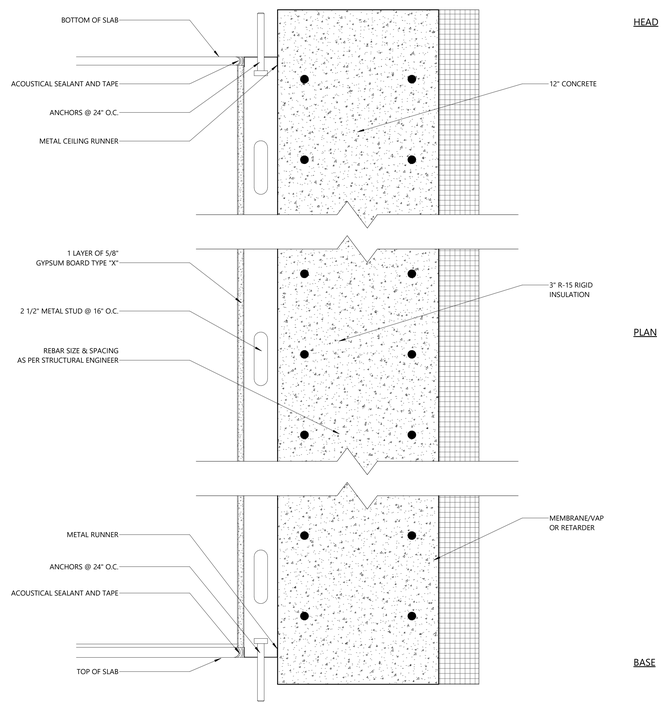
NEW EXTERIOR STUCCO WALL 1HR
SCALE: 3" = 1'-0"



NEW EXTERIOR STUCCO WALL
SCALE: 3" = 1'-0"



NEW EXTERIOR STUCCO SHEAR WALL
SCALE: 3" = 1'-0"



NEW EXTERIOR BASEMENT WALL
SCALE: 3" = 1'-0"

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No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

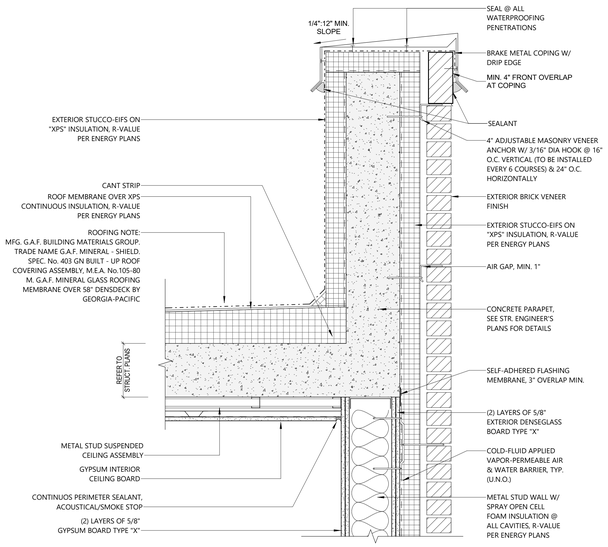
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
WALL TYPES & DETAILS

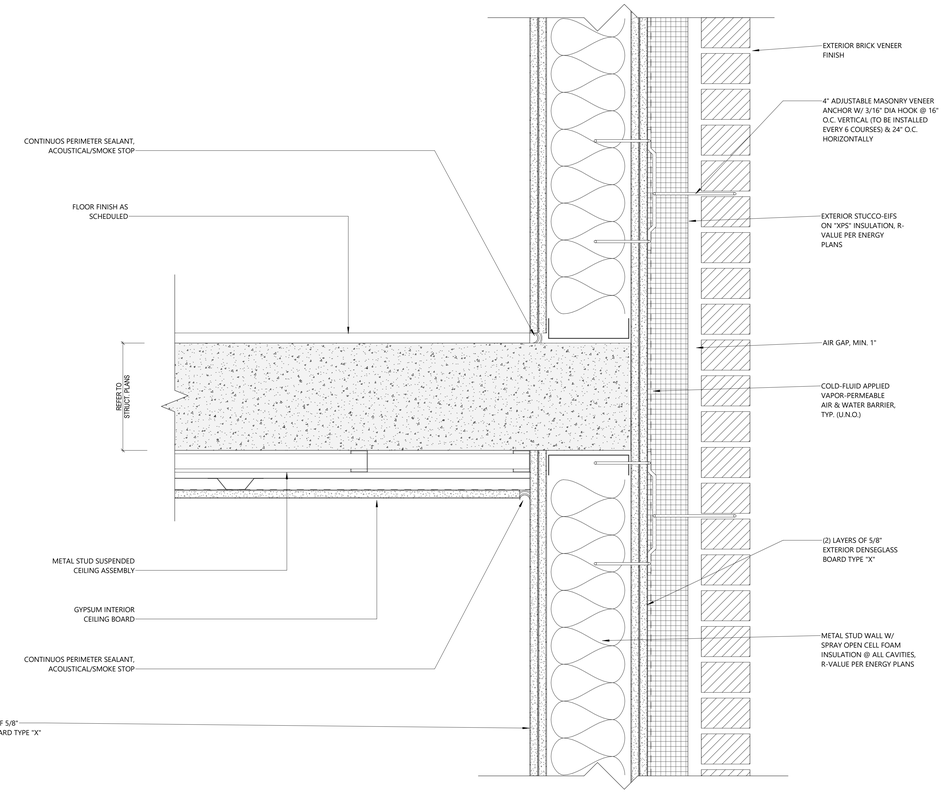
A-501

33 OF 43

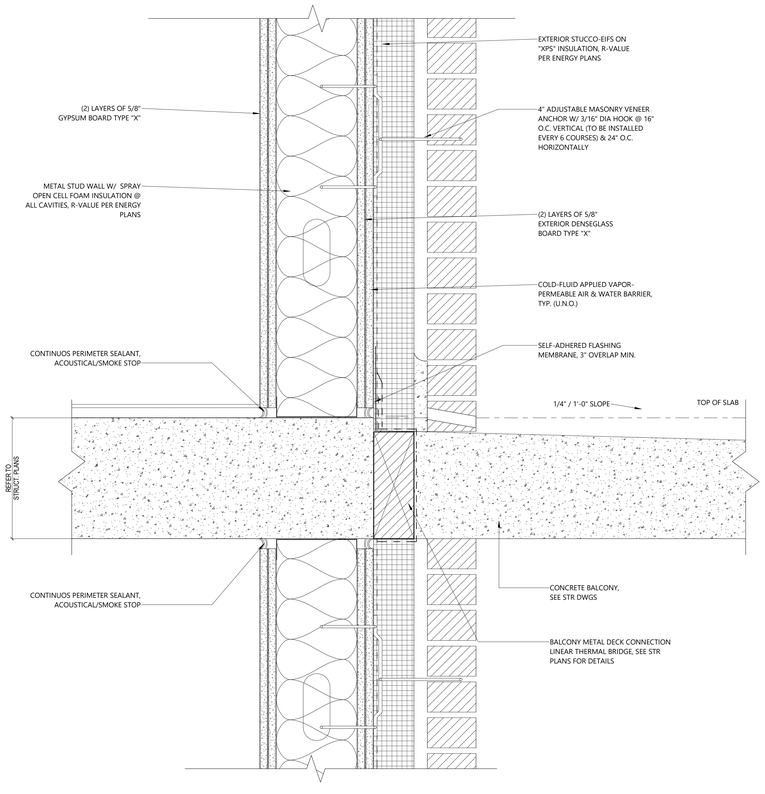
Scale:	3" = 1'-0"
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



6 BRICK WALL 2HR @ CONC. PARAPET
1 1/2" = 1'-0"



1 BRICK WALL 2HR @ CONC. SLAB
3" = 1'-0"



13 BRICK WALL 2HR @ BALCONY
3" = 1'-0"

4 DETAIL @ FOUNDATION WALL
1 1/2" = 1'-0"

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SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

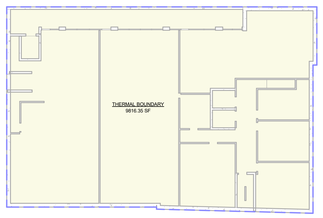
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
DETAILS

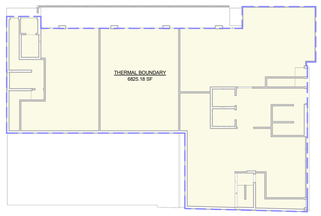
A-601

34 OF 43

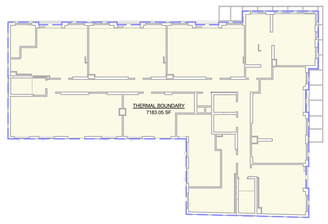
Scale:	As indicated
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



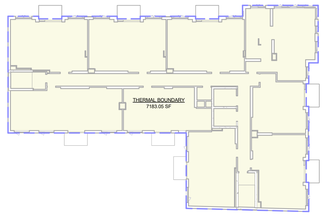
1 00 CELLAR
3/64" = 1'-0"



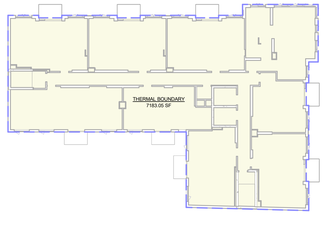
2 01 FIRST FLOOR
3/64" = 1'-0"



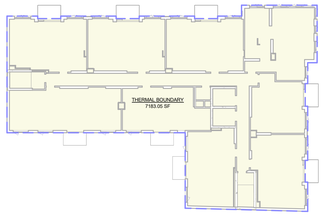
3 02 2ND FL.
3/64" = 1'-0"



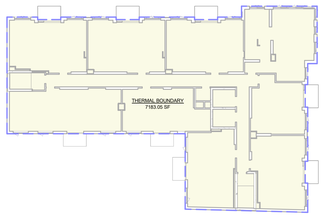
4 03_3RD FL.
3/64" = 1'-0"



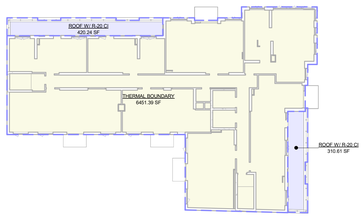
5 04 4TH FL.
3/64" = 1'-0"



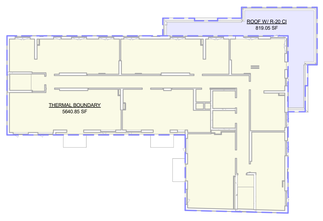
6 05 5TH FL.
3/64" = 1'-0"



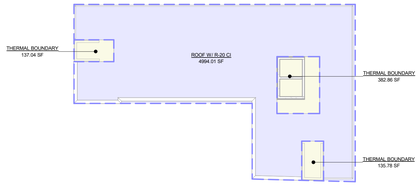
7 06 SIXTH FLOOR
3/64" = 1'-0"



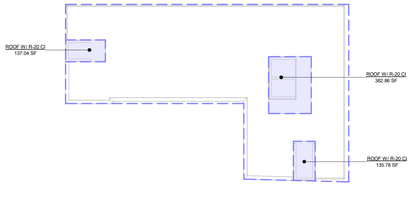
8 07 7TH FL.
3/64" = 1'-0"



9 08 8TH FL.
3/64" = 1'-0"



10 10 TOP OF BULKHEAD
3/64" = 1'-0"



11 SHAFT TOP
3/64" = 1'-0"

Area Schedule (Thermal Boundary)	
Name	Area
ROOF W/ R-20 CI	420 SF
ROOF W/ R-20 CI	311 SF
ROOF W/ R-20 CI	819 SF
ROOF W/ R-20 CI	4994 SF
ROOF W/ R-20 CI	137 SF
ROOF W/ R-20 CI	383 SF
ROOF W/ R-20 CI	136 SF
TOTAL	7200 SF

AIR BARRIER COUNTINUITY PLAN			
	REQUIREMENTS	REMARKS	
BUILDING TYPE	NEW RESIDENTIAL BUILDING: 21623.67 SF		
SCOPE	TO ENSURE THE CONTINUITY OF THE CONTINIOUS AIR BARRIER SYSTEM IN THE BUILDING ENVELOPE BY MANDING A QUALITATIVE TESTING PROGRAM DURING COSNTRUCTION TO VERIFY PROPER INSTALALTION OF THE VARIOUS ASSEMBLIES OF THE AIR BARRIER SYSTEM IN ACCORDANCE WITH THE COSNTRUCTION DOCUMENTS AND THE REQUIREMENTS OF 2020 NEW YORK CITY ENERGY CONSERVATION CODE	TO ENSURE THE CONTINUITY OF THE CONTINIOUS AIR BARRIER SYSTEM IN THE BUILDING ENVELOPE BY MANDING A QUALITATIVE TESTING PROGRAM DURING COSNTRUCTION TO VERIFY PROPER INSTALALTION OF THE VARIOUS ASSEMBLIES OF THE AIR BARRIER SYSTEM IN ACCORDANCE WITH THE COSNTRUCTION DOCUMENTS AND THE REQUIREMENTS OF 2020 NEW YORK CITY ENERGY CONSERVATION CODE	
REFERENCE	2020 NEW YORK CITY ENERGY CONSERVATION CODE, CHAPTER C4, COMMERCIAL ENERGY EFFICIENCY	1 RCNY §5000-01 CONSTRUCTION DOCUMENT APPROVAL REQUIREMENTS FOR COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE.	
SAMPLING RATES	MINIMUN FOUR DIFFERENT LOCATIONS FOR EACH UNIQUE JOINT / SEAM CONDITION	DIAGRAM INDICATING THE LOCATIONS TO BE TESTED/INSPECTED OR METHOD FOR DETERMINING RANDOMNESS OF LOCATIONS	
TESTING METHOD	1 RCNY 5000-01 IIA6 & IIA7	SEE AIR BARRIER CONTINUITY PLAN NOTES	IN COMPLIANCE WITH 2020 ECC CHAPTER C4 COMMERCIAL ENERGY EFFICIENCY
TESTING LOG	TESTING IS TRACKED AND THE RESULT ARE RECORDERED, INCLUDING DEFICIENCIES IDENTIFIED AND REMEDIES REQUIRED	FIELD TESTING SCOPE:	TESTING METHOD FOR EACH TYPE OF UNIQUE ASSEMBLY, JOINT, SEAM, PENETRATION, OR COMBINATION THEREOF.
		FIELD OBSERVATION SCOPE:	METHOD OF VERIFICATION OF THE FOLLOWING: 1. CONTINUITY OF THE AIR BARRIER SYSTEM THROUGHOUT THE BUILDING, I.E. NO GAPS, HOLES, BUBBLES, FISHMOUTHS
			2.STRUCTURAL SUPPORT OF THE AIR BARRIER MATERIAL TO RESIST WIND LOADING
			3.SEALING OF JOINTS, SEAMS, AND PENETRATIONS
			4.INSPECTION SCHEDULE
			5.QUAUITY CONTROL PROCESS
			6.DOCUMENTATION REQUIREMENTS
			7.SUBMITTAL AND REVIEW PROCEDURES
		REMEDIATION PROCEDURES:	PROTOCOL AND TIMELINE FOR REPAIR/REDESIGN OF DEFICIENCIES NOTED PROTOCOL AND TIMELINE FOR RE-TEST AND/OR RE-INSPECTION OF DEFICIENCIES NOTED AS-BUILT DRAWINGS AND/OR SPECIFICATIONS RESULTING FROM REMEDIAL REVISIONS.
TESTING REPORT	TRB REPORT DOCUMENTATION INSTRUCTIONS 1. THE FINAL TESTING REPORT INCLUDES DATE OF EXECUTION, RESULTS OF TESTING FOR EACH JOINT/SEAM LOCATION 2. CERTIFIED BY THE THIRD-PARTY AGENCY 3. SUBMITTED TO THE BUILDING OWNER FOR RECORD 4. MUST BE AVAILABLE TO THE NYC DOB UPON REQUEST 5. PROFESIONAL STATEMENT AND SIGNATURE / SEAL	PROFESSIONAL STATEMENT AND SIGNATURE/SEAL OF THE DESIGN PROFESSIONAL CONDUCTING OR OVERSEEING THE TEST OR INSPECTION STATING THAT THE CONDITIONS OBSERVED COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE AIR BARRIER CONTINUITY PLAN, EXCEPT AS NOTED IN THE REPORT	
		APPROVED DETAIL OF THE TYPICAL CONDITIONS TESTED, KEYED TO RELEVANT SPECIFICATIONS	
		PHOTOS DATE-STAMPED AND LABELED, KEYED TO RELEVANT DETAIL AND SPECIFICATIONS	
		PRE-CONSTRUCTION LABORATORY MOCK-UP REPORTS, AS APPLICABLE, KEYED TO THE RELEVANT LOCATIONS	
		IDENTIFICATION OF COMPLIANCE OR DEFICIENCY FOR EACH RELEVANT CONDITION/LOCATION, I.E. SPECIFIED PERFORMANCE VS. TESTED/OBSERVED PERFORMANCE	
		COMMENTS AND REMEDIAL RECOMMENDATIONS	
		DIAGRAM INDICATING THE LOCATIONS TESTED OR INSPECTED	

JOINT SEALANT SCHEDULE						
TYPE	CODE	APPLICATION	LOCATION	MANUFACTURER	PRODUCT NAME	FORMULATION
TWO COMPONENTS SELF-LEVELING URETHANCE...	ABC_S1	TRAFFIC GRADE	SIDEWALK/ PARKING	SIKA CORPORATION	SIKAFLEX 2c NS TG	POLYURETHANE SEALANT
SINGLE PART SILICONE SEALANT	ABC_S2	GLASS AND METAL	GLAZING PANEL	GE	GE SILPRUF SCS2000	SILICONE
	ABC_S3	MASONRY SUBSTRATES	MASONRY, WINDOW PERIMETER	GE	GE SILPRUF SCS9000 NB; DOW CORING 795 PECORA 895; TREMCO TREMSEAL	
	ABC_S4	THRU WALL / PERIMETER FLASHING	ROOFING TO WALL	SOPREMA, SIPLAST	SOPRASEAL, PS304	ELASTOMETRIC
PREFORMED JOINT SEALANT	ABC_S5	FIRE RATED SEALS	BARRIER SYSTEM TO RAINSCREEN WALL TRANSITION	EMSEAL JOINT SYSTEMS Ltd.	EMSHELD WFR2	OPEN CELL FOAM IMPREGNATED W/ NON DRYING WATER REPELLENT AGENT
JOINT SEALANT BACKING	ABC_S6	WITH MOST SEALANT JOINT/CONTROL...	GLAZING PANEL	C.R. LAURENCE	CLOSED CEL BAKED ROD	POLYETHYLENE FOAM
	ABC_S7	MASONRY SUBSTRATES	EXPANSION JOINT	3M, C.R. LAURENCE	BOND BREAKER TAPE	POLYETHYLENE FILM

(a) Air leakage testing is required.
(b) Air leakage testing shall be performed in accordance with ASTM E779 at 75 Pa.
(c) Testing results shall not exceed 0.4 cfm/sf, and
(d) Provide Field inspection checklist for Air barrier commissioning (C408.4.1/ 5.7.5.1)

SEALANT NOTES
PLASTIC FOAM JOINT-FILLERS: PREFORMED, COMPRESSIBLE, RESILIENT,NON-WAXING, NON-EXTRUDING STRIPS OF PLASTIC FOAM OF MATERIAL INDICATED BELOW, AND OF SIZE, SHAPE AND DENSITY OF CONTROL SEALANT DEPTH FLEXIBLE, NON-GASSING, CLOSED-CELL POLYETHYLENE FOAM CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, TYPE C (CLOSED-CELL MATERIAL WITH A SURFACE SKIN), AND OF SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE TO PRODUCING OPTIMUM SEALANT PERFORMANCE. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MANUFACTURER FOR PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT. PROVIDE SELF ADHESIVE TAPE WHERE APPLICABLE. MISCELLANEOUS MATERIALS PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANTSUBSTRATE TESTS AND FIELD TESTS. CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING MATERIALS, FREE OF ONLY RESIDUES OR OTHER SUBSTANCES CAPABLE OF STAINING OR HARMING JOINT SUBSTRATES AND ADJACENT NONPOROUS SURFACES IN ANY WAY, AND FORMULATED TO PROMOTE OPTIMUM ADHESION OF SEALANTS TO JOINT SUBSTRATES....

SEALING NOTES
A. USE SHRINK/CRACK RESISTANT CAULK TO SEAL GAPS SMALLER THAN ¼" B. USE EXPANDING FOAM TO SEAL GAPS LARGER THAN ¼" C. SPRAY-ON AIR SEALING PRODUCTS ARE VERY EFFECTIVE D. USE LOW-EXPANDING FOAM AT WINDOW/DOOR OPENINGS E. USE TEMPERATURE-APPROPRIATE UL RATED SEALANTS AT FLUES, PIPES, VENTS AND OTHER PENETRATIONS F. CLEAN OUT CRACKS BEFORE APPLYING SEALANT VIA COMPRESSED AIR, VACUUM, DAMP CLOTH,ETC. G. ASSIGN RESPONSIBILITY TO ONE TRADE PERSON FOR CONFIRMING COMPLETION OF AIRSEALING TASKS

AIR BARRIER CONSTRUCTION

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.1.1	AIR BARRIER CONSTRUCTION	1, THE AIR BARRIER SHALL BE CONTINUOUS FOR ALL ASSEMBLIES THAT ARE THE THERMAL ENVELOPE OF THE BUILDING AND ACROSS THE JOINTS AND ASSEMBLIES. 2. AIR BARRIER JOINTS AND SEAMS SHALL BE SEALED, INCLUDING SEALING TRANSITIONS IN PLACES AND CHANGES IN MATERIALS. THE JOINTS AND SEALS SHALL BE SECURELY INSTALLED IN OR ON THE JOINT FOR ITS ENTIRE LENGTH SO AS NOT TO DISLODGE, LOOSEN OR OTHERWISE IMPAIR ITS ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT AND MECHANICAL VENTILATION. 3 PENETRATIONS OF THE AIR BARRIER SHALL BE CAULKED, GASKETED OR OTHERWISE SEALED IN A MANNER COMPATIBLE WITH THE CONSTRUCTION MATERIALS AND LOCATION. SEALING SHALL ALLOW FOR EXPANSION, CONTRACTION AND MECHANICAL VIBRATION. JOINTS AND SEAMS ASSOCIATED WITH PENETRATIONS SHALLBE SEALED IN THE SAME MANNER OR TAPED. SEALING MATERIALS SHALL BE SECURELY INSTALLED AROUND THE PENETRATION SO AS NOT TO DISLODGE, LOOSEN OR OTHERWISE IMPAIR THE PENETRATIONS' ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT AND MECHANICAL VENTILATION. SEALING OF CONCEALED FIRE SPRINKLERS, WHERE REQUIRED, SHALL BE IN A MANNER THAT IS RECOMMENDED BY THE MANUFACTURER. CAULKING OR OTHER ADHESIVE SEALANTS SHALL NOT BE USED TO FILL VOIDS BETWEEN FIRE SPRINKLER COVER PLATES AND WALLS OR CEILINGS. 4. RECESSED LIGHTING FIXTURES SHALL COMPLY WITH SECTION C402.5.8. WHERE SIMILAR OBJECTS ARE INSTALLED THAT PENETRATE THE AIR BARRIER, PROVISIONS...	SEE PAGE EN-005 AIR SEALING DETAILS

ACEPTABLE MATERIALS AND ASSEMBLIES

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.1.2.1	MATERIALS	MATERIALS WITH AN AIR PERMEABILITY NOT GREATER THAN 0.004 CFM/FT2(0.02 L/S •M2) UNDER A PRESSURE DIFFERENTIAL OF 0.3 INCH WATER GAUGE (75 PA) WHEN TESTED IN ACCORDANCE WITH ASTM E2178 SHALL COMPLY WITH THIS SECTION. MATERIALS IN ITEMS 1 THROUGH 16 SHALL BE DEEMED TO COMPLY WITH THIS SECTION, PROVIDED THAT JOINTS ARE SEALED AND MATERIALS ARE INSTALLED AS AIR BARRIERS INACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONTINUOUS AIR BARRIER MATERIALS AND ASSEMBLIES FOR THE OPAQUE BUILDING ENVELOPE SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS: 1. PLYWOOD—MINIMUM 3/8 IN. 2. ORIENTED STRAND BOARD—MINIMUM 3/8 IN. 3. EXTRUDED POLYSTYRENE INSULATION BOARD—MINIMUM 1/2 IN. 4. FOIL-BACK URETHANE INSULATION BOARD—MINIMUM 1/2 IN. 5. CLOSED-CELL SPRAY FOAM - MINIMUM DENSITY OF 1.5 PCF (2.4 KG/M3), MINIMUM THICKNESS OF 1 ½ IN. 6. OPEN-CELL SPRAY FOAM - MINIMUM DENSITY BETWEEN 0.4 AND 1.5 PCF (0.6 AND 2.4 KG/M3) MINIMUM THICKNESS OF 4.5 IN. 7. EXTERIOR OR INTERIOR GYPSUM BOARD - MINIMUM 1/2 IN. 8. CEMENT BOARD - MINIMUM 1/2 IN. 9. BUILT-UP ROOF MEMBRANE 10. MODIFIED BITUMINOUS ROOF MEMBRANE 11. FULLY ADHERED SINGLE-PLY ROOF MEMBRANE 12. PORTLAND CEMENT/SAND PARGE, OR GYPSUM PLASTER - MINUMUM 5/8 IN....	1. PLYWOOD—MINIMUM 3/8 IN 2. ORIENTED STRAND BOARD—MINIMUM 3/8 IN. 3. EXTRUDED POLYSTYRENE INSULATION BOARD—MINIMUM 1/2 IN. 4. FOIL-BACK URETHANE INSULATION BOARD—MINIMUM 1/2 IN. 5. CLOSED-CELL SPRAY FOAM - MINIMUM DENSITY OF 1.5 PCF (2.4 KG/M3), MINIMUM THICKNESS OF 1 ½ IN. 6. OPEN-CELL SPRAY FOAM - MINIMUM DENSITY BETWEEN 0.4 AND 1.5 PCF (0.6 AND 2.4 KG/M3) MINIMUM THICKNESS OF 4.5 IN. 7. EXTERIOR OR INTERIOR GYPSUM BOARD - MINIMUM 1/2 IN. 8. CEMENT BOARD - MINIMUM 1/2 IN. 9. BUILT-UP ROOF MEMBRANE 10. MODIFIED BITUMINOUS ROOF MEMBRANE 11. FULLY ADHERED SINGLE-PLY ROOF MEMBRANE 12. PORTLAND CEMENT/SAND PARGE, OR GYPSUM PLASTER - MINUMUM 5/8 IN. 13. CAST-IN-PLACE AND PRECAST CONCRETE 14. FULLY GROUTED CONCRETE BLOCK MASONRY 15. SHEET STEEL OR ALUMINUM

AIR BARRIERS

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.1	AIR BARRIERS	A CONTINUOUS AIR BARRIER SHALL BE PROVIDED THROUGHOUT THE BUILDING THERMAL ENVELOPE. THE AIR BARRIERS SHALL BE PERMITTED TO BE LOCATED ON THE INSIDE OR OUTSIDE OF THE BUILDING ENVELOPE, LOCATED WITHIN THE ASSEMBLIES COMPOSING THE ENVELOPE, OR ANY COMBINATION THEREOF. THE AIR BARRIER SHALL COMPLY WITH SECTIONS C402.5.1.1 AND C402.5.1.2	AIR BARRIER CONTINUITY PLAN AND VERIFICATION PLAN SUPPORTED BY: 1. AIR BARRIER CONTINUITY PLAN DOCUMENTATION 2. AIR BARRIER CONTINUITY PLAN SPECIFICATIONS 3. AIR BARRIER CONTINUITY PLAN TR8 REPORT DOCUMENTATION INSTRUCTIONS

FENESTRATIONS AND DOORS

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED			PROPOSED		
TABLE C402.5.2	FENESTRATION ASSEMBLIES	THE AIR LEAKAGE OF FENESTRATION ASSEMBLIES SHALL MEET THE PROVISIONS OF TABLE C402.5.2. TESTING SHALL BE IN ACCORDANCE WITH THE APPLICABLE REFERENCE TEST STANDARD IN TABLE C402.5.2 BY AN ACCREDITED, INDEPENDENT TESTING LABORATORY AND LABELED BY THE MANUFACTURER.			MANUFACTURER'S SPECIFICATIONS PROVIDED		
		FENESTRATION ASSEMBLY	MAXIMUM RATE (CFM/FT²)	TEST PROCEDURE	FENESTRATION ASSEMBLY	MAXIMUM RATE (CFM/FT²)	TEST PROCEDURE
		COMMERCIAL GLAZED SWINGING DOORS	1.00	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)	COMMERCIAL GLAZED SWINGING DOORS	0.02	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)
		STOREFRONT GLAZING	0.06	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)	STOREFRONT GLAZING	0.02	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)
		SWINGING DOORS	0.20	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400	SWINGING DOORS	0.02	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400
		WINDOWS	0.20	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400	WINDOWS	0.02	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400
		SLIDING DOORS	0.20	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400	SLIDING DOORS	0.02	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400

VESTIBULES

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.7	VESTIBULES	BUILDING ENTRANCES SHALL BE PROTECTED WITH AN ENCLOSED VESTIBULE, WITH ALL DOORS OPENING INTO AND OUT OF THE VESTIBULE EQUIPPED WITH SELF-CLOSING DEVICES. VESTIBULES SHALL BE DESIGNED SO THAT IN PASSING THROUGH THE VESTIBULE IT IS NOT NECESSARY FOR THE INTERIOR AND EXTERIOR DOORS TO OPEN AT THE SAME TIME. THE INSTALLATION OF ONE OR MORE REVOLVING DOORS IN THE BUILDING ENTRANCE SHALL NOT ELIMINATE THE REQUIREMENT THAT A VESTIBULE BE PROVIDED ON ANY DOORS ADJACENT TO REVOLVING DOORS. EXEMPTION 4: DOORS THAT OPEN DIRECTLY FROM A SPACE LESS THAN 3,000 SQUARE FEET (298 M2) IN AREA, IN BUILDINGS LESS THAN 75 FEET (22.86 M) IN HEIGHT, AND DOORS THAT OPEN DIRECTLY FROM A SPACE LESS THAN 1,000 SQUARE FEET (92.9 M2) IN AREA, IN BUILDINGS 75 FEET (22.86 M) AND GREATER IN HEIGHT.	NO VESTIBULE PROVIDED ENTRANCE OPENS UP TO LOBBY: 366.60 SF 379 < 3000 OK

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

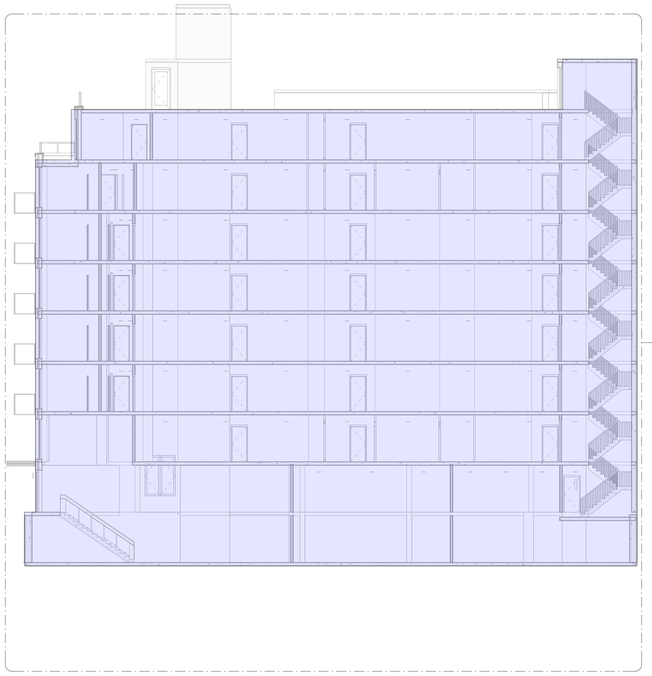
DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

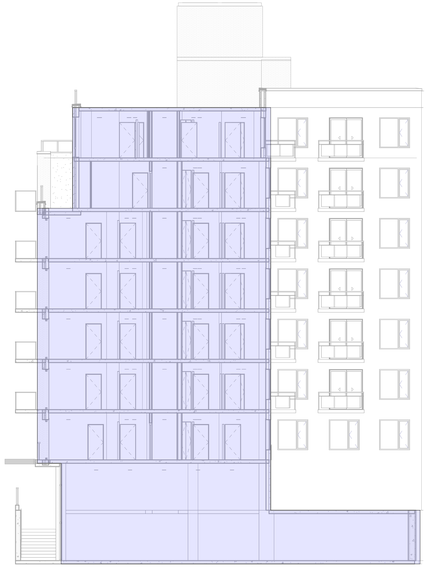
SHEET TITLE
AIR BARRIER CONTINUITY PLAN

A-700
35 OF 43

Scale:	3/64" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



1 SECTION 1_ENERGY
3/32" = 1'-0"



2 SECTION 2_ENERGY
3/32" = 1'-0"

AIR BARRIERS

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
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AIR BARRIER CONSTRUCTION

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
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ACEPTABLE MATERIALS AND ASSEMBLIES

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.1.2.1	MATERIALS	MATERIALS WITH AN AIR PERMEABILITY NOT GREATER THAN 0.004 CFM/FT2(0.02 L/S •M2) UNDER A PRESSURE DIFFERENTIAL OF 0.3 INCH WATER GAUGE (75 PA) WHEN TESTED IN ACCORDANCE WITH ASTM E2178 SHALL COMPLY WITH THIS SECTION. MATERIALS IN ITEMS 1 THROUGH 16 SHALL BE DEEMED TO COMPLY WITH THIS SECTION, PROVIDED THAT JOINTS ARE SEALED AND MATERIALS ARE INSTALLED AS AIR BARRIERS INACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONTINUOUS AIR BARRIER MATERIALS AND ASSEMBLIES FOR THE OPAQUE BUILDING ENVELOPE SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS: 1. PLYWOOD—MINIMUM 3/8 IN 2. ORIENTED STRAND BOARD—MINIMUM 3/8 IN. 3. EXTRUDED POLYSTYRENE INSULATION BOARD—MINIMUM 1/2 IN. 4. FOIL-BACK URETHANE INSULATION BOARD—MINIMUM 1/2 IN. 5. CLOSED-CELL SPRAY FOAM - MINIMUM DENSITY OF 1.5 PCF (2.4 KG/M3), MINIMUM THICKNESS OF 1 ½ IN. 6. OPEN-CELL SPRAY FOAM - MINIMUM DENSITY BETWEEN 0.4 AND 1.5 PCF (0.6 AND 2.4 KG/M3) MINIMUM THICKNESS OF 4.5 IN. 7. EXTERIOR OR INTERIOR GYPSUM BOARD - MINIMUM 1/2 IN. 8. CEMENT BOARD - MINIMUM 1/2 IN. 9. BUILT-UP ROOF MEMBRANE 10. MODIFIED BITUMINOUS ROOF MEMBRANE 11. FULLY ADHERED SINGLE-PLY ROOF MEMBRANE 12. PORTLAND CEMENT/SAND PARGE, OR GYPSUM PLASTER - MINUMUM 5/8 IN....	1. PLYWOOD—MINIMUM 3/8 IN 2. ORIENTED STRAND BOARD—MINIMUM 3/8 IN. 3. EXTRUDED POLYSTYRENE INSULATION BOARD—MINIMUM 1/2 IN. 4. FOIL-BACK URETHANE INSULATION BOARD—MINIMUM 1/2 IN. 5. CLOSED-CELL SPRAY FOAM - MINIMUM DENSITY OF 1.5 PCF (2.4 KG/M3), MINIMUM THICKNESS OF 1 ½ IN. 6. OPEN-CELL SPRAY FOAM - MINIMUM DENSITY BETWEEN 0.4 AND 1.5 PCF (0.6 AND 2.4 KG/M3) MINIMUM THICKNESS OF 4.5 IN. 7. EXTERIOR OR INTERIOR GYPSUM BOARD - MINIMUM 1/2 IN. 8. CEMENT BOARD - MINIMUM 1/2 IN. 9. BUILT-UP ROOF MEMBRANE 10. MODIFIED BITUMINOUS ROOF MEMBRANE 11. FULLY ADHERED SINGLE-PLY ROOF MEMBRANE 12. PORTLAND CEMENT/SAND PARGE, OR GYPSUM PLASTER - MINUMUM 5/8 IN. 13. CAST-IN-PLACE AND PRECAST CONCRETE 14. FULLY GROUTED CONCRETE BLOCK MASONRY 15. SHEET STEEL OR ALUMINUM

FENESTRATIONS AND DOORS

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED			PROPOSED		
TABLE C402.5.2	FENESTRATION ASSEMBLIES	THE AIR LEAKAGE OF FENESTRATION ASSEMBLIES SHALL MEET THE PROVISIONS OF TABLE C402.5.2. TESTING SHALL BE IN ACCORDANCE WITH THE APPLICABLE REFERENCE TEST STANDARD IN TABLE C402.5.2 BY AN ACCREDITED, INDEPENDENT TESTING LABORATORY AND LABELED BY THE MANUFACTURER.			MANUFACTURER'S SPECIFICATIONS PROVIDED		
		FENESTRATION ASSEMBLY	MAXIMUM RATE (CFM/FT²)	TEST PROCEDURE	FENESTRATION ASSEMBLY	MAXIMUM RATE (CFM/FT²)	TEST PROCEDURE
		COMMERCIAL GLAZED SWINGING DOORS	1.00	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)	COMMERCIAL GLAZED SWINGING DOORS	0.02	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)
		STOREFRONT GLAZING	0.06	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)	STOREFRONT GLAZING	0.02	NFRC 400 or ASTM E283 at 1.57 psf(75 Pa)
		SWINGING DOORS	0.20	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400	SWINGING DOORS	0.02	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400
		WINDOWS	0.20	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400	WINDOWS	0.02	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400
		SLIDING DOORS	0.20	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400	SLIDING DOORS	0.02	AAMA/WDMA/CSA101/I.S.2/A440orNFRC 400

AIR BARRIER TESTING

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.1.3	AIR BARRIER TESTING	2. NEW BUILDINGS AND ADDITIONS 10,000 SQUARE FEET (929 M2) AND GREATER, BUT LESS THAN 50,000 SQUARE FEET (4 645.2 M2), AND GREATER THAN 75 FEET (22.86 M) IN HEIGHT, SHALL TEST OR INSPECT EACH TYPE OF UNIQUE AIR BARRIER JOINT OR SEAM IN THE BUILDING ENVELOPE FOR CONTINUITY AND DEFECTS, AS PER AN AIR BARRIER CONTINUITY PLAN DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL. ALTERNATIVELY, SUCH BUILDINGS AND ADDITIONS MAY SHOW COMPLIANCE THROUGH TESTING IN ACCORDANCE WITH ITEM 1 OF THIS SECTION.	BUILDING AREA: 46,721 SF AIR TESTING SHALL BE PERFORMED & AIR BARRIER CONTINUITY PLAN DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL SEE: PAGE G-001 FOR TR8 ENERGY CODE PROGRESS INSPECTIONS. & PAGE EN-0010 TABLE 2 FOR PROGRESS INSPECTIONS

VESTIBULES

2020 ENERGY CONSERVATION CODE APPLICABLE SECTION	ITEM	PERMITTED/REQUIRED	PROPOSED
C402.5.7	VESTIBULES	BUILDING ENTRANCES SHALL BE PROTECTED WITH AN ENCLOSED VESTIBULE, WITH ALL DOORS OPENING INTO AND OUT OF THE VESTIBULE EQUIPPED WITH SELF-CLOSING DEVICES. VESTIBULES SHALL BE DESIGNED SO THAT IN PASSING THROUGH THE VESTIBULE IT IS NOT NECESSARY FOR THE INTERIOR AND EXTERIOR DOORS TO OPEN AT THE SAME TIME. THE INSTALLATION OF ONE OR MORE REVOLVING DOORS IN THE BUILDING ENTRANCE SHALL NOT ELIMINATE THE REQUIREMENT THAT A VESTIBULE BE PROVIDED ON ANY DOORS ADJACENT TO REVOLVING DOORS. EXEMPTION 4: DOORS THAT OPEN DIRECTLY FROM A SPACE LESS THAN 3,000 SQUARE FEET (298 M2) IN AREA, IN BUILDINGS LESS THAN 75 FEET (22.86 M) IN HEIGHT, AND DOORS THAT OPEN DIRECTLY FROM A SPACE LESS THAN 1,000 SQUARE FEET (92.9 M2) IN AREA, IN BUILDINGS 75 FEET (22.86 M) AND GREATER IN HEIGHT.	NO VESTIBULE PROVIDED ENTRANCE OPENS UP TO LOBBY: 366.60 SF 379 < 3000 OK

KAO-HWA LEE
ARCHITECTS P.C.

227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
AIR BARRIER CONTINUITY PLAN

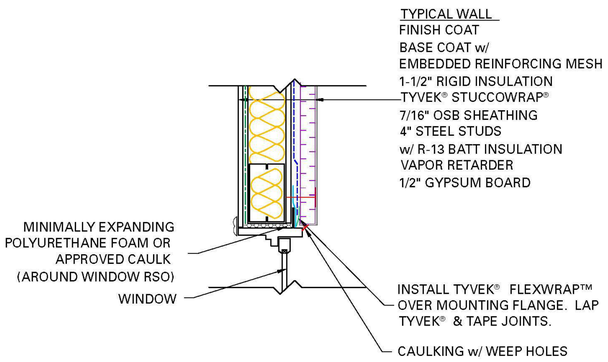
A-701

36 OF 43

Scale:	3/32" = 1'-0"
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL

DOB JOB NUMBER:
B01204032-I1

GENERAL NOTES
*SEAL ALL TYVEK® JOINTS AND PENETRATIONS WITH APPROVED TAPE.
(ex. DUPONT™ CONTRACTOR TAPE).
*FASTEN TYVEK® AND RIGID INSULATION TO STEEL STUDS
USING SCREWS W/ PLASTIC WASHERS. (ex. DUPONT™ WRAPCAPS)
*LOCAL LAWS, ZONING, AND BUILDING CODES VARY AND
THEREFORE GOVERNS OVER MATERIAL SELECTION AND DETAILING SHOWN BELOW.
*INSTALL EIFS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS



WINDOW HEAD DETAIL
RESIDENTIAL STEEL FRAME STRUCTURE w/ EIFS CLADDING (HEATING CLIMATE)

GENERAL NOTES
*SEAL ALL TYVEK® JOINTS AND PENETRATIONS WITH APPROVED TAPE.
(ex. DUPONT™ CONTRACTOR TAPE).
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*LOCAL LAWS, ZONING, AND BUILDING CODES VARY AND
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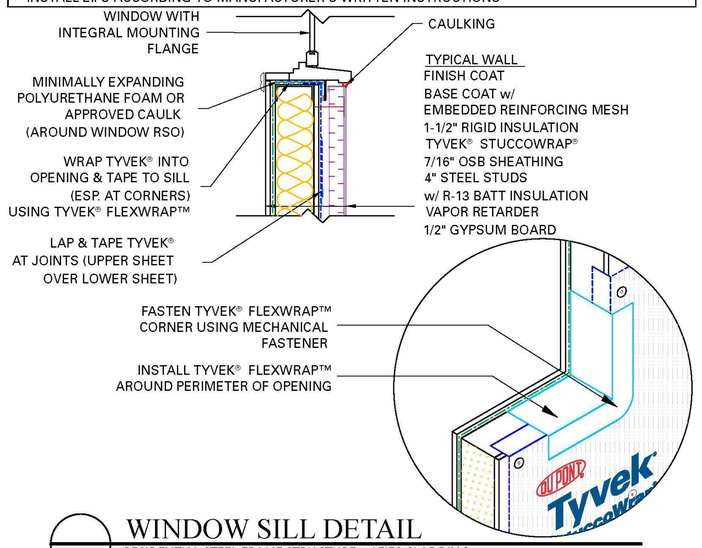
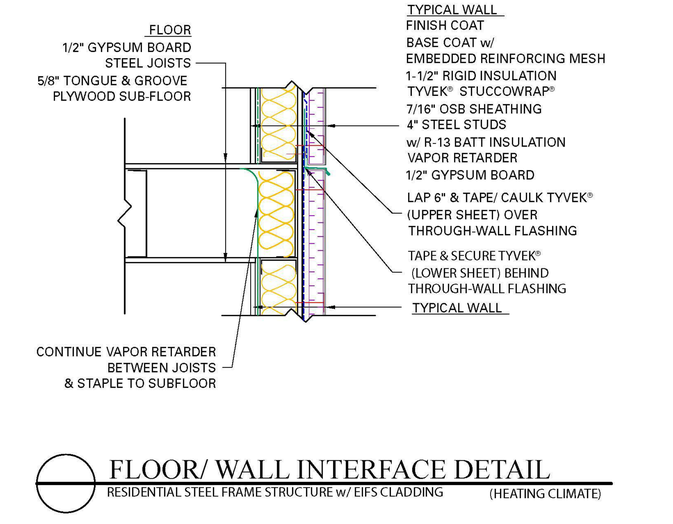
*INSTALL EIFS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS



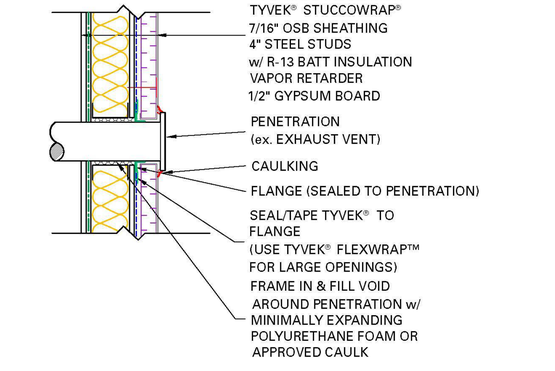
WINDOW SILL DETAIL
RESIDENTIAL STEEL FRAME STRUCTURE w/ EIFS CLADDING (HEATING CLIMATE)

GENERAL NOTES
*SEAL ALL TYVEK® JOINTS AND PENETRATIONS WITH APPROVED TAPE.
(ex. DUPONT™ CONTRACTOR TAPE).
*FASTEN TYVEK® AND RIGID INSULATION TO STEEL STUDS
USING SCREWS W/ PLASTIC WASHERS. (ex. DUPONT™ WRAPCAPS)
*LOCAL LAWS, ZONING, AND BUILDING CODES VARY AND
THEREFORE GOVERNS OVER MATERIAL SELECTION AND DETAILING SHOWN BELOW.
*INSTALL EIFS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS

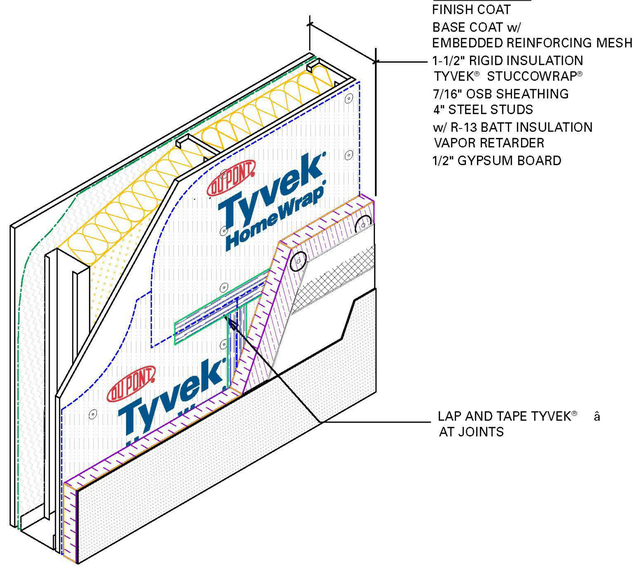


FLOOR/ WALL INTERFACE DETAIL
RESIDENTIAL STEEL FRAME STRUCTURE w/ EIFS CLADDING (HEATING CLIMATE)

GENERAL NOTES
*SEAL ALL TYVEK® JOINTS AND PENETRATIONS WITH APPROVED TAPE.
(ex. DUPONT™ CONTRACTOR TAPE).
*FASTEN TYVEK® AND RIGID INSULATION TO STEEL STUDS
USING SCREWS W/ PLASTIC WASHERS. (ex. DUPONT™ WRAPCAPS)
*LOCAL LAWS, ZONING, AND BUILDING CODES VARY AND
THEREFORE GOVERNS OVER MATERIAL SELECTION AND DETAILING SHOWN BELOW.
*INSTALL EIFS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS

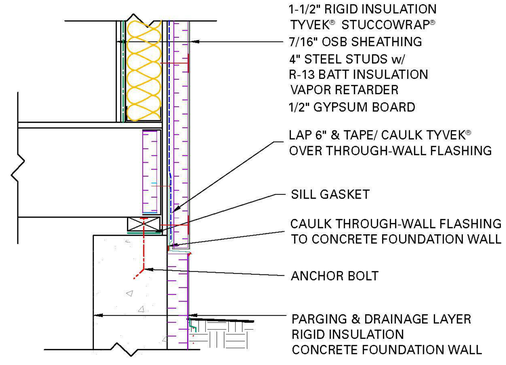


WALL PENETRATION DETAIL
RESIDENTIAL STEEL FRAME STRUCTURE w/ EIFS CLADDING (HEATING CLIMATE)



TYPICAL WALL ISOMETRIC
RESIDENTIAL STEEL FRAME STRUCTURE w/ EIFS CLADDING (HEATING CLIMATE)

GENERAL NOTES
*SEAL ALL TYVEK® JOINTS AND PENETRATIONS WITH APPROVED TAPE.
(ex. DUPONT™ CONTRACTOR TAPE).
*FASTEN TYVEK® AND RIGID INSULATION TO STEEL STUDS
USING SCREWS W/ PLASTIC WASHERS. (ex. DUPONT™ WRAPCAPS)
*LOCAL LAWS, ZONING, AND BUILDING CODES VARY AND
THEREFORE GOVERNS OVER MATERIAL SELECTION AND DETAILING SHOWN BELOW.
*INSTALL EIFS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS



BASE OF WALL DETAIL
RESIDENTIAL STEEL FRAME STRUCTURE w/ EIFS CLADDING (HEATING CLIMATE)

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

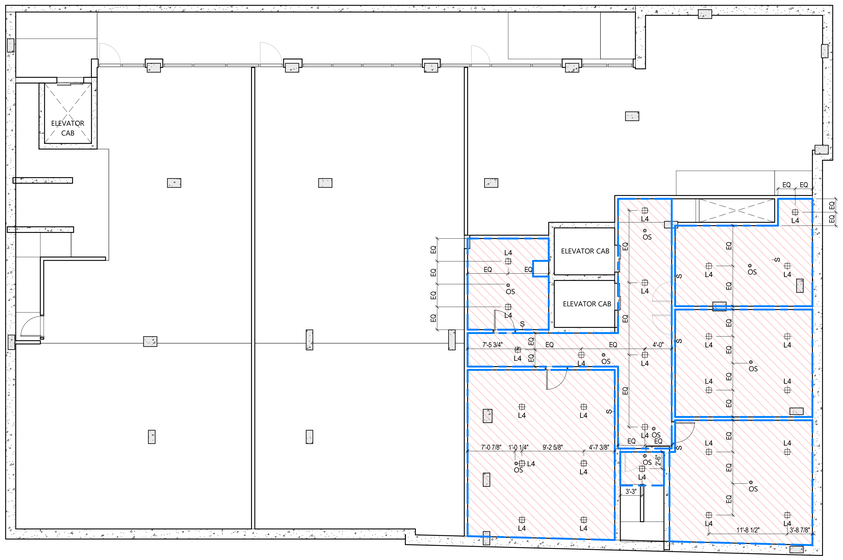
LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
AIR SEALANT DETAILS

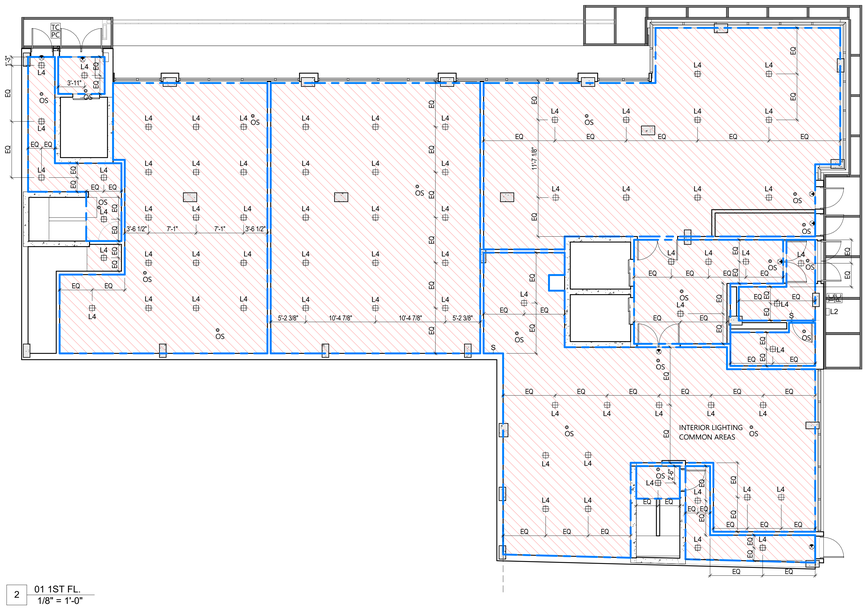
A-702

37 OF 43

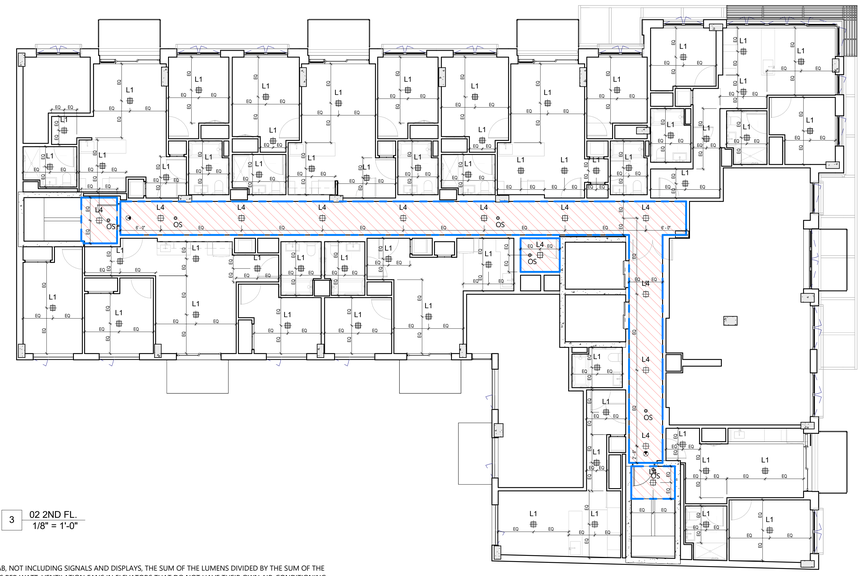
Scale:	
Date:	7/24/2025
Drawn by:	Author
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1



1 00 CELLAR
1/8" = 1'-0"



2 01 1ST FL.
1/8" = 1'-0"



3 02 2ND FL.
1/8" = 1'-0"

4 03_3RD FL.
1/8" = 1'-0"

5 04 4TH FL.
1/8" = 1'-0"

C405.8.1 ELEVATOR EQUIPMENT AND CABS

FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NOT LESS THAN 35 LUMENS PER WATT. VENTILATION FANS IN ELEVATORS THAT DO NOT HAVE THEIR OWN AIR-CONDITIONING SYSTEM SHALL NOT CONSUME MORE THAN 0.33 WATTS/CFM AT THE MAXIMUM RATED SPEED OF THE FAN. CONTROLS SHALL BE PROVIDED THAT WILL DE-ENERGIZE VENTILATION FANS AND LIGHTING SYSTEMS WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED AND WITH ITS DOORS CLOSED FOR OVER 15 MINUTES.

C405.8.1.1 POWER CONVERSION SYSTEM

NEW TRACTION ELEVATORS WITH A RISE OF 75 FEET (23 M) OR MORE IN NEW BUILDINGS SHALL HAVE A POWER CONVERSION SYSTEM THAT COMPLIES WITH SECTIONS C405.8.1.1.1¹ THROUGH C405.8.1.1.3³.

C405.8.1.1.1 MOTOR

INDUCTION MOTORS WITH A CLASS IE2 EFFICIENCY RATING, AS DEFINED BY IEC EN 60034-30, OR ALTERNATIVE TECHNOLOGIES, SUCH AS PERMANENT MAGNET SYNCHRONOUS MOTORS THAT HAVE EQUAL OR BETTER EFFICIENCY, SHALL BE USED.

C405.8.1.1.2 TRANSMISSION

TRANSMISSIONS SHALL NOT REDUCE THE EFFICIENCY OF THE COMBINED MOTOR/TRANSMISSION BELOW THAT SHOWN FOR THE CLASS IE2 MOTOR FOR ELEVATORS WITH CAPACITIES BELOW 4,000 POUNDS (1814 KG). GEARLESS MACHINES SHALL BE ASSUMED TO HAVE A 100 PERCENT TRANSMISSION EFFICIENCY.

C405.8.1.1.3 DRIVE

POTENTIAL ENERGY RELEASED DURING MOTION SHALL BE RECOVERED WITH A REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDING ELECTRICAL SYSTEM.

LIGHTING FIXTURE/CONTROL LEGEND		
L1		INTERIOR LIGHTING FIXTURE
L2		EXTERIOR LIGHTING FIXTURE
L3		EXIT SIGN
L4		INTERIOR LIGHTING FIXTURE-COMMON AREAS
	TC	TIMECLOCK CONTROL
	PC	PHOTOCELL
	OS	OCCUPANCY SENSOR
	S	MANUAL SWITCH

INTERIOR LIGHTING COMMON AREAS TOTAL	
FLOOR	TOTAL SF
1ST FLOOR	5,809.39 SF
2ND FLOOR	688.32 SF
3RD FLOOR	688.32 SF
4TH FLOOR	688.32 SF
5TH FLOOR	688.27 SF
6TH FLOOR	688.27 SF
7TH FLOOR	687.77 SF
8TH FLOOR	671.73 SF
CELLAR	2,129.89 SF
	12,740.28 SF

LIGHTING CONTROL NARRATIVE				
SPACE TYPE	TYPE OF CONTROL OR DEVICE	CONTROL OPERATION	NYECC 2020 REFERENCE	DRAWING REFERENCE
DWELLING UNITS	MANUAL ON/OFF	NOT LESS THAN 90 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL USE LAMPS WITH AN EFFICACY OF AT LEAST 65 LUMENS PER WATT, OR HAVE A TOTAL LUMINAIRE EFFICACY OF AT LEAST 45 LUMENS PER WATT.	ECC R404.1	A-801 - A-804
STAIRWAY LOBBY	OCCUPANCY SENSOR	AUTO 50% REDUCED LIGHTING WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2	A-801 - A-804
CORRIDORS	OCCUPANCY SENSOR	AUTO 50% REDUCED LIGHTING WITHIN 15 MINUTES OF ALL OCCUPALANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
MECHANICAL ROOMS	MANUAL ON/OFF	MANUAL SWITCHES TO CONTROL ALL LIGHTING IN THE SPACE	ECC C405.2.5	A-801 - A-804
LAUNDRY WASHING AREA	OCCUPANCY SENSOR	AUTO ON (NO MORE THAN 50%) AUTO FULL OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
STORAGE ROOMS BICYCLE PARKING PARKING	OCCUPANCY SENSOR	AUTO ON (NO MORE THAN 50%) AUTO FULL OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
COMMON RESTROOMS	OCCUPANCY SENSOR	AUTO FULL ON/ OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
RECREATION AREAS	OCCUPANCY SENSOR	AUTO ON (NO MORE THAN 50%) AUTO FULL OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
EXTERIOR LIGHTING	TIME-SWITCH CONTROLS	LIGHTS SHALL BE AUTOMATICALLY TURNED OFF WHEN DAYLIGHT IS PRESENT AND SATISFIES THE LIGHTING NEEDS. BUILDING FACADE AND LANDSCAPE LIGHTING SHALL AUTOMATICALLY SHUT OFF FROM NOT LATER THAN 1 HOUR AFTER BUSINESS CLOSING TO NOT EARLIER THAN 1 HOUR BEFORE BUSINESS OPENING. TIME-SWITCH CONTROLS FOR EXTERIOR LIGHTING SHALL HAVE A CLOCK CAPABLE OF BEING PROGRAMMED FOR NOT FEWER THAN 7 DAYS AND SHALL BE CAPABLE OF BEING SET FOR SEVEN DIFFERENT DAY TYPES PER WEEK. THEY SHALL INCORPORATE AN AUTOMATIC HOLIDAY SETBACK FEATURE AND THEY SHALL HAVE PROGRAM BACKUP CAPABILITIES THAT PREVENT THE LOSS OF PROGRAM AND TIME SETTINGS FOR A PERIOD OF NOT LESS THAN 10 HOURS IN THE EVENT THAT POWER IS INTERRUPTED.	ECC C405.2.6	A-801 - A-804
EXIT SIGNS	ALWAYS ON	INTERNALL ILLUMINATED EXIT SIGNS SHALL NOT EXCEED 5W PER FACE	ECC C405.1.1	A-801 - A-804

LIGHTING FIXTURE SCHEDULE													
Type	Location	Manufacturer	Model	Mounting	Lamp	Dimensions	Watts	Lumens	Lumen Efficacy	CCT / CRI	DIM	Emergency	Type Comments	COUNT
L2 10W	EXTERIOR	LIGHTOLOGY	KHR349587	SURFACE	LED	5"W x 7"H x 6.5"D	10	350	35	3000K / 90+	ND	Yes	MOUNTED AT 8'-0"	2
COMMERCIAL														
L4 20W	COMMON AREAS	ATLANTIC LIGHTING	# 1020-B1-S-10-LRTD4-9020-M2-35KS-30-NCSM-120V-DIML2-EML	CEILING	LED	4 1/2", 1" REGRESS	20	1250	62.5	3500K / 80+	0-10V	Yes		44
RESIDENTIAL														
L1 20W	DWELLINGS	USAI	# 1020-B1-S-10-LRTD4-9020-M2-35KS-30-NCSM-120V-DIML2-EML	CEILING	LED	4 1/2", 1" REGRESS	20	1250	62.5	3500K / 80+	0-10V	No		440
L4 20W	COMMON AREAS	ATLANTIC LIGHTING	# 1020-B1-S-10-LRTD4-9020-M2-35KS-30-NCSM-120V-DIML2-EML	CEILING	LED	4 1/2", 1" REGRESS	20	1250	62.5	3500K / 80+	0-10V	Yes		144

KAO-HWA LEE
ARCHITECTS P.C.
227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
CELLAR - 4TH FLOOR REFLECTED CEILING PLAN

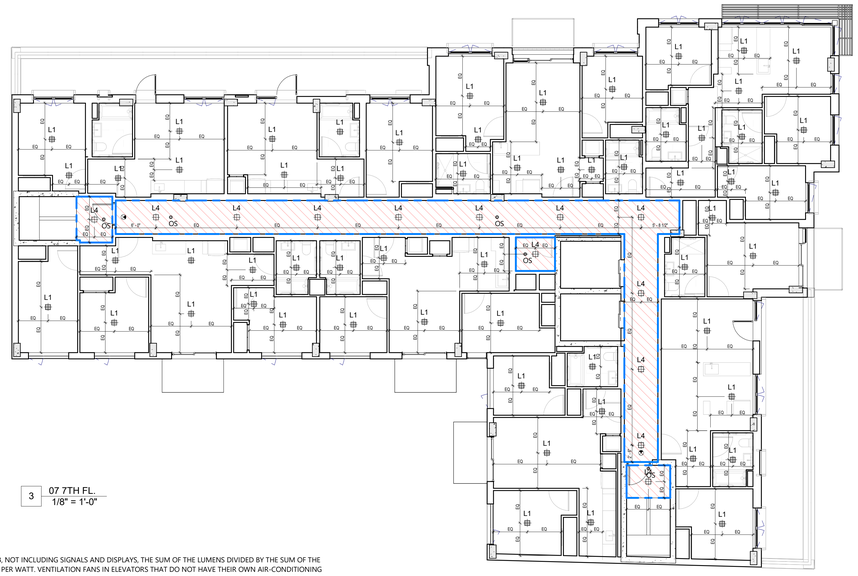
A-800

38 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	FB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

1 05 5TH FL.
1/8" = 1'-0"

2 06 6TH FL.
1/8" = 1'-0"



3 07 7TH FL.
1/8" = 1'-0"

4 08 8TH FL.
1/8" = 1'-0"

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C405.8.1.1 POWER CONVERSION SYSTEM

NEW TRACTION ELEVATORS WITH A RISE OF 75 FEET (23 M) OR MORE IN NEW BUILDINGS SHALL HAVE A POWER CONVERSION SYSTEM THAT COMPLIES WITH SECTIONS C405.8.1.1.1ª THROUGH C405.8.1.1.3ª.

C405.8.1.1.1 MOTOR

INDUCTION MOTORS WITH A CLASS IE2 EFFICIENCY RATING, AS DEFINED BY IEC EN 60034-30, OR ALTERNATIVE TECHNOLOGIES, SUCH AS PERMANENT MAGNET SYNCHRONOUS MOTORS THAT HAVE EQUAL OR BETTER EFFICIENCY, SHALL BE USED.

C405.8.1.1.2 TRANSMISSION

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C405.8.1.1.3 DRIVE

POTENTIAL ENERGY RELEASED DURING MOTION SHALL BE RECOVERED WITH A REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDING ELECTRICAL SYSTEM.

LIGHTING CONTROL NARATIVE				
SPACE TYPE	TYPE OF CONTROL OR DEVICE	CONTROL OPERATION	NYECC 2020 REFERENCE	DRAWING REFERENCE
DWELLING UNITS	MANUAL ON/OFF	NOT LESS THAN 90 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL USE LAMPS WITH AN EFFICACY OF AT LEAST 65 LUMENS PER WATT, OR HAVE A TOTAL LUMINAIRE EFFICACY OF AT LEAST 45 LUMENS PER WATT.	ECC R404.1	A-801 - A-804
STAIRWAY LOBBY	OCCUPANCY SENSOR	AUTO 50% REDUCED LIGHTING WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2	A-801 - A-804
CORRIDORS	OCCUPANCY SENSOR	AUTO 50% REDUCED LIGHTING WITHIN 15 MINUTES OF ALL OCCUPALANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
MECHANICAL ROOMS	MANUAL ON/OFF	MANUAL SWITCHES TO CONTROL ALL LIGHTING IN THE SPACE	ECC C405.2.5	A-801 - A-804
LAUNDRY WASHING AREA	OCCUPANCY SENSOR	AUTO ON (NO MORE THAN 50%) AUTO FULL OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
STORAGE ROOMS BICYCLE PARKING PARKING	OCCUPANCY SENSOR	AUTO ON (NO MORE THAN 50%) AUTO FULL OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
COMMON RESTROOMS	OCCUPANCY SENSOR	AUTO FULL ON/ OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
RECREATION AREAS	OCCUPANCY SENSOR	AUTO ON (NO MORE THAN 50%) AUTO FULL OFF WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.	ECC C405.2.1	A-801 - A-804
EXTERIOR LIGHTING	TIME-SWITCH CONTROLS	LIGHTS SHALL BE AUTOMATICALLY TURNED OFF WHEN DAYLIGHT IS PRESENT AND SATISFIES THE LIGHTING NEEDS. BUILDING FACADE AND LANDSCAPE LIGHTING SHALL AUTOMATICALLY SHUT OFF FROM NOT LATER THAN 1 HOUR AFTER BUSINESS CLOSING TO NOT EARLIER THAN 1 HOUR BEFORE BUSINESS OPENING. TIME-SWITCH CONTROLS FOR EXTERIOR LIGHTING SHALL HAVE A CLOCK CAPABLE OF BEING PROGRAMMED FOR NOT FEWER THAN 7 DAYS AND SHALL BE CAPABLE OF BEING SET FOR SEVEN DIFFERENT DAY TYPES PER WEEK. THEY SHALL INCORPORATE AN AUTOMATIC HOLIDAY SETBACK FEATURE AND THEY SHALL HAVE PROGRAM BACKUP CAPABILITIES THAT PREVENT THE LOSS OF PROGRAM AND TIME SETTINGS FOR A PERIOD OF NOT LESS THAN 10 HOURS IN THE EVENT THAT POWER IS INTERRUPTED.	ECC C405.2.6	A-801 - A-804
EXIT SIGNS	ALWAYS ON	INTERNALL ILLUMINATED EXIT SIGNS SHALL NOT EXCEED 5W PER FACE	ECC C405.1.1	A-801 - A-804

LIGHTING FIXTURE/CONTROL LEGEND	
L1	INTERIOR LIGHTING FIXTURE
L2	EXTERIOR LIGHTING FIXTURE
L3	EXIT SIGN
L4	INTERIOR LIGHTING FIXTURE-COMMON AREAS
TC	TIMECLOCK CONTROL
PC	PHOTOCELL
OS	OCCUPANCY SENSOR
S	MANUAL SWITCH

INTERIOR LIGHTING COMMON AREAS TOTAL	
FLOOR	TOTAL SF
1ST FLOOR	5,809.39 SF
2ND FLOOR	688.32 SF
3RD FLOOR	688.32 SF
4TH FLOOR	688.32 SF
5TH FLOOR	688.27 SF
6TH FLOOR	688.27 SF
7TH FLOOR	687.77 SF
8TH FLOOR	671.73 SF
CELLAR	2,129.89 SF
	12,740.28 SF

DWELLING EFFICACY CALC:

1250/65 = 19.23
PROPOSED WATTAGE PER FIXTURE: 20
20 > 19.23 OK

LIGHTING FIXTURE SCHEDULE													
Type	Location	Manufacturer	Model	Mounting	Lamp	Dimensions	Watts	Lumens	Lumen Efficacy	CCT / CRI	DIM	Emergency	Type Comments	COUNT
L2 10W	EXTERIOR	LIGHTOLOGY	KHR349587	SURFACE	LED	5"W x 7"H x 6.5"D	10	350	35	3000K / 90+	ND	Yes	MOUNTED AT 8'-0"	2
COMMERCIAL														
L4 20W	COMMON AREAS	ATLANTIC LIGHTING	# 1020-B1-S-10-LRTD4-9020-M2-35KS-30-NCSM-120V-DIML2-EML	CEILING	LED	4 1/2", 1" REGRESS	20	1250	62.5	3500K / 80+	0-10V	Yes		44
RESIDENTIAL														
L1 20W	DWELLINGS	USAI	# 1020-B1-S-10-LRTD4-9020-M2-35KS-30-NCSM-120V-DIML2-EML	CEILING	LED	4 1/2", 1" REGRESS	20	1250	62.5	3500K / 80+	0-10V	No		440
L4 20W	COMMON AREAS	ATLANTIC LIGHTING	# 1020-B1-S-10-LRTD4-9020-M2-35KS-30-NCSM-120V-DIML2-EML	CEILING	LED	4 1/2", 1" REGRESS	20	1250	62.5	3500K / 80+	0-10V	Yes		144

KAO-HWA LEE
ARCHITECTS P.C.

227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
5TH, 6TH, 7TH, & 8TH RELFECTED CEILING PLANS

A-801

39 OF 43

Scale:	As indicated
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL
DOB JOB NUMBER:	B01204032-I1

CONTROLLED INSPECTIONS

ALL MATERIALS DESIGNATED FOR "CONTROLLED INSPECTION" SHALL BE INSPECTED AND/OR TESTED TO VERIFY COMPLIANCE WITH CODE REQUIREMENTS, UNLESS OTHERWISE SPECIFICALLY PROVIDED BY CODE PROVISIONS. ALL REQUIRED INSPECTIONS AND TESTS OF MATERIAL SHALL BE MADE AND / OR WITNESSED BY OR UNDER THE DIERECT SUPERVISION OF AN ARCHITECT OR ENGINEER RETAINED BY OR ON BEHALF OF OWNER OR LESSEE.

REQUIRED SPECIAL INSPECTIONS

	STRUCTURAL STEEL-WELDING	BC 1704.3.1
	STRUCTURAL STEEL-DETAILS	BC 1704.3.2
	STRUCTURAL STEEL-HIGH STRENGTH BOLTING	BC 1704.3.3
	STRUCTURAL COLD-FORMED STEEL	BC 1704.3.4
	CONCRETE-CAST-IN-PLACE	BC 1704.3.4
	CONCRETE-PRECAST	BC 1704.3.4
	CONCRETE-PRESTRESSED	BC 1704.3.4
	MASONRY	BC 1704.5
	WOOD-INSTALLATION OF HIGH-LOAD DIAPHRAMS	BC 1704.6.1
	WOOD-INSTALLATION OF METAL-PLATE-CONNECTED TRUSSES	BC 1704.6.2
	WOOD-INSTALLATION OF PREFABRICATED JOISTS	BC 1704.6.3
	SUBGRADE INSPECTION	BC 1704.7.1
	SUBSURFACE CONDITIONS- FILL PLACEMENT & IN PLACE DENS.	BC 1704.7.2&3
	SUBSURFACE INVESTIGATION (BORINGS/ TEST PITS)	BC 1704.7.4
	DEEP FOUNDATION ELEMENTS	BC 1704.8
	HELICAL PILES	BC 1704.8.5
	VERTICAL MASONRY FOUNDATION ELEMENTS	BC 1704.9
	WALL PANELS, CURTAIN WALLS, VENEERS	BC 1704.10
	SPRAYED FIRE-RESISTANT MATERIALS	BC 1704.11
	MASTIC AND INTUMESCENT FIRE-RESISTANT COATING	BC 1704.12
X	EXTERIOR INSULATION FINISH SYSTEMS (EIFS)	BC 1704.13
	ALTERNATIVE MATERIALS-OTCR B. BULLETIN #	BC 1704.14
	SMOKE CONTROL SYSTEMS	BC 1704.15
	MECHANICAL SYSTEMS	BC 1704.16
	FULE-OIL STORAGE AND FUEL-OIL PIPING SYSTEMS	BC 1704.17
	HIGH-PRESSURE STEAM PIPING (WELDING)	BC 1704.18
	HIGH TEMPERATURE HOT WATER PIPING (WELDINGS)	BC 1704.18
	HIGH PRESSURE FUEL-GAS PIPING (WELDING)	BC 1704.19
	STRUCTURAL STABILITY- EXISTING BUILDINGS	BC 1704.20.1
	EXCAVATION-SHEETING, SHORING, AND BRACING	BC 1704.20.2
	UNDERPINNING	BC 1704.20.3, 1814
	MECHANICAL DEMOLITION	BC 1704.20.4
	RAISING AND MOVING OF A BUILDING	BC 1704.20.5
	SOIL-PERCOLATION TEST PRIVATE ON SITE STORM WATER	BC 1704.21.1.2
	PRIVATE ON SITE STORM WATER DRAINAGE DISPOSAL	BC 1704.21.2
	INDIVIDUAL ON SITE STORM PRIVATE SEWAGE DISPOSAL SYS.	BC 1704.22
	SOIL-PERCOLATION TEST-INDIVIDUAL ON SITE PRIVATE SEWAGE	BC 1704.22
	SPRINKLER SYSTEMS	BC 1704.23
	STANDPIPE SYSTEMS	BC 1704.24
	HEATING SYSTEMS	BC 1704.25
	CHIMNEYS	BC 1704.26
X	FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1704.27
	ALUMINUM WELDING	BC 1704.28
	FLOOD ZONE COMPLIANCE (ATTACH FEMA CERTIFICATE)	BC 1704.29, G105
	LUMINOUS EGRESS PATH MARKINGS	BC 1704.30, 1024.8
	EMERGENCY AND STANDBY POWER SYSTEMS (GENERATORS)	BC 1707.31
	POST-INSTALLED ANCHORS (BB# 2014-018 & 019)	BC 1704.32
	SEISMIC ISOLATION SYSTEMS	BC 1707.8
	CONCRETE DESIGN MIX	BC 1905.3, 1913.5
	CONCRETE SAMPLING AND TESTING	BC 1905.3, 1913.10

REQUIRED PROGRESS INSPECTIONS

	PRELIMINARY	28-116.2.1, BC110.2
	FOOTING AND FOUNDATION	BC 110.3.1
	LOWEST FLOOR ELEVATION	BC 110.3.2
	STRUCTURAL WOOD FRAME	BC 110.3.3
X	ENERGY CODE COMPLIANCE INSPECTIONS	BC 110.3.5
X	FIRE--RESISTANCE RATED CONSTRUCTION	BC 110.3.4
	PUBLIC ASSEMBLY EMERGENCY LIGHTING	BC 116.2.2
	FINAL	28-116.2.4.2, BC110.5

TR8- ENERGY CODE PROGRESS INSPECTIONS

NOTE #1
IN ACCORDANCE WITH SECTION 110 OF 2014BC AND ECC 104.2.3, WHERE AN INSPECTION OR TEST FAILS, THE CONSTRUCTION SHOULD BE CORRECTED AND MUST BE MADE AVAILABLE FOR INSPECTIONS, AND/OR RETESTING BY THE PROGRESS INSPECTOR TILL IT COMPLIES

NOTE #2
IN ACCORDANCE WITH SECTION 110 OF 2014BC AND ECC 104.2.3, WHERE AN INSPECTION OR TEST FAILS, THE CONSTRUCTION SHOULD BE CORRECTED AND MUST BE MADE AVAILABLE FOR INSPECTIONS, AND/OR RETESTING BY THE PROGRESS INSPECTOR TILL IT COMPLIES

REQUIRED PROGRESS INSPECTIONS

	PROTECTION OF EXPOSED FOUNDATION INSULATION	
X	INSULATION PLACEMENT AND R-VALUES	
X	FENESTRATION U-FACTOR AND PRODUCT RATING	
X	FENESTRATION AIR LEAKAGE	
X	FENESTRATION AREAS	
X	AIR BARRIER -VISUAL INSPECTION	
	AIR BARRIER -TESTING	
X	AIR BARRIER CONTINUITY PLAN TESTING/INSPECTION	
	VESTIBULES	
	FIREPLACES	
	VENTILATION AND AIR DISTRIBUTION SYSTEM	
	SHUTOFF DAMPERS	
	HVAC-R AND SERVICE WATER HEATING EQUIPMENT	
	HVAC-R AND SERVICE WATER HEATING SYSTEM CONTROLS	
	HVAC-R AND SERVICE WATER PIPING DESIGN AND INSULATION	
	DUCT LEAKAGE TESTING, INSULATION AND DESIGN	
X	METERING	
X	LIGHTING IN DWELLING UNITS	
X	INTERIOR LIGHTNING POWER	
X	EXTERIOR LIGHTING POWER	
X	LIGHTING CONTROLS	
X	ELECTRIC MOTORS AND ELEVATORS	
X	MAINTENANCE INFORMATION	
	PERMANENT CERTIFICATE	
	ELECTRIC VEHICLE SERVICE EQUIPMENT REQUIREMENTS	

KAO-HWA LEE
ARCHITECTS P.C.

227 CATHERINE STREET
SOUTH AMBOY, NJ 08879
(609) 216 2975

No.	Description	Date

KEY PLAN

SIGNATURE & SEAL

DOB SCAN STICKER:

LOCATION
860 FLUSHING AVENUE, BROOKLYN, NY 11206

SHEET TITLE
PROGRESS INSPECTIONS

G-001

43 OF 43

Scale:	3/8" = 1'-0"
Date:	7/24/2025
Drawn by:	RB
Checked by:	KHL

DOB JOB NUMBER:
B01204032-I1

APPENDIX D
Construction Health and Safety Plan

HALEY & ALDRICH, INC.
SITE-SPECIFIC SAFETY PLAN

FOR

860 Flushing Avenue

860 Flushing Avenue

Project/File No. 0211437

Gensuite EZ Scan®
BI - Developers

Prepared By: Kassidy Oconnor	**Date: 9/16/2025**
Approvals: The following signatures constitute approval of this Health & Safety Plan.	
Field Safety Manager: Luke J. McCartney, P.G.	**Date: 9/16/2025**
Project Manager: Luke J. McCartney, P.G.	**Date: 9/16/2025**
HASP Valid Through: 12/31/2026	

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Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

STOP WORK AUTHORITY

In accordance with Haley & Aldrich (Haley & Aldrich) Stop Work Authority Operating Procedure (OP1035), any individual has the right to refuse to perform work that he or she believes to be unsafe without fear of retaliation. He or she also has the authority, obligation, and responsibility to stop others from working in an unsafe manner.

STOP Work Authority is the stop work policy for all personnel and subcontractors on the Site. When work has been stopped due to an unsafe condition, Haley & Aldrich site management (e.g., Project Manager [PM], Site Health & Safety Officer [SHSO], etc.) and the Haley & Aldrich Senior Project Manager (SPM) will be notified immediately.

Reasons for issuing a stop work order include, but are not limited to:

- The belief/perception that injury to personnel or accident causing significant damage to property or equipment is imminent.
- An Haley & Aldrich subcontractor is in breach of site safety requirements and/or their own site HASP.
- Identifying a substandard condition (e.g., severe weather) or activity that creates an unacceptable safety risk as determined by a qualified person.

Work will not resume until the unsafe act has been stopped OR sufficient safety precautions have been taken to remove or mitigate the risk to an acceptable degree. Stop work orders will be documented as part of an on-site stop work log, on daily field reports to include the activity/activities stopped, the duration, person stopping work, person in-charge of stopped activity/activities, and the corrective action agreed to and/or taken. Once work has been stopped, only the Haley & Aldrich SPM or SHSO can give the order to resume work. Haley & Aldrich senior management is committed to support anyone who exercises his or her “Stop Work” authority.

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

ISSUANCE AND COMPLIANCE

This HASP has been prepared in accordance with Occupational Safety and Health Administration (OSHA) regulations (CFR 29, Parts 1904, 1910, and 1926) if such are applicable.

The specific requirements of this HASP include precautions for hazards that exist during this project and may be revised as new information is received or as site conditions change.

- This HASP must be signed by all Haley & Aldrich personnel involved in implementation of the SOW (Section 2 of this HASP).
- This HASP, or a current signed copy, must be retained at all times when Haley & Aldrich staff are present.
- Revisions to this HASP must be outlined within the contents of the HASP. If immediate or minor changes are necessary, the Field Safety Manager (FSM), Haley & Aldrich, SSO and/or Project Manager (PM) may use Attachment 1 (HASP Amendment Form), presented at the end of this HASP. Any revision to the HASP requires employees and subcontractors to be informed of the changes so that they understand the requirements of the change.
- Deviations from this HASP are permitted with approval from the Haley & Aldrich FSM, PM, or Senior Health & Safety Manager (SHSM). Unauthorized deviations may constitute a violation of Haley & Aldrich company procedures/policies and may result in disciplinary action.
- This HASP will be relied upon by Haley & Aldrich's subcontractors and visitors to the site. Haley & Aldrich's subcontractors must have their own HASP which will address hazards specific to their trade that is not included in this HASP. This HASP will be made available for review to Haley & Aldrich's subcontractors and other interested parties (e.g. Facility personnel and regulatory agencies) to ensure that Haley & Aldrich has properly informed our subcontractors and others of the potential hazards associated with the implementation of the SOW to the extent that Haley &Aldrich is aware.

This site-specific HASP provides only site-specific descriptions and work procedures. General safety and health compliance programs in support of this HASP (e.g., injury reporting, medical surveillance, personal protective equipment (PPE) selection, etc.) are described in detail in the Haley &Aldrich Corporate Health and Safety Program Manual and within Haley & Aldrich's Standard Operating Procedures Both the manual and SOPs can be located on the Haley & Aldrich's Company Intranet. When appropriate, users of this HASP should always refer to these resources and incorporate to the extent possible. The manual and SOPs are available to clients and regulators upon request.

Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

EMERGENCY EVENT PROCEDURES

1 - ASSESS THE SCENE

- **STOP WORK**
- Review the situation and ascertain if it's safe to enter the area.
- Evacuate the site if the conditions are unsafe.

2 - EVALUATE THE EMERGENCY

- **Call 911, or designated emergency number, if required.**
- **Provide first aid for the victim if qualified and safe to do so.**
  - First aid will be addressed using the onsite first aid kit. *
    - If providing first aid, remember to use proper first aid universal precautions if blood or bodily fluids are present.
- **If exposure to hazardous substance is suspected, immediately vacate the contaminated area.**
  - Remove any contaminated clothing and/or equipment.
  - Wash any affected dermal/ocular area(s) with water for at least 15 minutes.
  - Seek immediate medical assistance if any exposure symptoms are present.

** Note: Haley & Aldrich employees are not required or expected to administer first aid / CPR to any Haley & Aldrich staff member, Contractor, or Civilian personnel at any time; it is Haley & Aldrich´s position that those who do are doing so on their own behalf and not as a function of their job.*

3 - SECURE THE AREA

- **Cordon off the incident area, if possible.**
  - Notify any security personnel, if required.
  - Escort all non-essential personnel out of the area, if able.

4 - REPORT ON-SITE ACCIDENTS / INCIDENTS TO PM / SSO

- **Notify the PM and SSO as soon as it is safe to do so.**
  - Assist PM and SSO in completing any additional tasks, as required.

5 - INVESTIGATE / REPORT THE INCIDENT

- **Record details of the incident for input to the Gensuite.**
  - Complete any additional forms as requested by the PM and SSO.

6 - TAKE CORRECTIVE ACTION

- **Implement corrective actions per the PM following root cause analysis.**
  - Complete Lessons Learned form.

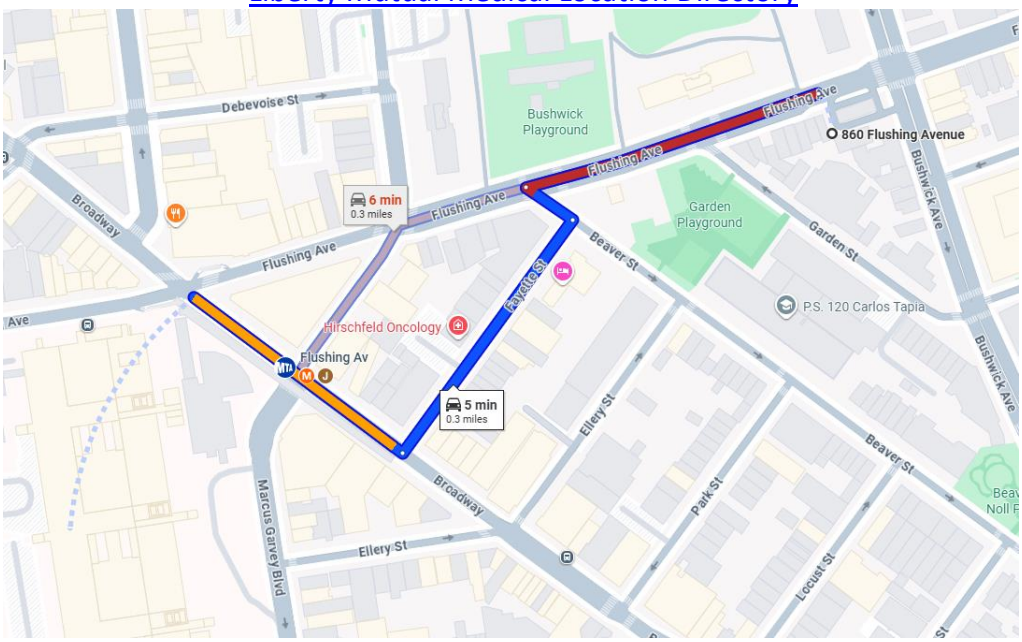
Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

PROJECT INFORMATION AND CONTACTS	
Project Name: 860 Flushing Avenue	**Haley & Aldrich File No.:** 0211437
Location: 860 Flushing Avenue, Brooklyn, NY	
Client/Site Contact: Phone Number:	Flushing Holdings NY LLC Enter Phone Number
Haley & Aldrich Field Representative: Phone Number: Emergency Phone Number:	Joseph Mastro 914-960-5599 914-960-5599
Haley & Aldrich Project Manager: Phone Number: Emergency Phone Number:	Luke McCartney 646.568.9357 551.655.7720
Field Safety Manager: Phone Number: Emergency Phone Number:	Luke McCartney 646.568.9357 551.655.7720
Subcontractor Project Manager: Phone Number:	Enter Name Enter Phone Number
Nearest Hospital: Address: (see map on next page) Phone Number:	NYC Health & Hospitals/Woodhull 760 Broadway, Brooklyn, NY (718) 963-8000
Nearest Occ. Health Clinic: http://www.talispoint.com/liberty/ext/ Address: (see map on next page) Phone Number:	**CALL ACUITY** **1-888-397-8099**
Liberty Mutual Claim Policy	**WC6Z11254100036**
Emergency Response Number:	**911**
Other Local Emergency Response Number:	N/A
Other Ambulance, Fire, Police, or Environmental Emergency Resources:	911

Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

DIRECTIONS TO THE NEAREST HOSPITAL

Liberty Mutual Medical Location Directory



Directions to the Nearest Hospital:

from 860 Flushing Ave, Brooklyn, NY 11206
to NYC Health + Hospitals/Woodhull

5 min (0.3 mile)

via Flushing Ave, Fayette St and Broadway
Fastest route now due to traffic conditions

860 Flushing Ave
Brooklyn, NY 11206

Head west on Flushing Ave toward Garden St
0.1 mi

Turn left onto Beaver St
108 ft

Turn right onto Fayette St
0.1 mi

Turn right onto Broadway
0.1 mi

NYC Health + Hospitals/Woodhull
760 Broadway, Brooklyn, NY 11206

Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

DIRECTIONS TO THE NEAREST URGENT CARE

Liberty Mutual Medical Location Directory

CALL ACUITY
1-888-397-8099

Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

1. WORK SCOPE

This Site-Specific Health and Safety Plan addresses the health and safety practices and procedures that will be exercised by all Haley & Aldrich employees participating in all work on the Project Site. This plan is based on an assessment of the site-specific health and safety risks available to Haley & Aldrich and Haley & Aldrich's experience with other similar project sites. The scope of work includes the following:

Site mobilization involving site walks, equipment mobilization and utility mark outs (GPR). Remedial oversight and soil sampling. Screening of soil cored during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.

Project Task Breakdown

Task No.	Task Description	Employee(s) Assigned	Work Date(s) or Duration
1	Site Walk	Enter name.	1 day
2	Remedial Oversight	Enter name.	1 day
3	Soil Sampling	Enter name.	1 day

Subcontractor(s) Tasks

Firm Name	Work Activity	Work Date(s) or Duration
Enter name.	Enter task description.	Enter dates/duration.

Projected Start Date: Click or tap to enter a date.

Projected Completion Date: Click or tap to enter a date.

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

2. SITE OVERVIEW / DESCRIPTION

Site Classification

Mixed-use commercial and residential

Site Description

The Site, located in the County of Kings, Brooklyn, New York and is identified as Block 3138, Lot 32 on the New York City Tax Map, is approximately 0.24-acres in size. The Site is bounded to the north by Flushing Avenue and a multi-story residential building that is part of the Bushwick Houses apartment complex; to the east by a one-story restaurant and two four-story residential buildings with ground-floor commercial use; to the south by a six-story residential building with ground-floor commercial use; and to the west by a two-story deli.

Background and Historic Site Usage

The subject property was first developed as early as 1887 with multiple dwellings and storefronts. By 1934, the subject property was occupied by commercial businesses including a chair manufacturer with paint spraying, an upholsterer, a dentist, a scrap iron business, a plumbing supply business, and a shoe store. From as early as 1946 to the present day, the subject property has operated as a gasoline filling station with auto service until at least 1979. Historical operations have included a laundry, lubritorium, repair shop, auto inspection, auto washing and sales, and parking and storage of more than five cars. Since 1979, the property has remained relatively unchanged except for the addition of a pump island canopy around 2001. The site is currently vacant.

Site Status

Indicate current activity status and describe operations at the site:

Active

BP Gasoline retail station with convenience store

Site Plan

Is a site plan or sketch available? Yes

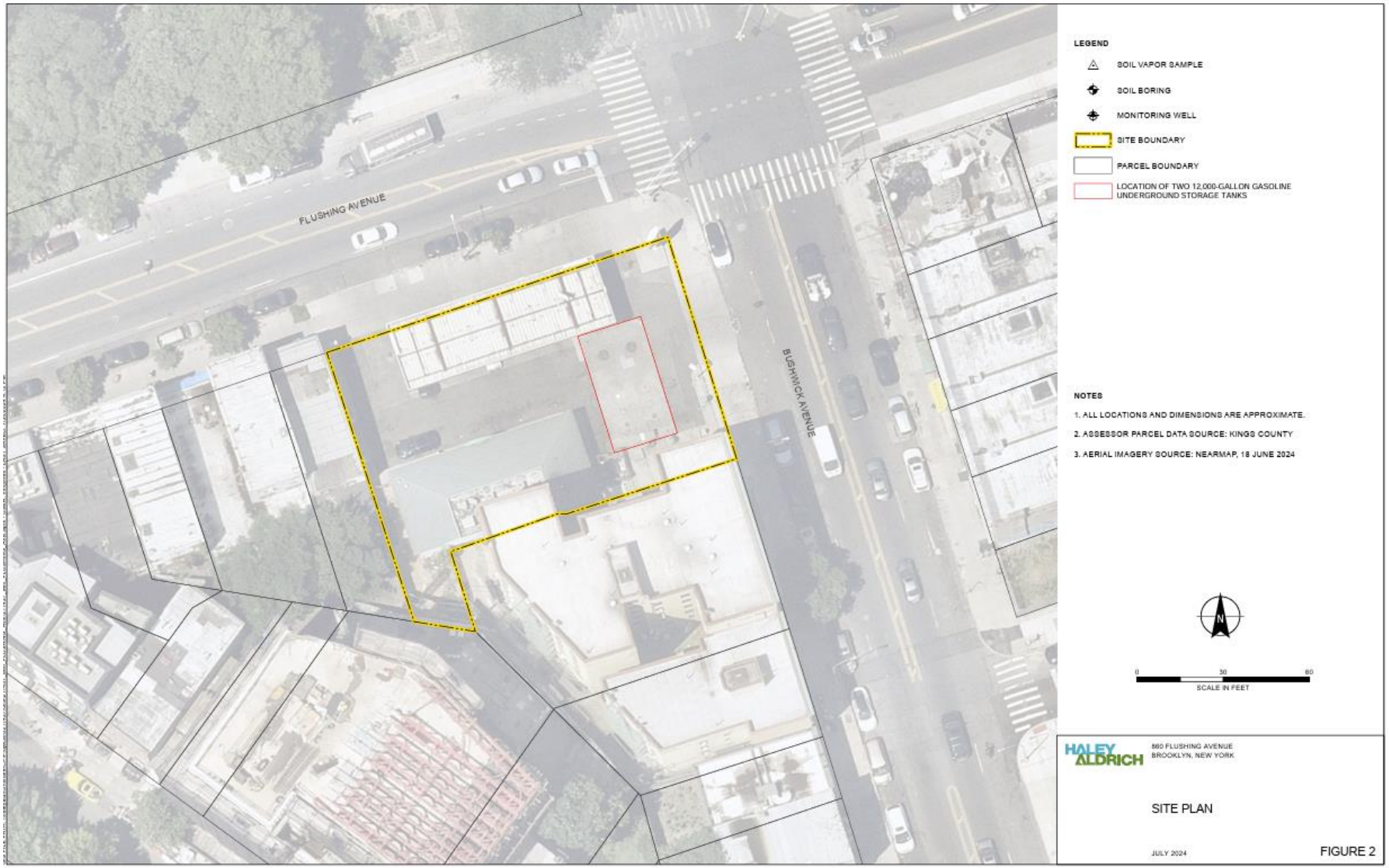
Work Areas

List and identify each specific work areas(s) on the job site and indicate its location(s) on the site plan:

Entire Site

Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

Site Plan



Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

3. HAZARD ASSESSMENT

Indicate all hazards that may be present at the site and for each task. If any of these potential hazards are checked, it is the Project Manager's responsibility to determine how to eliminate / minimize the hazard to protect onsite personnel.

Site Chemical Hazards

Is this Site impacted with chemical contamination? Yes

Source of information about contaminants: Previous Investigation

Contaminant of Concern	Location/Media	Concentration	Units
Acetone	Soil	0.072	mg/kg
BTEX/VOCs	Soil	2.3	mg/kg
Polycyclic aromatic hydrocarbons (PAHs)	Soil	141	mg/kg
Organochlorine Pesticides	Soil	0.0264	mg/kg
Arsenic	Soil	13.3	mg/kg
Barium	Soil	3,160	mg/kg
Cadmium	Soil	6.79	mg/kg
Copper	Soil	305	mg/kg
Lead	Soil	3,150	mg/kg
Mercury	Soil	6.07	mg/kg
Nickel	Soil	42.9	mg/kg
Zinc	Soil	2,270	mg/kg
Polychlorinated biphenyls (PCBs)	Soil	0.291	mg/kg
PFOS/PFOA	Soil	2.06	ppb
Chloroform	Groundwater	10	ug/L
SVOCs	Groundwater	0.226	ug/L
Total Metals	Groundwater	205,000	ug/L

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

Dissolved Metals	**Groundwater**	**238,000**	**ug/L**
PFOA	**Groundwater**	**94.7**	**Other**

BTEX/VOCs: BTEX is an acronym for benzene, toluene, ethylbenzene and xylenes. These compounds are VOCs, are common in petroleum-related products (e.g., oil, gasoline, coal-tar DNAPL, etc.), and frequently co-occur at hazardous waste sites. Benzene, toluene, ethylbenzene, and xylenes have acute and chronic harmful effects on the central nervous system. Benzene is classified as a carcinogen. Short-term health effects of low-level BTEX exposure include drowsiness, dizziness, accelerated heart rate, headaches, tremors, confusion, and unconsciousness.

Polycyclic aromatic hydrocarbons (PAHs): are a class of chemicals that occur naturally in coal, crude oil, and gasoline. They also are produced when coal, oil, gas, wood, garbage, and tobacco are burned. PAHs generated from these sources can bind to or form small particles in the air. High-temperature cooking will form PAHs in meat and in other foods. Naphthalene is a PAH that is produced commercially in the United States to make other chemicals and mothballs. Cigarette smoke contains many PAHs.

Organochlorine Pesticides: are chlorinated hydrocarbons used extensively from the 1940s through the 1960s in agriculture and mosquito control. Representative compounds include DDT, methoxychlor, dieldrin, chlordane, toxaphene, mirex, kepone, lindane, and benzene hexachloride. As neurotoxicants, many organochlorine pesticides were banned in the United States, few are still registered for use.

People can be exposed to organochlorine pesticides through accidental inhalation exposure if in an area where they were recently applied. The chemicals can also be ingested in fish, dairy products, and other fatty foods that are contaminated. Organochlorine pesticides accumulate in the environment and are very persistent and move long distances in surface runoff or groundwater.

Exposure to these chemicals over a short period may produce convulsions, headache, dizziness, nausea, vomiting, tremors, confusion, muscle weakness, slurred speech, salivation and sweating. Long-term exposure may damage the liver, kidney, central nervous system, thyroid and bladder. Many of these pesticides have been linked to elevated rates of liver or kidney cancer in animals. There is some evidence indicating that organochlorine pesticides may also cause cancer in humans.

Arsenic: The Occupational Safety and Health Administration has set limits of 10 microgram arsenic per cubic meter of workplace air (10 µg/m3) for 8 hour shifts and 40 hour work weeks. Several studies have shown that inorganic arsenic can increase the risk of lung cancer, skin cancer, bladder cancer, liver cancer, kidney cancer, and prostate cancer. The World Health Organization (WHO), the Department of Health and Human Services (DHHS), and the EPA have determined that inorganic arsenic is a human carcinogen.

Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs. Ingesting high levels of inorganic arsenic can result in death. Lower levels of arsenic can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet.

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Barium: is a soft, silvery metal that rapidly tarnishes in air and reacts with water. It is mostly used in drilling fluids for oil and gas wells and used in paint and in glassmaking. All barium compounds are toxic; however, barium sulfate is insoluble and so can be safely swallowed. A suspension of barium sulfate is sometimes given to patients suffering from digestive disorders.

Barium has no known biological role, although barium sulfate has been found in one type of algae. Barium is toxic, as are its water- or acid-soluble compounds. Barium occurs only in combination with other elements. The major ores are barite (barium sulfate) and witherite (barium carbonate). Barium metal can be prepared by electrolysis of molten barium chloride, or by heating barium oxide with aluminum powder.

Cadmium: Cadmium became an important metal in the production of nickel-cadmium (Ni-Cd) rechargeable batteries and as a sacrificial corrosion-protection coating for iron and steel. Common industrial uses for cadmium today are in batteries, alloys, coatings (electroplating), solar cells, plastic stabilizers, and pigments. Acute (short-term) exposure to Cadmium fumes is irritating to the respiratory tract. Inhalation of fumes may cause a buildup of fluid in the lungs. Inhalation of fumes may cause metal fume fever. The effects may be delayed, and medical observation is recommended. Prolonged (chronic) exposure to Cadmium dust may result in impairment of lungs. Cadmium and its compounds are highly toxic and exposure to this metal is known to cause cancer and targets the body's cardiovascular, renal, gastrointestinal, neurological, reproductive, and respiratory systems. Cadmium is a carcinogen.

Lead: The effects of lead are the same whether it enters the body through breathing or swallowing. Lead can affect almost every organ and system in your body. The main target for lead toxicity is the nervous system. Long-term exposure to lead can result in decreased performance in some tests measuring functions of the nervous system in adults. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys and ultimately cause death.

Mercury: is an odorless, silver metallic liquid. It can be inhaled or absorbed through the skin. Contact may cause irritation to the skin or eyes. Toxic if ingested. Fume inhalation may cause irritation in the nose, throat or lungs. This is a corrosive chemical. Symptoms of poisoning include, muscle tremors, loss of appetite, and nausea. Long-term exposure may have effects on the central nervous system and kidneys. The PEL is 0.1 mg/m^3 averaged over an 8 hour shift.

Nickel: is silvery-white metal with a gold tinge. It is used in batteries and making of alloys and is found in Earth's core and crust. If reduced to dust particles it can cause chronic bronchitis, reduced lung function and potential cancer of lung and sinus if overexposed.

Zinc: is an odorless, bluish-white powder. It is typically used in paints and can be mixed with other metals to make bass and other types of alloys. Zinc can produce flammable gases when in contact with water, sometimes creating vigorous or explosive reactions. It can also create gaseous hydrogen in contact with water or moist air. Inhalation will cause irritation to eyes and respiratory system. Exposures cause flu-like symptoms, called "metal fume fever", which can sometimes be delayed up to 48 hours after initial exposure.

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Polychlorinated biphenyls (PCBs): are a group of manufactured organic chemicals that contain 209 individual chlorinated chemicals. PCBs are either oily liquids or solids and are colorless to light yellow in color. They have no known smell or taste. There are no known natural sources of PCBs. Some commercial PCB mixtures are known in the United States by their industrial trade name e.g. Aroclor.

Site Hazards Checklist			
Weather			
High Winds	Cold Temperatures	Hot Temperatures	Select Hazard

High Winds

While high winds are commonly associated with severe thunderstorms and hurricanes they may also occur as a result of differences in air pressures, such as when a cold front passes across the area. They can cause downed trees and power lines, and flying debris (such as dust or larger debris), which adds additional risks and could lead to power outages, transportation disruptions, damage to buildings and vehicles, and serious injury.

Wind Advisory are issued for sustained winds 25 to 39 mph and/or gusts to 57 mph. High Wind warnings are issued by the National Weather Service when high wind speeds may pose a hazard or is life threatening. The criteria for this warning will varies by state. The Beaufort Wind Scale is a helpful tool to when dealing with high winds.

Cold Temperatures

Cold stress may occur at any time work is being performed at low ambient temperatures and high velocity winds. Because cold stress is common and has potentially serious illnesses associated with outdoor work during cold seasons, regular monitoring and other preventative measures are vital.

Refer to OP1003-Cold Stress for additional information and mitigation controls.

Hot Temperatures

Heat stress may occur at any time work is being performed at elevated ambient temperatures. Because heat stress is one of the most common and potentially serious illnesses associated with outdoor work during hot seasons, regular monitoring and other preventative measures are vital. Site workers must learn to recognize and treat the various forms of heat stress. The best approach is preventative heat stress management.

H&A employees and their subcontractors should be aware of potential health effects and/or physical hazards of working when there are hot temperatures or a high heat index. Refer OP1015-Heat Stress for a discussion on hot weather hazards.

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Biological			
Stinging Insects	Large/Small Mammals	Mosquitoes	Choose an item.

Stinging Insects

Stinging Insects fall into two major groups: Apidae (honeybees and bumblebees) and vespids (wasps, yellow jackets, and hornets). Apidae are docile and usually do not sting unless provoked. The stinger of the honeybee has multiple barbs, which usually detach after a sting. Vespids have few barbs and can inflict multiple stings.

There are several kinds of stinging insects that might be encountered on the project site. Most stings will only result in a temporary injury. However, sometimes the effects can be more severe, even life-threatening depending on where you are stung and what allergies you have. Being stung in the throat area of the neck may cause edema (swelling caused by fluid build-up in the tissues) around the throat and may make breathing difficult.

In rare cases, a severe allergic reaction can occur. This can cause "anaphylaxis" or anaphylactic shock with symptoms appearing immediately or up to 30 minutes later. Symptoms include; Hives, itching and swelling in areas other than the sting site, swollen eyes/eyelids, wheezing, chest tightness, difficulty breathing, hoarse voice, swelling of the tongue, dizziness or sharp drop in blood pressure, shock, unconsciousness or cardiac arrest. Reactions can occur the first time you are stung or with subsequent stings. If you see any signs of reaction, or are unsure, call or have a co-worker call emergency medical services (e.g., 911) right away. Get medical help for stings near the eyes, nose or throat. Stay with the person who has been stung to monitor their reaction.

Staff who are allergic to bee stings are encouraged to inform their staff/project manager. If staff member carries an Epi-pen (i.e., epinephrine autoinjector) they are encouraged to inform their colleagues in case they are stung and are incapable of administering the injection. Examine site for any signs of activity or a hive/nest. If you see several insects flying around, see if they are entering/exiting from the same place. Most will not sting unless startled or attacked. Do not swat, let insects fly away on their own. If you must, walk away slowly or gently "blow" them away. If a nest is disturbed and you hear "wild" buzzing, protect your face with your hands and run from the area immediately. Wear long sleeves, long pants, and closed-toed boots. Wear light colored clothes such as khakis. Avoid brightly colored, patterned, or black clothing. Tie back long hair to avoid bees or wasps from entanglement. Do not wear perfumes, colognes or scented soaps as they contain fragrances that are attractive. If bee or wasp is found in your car, stop and leave windows open.

Small Mammals

Rodents, are the most abundant order of mammals. There are hundreds of species of rats; the most common are the black and brown rat. Other rodents you may encounter are mice, beavers, squirrels, guinea pigs, capybaras and coypu.

The Brown Rat has small ears, blunt nose, and short hair. It is approximately 14-18” long (with tail).

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They frequently infest garbage/rubbish, slaughterhouses, domestic dwellings, warehouses, and supermarkets. They also frequent any space with an easy meal and potential nesting sites. The Black Rat is identified by its tail, that is always longer than the length from the head to the body. It is also slimmer and more agile than the Brown rat. Its size varies according to its environment and food supply.

The House Mouse has the amazing ability to adapt and can frequently be found in human dwellings. In buildings, mice will live anywhere and difficult to keep out. Mice are omnivorous, they will eat anything. Rats and mice often become a serious problem in cold winter months when they seek food and warmth inside buildings. They may suddenly appear in large numbers when excavation work disturbs their in-ground nesting locations or their food source is changed.

Some major problems caused by rats and mice are contaminating the food they eat with urine and excrement. Gnawing into materials such as paper, wood, or upholstery, to use as nest material. Also gnawing plastic, cement, soft metals such as lead and aluminum, and wiring, which may cause a fire hazard. Occasionally biting people and may kill small animals. They, or the parasites they carry, like fleas, mites and worms, spread many diseases such as salmonella, trichinosis, rat bite fever, hantavirus, Weil's disease, and bubonic plague. They damage ornamental plants by burrowing among the roots or feeding on new growth. They also eat garden vegetables, such as corn and squash. These rodents have been a problem for centuries, because of their incredible ability to survive and are so difficult to eliminate. In addition, they are extremely compatible with human behavior and needs.

Avoid contact with rodents, if possible. Avoid contact with rodent excrement. Do not eat food or water that may have encountered rodent excrement. If exposed, wash hands and avoid touching your face with your hands.

Mosquitos

Work outdoors with temperatures above freezing will likely bring staff into contact with mosquitos. There are a variety of mosquito species that can transmit a range of diseases. Birds act as reservoirs for the viruses that can be collected by the mosquito and transmitted to a person. Majority of mosquitos are mainly a nuisance but staff need to take appropriate precautions to minimize the potential transmission of a virus that can result in one of the following diseases: West Nile, Eastern Equine Encephalitides and Western Encephalitides. Knowing some key steps that can minimize the risk of mosquito bites is, therefore, important in reducing the risks. Workers working outdoors should be aware that the use of PPE techniques is essential to preventing mosquito bites especially when working at sites where mosquitoes may be active and biting.

Use repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-diol products provide longer-lasting protection. To optimize safety and effectiveness, repellents should be used according to the label instructions. Cover as much of your skin as possible by wearing shirts with long-sleeves, long pants, and socks whenever possible. Avoid use of perfumes and colognes when working outdoors during peak times when mosquitoes may be active; mosquitoes may be more attracted to individuals wearing perfumes and colognes.

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Location/Terrain			
Slip/Trip/Falls	Public Rd/Right of Way	SIMOPS	Economically Depressed

Slips, Trips & Falls

Slip and trip injuries are the most frequent injuries to workers. Statistics show most falls happen on the same level resulting from slips and trips. Both slips and trips result from unintended or unexpected change in the contact between the feet and the ground or walking surface. Good housekeeping, quality of walking surfaces (flooring), awareness of surroundings, selection of proper footwear, and appropriate pace of walking are critical for preventing fall accidents.

Site workers will be walking on a variety of irregular surfaces, that may affect their balance. Extra care must be taken to walk cautiously near rivers because the bottom of the riverbed maybe slick and may not be visible. Rocks, gradient changes, sandy bottoms, and debris may be present but not observable.

Take your time and pay attention to where you are going. Adjust your stride to a pace that is suitable for the walking surface and the tasks you are doing. Check the work area to identify hazards - beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain. Establish and utilize a pathway free of slip and trip hazards. Choose a safer walking route. Carry loads you can see over. Keep work areas clean and free of clutter. Communicate hazards to on-site personnel and remove hazards as appropriate.

Public Right of Way

H&A staff and their subcontractors conducting work on public roads and/or right of ways can be exposed to vehicular traffic and expose the public to the hazards of the job site. Where a hazard exists to site workers because of traffic or haulage conditions at work sites that encroach public streets or highways, a system of traffic controls in conformance with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), or state program, is required. A Temporary Traffic Control Plan (TCP) describes traffic controls to be used for facilitating vehicle and pedestrian traffic through a temporary traffic control zone TCPs are required to provide for worker protection and safe passage of traffic through and around job sites with as little inconvenience and delay as possible.

The plan may range in scope from being very detailed, to merely referencing typical drawings contained in the MUTCD. The degree of detail in the TCP depends entirely on the complexity of the situation, and TCP's should be prepared by persons knowledgeable about the fundamental principles of temporary traffic control and the work activities to be performed.

H&A Project Managers or their subcontractors need to establish appropriate control measures and obtain any permits when project work is on or encroaches public roadways. You may need flaggers or police details. Cease work and notify the field supervisor immediately if any conditions are such that safety is jeopardized. Utilize protective vehicles whenever appropriate or position equipment so in between the work and oncoming traffic.

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SIMOPS

SIMOPS are described as the potential class of activities which could bring about an undesired event or set of circumstances, e.g., safety, environment, damage to assets, schedule, commercial, financial, etc. SIMOPS are defined as performing two or more operations concurrently.

SIMOPS should be identified at an early stage before operations commence to understand issues such as schedule and physical clashes, maintenance activities, failure impacts, interferences between vessels, contracts and third part interfaces and environmental impacts.

Coordinate project with site activities. Identify and understand the hazards associated with the host and client's activities. Integrate site emergency response protocols where appropriate and communicate to all project staff. Integrate site communication protocols and communicate to all project staff.

Economically Depressed Areas

Economically depressed areas may have high crime rates. Projects involving work in and around inactive industrial sites may bring staff into contact with indigent and homeless persons. Staff could be subjected to crime that includes but may not be limited to thievery, vandalism, and violence. Prior to the start of work staff need to understand the work locations and the potential for exposure to low level crime.

Staff members should never work alone in these areas. A buddy system is required. Conduct during daylight hours. Secure equipment and vehicles. If warranted, contact the local police department for a security detail. Leave the work area immediately and contact the local authorities if staff members feel threatened or are threatened.

Miscellaneous			
Extended Shift	Choose an item.	Choose an item.	Choose an item.

Extended Shift

An extended shift can include extending a workday beyond eight hours. Extended or unusual work shifts may be more stressful physically, mentally, and emotionally. Non-traditional shifts and extended work hours may disrupt the body's regular schedule, leading to increased fatigue, stress, and lack of concentration. This leads to an increased risk of operator error, injuries and/or accidents. The degree to which an individual is exposed to fatigue risk factors depends upon the work schedule. As both the duration of the workday and the number of days worked increase so does the fatigue risk factors. Staff Managers need to be aware of the fatigue risk factors and ensure projects are structured to mitigate these factors. Staff Members also have a responsibility to manage the personal fatigue risk factors that they can control outside of work (e.g, duration and quality of sleep, diet, drugs, and alcohol)

Fatigue is a message to the body to rest and can be eliminated with proper rest. However, if rest is not possible, fatigue can increase and becomes distressing and eventually debilitating. Fatigue symptoms, both mental and physical, vary and depend on the person and degree of overexertion. Examples

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include: weariness, sleepiness, irritability, reduced alertness, lack of memory, concentration and motivation, increased susceptibility to illness, depression, headache, loss of appetite, and digestive problems.

When possible, managers should limit use of extended shifts and increase the number of days worked. Working shifts longer than 8 hours generally result in reduced productivity and alertness. Additional breaks and meals should be provided when working extended shift periods. Tasks requiring heavy physical labor or intense concentration should be performed at the beginning of the shift if possible. This is an important consideration for pre-emergency planning.

Make efforts, when feasible, to ensure that unavoidable extended work shifts and shift changes allow affected employees time for adequate rest and recovery. Project Managers need to plan to have an adequate number of personnel available to enable workers to take breaks, eat meals, relax, and sleep.

Plan for regular and frequent breaks throughout the work shift. If at remote sites, ensure if possible, that there is a quiet, secluded area designated for rest and recuperation. In addition to formal breaks such as lunch or dinner, encourage use of micro breaks to change positions, move about, and shift concentration. Personnel should look to obtain an adequate quantity and quality of sleep.

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Task Hazard Summary

Task 1 - Site Walk

General hazards associated with site walk-throughs and site surveys include the following: • Exposure to irritant and toxic plants such as poison ivy and sticker bushes may cause allergic reactions to personnel. • Surfaces covered with heavy vegetation and undergrowth create a tripping hazard. • Back strain due to carrying equipment, tools, and instruments. • Native wildlife such as rodents, ticks, and snakes present the possibility of insect bites and associated diseases such as Lyme disease
Driving vehicles on uneven or unsafe surfaces can result in accidents such as overturned vehicles or flat tires. • Heat stress/cold stress exposure.

HAZARD PREVENTION • Wear long-sleeved clothing and slacks to minimize contact with irritant and toxic plants and to protect against insect bites. Appropriate first aid for individuals' known allergic reactions. • Be alert and observe terrain while walking to minimize slips and falls. • Use proper lifting techniques to prevent back strain. • Avoid wildlife when possible. In case of an animal bite, perform first aid and capture the animal, if possible, for rabies testing. Perform a tick check after leaving a wooded or vegetated area. • Ensure all maintenance is performed on vehicles before going to the field. A site surveillance on foot might be required to choose clear driving paths. • Implement heat stress management techniques such as shifting work hours, fluid intake, and monitoring employees, especially high risk workers.

Task 2a – Excavation/Trenching (Remedial Oversight)

There are multiple hazards associated with working in and around excavations and trenches including cave-ins, potential running soils, dislodged excavated soils, lack of proper access and egress. Nonfatal, and even fatal, injuries may occur in association with excavation and trenching activities with a greater frequency than one might expect. Causes of bodily injury, illness, or death include asphyxiation, internal injuries due to physical crushing, falling objects and toxic exposures.

Excavations five (5) feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If the depth is less than five (5) feet deep, a competent person may determine that a protective system is not required. Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional.

H&A Staff Members shall not enter a trench that is five feet deep or greater unless a protective system is used or the soil(s) have been characterized and benched and/or sloped appropriately.

The following are list identifies the types of protective measures that can be used in the event a staff member is required to enter an excavation or trench.

- **Sloping** involves cutting back the trench wall at an angle inclined away from the excavation.

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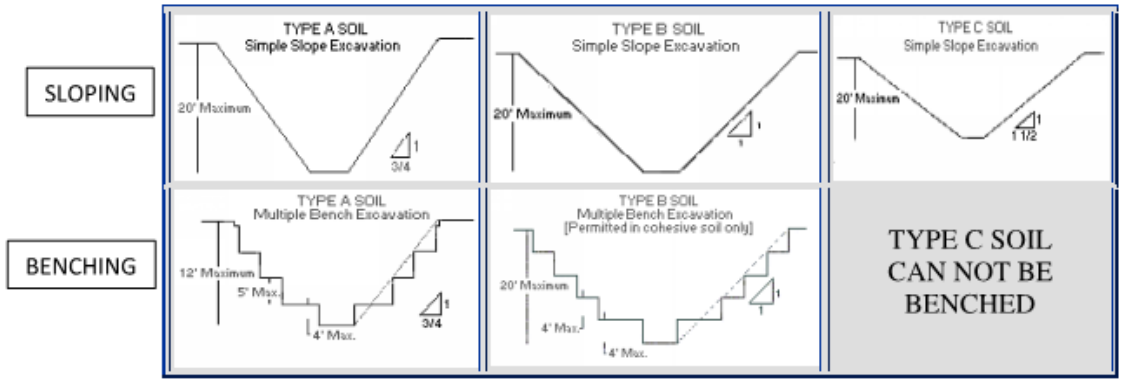
- **Benching** means a method of protecting workers from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surfaces between levels. Benching cannot be done in Type C soil. Below is a diagram indicating the appropriate slope angle for both sloping and benching.



- **Shoring** requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.
- **Shielding** protects workers by using trench boxes or other types of supports to prevent soil cave-ins.

Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, water content of soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity.

See OP 1001 Excavation and Trenching Safety for more information.

Task 2b - Hauling Soils Off-site (Remedial Oversight)

Hauling Soils Off-site is conducted for a range of services that can include but are not limited to: building, foundation, utility excavation and environmental cleanup. Familiarity with basic heavy construction safety is an essential component of all hauling projects. Potential hazards related to hauling soils off-site operations include, but are not limited to encountering underground or overhead utilities, traffic and heavy equipment, generated waste, and the use or unexpected encountering of toxic or hazardous substances. While staff members do not operate heavy equipment, they may work in close proximity to the equipment and may be exposed to many of the same hazards as the Contractor. Care should be taken during loading of truck/container that the staff is not in the line of fire of the loading equipment (swing radius/traffic pattern) or of the falling spoils/soil from the loading bucket or truck bed. The staff should be aware at all times of subsurface stability as a truck may tip during truck loading and unloading due items such as but not limited to uneven surface, poorly or uncompacted subsurface, thawing soils, saturated soils and proximity to excavation. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

Task 1c – Stockpiling (Remedial Oversight)

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Stockpiling of soils is conducted for a range of services that can include but are not limited to: building, foundation, utility excavation, drilling spoils containment and environmental cleanup. Familiarity with basic heavy construction safety is an essential component of all hauling projects. Potential hazards related to stockpiling operations include, but are not limited to encountering underground or overhead utilities, traffic and heavy equipment, and the use or unexpected encountering of toxic or hazardous substances. While staff members do not operate heavy equipment, they may work in close proximity to the equipment and may be exposed to many of the same hazards as the Contractor. Care should be taken during material stockpiling that the staff is not in the line of fire of the loading equipment (swing radius/traffic pattern). The staff should be aware of any setback requirements of stockpile surcharges near trenches and excavations.

Task 3 – Soil Sampling

Soil sampling by H&A staff on active construction sites can be conducted in conjunction with a wide range activities such as building construction, earthwork and soil management related activities. These activities can include, but are not limited to: drill spoil characterization and management during building foundation element installation, characterization of excavated soils for management/disposal/reuse during earthwork activities, and as part of environmental remedial activities such as delineation and confirmation sampling. Familiarity with basic heavy construction safety, site conditions (geotechnical and environmental), and potential soil contaminants are essential components of soil sampling performed on active sites. Potential hazards related to soil sampling at construction sites include, but are not limited to: encountering site vehicle traffic and heavy equipment operations, manual lifting, generated waste, contact or exposure to impacted soil, and encountering unknown toxic or hazardous substances. Although soil sampling is commonly performed within active excavations, from stockpiles, or within trench excavations, sampling locations and situations will vary depending on site conditions. Care should be taken while entering and exiting excavations or trenches, and when accessing (climbing up or down) soil stockpiles, ensuring that the sampling area is not being actively accessed by construction equipment. Care should also be taken with handling of potentially environmentally impacted soil during sampling, with appropriate PPE identified and used. At no time during classification activities are personnel to reach for debris near machinery that is in operation, place any samples in their mouth, or come in contact with the soils without the use of gloves. Staff will have to carry and use a variety of sampling tools, equipment, containers, and potentially heavy sample bags. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

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Potential Task Hazards	Task 1 Site Walk	Task 1 Remedial Oversight	Task 2 Soil Sampling
Congested Area	☐	☒	☒
Compressed Gas	☐	☒	☒
Ergonomics	☒	☒	☒
Energized Equipment	☐	☒	☐
Generated Wastes	☐	☒	☒
Ground Disturbance	☐	☒	☐
Hand/Power Tools	☐	☒	☒
Heavy Equipment	☐	☒	☐
Manual Lifting	☒	☒	☒
Noise	☐	☒	☐
Overhead Utilities	☐	☒	☐
Repetitive Motion	☒	☒	☒
Slippery Surfaces	☒	☒	☒
Sharp Objects	☐	☒	☒
Traffic	☒	☒	☐
Other: Specify	☐	☐	☐

Summary of Physical Hazards & Controls

Compressed Gas

Hazards associated with compressed gases include oxygen displacement, fires, explosions, and toxic gas exposures, as well as the physical hazards associated with pressurized containers. In most instances, accidents are caused by improper application, misuse of the gas, or its container by inadequately trained personnel. Special storage, use, and handling precautions are necessary to minimize accidents and control these hazards above.

See OP 1048 Compressed Gas Safety for more information.

Controls

- Visually inspect the cylinder prior to and after use for any damage. Report any damage to the vendor for direction.

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- Ensure that cylinders are clearly identified. Labels must not be defaced or removed.
- Leave valve protection caps in place (if provided) until cylinders are secured and connected for use.
- Keep cylinder valves closed except when the cylinder is being used.
- When opening a cylinder valve, stand so the valve outlet is pointed away from yourself and all other employees. Open valves slowly.
- Replace protective caps and outlet caps or plugs before returning empty cylinders to the supplier.
- Never tamper with or alter cylinders, valves, or safety relief devices.
- Do not tighten connections or leaking fittings or attempt repairs while the system is under pressure.
- Do not subject cylinders to artificially low temperatures or temperatures above 125 F. Do not place them next to heat sources or allow a flame to contact any part of the cylinder.
- Avoid dragging or sliding cylinders. Do not lift cylinders by the caps.
- Firmly secure the cylinder and move with a suitable hand truck, lift truck, or crane with a cradle or platform.

Storage

- Provide adequate space or segregate by partitions and post a conspicuous sign that identifies the gas or hazard class.
- Storage areas should be dry, well-drained, ventilated, and fire resistant.
- Cylinders can be stored in the open, but they should be protected from the ground or continuous dampness to prevent rusting.
- Cylinders can usually be stored in the sun; but, cylinders must not exceed temperatures >125 F.
- Always refer to the manufacturers' storage requirements and SDSs.
- Storage areas should protect cylinders from damage. Do not store on unprotected platform edges or obstruct walkways or exits.
- Use brackets, chains, or straps around the upper third of the cylinder to secure cylinders in storage or in use.

Transport

- Cylinders must be stored upright, firmly secured, and be capped during transport.

Congested Areas

Working in congested areas can expose both workers and the public to a wide range of hazards depending upon the specific activities taking place. Staff Members need to understand the work scope, work areas, equipment on-site, and internal traffic patterns to minimize or eliminate exposure potential.

Controls

- Provide barricades, fencing, warning signs/signals and adequate lighting to protect people while working in or around congested areas.
- Vehicles and heavy equipment with restricted views to the rear should have functioning back-up alarms that are audible above the surrounding noise levels. Whenever possible, use a signaler to assist heavy equipment operators and/or drivers in backing up or maneuvering in congested areas.
- Lay out traffic control patterns to eliminate excessive congestion.
- Workers in congested areas should always wear high visibility clothing.
- Be aware of Line of Fire hazards when performing work activities in congested areas.
- Hazards associated with SIMOPs should be discussed daily at Tailgate Safety Meetings.

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Ergonomics

Most Work-related Musculoskeletal Disorders (WMSDs) are caused by Ergonomic Stressors. Ergonomic Stressors are caused by poor workplace practices and/or insufficient design, which may present ergonomic risk factors. These stressors include, but not limited to, repetition, force, extreme postures, static postures, quick motions, contact pressure, vibration, and cold temperatures.

WMSDs are injuries to the musculoskeletal system, which involves bones, muscles, tendons, ligaments, and other tissues in the system. Symptoms may include numbness, tightness, tingling, swelling, pain, stiffness, fatigue, and/or redness. WMSD are usually caused by one or more Ergonomic Stressors. There may be individual differences in susceptibility and symptoms among employees performing similar tasks. Any symptoms are to be taken seriously and reported immediately.

See OP1053 Ergonomics for more information.

Controls

- Ensure workstations are ergonomically correct so bad posture is not required to complete tasks.
- Take periodic breaks over the course of the day.
- Stretch during break times.
- Break up tasks that require repetitive motion.
- Contact Corporate H&S with any ergonomic concerns

Energized Equipment

Energy sources including electrical, mechanical, hydraulic, pneumatic, or other sources in machines and equipment can be hazardous to workers. During servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers.

Staff members that are required to work on energized equipment must first ensure that the source of energy is isolated and/or de-energized. In addition, any stored energy must also be released. Staff must ensure that the process to de-energize and isolate energy sources is documented and communicated to those who are working on the equipment. Staff must be trained on and understand the procedure.

See OP 1032 Control of Hazardous Energy for more information.

Controls

- Document process to de-energize or isolate energy sources.
- Ensure staff are appropriately trained to conduct work requiring LOTO.
- Affix log or tag to equipment to ensure improper start-up or release of energy.
- Execute an Energy Isolation Permit.

Generated Waste

Activities on environmental sites may generate waste that requires regulated handling and disposal. Excess sample solids, decontamination materials, poly sheeting, used PPE, etc. that are determined to be free of contamination through field or laboratory screening can usually be disposed into client-approved, on-site trash receptacles. Uncontaminated wash water may be discarded onto the ground

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surface away from surface water bodies in areas where infiltration can occur. Contaminated materials must be segregated into liquids or solids and drummed separately for off-site disposal.

Controls

- Manage waste properly through good work practices.
- Collect, store, containerize waste, and dispose of it properly.
- All wastes generated shall be containerized in an appropriate container (i.e. open or closed top 55-gallon drum, roll-off container, poly tote, cardboard box, etc.) as directed by the PM.
- Containers should be inspected for damages or defects
- Waste containers should be appropriately labeled indicating the contents, date the container was filled, owner of the material (including address) and any unique identification number, if necessary.
- Upon completion of filling the waste container, the container should be inspected for leaks and an appropriate seal.

Ground Disturbance

Ground disturbance is defined as any activity disturbing the ground. Ground disturbance activities include, but are not limited to, excavating, trenching, drilling (either mechanically or by hand), digging, plowing, grading, tunneling and pounding posts or stakes.

Because of the potential hazards associated with striking an underground utility or structure, the operating procedure for underground utility clearance shall be followed prior to performing any ground disturbance activities.

See OP1020 Working Near Utilities

Controls

Prior to performing ground disturbance activities, the following requirements should be applied:

- Confirm all approvals and agreements (as applicable) either verbal or written have been obtained.
- Request for line location has been registered with the applicable One-Call or Dial Before You Dig organization, when applicable.
    - Whenever possible, ground disturbance areas should be adequately marked or staked prior to the utility locators site visit.
- Notification to underground facility operator/owner(s) that may not be associated with any known public notification systems such as the One-Call Program regarding the intent to cause ground disturbance within the search zone.
- Notifications to landowners and/or tenant, where deemed reasonable and practicable.
- Proximity and Common Right of Way Agreements shall be checked if the line locator information is inconclusive.

Hand and Power Tools

Hand and power tools can expose staff to a wide range of hazards depending upon the tool used. Hazards can include but are not limited to: falling, flying, abrasive, and splashing objects, or harmful dusts, fumes, mists, vapors, or gases.

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Serious accidents often occur before steps are taken to evaluate and avoid or eliminate tool-related hazards. Staff must recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

See OP 1026 Hand and Power Tools for more information.

Controls

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job. Do not use a tool for a task which it was not designed for.
- Examine each tool for damage before use and do not use damaged tools.
- For tools that are damaged or defective, red tag the tool and take out of service.
- Operate tools per the manufacturers' instructions.
- Use the appropriate personal protective equipment.
- All electrically powered tools will be connected through a ground fault circuit interrupter (GFCI).
- All personnel must be trained on the use of the tool they are utilizing.

Heavy Equipment

Staff must be careful and alert when working around heavy equipment, failure or breakage and limited visibility can lead to accidents and worker injury. Heavy equipment such as cranes, drills, haul trucks, or other can fail during operation increasing chances of worker injury. Equipment of this nature shall be visually inspected and checked for proper working order prior to commencement of field work. Those operating heavy equipment must meet all requirements to operate the equipment. Haley & Aldrich, Inc. staff that supervise projects or are associated with high risk projects that involve digging or drilling should use due diligence when working with a construction firm.

See OP1052 Heavy Equipment for additional information.

Controls

- Only approach equipment once you have confirmed contact with the operator (e.g., operator places the bucket on the ground).
- Always maintain visual contact with operators and keep out of the strike zone whenever possible.
- Always be alert to the position of the equipment around you.
- Always approach heavy equipment with an awareness of the swing radius and traffic routes of all equipment and never go beneath a hoisted load.
- Avoid fumes created by heavy equipment exhaust.

Manual Lifting/Moving

Most materials associated with investigation, remedial, or construction-related activities are moved by hand. The human body is subject to damage in the forms of back injury, muscle strains, and hernia if caution is not observed in the handling process.

Controls

- Under no circumstances should any one person lift more than 49 pounds unassisted.
- Always push, not pull, the object when possible.
- Size up the load before lifting. If it is heavy or clumsy, get a mechanical aid or help from a worker.
- Bend the knees; it is the single most important aspect of lifting.

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- When performing the lift:
  - Place your feet close to the object and center yourself over the load.
  - Get a good handhold.
  - Lift straight up, smoothly and let your legs do the work, not your back!
  - Avoid overreaching or stretching to pick up or set down a load.
  - Do not twist or turn your body once you have made the lift.
  - Make sure beforehand that you have a clear path to carry the load.
  - Set the load down properly.

Noise

Working around heavy equipment (drill rigs, excavators, etc.) often creates excessive noise. The effects of noise include physical damage to the ear, pain, and temporary and/or permanent hearing loss. Workers can also be startled, annoyed, or distracted by noise during critical activities. Noise monitoring data that indicates that working within 25 feet of operating heavy equipment result in exposure to hazardous levels of noise (levels greater than 85 dBA).

See OP 1031 Hearing Conservation for additional information.

Controls

- Personnel are required to use hearing protection (earplugs or earmuffs) within 25 feet of any operating piece of heavy equipment.
- Limit the amount of time spent at a noise source.
- Move to a quiet area to gain relief from hazardous noise sources.
- Increase the distance from the noise source to reduce exposure.

Overhead Utilities

When work is undertaken near overhead electrical lines, the distance maintained from those lines shall also meet the minimum distances for electrical hazards as defined in Table 1 below. Note: utilities other than overhead electrical utilities need to be considered when performing work.

Table 1 Minimal Radial Clearance Distances *

Normal System Voltage Kilovolts (kV)	Required Minimal Radial Clearance Distance (feet/meters)
0 – 50	10/3.05
51 – 100	12/3.66
101 – 200	15/4.57
201 – 300	10/6.1
301 – 500	25/7.62
501 – 750	35/10.67
750 - 1000	45/13.72

* For those locations where the utility has specified more stringent safe distances, those distances shall be observed.

Controls

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- To prevent damage, guy wires shall be visibly marked and work barriers or spotters provided in those areas where work is being conducted.
    - When working around guy wires, the minimum radial clearance distances for electrical power shall be observed.
- The PM shall research and determine if the local, responsible utility or client has more restrictive requirements than those stated in Table 1.
- If equipment cannot be positioned in accordance with the requirements established in Table 1 the lines need to be de-energized.

Repetitive Motion

Repetitive Motion or Strain Injuries are injuries effecting muscles, nerves, and tendons by repetitive movement and overuse. Almost any kind of awkward or repetitive motion you make could lead to an injury over time. Actions like bending or twisting of the wrists, reaching for materials, working with your hands above shoulder level, or grasping objects can increase wear and tear on the body. The condition mostly effects the upper body.

Controls

- Arrange your work zone, supplies and tools as much as possible to avoid reaching, leaning, bending and twisting your waist or wrists.
- During rest breaks, use stretches to loosen up your body.
- Vary tasks if you can so that you are not making the same movement repeatedly over for a long period.

Sharp Objects

Workers who handle sharp edged objects like sheets of steel or glass are at risk of cuts. Workers who handle sharp edged objects are also at risk of cuts. Injuries may occur to hands, fingers, or legs when they are in the way of the blade, when the blade slips, or if an open blade is handled unexpectedly. Other hazards at job sites include stepping on sharp objects (e.g. wooden boards with protruding nails, sharp work-tools, chisels, etc.) and colliding with sharp and/or protruding objects.

Controls

Always be alert when handling sharps. Never look away or become distracted while handling sharp objects. Use caution when working with tools; use right tool for the job. Keep tools sharp, dull blades are a safety hazard, requiring more force to make cuts which can lead to tool slippage. Wear appropriate PPE and do not handle sharp objects (i.e., broken glass) with bare hands. Use mechanical devices, when possible. Stay away from building debris; avoid handling site debris or placing your hand where you cannot see. Watch out for barbed wire and electrical fences; cover with a car mat or equivalent to cross or walk around; use the buddy system to avoid entanglement; wear gloves. Do not leave unprotected sharps unattended. Use protective shields, cases, styrofoam blocks, etc. Pass a sharp by handing it over carefully by the handle with the blade down or retracted. Fixed open blades are prohibited. Always cut away from the body, making several passes when cutting thicker materials. Make sure blades are fitted properly into the knife. Never cut items with a blade or other sharp object on your lap. Never try to catch a blade or cutting tool that is falling.

Slippery Surfaces

Both slips and trips result from unintended or unexpected change in the contact between the feet and ground or walking surface. Good housekeeping, quality of walking surfaces, selection of proper

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footwear, and appropriate pace of walking are critical for preventing fall accidents. Slips happen where there is too little friction or traction between the footwear and walking surface.

Common causes of slips are wet or oily surfaces, spills, weather hazards, loose unanchored rugs or mats and flooring or other walking surfaces that do not have same degree of traction in all areas.

Weather-related slips and falls become a serious hazard as winter conditions often make for wet or icy surfaces outdoors. Even wet organic material or mud can create hazardous walking conditions. Spills and leaks can also lead to slips and falls.

Controls

- Evaluate the work area to identify any conditions that may pose a slip hazard.
- Address any spills, drips or leaks immediately.
- Mark areas where slippery conditions exist.
- Select proper footwear or enhance traction with additional PPE.
- Where conditions are uncertain or environmental conditions result in slippery surfaces walk slowly, take small steps, and slide feet on wet or slippery surfaces.

Traffic

To ensure worker protection and the safe passage of traffic through and around job sites, Site Traffic Control procedures may need to be implemented on project sites. Job zone control and traffic management are necessary when Simultaneous Operations (SIMOPS) or third parties could be at risk of injury by entering the work zone, or when the work crew is at risk of injury by other operations.

Traffic patterns shall be evaluated. Conditions such as high pedestrian traffic, peak periods, daily deliveries or SIMOPS known, Heavy equipment traffic volume and light duty traffic volume shall be evaluated

Early identification and planning for site operations that require job zone control and traffic management, including SIMOPS, is the responsibility of the Project Manager and primary contractor manager. Traffic control plans shall be consistent with the Manual on Uniform Traffic Control Devices.

See OP1025 Signs, Signals, and Barricades and/or OP1043 Site Traffic Control for more information.

Controls

- Alternate walkways where possible.
- Use of the local police to direct traffic.
- Use of an air horn to alert drivers or other workers.
- Maintain good housekeeping and clean the area as work is completed.
- Use the ‘buddy’ or ‘watchperson’ system while performing work.
- Use a spotter for backing, tight maneuvers and bin/tank/equipment drop-offs.
- Use traffic control devices, field vehicles and barricades and avoid the use of caution tape.
- Park all vehicles (with wheels in a safe direction away from work) to block traffic with a flashing yellow light. Park so that access to the vehicle is away from oncoming traffic while working.
- When parking a vehicle and equipment, utilize a ‘first move forward’ driving practice.
- Work in an upright position, face traffic and make eye contact with drivers when possible.

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- Minimize work time in traffic.
- Establish a 'Stop Work' hand signal.
- Personnel shall always wear high visibility vest

If public sites, such as public roads, bicycle paths or footpaths, are closed or rerouted, local and regulatory requirements shall be followed and traffic control permits shall be put in place. Proper traffic guiding equipment includes stop/slow paddle signs, flaggers, flashing lights and directional signs.

All personnel on-site should be aware of the plan of the day and the Traffic Control Plan should be communicated with all parties involved during the pre-shift meeting.

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4. PROTECTIVE MEASURES

The personal protective equipment and safety equipment (if listed) is specific to the associated task. The required PPE and equipment listed must be onsite during the task being performed. Work shall not commence unless the required PPE or Safety Equipment is present.

Required Safety & Personal Protective Equipment

Required Personal Protective Equipment (PPE)	**Task 1**	**Task 2**	**Task 3**	**Task 4**
	Site Walk	Remedial Oversight	Soil Sampling	Enter task description.
Hard hat	☒	☒	☒	☐
Safety Glasses	☒	☒	☒	☐
Safety Toed Shoes	☒	☒	☒	☐
Class 2 Safety Vest	☒	☒	☒	☐
Nitrile Gloves	☐	☐	☒	☐
Cut Resistant Gloves	☒	☒	☒	☐
Level of protection required	D	D	D	Select
Required Safety Equipment				
First Aid Kit	☒	☒	☒	☐

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5. TRAINING REQUIREMENTS

The table below lists the training requirements staff must have respective to their assigned tasks and that are required to access the Site.

Site Specific Training Requirements
HAZWOPER - 40 Hour (Initial)
HAZWOPER - 8 Hour (Annual Refresher)
Site Specific Orientation
40 Hour SST

Task Specific Training Requirements				
Required Training Type	**Task 1**	**Task 2**	**Task 3**	**Task 4**
	Site Walk	Remedial Oversight	Soil Sampling	Enter task description.
RCRA Haz Waste Generator	☐	☒	☐	☐
Hazard Communication	☒	☒	☒	☐

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6. AIR MONITORING PLAN AND EQUIPMENT

Exposures to airborne substances shall be fully characterized throughout project operations to ensure that exposure controls are effectively selected and modified as needed.

Is air/exposure monitoring required at this work site for personal protection? Yes

Is perimeter monitoring required for community protection? Yes

Air monitoring plan not applicable Yes

Air Monitoring/Screening Equipment Requirements

Photo-Ionization Detector (PID) 10.6eV

Dust Monitor (RAM)

The required equipment listed above must be on site. Work shall not commence unless the equipment is present and in working order.

Monitoring Plans

Parameter/ Contaminant	Equipment	Action Level	Response Activity
VOCs	PID 10.6 eV	< 10 ppm	Continue work and monitoring.
		>10 ppm for 5 minutes	Clear Instrument and Re-Monitor the Area. Implement PPE upgrades
		>10 ppm for >5 minutes	Evacuate the area and call the FSM and/or PM for further guidance. Implement engineering controls.

Zone Location and Monitoring Interval
Breathing zone and edge of Exclusion Zone.

See RAWP for CAMP requirements and Special CAMP requirements.

***If chemical does not have an action level use TLV or REL, whichever is lowest, to be used as an action level. If TLV or REL are the same as PEL, cut the PEL in half for an action level.**

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7. DECONTAMINATION & DISPOSAL METHODS

All possible and necessary steps shall be taken to reduce or minimize contact with chemicals and contaminated/impacted materials while performing field activities (e.g., avoid sitting or leaning on, walking through, dragging equipment through or over, tracking, or splashing potential or known contaminated/impacted materials.)

Personal Hygiene Safeguards

The following minimum personal hygiene safeguards shall be adhered to:

1. No smoking or tobacco products in any project work areas.
2. No eating or drinking in the exclusion zone.
3. It is required that personnel present on site wash hands before eating, smoking, taking medication, chewing gum/tobacco, using the restroom, or applying cosmetics and before leaving the site for the day.

It is recommended that personnel present on site shower or bathe at home at the end of each day of working on the site.

Decontamination Supplies

All decontamination should be conducted at the project site in designated zones or as dictated by Client requirements. Decontamination should not be performed on Haley & Aldrich owned or leased premises.

☐ Acetone	☒ Distilled Water	☐ Polyethylene Sheeting
☒ Alconox Soap	☐ Drums	☐ Pressure/Steam Cleaner
☒ Brushes	☐ Hexane	☒ Tap Water
☒ Disposal Bags	☐ Methanol	☐ Wash tubs
☐ 5 Gallon Buckets	☒ Paper Towels	☐ Other: Specify

Location of Decontamination Station

To be communicated during Site kick-off meeting.

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Standard Personal Decontamination Procedures

Outer gloves and boots should be decontaminated periodically as necessary and at the end of the day. Brush off solids with a hard brush and clean with soap and water or other appropriate cleaner whenever possible. Remove inner gloves carefully by turning them inside out during removal. Wash hands and forearms frequently. It is good practice to wear work-designated clothing while on-site which can be removed as soon as possible. Non-disposable overalls and outer work clothing should be bagged onsite prior to laundering. If gross contamination is encountered on-site contact the Project Manager and Field Safety Manager to discuss proper decontamination procedures.

The steps required for decontamination will depend upon the degree and type of contamination but will generally follow the sequence below.

1. Remove and wipe clean hard hat
2. Rinse boots and gloves of gross contamination
3. Scrub boots and gloves clean
4. Rinse boots and gloves
5. Remove outer boots (if applicable)
6. Remove outer gloves (if applicable)
7. Remove Tyvek coverall (if applicable)
8. Remove respirator, wipe clean and store (if applicable)
9. Remove inner gloves (if outer gloves were used)

PPE that is not grossly contaminated can be bagged and disposed in regular trash receptacles.

Small Equipment Decontamination

Pretreatment of heavily contaminated equipment may be conducted as necessary:

1. Remove gross contamination using a brush or wiping with a paper towel
2. Soak in a solution of Alconox and water (if possible)
3. Wipe off excess contamination with a paper towel

Standard decontamination procedure:

4. Wash using a solution of Alconox and water
5. Rinse with potable water
6. Rinse with methanol (or equivalent)
7. Rinse with distilled/deionized water

Inspect the equipment for any remaining contamination and repeat as necessary.

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Disposal Methods

Procedures for disposal of contaminated materials, decontamination waste, and single use personal protective equipment shall meet applicable client, locate, State, and Federal requirements.

Disposal of Single Use Personal Protective Equipment

PPE that is not grossly contaminated can be bagged and disposed in regular trash receptacles. PPE that is grossly contaminated must be bagged (sealed and field personnel should communicate with the Project Manager to determine proper disposal.

Standard Disposal Methods for Contaminated Materials

- Excess sample solids, decontamination materials, rags, brushes, poly-sheeting, etc. that are determined to be free of contamination through field screening can usually be disposed into client-approved, on-site trash receptacles.
- Uncontaminated wash water may be discarded onto the ground surface away from surface water bodies in areas where infiltration can occur.
- Contaminated materials must be segregated into liquids or solids and containerized separately for offsite disposal.

Disposal Method for Contaminated Soil

- Contaminated soil cuttings and spoils must be containerized for disposal off-site unless otherwise specifically directed.
- Soil cuttings and spoils determined to be free of contamination through field screening can usually be returned to the boreholes or excavations from which they came.

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8. SITE CONTROL

The overall purpose of site control is to minimize potential contamination of workers, protect the public from the site's hazards, and prevent vandalism. Site control is especially important in emergency situations. The degree of site control necessary depends on site characteristics, site size, and the surrounding community. The following information identifies the elements used to control the activities and movements of people and equipment at the project site.

Communication

Internal
Haley & Aldrich site personnel will communicate with other Haley & Aldrich staff member and/or subcontractors or contractors with:

Face to Face Communication

External
H&S site personnel will use the following means to communicate with off-site personnel or emergency services.

Cellular Phones

Visitors

Project Site
Will visitors be required to check-in prior to accessing the project site?

Yes

Visitor Access
Authorized visitors that require access to the project site need to be provided with known information with respect to the site operations and hazards as applicable to the purpose of their site visit. Authorized visitors must have the required PPE and appropriate training to access the project site.

Site Safety Officer is responsible for facilitating authorized visitor access.

Zoning

Work Zone
The work zone will be clearly delineated to ensure that the general public or unauthorized worker access is prevented. The following will be used:

Cones
Barricades
Temporary Fencing

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9. SITE SPECIFIC EMERGENCY RESPONSE PLAN

The Emergency Response Plan addresses potential emergencies at this site, procedures for responding to these emergencies, roles, responsibilities during emergency response, and training. This section also describes the provisions this project has made to coordinate its emergency response with other contractors onsite and with offsite emergency response organizations (as applicable).

During the development of this emergency response plan, local, state, and federal agency disaster, fire, and emergency response organizations were consulted (if required) to ensure that this plan is compatible and integrated with plans of those organizations. Documentation of the dates of these consultations are the names of individuals contacted is kept on file and available upon request.

The site has been evaluated for potential emergency occurrences, based on site hazards, and the major categories of emergencies that could occur during project work are:

- Fire(s)/Combustion
- Hazardous Material Event
- Medical Emergency
- Natural Disaster

A detailed list of emergency types and response actions are summarized in Table 9-2 below. Prior to the start of work, the SSO will update the table with any additional site-specific information regarding evacuations, muster points, or additional emergency procedures. The SSO will establish evacuation routes and assembly areas for the Site. All personnel entering the Site will be informed of these routes and assembly areas.

Pre-Emergency Planning

Before the start of field activities, the Project Manager will ensure preparation has been made in anticipation of emergencies. Preparatory actions include the following:

Meeting with the subcontractor/and or client concerning the emergency procedures in the event a person is injured. Appropriate actions for specific scenarios will be reviewed. These scenarios will be discussed, and responses determined before the sampling event commences. A form of emergency communication (i.e.; Cell phone, Air horn, etc.) between the Project Manager and subcontractor and/or client will be agreed on before the work commences.

A training session (i.e., “safety meeting”) given by the Project Manager or their designee informing all field personnel of emergency procedures, locations of emergency equipment and their use, and proper evacuation procedures.

Ensuring field personnel are aware of the existence of the emergency response HASP and ensuring a copy of the HASP accompanies the field team(s).

Onsite Emergency Response Equipment

Emergency procedures may require specialized equipment to facilitate work rescue, contamination control and reduction or post-emergency cleanup. Emergency response equipment stocked

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Table 9.1 Emergency Equipment and Emergency PPE			
Emergency Equipment	**Specific Type**	**Quantity Stocked**	**Location Stored**
First Aid Kit	ANSI	1 Kit	With Haley & Aldrich staff
Emergency PPE	**Specific Type**	**Quantity Stocked**	**Location Stored**
Gloves	Nitrile	1 box	With Haley & Aldrich staff

EVACUATION ALARM
Will be communicated during the Onsite Kickoff Meeting
EVACUATION ROUTES
Will be given a map after site specific training
EVACUATION MUSTER POINT(S)/ SHELTER AREA(S)
Will be given a location after site specific training
EVACUTION RESPONSE DRILLS
The Site relies on outside emergency responders and a drill is not required.

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Table 9-2 – Emergency Planning

Emergency Type	Notification	Response Action	Evacuation Plan/Route
Chemical Exposure	Report event to SSO immediately	Refer to Safety Data Sheet for required actions	Remove personnel from work zone
Fire - Small	Notify SSO and contact 911	Use fire extinguisher if safe and qualified to do so	Mobilize to *Muster Point*
Fire – Large/Explosion	Notify SSO and contact 911	Evacuate immediately	Mobilize to *Muster Point*
Hazardous Material – Spill/Release	Notify SSO; SSO will contact PM to determine if additional agency notification is	If practicable don PPE and use spill kit and applicable procedures to contain the release	See Evacuation Map for route, move at least 100 ft upwind of spill location
Medical – Bloodborne Pathogen	Notify SSO	If qualified dispose in container or call client or city to notify for further instruction.	None Anticipated
Medical – First Aid	Notify SSO	If qualified perform first aid duties	None Anticipated
Medical – Trauma	If life threatening or transport is required call 911, immediately	Wait at site entrance for ambulance	Noe Anticipated
Security Threat	Notify SSO who will call 911 as warranted	Keep all valuables out of site and work zones delineated.	None Anticipated
Weather – Earthquake/Tsunami's	STOP WORK and evacuate Site upon any earthquake	Turn off equipment and evacuate as soon as is safe to do so	Mobilize to *Shelter Location*
Weather – Lightning Storm	STOP WORK	Work may resume 30 minutes after the last observed lightning.	None Anticipated
Weather – Tornadoes/Hurricanes	Monitor weather conditions STOP WORK and evacuate the site	Evacuate to shelter location or shelter in place immediately	Mobilize to *Shelter Location*
MUSTER POINT Will be communicated during the Onsite Kickoff Meeting		*SHELTER LOCATION* Will be communicated during the Onsite Kickoff Meeting	
In case of site emergencies, site personnel shall be evacuated per this table and will not participate in emergency response activities. Site emergencies shall be reported to local, state, and federal governmental agencies as required.			

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10. HASP ACKNOWLEDGEMENT FORM

All Haley & Aldrich employees onsite must sign this form prior to entering the site.

I hereby acknowledge receipt of, and briefing on, this HASP prior to the start of on-site work. I declare that I understand and agree to follow the provisions, processes, and procedures set forth herein at all times while working on this site.

Printed Name	Signature	Date

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ATTACHMENT A
HASP AMENDMENT FORM

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

HASP AMENDMENT FORM

This form is to be used whenever there is an immediate change in the project scope that will require an amendment to the HASP. For project scope changes associated with "add-on" tasks, the changes must be made in the body of the HASP. Before changes can be made, a review of the potential hazards must be initiated by the Haley & Aldrich Project Manager.

This original form must remain on site with the original HASP. If additional copies of this HASP have been distributed, it is the Project Manager's responsibility to forward a signed copy of this amendment to those who have copies.

Amendment No.	
Site Name	
Work Assignment No.	
Date	
Type of Amendment	
Reason for Amendment	
Alternate Safeguard Procedures	
Required Changes in PPE	

Project Manager Name (Print)	Project Manager Signature	Date

Health & Safety Approver Name (Print)	Health & Safety Approver Signature	Date

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ATTACHMENT B
TRAINING REQUIREMENTS

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

TRAINING REQUIREMENTS

Health and Safety Training Requirements

Personnel will not be permitted to supervise or participate in field activities until they have been trained to a level required by their job function and responsibility. Haley & Aldrich staff members, contractors, subcontractors, and consultants who have the potential to be exposed to contaminated materials or physical hazards must complete the training described in the following sections.

The Haley & Aldrich Project Manager/FSM will be responsible for maintaining and providing to the client/site manager documentation of Haley & Aldrich staff members' compliance with required training as requested. Records shall be maintained per OSHA requirements.

40-Hour Health and Safety Training

The 40-Hour Health and Safety Training course provides instruction on the nature of hazardous waste work, protective measures, proper use of personal protective equipment, recognition of signs and symptoms which might indicate exposure to hazardous substances, and decontamination procedures. It is required for all personnel working on-site, such as equipment operators, general laborers, and supervisors, who may be potentially exposed to hazardous substances, health hazards, or safety hazards consistent with 29 CFR 1910.120.

8-hour Annual Refresher Training

Personnel who complete the 40-hour health and safety training are subsequently required to attend an annual 8-hour refresher course to remain current in their training. When required, site personnel must be able to show proof of completion (i.e., certification) at an 8-hour refresher training course within the past 12 months.

8-Hour Supervisor Training

On-site managers and supervisors directly responsible for, or who supervise staff members engaged in hazardous waste operations, should have eight additional hours of Supervisor training in accordance with 29 CFR 1910.120. Supervisor Training includes, but is not limited to, accident reporting/investigation, regulatory compliance, work practice observations, auditing, and emergency response procedures.

Additional Training for Specific Projects

Haley & Aldrich personnel will ensure their personnel have received additional training on specific instrumentation, equipment, confined space entry, construction hazards, etc., as necessary to perform their duties. This specialized training will be provided to personnel before engaging in the specific work activities including:

- Client specific training or orientation
- Competent person excavations
- Confined space entry (entrant, supervisor, and attendant)
- Heavy equipment including aerial lifts and forklifts
- First aid/ CPR
- Use of fall protection
- Use of nuclear density gauges
- Asbestos awareness

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ATTACHMENT C
ROLES AND RESPONSIBILITIES

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

SITE ROLES AND RESPONSIBILITIES

Haley & Aldrich Personnel

Field Safety Manager (FSM)

The Haley & Aldrich FSM is a full-time Haley & Aldrich staff member, trained as a safety and health professional, who is responsible for the interpretation and approval of this Safety Plan. Modifications to this Safety Plan cannot be undertaken by the PM or the SSO without the approval of the FSM.

Specific duties of the FSM include:

- Approving and amending the Safety Plan for this project
- Advising the PM and SHSOs on matter relating to health and safety
- Recommending appropriate personal protective equipment (PPE) and air monitoring instrumentation
- Maintaining regular contact with the PM and SSO to evaluate the conditions at the property and new information which might require modifications to the HASP and
- Reviewing and approving JSAs developed for the site-specific hazards.

Project Manager (PM)

The Haley & Aldrich PM is responsible for ensuring that the requirements of this HASP are implemented at that project location. Some of the PM´s specific responsibilities include:

- Assuring that all personnel to whom this HASP applies have received a copy of it;
- Providing the FSM with updated information regarding environmental conditions at the site and the scope of site work;
- Providing adequate authority and resources to the on-site SHSO to allow for the successful implementation of all necessary safety procedures;
- Supporting the decisions made by the SHSO;
- Maintaining regular communications with the SHSO and, if necessary, the FSM;
- Coordinating the activities of all subcontractors and ensuring that they are aware of the pertinent health and safety requirements for this project;
- Providing project scheduling and planning activities; and
- Providing guidance to field personnel in the development of appropriate Job Safety Analysis (JSA) relative to the site conditions and hazard assessment.

Site Health & Safety Officer (SHSO)

The SHSO is responsible for field implementation of this HASP and enforcement of safety rules and regulations. SHSO functions may include some or all of the following:

- Act as Haley & Aldrich´s liaison for health and safety issues with client, staff, subcontractors, and agencies.
- Verify that utility clearance has been performed by Haley & Aldrich subcontractors.
- Oversee day-to-day implementation of the Safety Plan by Haley & Aldrich personnel on site.

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- Interact with subcontractor project personnel on health and safety matters.
- Verify use of required PPE as outlined in the safety plan.
- Inspect and maintain Haley & Aldrich safety equipment, including calibration of air monitoring instrumentation used by Haley & Aldrich.
- Perform changes to HASP and document in Appendix A of the HASP as needed and notify appropriate persons of changes.
- Investigate and report on-site accidents and incidents involving Haley & Aldrich and its subcontractors.
- Verify that site personnel are familiar with site safety requirements (e.g., the hospital route and emergency contact numbers).
- Report accidents, injuries, and near misses to the Haley & Aldrich PM and FSM as needed.

The SHSO will conduct initial site safety orientations with site personnel (including subcontractors) and conduct toolbox and safety meetings thereafter with Haley & Aldrich employees and Haley & Aldrich subcontractors at regular intervals and in accordance with Haley & Aldrich policy and contractual obligations. The SHSO will track the attendance of site personnel at Haley & Aldrich orientations, toolbox talks, and safety meetings.

Field Personnel

Haley & Aldrich personnel are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading the HASP in its entirety prior to the start of on-site work;
- Submitting a completed Safety Plan Acceptance Form and documentation of medical surveillance and training to the SHSO prior to the start of work;
- Attending the pre-entry briefing prior to beginning on-site work;
- Bringing forth any questions or concerns regarding the content of the Safety Plan to the PM or the SHSO prior to the start of work;
- Stopping work when it is not believed it can be performed safely;
- Reporting all accidents, injuries and illnesses, regardless of their severity, to the SHSO;
- Complying with the requirements of this safety plan and the requests of the SHSO; and
- Reviewing the established JSAs for the site-specific hazards on a daily basis and prior to each shift change, if applicable.

Visitors

Authorized visitors (e.g., Client Representatives, Regulators, Haley & Aldrich management staff, etc.) requiring entry to any work location on the site will be briefed by the Site Supervisor on the hazards present at that location. Visitors will be escorted at all times at the work location and will be responsible for compliance with their employer´s health and safety policies. In addition, this safety plan specifies the minimum acceptable qualifications, training and personal protective equipment which are required for entry to any controlled work area; visitors must comply with these

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requirements at all times. Unauthorized visitors, and visitors not meeting the specified qualifications, will not be permitted within established controlled work areas.

SUBCONTRACTOR PERSONNEL

Subcontractor Site Representative

Each contractor and subcontractor shall designate a Contractor Site Representative. The Contractor Site Representative will interface directly with Insert Staff Name Here, the Subcontractor Site Safety Manager, with regards to all areas that relate to this safety plan and safety performance of work conducted by the contractor and/or subcontractor workforce. Contractor Site Representatives for this site are listed in the Contact Summary Table at the beginning of the Safety Plan.

Subcontractor Site Safety Manager

Each contractor / subcontractor will provide a qualified representative who will act as their Site Safety Manager (Sub-SSM). This person will be responsible for the planning, coordination, and safe execution of subcontractor tasks, including preparation of job hazard analyses (JHA), performing daily safety planning, and coordinating directly with the Haley & Aldrich SHSO for other site safety activities. This person will play a lead role in safety planning for Subcontractor tasks, and in ensuring that all their employees and lower tier subcontractors are in adherence with applicable local, state, and/or federal regulations, and/or industry and project specific safety standards or best management practices.

General contractors / subcontractors are responsible for preparing a site-specific HASP and/or other task specific safety documents (e.g., JHAs), which are, at a minimum, in compliance with local, state, and/or federal other regulations, and/or industry and project specific safety standards or best management practices. The contractor(s)/subcontractor(s) safety documentation will be at least as stringent as the health and safety requirements of the Haley & Aldrich Project specific HASP.

Safety requirements include, but are not limited to: legal requirements, contractual obligations and industry best practices. Contractors/subcontractors will identify a site safety representative during times when contractor/subcontractor personnel are on the Site. All contractor/subcontractor personnel will undergo a field safety orientation conducted by the Haley & Aldrich SHSO and/or PM prior to commencing site work activities. All contractors / subcontractors will participate in Haley & Aldrich site safety meetings and their personnel will be subject to training and monitoring requirements identified in this Safety Plan. If the contractors / subcontractors means and methods deviate from the scope of work described in Section 1 of this Safety Plan, the alternate means and methods must be submitted, reviewed and approved by the Haley & Aldrich SHSO and/or PM prior to the commencement of the work task. Once approved by the Haley & Aldrich SHSO and/or PM, the alternate means and methods submittal will be attached to this Safety Plan as an Addendum.

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ATTACHMENT D
JOB SAFETY ANALYSES

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860 FLUSHING AVENUE

KEY TASK ENTER TASK NUMBER.: ENTER TASK NAME.

Subtask Category	Potential Hazards	Controls
Site Walk	Slips, Trips, and Falls	• Take your time and pay attention to where you are going • Adjust your stride to a pace that is suitable for the walking surface and tasks you are doing • Check the work area to identify hazards – beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain • Establish and utilize a pathway free of slip and trip hazards • Choose a safer walking route · Carry loads you can see over • Keep work areas clean and free of clutter • Communicate hazards to on-site personnel – remove hazards as appropriate
Site Walk	Work site access and controls	• Observe all work site access and controls before entering work area • Use only routes that are designated for personnel • Do not change or alter established work site access or controls
Site Walk	General site hazards	• Be mindful of moving vehicles and where you are walking • Notify field team of any observed hazards • Complete tailgate and discuss site hazards
Site Walk	Vehicle traffic/safety	• Watch out for vehicular traffic in and around work area • Access work area along routes that are the least bus

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Remedial Oversight	Heavy equipment	• Personal protective equipment, licensed excavator/machine operators • Maintain a safe distance from moving equipment and observe equipment swing radii
Remedial Oversight	Noise reduction	• Personal protective equipment, ear plugs or ear muffs
Remedial Oversight	Vehicle traffic/safety	• Watch out for vehicular traffic in and around work area • Access work area along routes that are the least busy
Remedial Oversight	Weather-related hazards	• Avoid slippery surfaces as a result of weather • Seek shelter in the event of a lightning storm and stay clear of potential lightning receptors
Soil Sampling	Tool/Equipment Use	• Inspect any tools or equipment before you use them • Ensure that any cords or plugs are not frayed or damaged • Only use tools/equipment for the purpose they are meant to be used – tools/equipment are not toys to be played with • Think of the steps in which you will use the tools/equipment before using them • Handle all tools/equipment in a safe manner • If unsure how to use a tool/equipment, be sure to receive proper training or instruction prior to using them • Use tools/equipment at a safe pace • Do not force tools/equipment to work

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ATTACHMENT E
PROJECT SITE FORMS

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

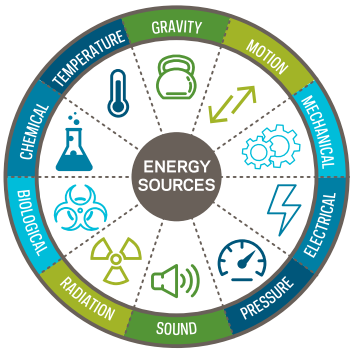
HEALTH & SAFETY TAILGATE MEETING FORM

Meeting attendees: *Include names of any subcontractors we are responsible for that are present.*		**Meeting date:**

What tasks are being performed today?

List the tasks being performed today and review JHAs. Do JHAs correspond with tasks? Are any subcontractors performing the work we are responsible for?

What hazards do you anticipate today?

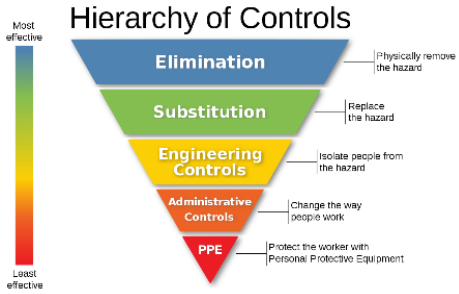


Consider not just the hazards of tasks you are performing, but also the hazards present around you (e.g., weather, simultaneous operations, ticks or insects, slips, trips, falls, repetitive motion, etc.).

What risk do these hazards present?

How likely are the hazards you have identified to impact you? What do you need to be most concerned about today? Have these hazards changed since you performed work yesterday?

What controls are you using?



Discuss how you are mitigating the hazards you have identified. Use your JHA as a resource, but ensure you have mitigated changed conditions (e.g., weather, SIMOPS, etc.) that were not identified in the original plans.

Everyone has Stop Work Authority	Use identified PPE from JHAs	Review emergency procedures	Share experiences through reporting

APPENDIX E
NYSDEC Request to Import Reuse Form

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

Site Name:

Site Number:

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that passes a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Name and address of fill source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

Signature	Date
Print Name	
Firm	

APPENDIX F
Citizen Participation Plan

NEW YORK STATE | Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

Former BP Gasoline Service Station Site
860 Flushing Avenue, Brooklyn, NY 11206

July 2025

BCP Site #C224424
860 Flushing Avenue
Brooklyn, NY 11206

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* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Flushing Holdings NY LLC ("Applicant")**
Site Name: **Former BP Gasoline Service Station Site ("Site")**
Site Address: **860 Flushing Avenue, Brooklyn, NY 11206**
Site County: **Kings County**
Site Number: **C224424**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at:
http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision-makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision-making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.
The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- Residents, owners, and occupants of the site and properties adjacent to the site;
- The public water supplier which services the area in which the site is located;
- Any person who has requested to be placed on the site contact list;
- The administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The

flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, the significant threat determination for the site had not yet been made.

To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at https://dec.ny.gov/regulatory/regulations/technical-assistance-grant-tag-guidance-handbook-der-14

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	**Timing of CP Activity(ies)**
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

Based on analytical results from a Phase II Environmental Site Investigation (ESI) performed at the site in August 2024, the primary contaminants of concern at the Site are volatile organic compounds (VOCs), semi-VOCs (SVOCs), and metals (including hazardous lead) in soil; VOCs, SVOCs, and metals in groundwater, and petroleum volatile organic compounds (VOCs) and chlorinated VOCs (CVOCs) in soil vapor. Issues of concern would be regarding the nearby local residents and property owners.

The Site is located along Flushing Avenue at the southwest corner of the intersection with Bushwick Avenue in an urban area of the Bushwick neighborhood of Brooklyn, NY. There are five sensitive receptors within a 500-foot (ft) radius of the site, Garden Playground, Rheingold Development, P.S. 120 Carlos Tapia, Riseboro Community Partnership, Inc., and Bushwick Playground and Pool. The area surrounding the Site has been characterized by residential and commercial properties.

The site is located in an NYC Environmental Justice Area and designated as a DAC (disadvantaged community #36047038900). There is a sizable Hispanic population nearby. Future fact sheets will be translated into Spanish.

Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and politics.

Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities.

For additional information, visit: https://statisticalatlas.com/tract/New-York/Kings-County/038900/Race-and-Ethnicity

In addition, there may be concerns regarding odor, noise and truck-related traffic.

4. Site Information

Appendix C contains a map identifying the location of the site.

The Site is an irregularly shaped corner lot located at 860 Flushing Avenue in an urban area characterized by mixed-use commercial and residential buildings. The Site, identified as Block 3138, Lot 32 on the New York City tax map in a R6A/C2-4 zoning area, is approximately 10,600 square feet (sq ft) (0.24-acres) in size. It is currently occupied by a BP gasoline service station with three pump islands, three gasoline pumps, and a convenience store.

Section	Block	Lot	Official Address	Acreage
3	3138	32	860 Flushing Avenue	0.24

The site is located in the Bushwick neighborhood of Brooklyn, NY. Adjacent properties include:

Direction	Adjoining Property	Surrounding Properties
North	Flushing Avenue followed by New York City Housing Authority-owned multi-family elevator buildings (The Bushwick Houses).	Multi-family residential buildings/industrial & manufacturing buildings
South	Six-story residential building with ground-floor commercial use	Mixed residential and commercial buildings.
East	Bushwick Avenue followed by a one-story restaurant.	Mixed residential and commercial buildings.
West	Two-story deli.	Multi-family residential buildings.

History of Site Use, Investigation, and Cleanup

The subject property was first developed as early as 1887 with multiple dwellings and storefronts. By 1934, the subject property was occupied by commercial businesses, including a chair manufacturer with paint spraying, an upholsterer, a dentist, a scrap iron business, a plumbing supply business, and a shoe store. From as early as 1946 to the present day, the subject property has operated as a gasoline filling station with auto service until at least 1979. Historical operations have included a laundry, lubritorium, repair shop, auto inspection, auto washing and sales, and parking and storage of more than five cars. Since 1979, the property has remained relatively unchanged except for the addition of a pump island canopy around 2001.

A Phase I Environmental Site Assessment (ESA) was completed in November 2023 by Merrit Environmental Consulting Corp. (Merritt) and a Limited Phase II Environmental Site Investigation was completed in August 2024 by Haley & Aldrich of New York. Based on the results of the previous investigations the primary contaminants of concern

for the Site are VOCs, SVOCs, and metals (including hazardous lead) in soil; VOCs, SVOCs, and metals in groundwater, and petroleum VOCs and CVOCs in soil vapor. A draft Remedial Investigation Work Plan (RIWP) has been submitted to the NYSDEC.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program (BCP) as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted residential purposes.

To achieve this goal, the Applicant will conduct any remaining investigation and cleanup activities at the site with oversight provided by NYSDEC. Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant has completed a partial site investigation before it entered into the BCP. For the partial investigation, NYSDEC will determine if the data is useable.

The Applicant will conduct an investigation of the site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) Define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) Identify the source(s) of the contamination;
3) Assess the impact of the contamination on public health and the environment; and
4) Provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft “Remedial Investigation Work Plan” to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a “Certificate of Completion” (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the FER. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan (SMP).

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A - Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Nour Haredy
Project Manager
NYSDEC
Division of Environmental Remediation
47-40 21st Street,
Long Island City, NY 11101
Phone 718-482-6333
Email: Nour.Haredy@dec.ny.gov

Thomas V. Panzone
Public Participation Specialist
Division of Communication, Education and Engagement
NYSDEC – Region 2
47-40 21st Street
Long Island City, NY 11101
Thomas.panzone@dec.ny.gov
718-482-4953

New York State Department of Health (NYSDOH):
Kari Pollard
NYSDOH, Public Health Specialist
Bureau of Environmental Exposure Investigation
Empire State Plaza - Corning Tower, 17th Floor,
Albany, NY 12237
(518) 486-1443
beei@health.ny.gov

NYSDEC Info Tracker
https://extapps.dec.ny.gov/data/DecDocs/C224424/

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Brooklyn Community Board 4
1420 Bushwick Avenue, Rm 370,
Brooklyn, NY 11207 Attn:
Celestina León -District Manager
Robert Camacho,
Chairperson
Environmental Protection/Transportation/ Sanitation + Parks &

Hours:
Monday–Friday: 9:00 am–5:00pm

Recreation
Ben Tocker - Chairperson
Phone: (718)-628-8400
Email: BK04@cb.nyc.gov

Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, New York 11211
Phone: 718-389-0009
E-Mail: bk01@cb.nyc.gov
Ms. Johana Pulgarin, District Manager
Dealice Fuller, Chairperson
Stephen Chesler, Chairperson –
Environmental Protection Committee

Brooklyn Public Library – Bushwick Branch
340 Bushwick Avenue, Brooklyn NY 11206
Attn: Marc Waldron – Managing Librarian
Phone: 718.602.1348

Hours:
Monday, Wednesday, Friday- 10 AM–6 PM
Tuesday, Thursday- 1–8 PM
Saturday- 10AM – 5PM
Sunday- Closed

Appendix B - Site Contact List

Local Government and Elected Officials

Hon. Eric Adams
NYC Mayor
City Hall
New York, NY 10007

Hon. Brad Lander
NYC Comptroller
1 Centre Street New York,
NY 10007

Hon. Jumaane D. Williams
Public Advocate
1 Centre Street 15th Floor North
New York, NY 10007

David Gold, Esq.
Commissioner, NYC Dept. of City Planning
120 Broadway, 31st Floor
New York, NY 10271

Rohit Aggarwala
Commissioner, NYC Dept. of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

Shaminder Chawla, Director NYC Office of Environmental Remediation
100 Gold Street - 2nd Floor
New York, NY 10038

Hon. Anthony Reynoso
Brooklyn Borough President
209 Joralemon Street
Brooklyn, NY 11201

Hon Charles Schumer
U.S. Senator
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten Gillibrand
U.S. Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Nydia Velazquez
U.S. House of Representatives
Brooklyn District Office
266 Broadway, Suite 201
Brooklyn, NY 11211

Hon. Jennifer Gutierrez

NYC Councilmember
244 Union Avenue
Brooklyn, NY 11211

Hon. Julia Salazar
NYS Senator
212 Evergreen Avenue
Brooklyn, NY 11221

Hon. Maritza Davila
NYS Assemblymember
673 Hart Street Unit C2
Brooklyn, NY 11221

Hon. Nancy T. Sunshine
Kings County Clerk
360 Adams Street, Room 189
Brooklyn, NY 11201

New York City Municipal Water Finance Authority
Philip Wasserman - Executive Director
255 Greenwich Street, 6th Floor
New York, NY 10007

New York City Water Board
NYC Department of Environmental Protection
Alfonso L. Carney, Jr., Chairperson
59-17 Junction Boulevard, 8th Floor
Flushing, NY 11373

Hon. Antonio Reynoso
Brooklyn Borough President
209 Joralemon Street

Brooklyn, NY 11201

Iris Rodriguez-Rosa, Commissioner
NYC Department of Parks & Recreation
830 Fifth Ave
New York, NY, 10065

Owners, Residents, Occupants

Mr. George J. Macchia
456 Bushwick LLC
556 Central Avenue
Bethpage, NY 11714

BP America
860 Flushing Avenue
Brooklyn, NY 11206

Adjacent Properties

Adjacent Properties to the North

Block 3129, Lot 1
811 Flushing Avenue, Brooklyn, NY 11206
New York City Housing Authority
787 Atlantic Ave, 2nd Floor
Brooklyn, NY 11238

Adjacent Properties to the East

Block 3139, Lot 6
457 Bushwick Avenue, Brooklyn, NY 11206

Block 3139, Lot 5
459 Bushwick Avenue, Brooklyn, NY 11206
Bushwick Terrace LLC
459 Bushwick Avenue
Brooklyn, NY 11206

Block 3139, Lot 4
461 Bushwick Avenue, Brooklyn, NY 11206
Kwok Hung Ng
92 Allen Street
New York, NY 10002

Adjacent Properties to the South

Block 3138, Lot 36
464 Bushwick Avenue, Brooklyn, NY 11206
Serlin Building Limited Partnership

77 Main Street, Suite 101
Staten Island, NY 10307

Block 3138, Lot 13
21 Garden Street, Brooklyn, NY 11206
Garden Owner LLC
c/o Rivington Company LLC
31 Belvidere Street, 2nd Floor
Brooklyn, NY 11206

Adjacent Properties to the West

Block 3138, Lot 37
858 Flushing Avenue, Brooklyn, NY 11206
Felip Wasersztrom
3938 Bell Boulevard
Bayside, NY 11361

Local News and Media

New York Post
1211 Avenue of the Americas
New York, NY 10036

New York Daily News
PO Box 7180
New York, NY 10008

Spectrum NY 1 News
75 Ninth Avenue
New York, NY 10011

Courier-Life Publications
15 Metrotech Center
Brooklyn, NY 11201

Brooklyn Daily Eagle
195 Montague Street, Suite 1414
Brooklyn, NY 11201

The Brooklyn Papers
15 Metrotech Center
Brooklyn, NY 11201

BK Reader
info@bkreader.com
https://www.bkreader.com/

School or Day Care Centers Located on or near the Site

Young Women's Leadership School of Brooklyn – K614
President/Executive Director/Principal
325 Bushwick Avenue
Brooklyn, NY 11206
(718) 387 - 5641
https://www.tywlsbrooklyn.org/

Williamsburg Charter High School – K473
President/Executive Director/Principal
198 Varet Street
Brooklyn, NY 11206
https://thewcs.org/
718-782-9830

P.S. 145K Magnet School of
Leadership Through Engineering
President/Executive Director/Principal
https://www.ps145k.org/
(718) 821-4823
100 Noll Street
Brooklyn, NY 11206

Wiser Choice Learning
President/Executive Director/Principal
https://insideschools.org/school/32KBWD
1001 Broadway
Brooklyn, NY 11221
(718) 574-7558

Bedford Stuyvesant New Beginnings Charter School II – K966
President/Executive Director/Principal
https://insideschools.org/school/84K966
(718) 453-1001
82 Lewis Avenue
Brooklyn, NY 11206

Sumner Children's Center
President/Executive Director/Principal
https://insideschools.org/school/14KBLS
(718) 455-3471
860 Park Avenue
Brooklyn, NY 11206

P.S. 120 Carlos Tapia – The
Magnet School of
Architecture, Engineering, and
Design

President/Executive
Director/Principal
18 Beaver Street
Brooklyn, NY 11206
https://www.ps120k.org/
Success Academy Charter School - Bed-Stuy
Elementary

President/Executive
Director/Principal
211 Throop Avenue
Brooklyn, NY 11206
https://www.successacademies.org/school/bed-stuy-2/?utm_medium=organic&utm_source=gbp&utm_campaign=bedstuyelementary
718-704-1439

Tompkins Children's Center –
Brooklyn Kindergarten Society
President/Executive
Director/Principal
https://insideschools.org/school/14KBLT
(718) 782-9140
730 Park Avenue
Brooklyn, NY 11206

P.S. 373 – Brooklyn Transition Center
President/Executive
Director/Principal
https://www.p373kbtc.org/
718-782-6800
185 Ellery Street
Brooklyn, NY 11206

P.S. 257 John F. Hylan
President/Executive
Director/Principal
60 Cook Street
Brooklyn, NY 11206

Tender Tots Childcare, Preschool & Programs
President/Executive
Director/Principal
(718) 298-3944
810 Flushing Avenue
Brooklyn, NY 11206

Luminous Early Childhood Learning Center
President/Executive
Director/Principal
810 Flushing Ave,
Brooklyn, NY 11206
(718) 298-3944

The Learning Experience - Bed-Stuy/Bushwick
President/Executive
Director/Principal
https://thelearningexperience.
com/centers/bed-stuy-
bushwick/
600 Bushwick Ave,
Brooklyn, NY 11206
(718) 550-8434

Creative Academy
President/Executive
Director/Principal
(347) 689-2222
228 Bushwick Ave,
Brooklyn, NY 11206

Whipple Learning Cove
President/Executive
Director/Principal
48 Whipple St Apt 1f,
Brooklyn, NY 11206

Rosaura M Tavarez Group Family Day Care Daycare
President/Executive
Director/Principal
212 Throop Ave apt 10h,
Brooklyn, NY 11206

Lovejoy Social Adult Daycare Center
President/Executive
Director/Principal
111 Moore St,
Brooklyn, NY 11206
(718) 387-0337

New York City Housing Authority's Sumner Day Care Center
880 Park Ave,
Brooklyn, NY 11206
(718) 649-6400

Community, Civic, Religious and Other Environmental Organizations:

Consolidated Edison Corporate Affairs
Johari Jenkins-Taylor , Director - Brooklyn Regional & Community Affairs
30 Flatbush Avenue
Brooklyn, NY 11217

83rd Police Precinct Council
President Barbara Smith
480 Knickerbocker Avenue
Brooklyn, NY, 11237

ENGINE 237
FDNY
43 Morgan Avenue
Brooklyn, NY 11237

Young At Heart (Adult Day Care)
https://www.yahdaycare.com/contact
-us
810 Flushing Ave,
Brooklyn, NY 11206
(718) 557-0000

Riseboro Community Partnership
https://riseboro.org/
Kieran Harrington CEO
kharrington@riseboro.org
565 Bushwick Avenue
Brooklyn, NY 11206
718-821-0254

RiseBoro - Sumner Older Adult Center
862 Park Ave,
Brooklyn, NY 11206

Diana H. Jones Senior Center
9 Noll St,
Brooklyn, NY 11206

New York City Housing Authority Borinquen Plaza Senior Center
80 Seigel St,
Brooklyn, NY 11206

New York City Housing Authority Bushwick/Hylan Senior Center
50 Humboldt St,
Brooklyn, NY 11206

Ridgewood Bushwick Senior Center

533 Bushwick Ave # A,
Brooklyn, NY 11206

Ellery Court Senior
339 Ellery St,
Brooklyn, NY 11206

Evergreen Plaza
78 Troutman St,
Brooklyn, NY 11206

All Saints Catholic Church
115 Throop Ave,
Brooklyn, NY 11206

Canaan Christian Church | Iglesia Cristiana Canaán
800 Flushing Ave,
Brooklyn, NY 11206

Selah City Church
12 Park St,
Brooklyn, NY 11206

Pentecostal Church of Jesus Christ of Brooklyn (IPJ Brooklyn)
21 Marcus Garvey Blvd,
Brooklyn, NY 11206

Cathedral of Joy Christian Center, Inc.
43 George St,
Brooklyn, NY 11206

Fountain Christian Center
11 Marcus Garvey Blvd,
Brooklyn, NY 11206

Tabernacle Of Prayer For All People Of Brooklyn Inc.
27 Marcus Garvey Blvd,
Brooklyn, NY 11206

Evergreen Gospel Chapel
145 Evergreen Ave,
Brooklyn, NY 11221

Brooklyn Temple Seventh-day Adventist Church
3 Lewis Ave,
Brooklyn, NY 11206

Iglesia Pentecostal El Buen Pastor Inc.
93 Moore St,
Brooklyn, NY 11206

Central Brooklyn Spanish SDA Church
130 Boerum St,
Brooklyn, NY 11206

The New Rivers of Life Church
1086 Myrtle Ave,
Brooklyn, NY 11206

Community United Brethren in Christ
115 Throop Ave,
Brooklyn, NY 11206

Mt Calvary
175 Moore St,
Brooklyn, NY 11206

Pentecostal Church of God
165 Humboldt St,
Brooklyn, NY 11206

Second Pentecostal Church-God
220 Montrose Ave,
Brooklyn, NY 11206

Iglesia Cristiana Fuego Santo Inc.
47 Debevoise St
Brooklyn, NY 11206

Beth Shalom EH Congregation
730 Willoughby Ave,
Brooklyn, NY 11206

בית הכנסת אור החיים (יואלי לאנדא)
89 Throop Ave,
Brooklyn, NY 11206

Satmar -Throop Shul
52 Bartlett St,
Brooklyn, NY 11206

Cong. Shaar Hatfilah Ruzle
133 Gerry St,
Brooklyn, NY 11206

Bushwick Houses NYCHA
DEVELOPMENT MANAGEMENT OFFICE
372 Bushwick Avenue
Brooklyn, NY 11206

Bushwick Houses NYCHA
President – Resident Association
372 Bushwick Avenue
Brooklyn, NY 11206

Bushwick Houses NYCHA
COMMUNITY CENTER
50 Humbolt Street
Brooklyn, NY 11206

NYCHA Sumner Houses
COMMUNITY CENTER / SENIOR CENTER
862 Park Avenue
Brooklyn, NY 11206

NYCHA Sumner Houses
DEVELOPMENT MANAGEMENT OFFICE
20 Lewis Avenue
Brooklyn. NY 11206

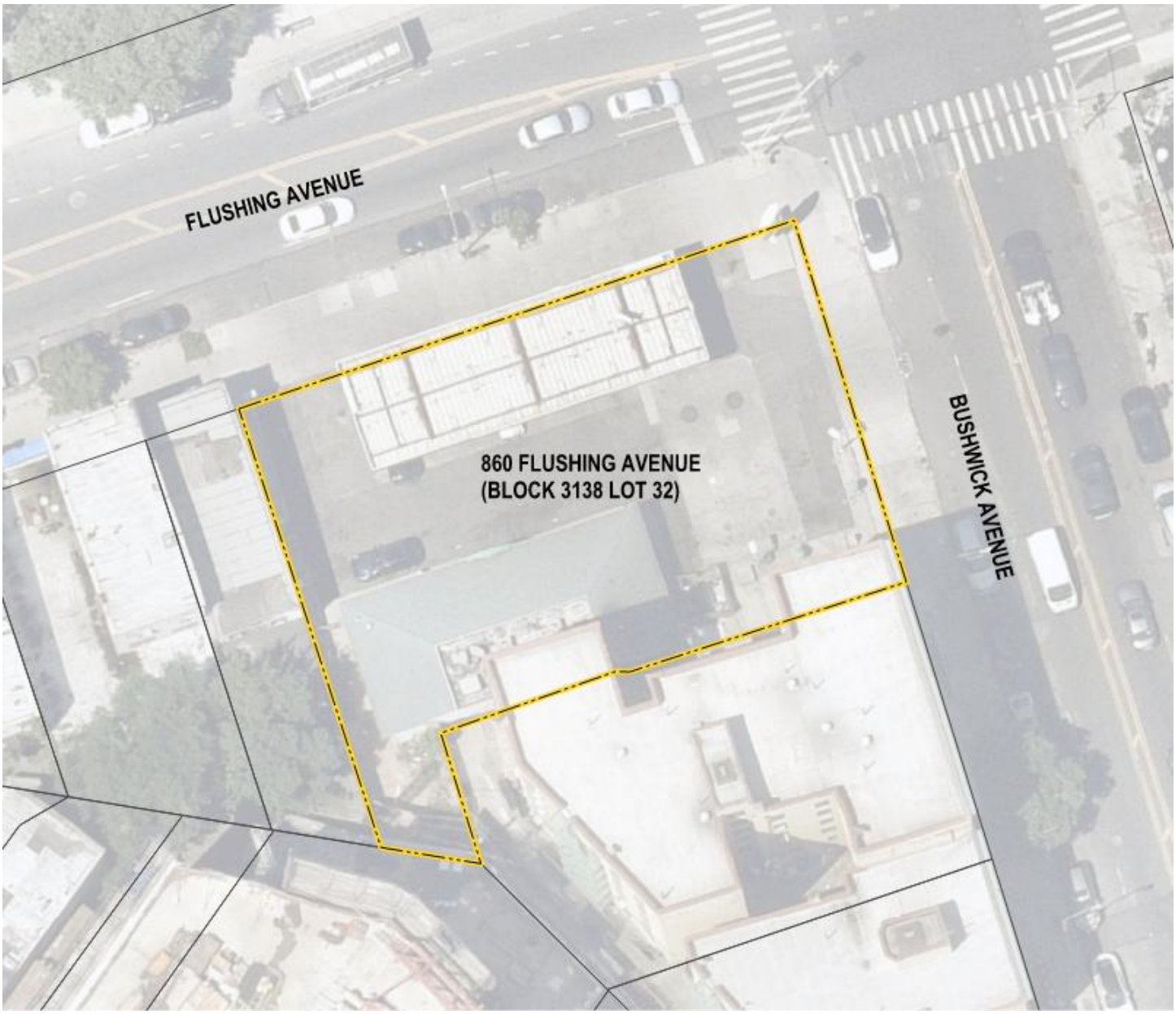
NYCHA Sumner Houses
President – Resident Association
1043 Myrtle Ave, Ste 1F,
Brooklyn, NY 11206

Garden Playground
40 Beaver Street
Brooklyn, NY 11206

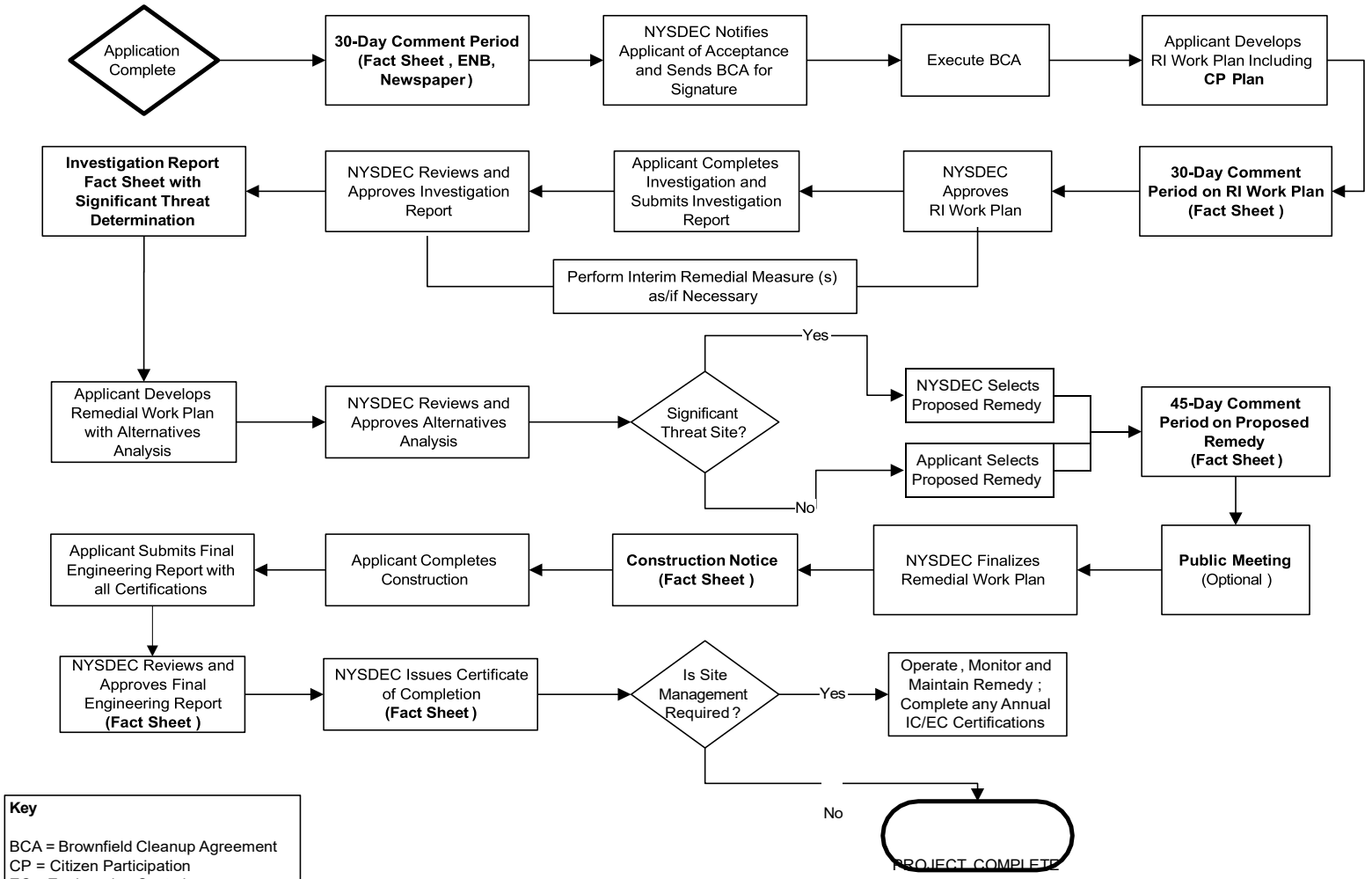
Rheingold Development
555 Bushwick Avenue
Brooklyn, New York 11206

Bushwick Playground and Pool
Flushing Avenue & Beaver Street
Brooklyn, NY 11206

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern

Instructions

This Scoping Sheet assesses major issues of public concern; impacts of the site and its remedial program on the community; community interest in the site; information the public needs; and information needed from the public.

The information generated helps to plan and conduct required citizen participation (CP) activities, and to choose and conduct additional CP activities, if appropriate. The scoping sheet can be revisited and updated as appropriate during the site's remedial process to more effectively implement the site's CP program.

Note: Use the information as an aid to prepare and update the Major Issues of Public Concern section of the site CP Plan.

General Instructions

- When to prepare: During preparation of the CP Plan for the site. It can be revisited and updated anytime during the site remedial process.
- Fill in site name and other information as appropriate.
- The Scoping Sheet may be prepared by DEC or a remedial party, but must be reviewed and approved by the DER site project manager or his/her designee.

Instructions for Numbered Parts

Consider the bulleted issues and questions below and any others that may be unique or appropriate to the site and the community to help complete the five Parts of this Scoping Sheet. Identify the issue stakeholders in Parts 1 through 3 and adjust the site's contact list accordingly.

Part 1. List Major Issues of Public Concern and Information the Community Wants.

- Is our health being impacted? (e.g. Are there problems with our drinking water or air? Are you going to test our water, yards, sumps, basements? Have health studies been done?)
- There are odors in the neighborhood. Do they come from the site and are they hazardous?
- Are there restrictions on what we may do (e.g. Can our children play outside? Can we garden? Must we avoid certain areas? Can we recreate (fish, hunt, hike, etc. on/around the site?)
- How and when were the site's contamination problems created?
- What contaminants are of concern and why? How will you look for contamination and find out where it is going? What is the schedule for doing that?
- The site is affecting our property values!
- How can we get more information (e.g. who are the project contacts?)
- How will we be kept informed and involved during the site remedial process?
- Who has been contacted in the community about site remedial activities?
- What has been done to this point? What happens next and when?
- The site is going to be cleaned up for restricted use. What does that mean? We don't want redevelopment on a "dirty" site.

Part 2. List Important Information Needed From the Community, if Applicable.

- Can the community supplement knowledge about past/current uses of the site?
- Does the community have knowledge that the site may be significantly impacting nearby people, properties, natural resources, etc.?
- Are activities currently taking place at the site or at nearby properties that may need to be restricted?
- Who may be interested or affected by the site that has not yet been identified?
- Are there unique community characteristics that could affect how information is exchanged?
- Does the community and/or individuals have any concerns they want monitored?
- Does the community have information about other sources in the area for the contamination?

Part 3. List Major Issues and Information That Need to be Communicated to the Community.

- Specific site investigation or remediation activities currently underway, or that will begin in the near future.
- The process and general schedule to investigate, remediate and, if applicable, redevelop the site.
- Current understanding about the site contamination and effects, if any, on public health and the environment.
- Site impacts on the community and any restrictions on the public's use of the site and/or nearby properties.
- Planned CP activities, their schedule, and how they relate to the site's remedial process.
- Ways for the community to obtain/provide information (document repositories, contacts, etc.).

Part 4. Community Characteristics

a. - e. Obtain information from local officials, property owners and residents, site reports, site visits, "windshield surveys," other staff, etc.

f. Has the affected community experienced other **significant** present or past environmental problems unrelated to this site? Such experiences could significantly affect public concerns and perspectives about the site; how the community will relate to project staff; the image and credibility of project staff within the community; and the ways in which project staff communicate with the community.

g. In its remedial programs, DER seeks to integrate, and be consistent with, environmental justice principles set forth in *DEC Commissioner Policy 29 on Environmental Justice* and *DER 23 – Citizen Participation Handbook for Remedial Programs*. Is the site and/or affected community wholly or partly in an Environmental Justice (EJ) Area? Use the Search feature on DEC's public web site for "environmental justice". DEC's EJ pages define an EJ area, and link to county maps to help determine if the site and/or community are in an EJ area.

h. Consider factors such as:

- Is English the primary language of the affected community? If not, provisions should be considered regarding public outreach activities such as fact sheets, meetings, door-to-door visits and other activities to ensure their effectiveness.
- The age demographics of the community. For example, is there a significant number of senior citizens in the community? It may be difficult for some to attend public meetings and use document repositories. This may suggest adopting more direct interaction with the community with activities such as door-to-door visits, additional fact sheets, visits to community and church centers, nursing homes, etc.
- How do people travel about the community? Would most people drive to a public meeting or document repository? Is there adequate public transportation?

Part 5. Affected/Interested Public.

Individuals and organizations who need or want information and input can change during the site's remedial process. This need is influenced by real, potential, or perceived impacts of the site or the remedial process. Some people may want information and input throughout the remedial process. Others may participate only during specific remedial stages, or may only be interested in particular issues.

It is important to revisit this question when reviewing this scoping sheet. Knowing who is interested in the site – and the issues that are important to them – will help to select and conduct appropriate outreach activities, and to identify their timing and the information to be exchanged.

Check all affected/interested parties that apply to the site. **Note: Adjust the site's contact list appropriately.** The following are some ways to identify affected/interested parties:

- Tax maps of adjacent property owners
- Attendees at public meetings
- Telephone discussions
- Letters and e-mails to DER, the remedial party, and other agencies
- Political jurisdictions and boundaries
- Media coverage
- Current/proposed uses of site and/or nearby properties (recreational, commercial, industrial)
- Discussions with community organizations: grass roots organizations, local environmental groups, environmental justice groups, churches, and neighborhood advisory groups

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern (see instructions)

Site Name: Former BP Gasoline Service Station Site

Site Number: C224424

Site Address and County: 860 Flushing Avenue, Brooklyn, NY

Remedial Party(ies): Flushing Holdings NY LLC

Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.

Part 1. List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs. **Use this information as an aid to prepare or update the Major Issues of Public Concern section of the site Citizen Participation Plan.**

Based on analytical results of the Limited Phase II Environmental Site Investigation (ESI) performed at the Site in August 2024, the primary contaminants of concern at the Site are VOCs, SVOCs, and metals (including hazardous lead) in soil; VOCs, SVOCs, and metals in groundwater, and petroleum VOCs and CVOCs in soil vapor.

How were these issues and/or information needs identified?
These issues were identified through the previous subsurface investigations results, correspondence with NYSDEC, and from resources available through the NYSDEC Office of Environmental Justice.

Part 2. List important information needed **from** the community, if applicable. Identify individuals, groups, organizations, businesses and/or units of government related to the information needed.
The source of the contaminants of concern detailed in Part 1 likely has to do with former Site operations.

Part 3. List major issues and information that need to be communicated **to** the community. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and/or information.
The anticipated schedule for the proposed RIWP is July of 2025. The Site is privately owned and currently occupied by a BP gasoline retail station. All remedial actions will be in accordance with applicable regulations and contingent on NYSDEC and NYSDOH approvals of the aforementioned work plan. Additional communications will be made to the public as necessary.

How were these issues and/or information needs identified?
These issues were identified through review of the project schedule, site background and contaminants of concern.

Part 4. Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

a. Land use/zoning at and around site:
☒ **Residential** ☐ **Agricultural** ☐ **Recreational** ☒ **Commercial** ☐ **Industrial**

b. Residential type around site:

☒ **Urban** ☐ **Suburban** ☐ **Rural**

c. Population density around site:
☒ **High** ☐ **Medium** ☐ **Low**

d. Water supply of nearby residences:
☒ **Public** ☐ **Private Wells** ☐ **Mixed**

e. Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

g. Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☒ **Yes** ☐ **No**

h. Special considerations:
☒ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

Explain any marked categories in **h:**
The site is located in an NYC Environmental Justice Area and designated as a DAC (disadvantaged community #36047038900). There is a sizable Hispanic population nearby. Future fact sheets will be translated into Spanish.

Part 5. The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☐ **Non-Adjacent Residents/Property Owners:** Click here to enter text.

☒ **Local Officials:** Click here to enter text.

☒ **Media:** The Brooklyn Eagle, Brooklyn Paper, Spectrum 1 News

☐ **Business/Commercial Interests:** Click here to enter text.

☐ **Labor Group(s)/Employees:** Click here to enter text.

☐ **Indian Nation:** Click here to enter text.

☒ **Citizens/Community Group(s):** Click here to enter text.

☐ **Environmental Justice Group(s):** Click here to enter text.

☐ **Environmental Group(s):** Click here to enter text.

☐ **Civic Group(s):** Click here to enter text.

☐ **Recreational Group(s):** Click here to enter text.

☐ **Other(s):** Click here to enter text.

Prepared/Updated By: Delia Freliech **Date:** June 13, 2025

Reviewed/Approved By: Luke J. McCartney, P.G. **Date:** June 13, 2025

APPENDIX G
Environmental Footprint Analysis

H & A OF NEW YORK ENGINEERING
AND GEOLOGY, LLP
213 W. 35th Street
7th Floor
New York, NY 10001
646.277.5685

May 1, 2026
File No. 133156-005

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7014

Subject: Remedial Action Work Plan
Former BP Gasoline Service Station Site
860 Flushing Avenue
Brooklyn, New York 11206
BCP Site C224424

H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) presents the following environmental footprint analysis in accordance with U.S. Environmental Protection Agency (EPA) 542-R-12-002 for the proposed Remedial Action Work Plan (RAWP) of the above-referenced site located at 860 Flushing Avenue, Queens, New York (Site).

FORMER BP GASOLINE SERVICE STATION SITE – PROPOSED WORK PLAN

The Track II Preferred Remedy is anticipated to result in estimated totals of:

- 2,076.86 million metric British thermal units (MMBtus) of energy used;
- 164.16 tons of total greenhouse gas emissions (CO2e);
- 4,663.16 pounds (lbs) of NOx + SOx +PM emissions; and
- 28.23 lbs of Hazardous Air Pollutants (HAP) emissions.

Energy

- 880.35 MMbtus used for on-site activities, such as air monitoring.
- 0.52 MMbtus used for Grid Electricity Generation.
- 86.17 MMbtus used for transportation of personnel and equipment.
- 1,109.81 MMbtus used for off-site activities.

Greenhouse Gas Emissions (CO2e)

- 140,815.86 lbs of CO2e produced from on-site activities, such as excavation.
- 26.36 lbs of CO2e produced from Grid Electricity Generation.
- 13,800.44 lbs of CO2e produced from transportation of personnel and equipment.
- 173,680.76 lbs of CO2e produced from off-site activities.

Water Usage

- 750 gallons of water are estimated to be used during the investigation for the truck wash station.

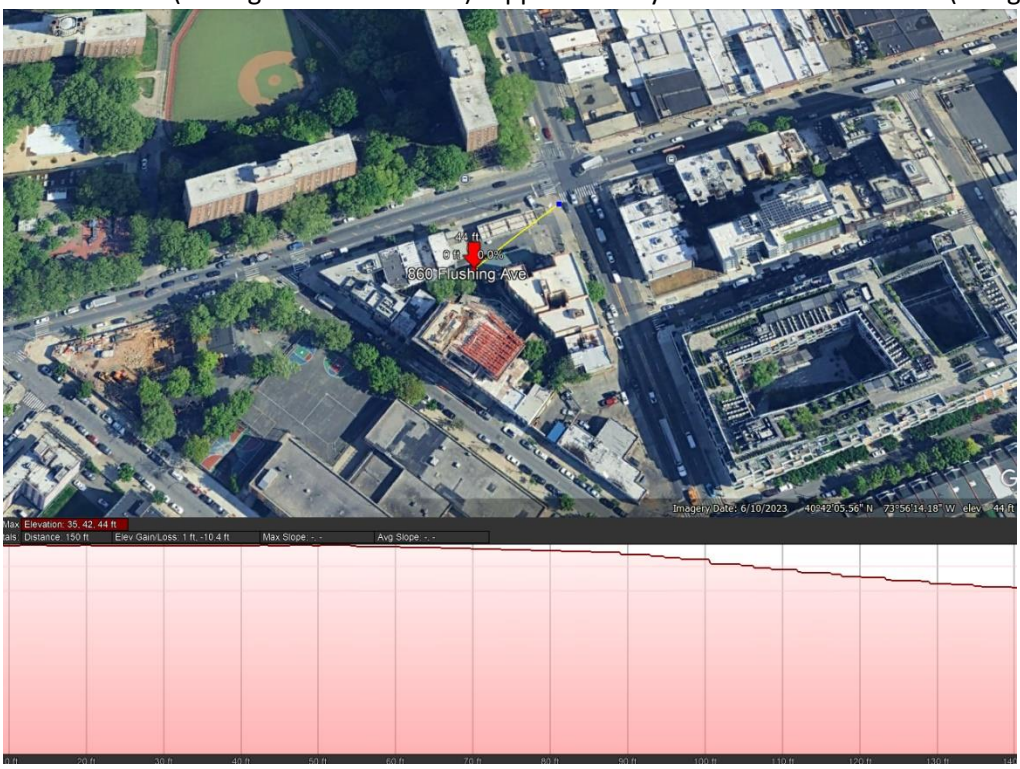
Overall, roughly half of the environmental footprint of the preferred remedy is estimated to be the result of off-site activities, which include off-site laboratory analysis, landfill use, and diesel fuel production. On-site activities are the next largest predicted contributor, and transportation of materials and personnel is the smallest. Off-site energy use is anticipated to comprise 53.44 percent of all energy use and off-site greenhouse gas emissions to comprise 52.90 percent of all emissions for the investigation.

Sincerely yours,
H & A OF NEW YORK ENGINEERING AND GEOLOGY, LLP

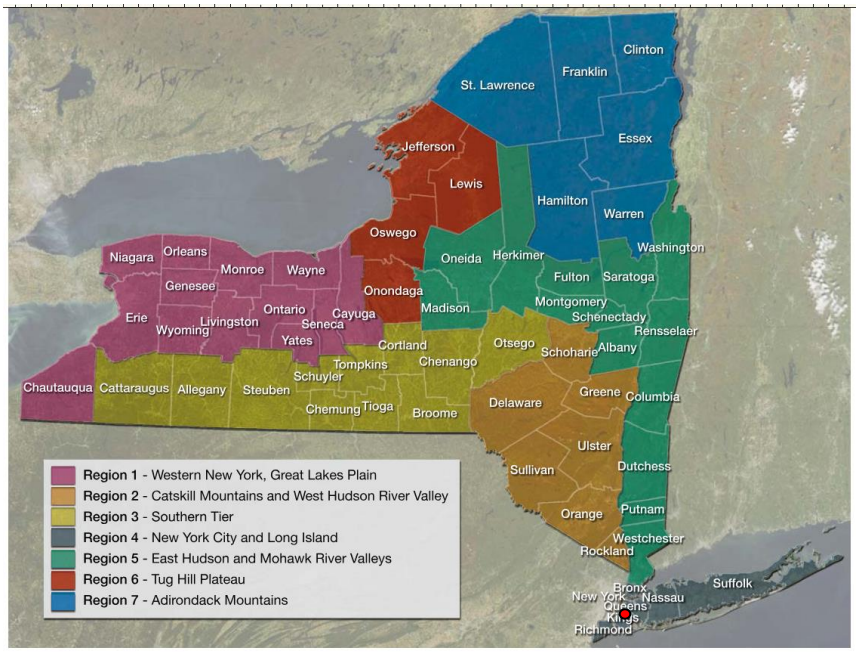
Climate Screening Checklist

Background Information

- Project Manager: Luke J. McCartney, P.G.
- Site Name: Former BP Gasoline Service Station Site (the "Site")
- Site Number: C224424
- Site Location: 860 Flushing Avenue, Brooklyn, New York
- Site Elevation (average above sea level): Approximately 34 feet above sea level (Google Earth)



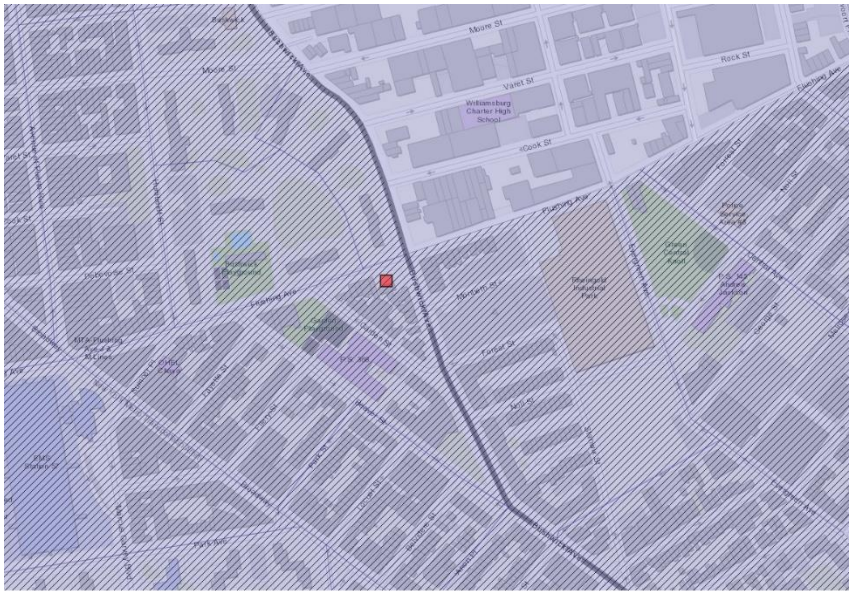
- ClimAID Region (Responding Climate Change in New York State (ClimAID) - NYSERDA): Region 4 – New York City and Long Island



- Remedial Stage/Site Classification: Pending
- Contamination – Media-Impacted/ Contaminants of Concern: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), specifically polycyclic aromatic hydrocarbons (PAHs), and metals, including arsenic, barium, cadmium, copper, lead, mercury, and zinc, in soil; SVOCs, specifically PAHs, in groundwater; and both petroleum-related VOCs and chlorinated VOCs (CVOCs), including tetrachloroethene (PCE) and trichloroethene (TCE), in soil vapor.
- Proposed/Current Remedy: The proposed Track II remedy includes the excavation of materials that exceed Restricted Residential Soil Cleanup Objectives, with Site-wide excavation to 10 feet (ft) below ground surface (bgs) and hotspot excavations extending to at least 28 ft bgs. The proposed remedy also includes the removal, decommissioning, and off-Site disposal of two 12,000-gallon gasoline underground storage tanks and/or associated appurtenances.
- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years? The preferred Track II remedy is anticipated to begin in January 2026 (pending New York State Department of Environmental Conservation [NYSDEC] approval) and be concluded by April 2026. Engineering Controls (ECs) that may be in place for 10+ years under the Track 2 remedy include a Site-wide cover system and a soil vapor extraction (SVE) system. As part of this remedy, an Environmental Easement (EE), as defined in Article 71 Title 36 of the Environmental Conservation Law, approved by the NYSDEC, will be filed and recorded with the Kings County Office of the City Register. Adherence to ECs for the Site is mandated by the EE (an Institutional Control) and will be implemented under a Site Management Plan.
- Is the site in proximity to any sensitive receptors? (e.g., wetlands, waterbodies, residential properties, hospitals, schools, drinking water supplies, etc.). Yes, Public School (P.S.) 120 Carlos Tapia is located approximately 0.03 miles southwest of the Site, Garden Playground is located approximately 0.04 miles west of the Site, Rheingold Development is located approximately 0.04 miles southeast of the Site, Riseboro Community Partnership Inc. is located approximately 0.07 miles south-southeast of the Site, and Bushwick Playground and Pool are located approximately 0.08 miles west of the Site.

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfolocator: DECinfo Locator (ny.gov))?

X Yes ☐ No



If the site is in a DAC or PEJA, will climate impacts be magnified? If yes, list how and why.

☐ Yes X No

Should thresholds of concern be lowered to account for magnification of impacts? If yes, indicate how lower thresholds will be used in the screening.

☐ Yes X No

Climate Screening Table*

Potential Climate Hazards	**Relevant to the Site Location** (Y/N/NA)[1]	**Projected Change** (Reference data source/Model)[3]	**Potential to Impact Remedy** (Y/N)	**Is remedy/site already resilient?** (Y/N)[4]
Precipitation	Y	N/A	N/A	Y
Temperature[2] (Extreme Heat or Cold Weather Impacts)	Y	N/A	N/A	Y
Sea Level Rise	N	N/A	N/A	N/A
Flooding	N	N/A	N/A	N/A
Storm Surge	N	N/A	N/A	N/A
Wildfire	N	N/A	N/A	N/A
Drought	N	N/A	N/A	N/A
Storm Severity	N	N/A	N/A	N/A
Landslides	N	N/A	N/A	N/A
Other Hazards:	N/A	N/A	N/A	N/A

* Links to potential data sources can be found on the following page.

[1] If the first column is N --> The rest of the columns will be N/A, the hazard is not applicable to the site.

[2] Extreme Heat: periods of three or more days above 90°F- Extreme Cold: Individual days with minimum temperatures at or below 0 degrees F (NYSERDA ClimAID report)

[3] List the projected change in specific terms or units e.g., inches of rain fall, feet of sea level rise, etc.

[4] If the final column is Y, provide reasoning, if the final column is N --> Climate Vulnerability Assessment (CVA) required.

Required Next Steps (If no further action is required, provide justification):

Design and implementation of the potential remedy.

Potential Data Sources (not an exhaustive list)- from Superfund Climate Resilience: Vulnerability Assessment | US EPA

Department of Agriculture Forest Service Wildfire Risk to Communities

EPA Climate Change Indicators in the United States

EPA Climate Resilience Evaluation & Awareness Tool (CREAT) | U.S. Climate Resilience Toolkit

EPA National Stormwater Calculator

FEMA- National Flood Hazard Layer | FEMA.gov

National Integrated Drought Information System U.S. Drought Portal

National Interagency Coordination Center National Interagency Fire Center

National Oceanic and Atmospheric Administration Coastal Services Digital Coast

National Oceanic and Atmospheric Administration National Centers for Environmental Information website

National Oceanic and Atmospheric Administration Sea Level Trends

National Weather Service Climate Prediction Center

National Weather Service National Hurricane Center

National Weather Service Sea, Lake, and Overland Surges from Hurricanes (SLOSH)

National Weather Service Storm Surge Hazard Maps

NOAA- National Storm Surge Risk Maps - Version 3 (noaa.gov)

NYS Department of State- Assess | Department of State (ny.gov)

NYSDEC Costal Erosion Hazards- Coastal Areas Regulated By The CEHA Permit Program - NYDEC

NYSDOH Heat Index- health.ny.gov/environmental/weather/vulnerability_index/county_maps.htm

NYSERDA ClimAID report- Responding Climate Change in New York State (ClimAID) - NYSERDA

NYSERDA NY Costal Floodplain Mapper- Home Page (ny.gov)

Resources to help communities assess coastal hazards, such as the Sea Level Rise Viewer for visualizing community-level impacts of flooding or sea level rise and downloadable LIDAR data

U.S. Army Corps of Engineers Climate Preparedness and Resilience

U.S. Federal Government Climate Resilience Toolkit: The Climate Explorer

U.S. Geological Survey Coastal Change Hazards Portal

U.S. Geological Survey Landslide Hazards Program

U.S. Geological Survey National Climate Change Viewer

U.S. Geological Survey National Ground-water Monitoring Network Data Portal

U.S. Geological Survey National Water Dashboard

U.S. Geological Survey StreamStats

Environmental Footprint Summary

Core Element	Metric		Unit of Measure	Footprint						
				Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy					Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	2,461.2	100.0	0.0	0.0	0.0	0.0	2,561.2
	M&W-2	% of refined materials from recycled or reused material	%	0.0%	0.0%					0.0%
	M&W-3	Unrefined materials used on-site	Tons	0.000	0.000	0.000	0.000	0.000	0.000	0.0
	M&W-4	% of unrefined materials from recycled or reused material	%							
	M&W-5	On-site hazardous waste disposed of off-site	Tons	100.0	100.0	0.0	0.0	0.0	0.0	200.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	10,559.0	5,909.0	0.0	0.0	0.0	0.0	16,468.0
	M&W-7	Recycled or reused waste	Tons	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-8	% of total potential waste recycled or reused	%	0.0%	0.0%					0.0%
Water (used on-site)	W-1	Public water use	MG	0.0108	0.0008	0.0	0.0	0.0	0.0	0.0116
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	3,968.3	2,076.9	0.0	0.0	0.0	0.0	6,045.1
	E-2	Energy voluntarily derived from renewable resources								
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	1.831	0.075	0.000	0.000	0.000	0.000	1.9
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	1,139.3	697.3	0.0	0.0	0.0	0.0	1,836.6
	A-2	On-site HAP emissions	Pounds	0.4	0.3	0.0	0.0	0.0	0.0	0.7
	A-3	Total NOx, SOx, and PM emissions	Pounds	8,651.3	4,663.2	0.0	0.0	0.0	0.0	13,314.5
	A-3A	Total NOx emissions	Pounds	3,198.2	1,598.6	0.0	0.0	0.0	0.0	4,796.7
	A-3B	Total SOx emissions	Pounds	1,035.3	574.0	0.0	0.0	0.0	0.0	1,609.4
	A-3C	Total PM emissions	Pounds	4,417.8	2,490.5	0.0	0.0	0.0	0.0	6,908.3
	A-4	Total HAP emissions	Pounds	43.5	28.2	0.0	0.0	0.0	0.0	71.8
	A-5	Total greenhouse gas emissions	Tons CO2e*	311.0	164.2	0.0	0.0	0.0	0.0	475.2
Land & Ecosystems		Qualitative Description								

** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)
"Tons" = short tons (2,000 pounds)

The above metrics are consistent with EPA's Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February 2012

Notes:

Alternative I - Track 1 Remedy - Energy & Air Compiled Results

Category	Total Energy	GHG	NOx	SOx	PM	NOx + SOx + PM	HAPs
	MMbtus	lbs CO2e	lbs	lbs	lbs	lbs	lbs
On-site (Scope 1)	**1,444**	**230,074**	**1,045**	**1**	**93**	**1,139**	**0**
Grid Electricity Generation (Scope 2)	**12.688**	**2,059**	**4**	**8**	**0**	**13**	**0**
Transportation (Scope 3a)	**420**	**67,890**	**451**	**14**	**10**	**475**	**4**
Other Off-Site (Scope 3b)	**2,091**	**322,023**	**1,698**	**1,012**	**4,314**	**7,024**	**39**
Remedy Totals	**3,968**	**622,046**	**3,198**	**1,035**	**4,418**	**8,651**	**44**

G289

Values that are forwarded to the "Summary" tab are indicated in orange.

36.39381884

51.76837346

Voluntary Renewable Energy Use	Unit	Quantity
On-site renewable energy generation or use	MMBtu	**0**
On-site biodiesel use	MMBtu	**0**
Biodiesel and other renewable resource use for transportation	MMBtu	**0**
On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	**0**
Voluntary purchase of renewable electricity	MWh	**0**
Voluntary purchase of RECs	MWh	**0**

(This value is the sum of the three rows above)

This worksheet is not intended for user input. Values on this worksheet are obtained from the following file: SEFA_calculations_(121718).xlsx

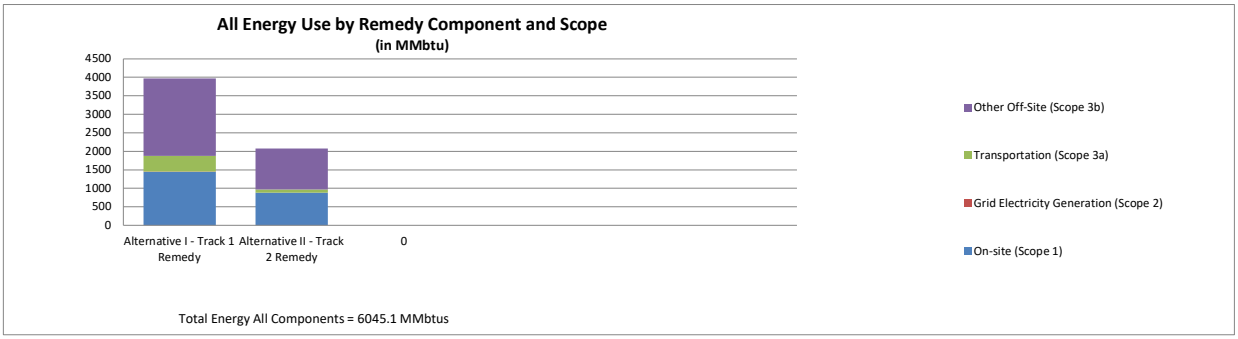
Alternative II - Track 2 Remedy - Energy & Air Compiled Results

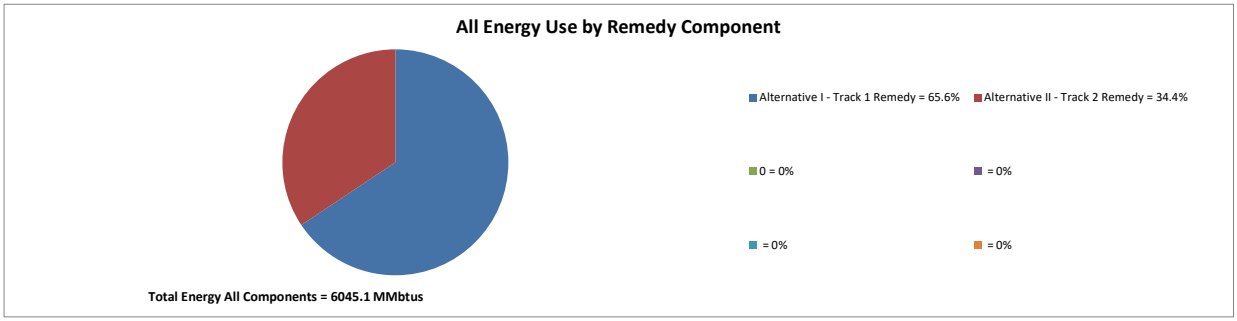
Category	Total Energy	GHG	NOx	SOx	PM	NOx + SOx + PM	HAPs
	MMbtus	lbs CO2e	lbs	lbs	lbs	lbs	lbs
On-site (Scope 1)	**880**	**140,816**	**639**	**1**	**57**	**697**	**0**
Grid Electricity Generation (Scope 2)	**1**	**26**	**0**	**0**	**0**	**0**	**0**
Transportation (Scope 3a)	**86**	**13,800**	**44**	**1**	**2**	**47**	**3**
Other Off-Site (Scope 3b)	**1,110**	**173,681**	**915**	**572**	**2,431**	**3,918**	**25**
Remedy Totals	**2,077**	**328,323**	**1,599**	**574**	**2,491**	**4,663**	**28**

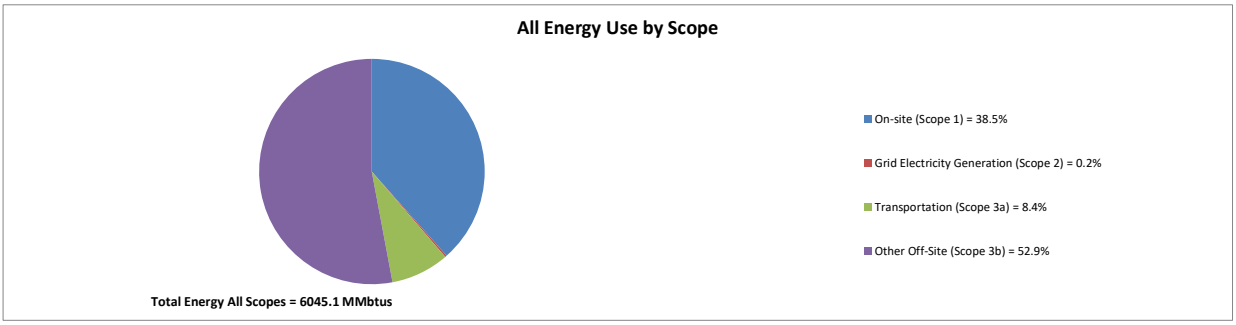
Values that are forwarded to the "Summary" tab are indicated in orange.

Voluntary Renewable Energy Use	Unit	Quantity	
On-site renewable energy generation or use	MMBtu	**0**	
On-site biodiesel use	MMBtu	**0**	
Biodiesel and other renewable resource use for transportation	MMBtu	**0**	
On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	**0**	*(This value is the sum of the three rows above)*
Voluntary purchase of renewable electricity	MWh	**0**	
Voluntary purchase of RECs	MWh	**0**	

This worksheet is not intended for user input. Values on this worksheet are obtained from the following file: SEFA_calculations_(121718).xlsx


All Energy Use by Remedy Component and Scope
(in MMbtu)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Alternative I - Track 1 Remedy
Alternative II - Track 2 Remedy
0
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 6045.1 MMbtus


All Energy Use by Remedy Component
Alternative I - Track 1 Remedy = 65.6%
Alternative II - Track 2 Remedy = 34.4%
0 = 0%
= 0%
= 0%
= 0%
Total Energy All Components = 6045.1 MMbtus

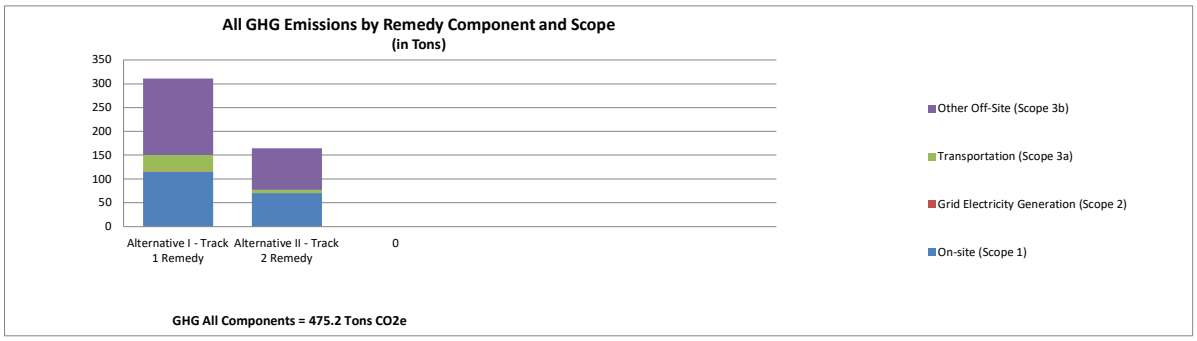

All Energy Use by Scope
On-site (Scope 1) = 38.5%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 8.4%
Other Off-Site (Scope 3b) = 52.9%
Total Energy All Scopes = 6045.1 MMbtus

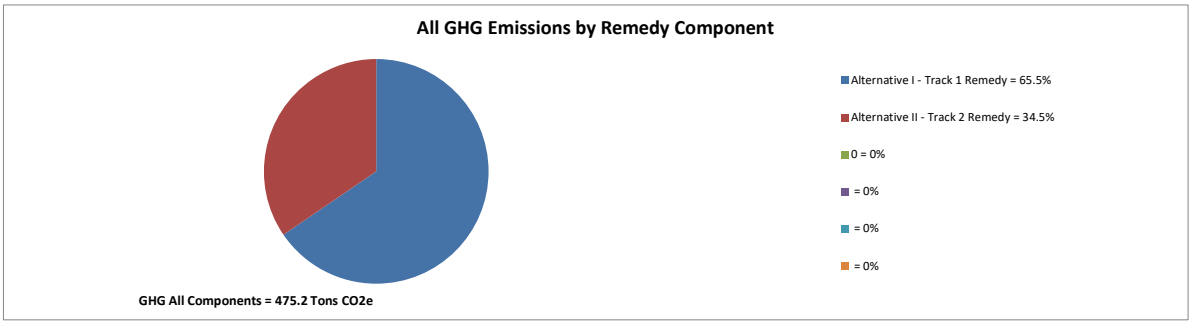
Total Energy MMbtus	Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy	0				Total
On-site (Scope 1)	1,444.2	880.4	0.0	0.0	0.0	0.0	2,324.6
Grid Electricity Generation (Scope 2)	12.7	0.5	0.0	0.0	0.0	0.0	13.2
Transportation (Scope 3a)	420.4	86.2	0.0	0.0	0.0	0.0	506.5
Other Off-Site (Scope 3b)	2,091.0	1,109.8	0.0	0.0	0.0	0.0	3,200.8
Total	3,968.3	2,076.9	0.0	0.0	0.0	0.0	6,045.1

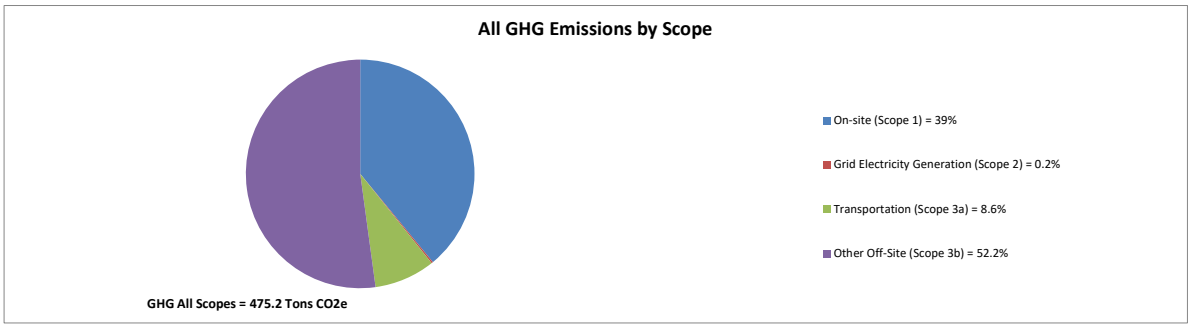
Alternative I - Track 1 Remedy = 65.6%
Alternative II - Track 2 Remedy = 34.4%
0 = 0%
= 0%
= 0%
= 0%

On-site (Scope 1) = 38.5%
Grid Electricity Generation (Scope
Transportation (Scope 3a) = 8.4%
Other Off-Site (Scope 3b) = 52.9%

Total Energy All Components = 6045.1 MMbtus
Total Energy All Scopes = 6045.1 MMbtus


All GHG Emissions by Remedy Component and Scope
(in Tons)
350
300
250
200
150
100
50
0
Alternative I - Track 1 Remedy
Alternative II - Track 2 Remedy
0
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 475.2 Tons CO2e


All GHG Emissions by Remedy Component
Alternative I - Track 1 Remedy = 65.5%
Alternative II - Track 2 Remedy = 34.5%
0 = 0%
= 0%
= 0%
= 0%
GHG All Components = 475.2 Tons CO2e

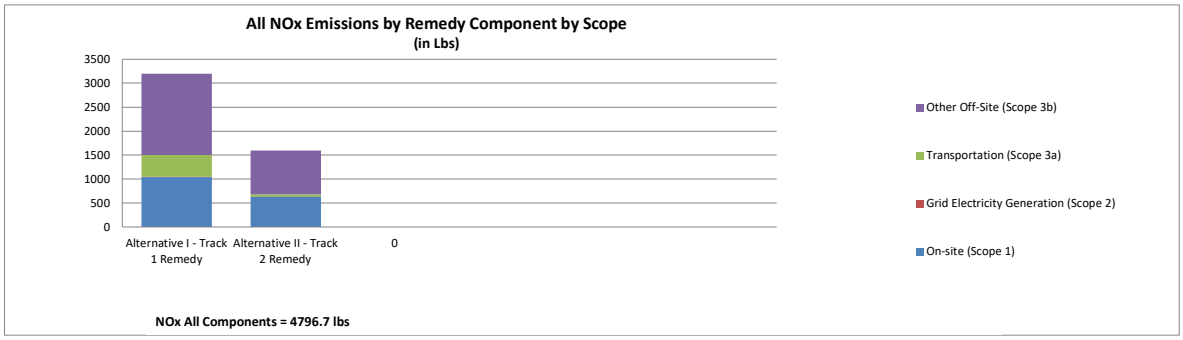

All GHG Emissions by Scope
On-site (Scope 1) = 39%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 8.6%
Other Off-Site (Scope 3b) = 52.2%
GHG All Scopes = 475.2 Tons CO2e

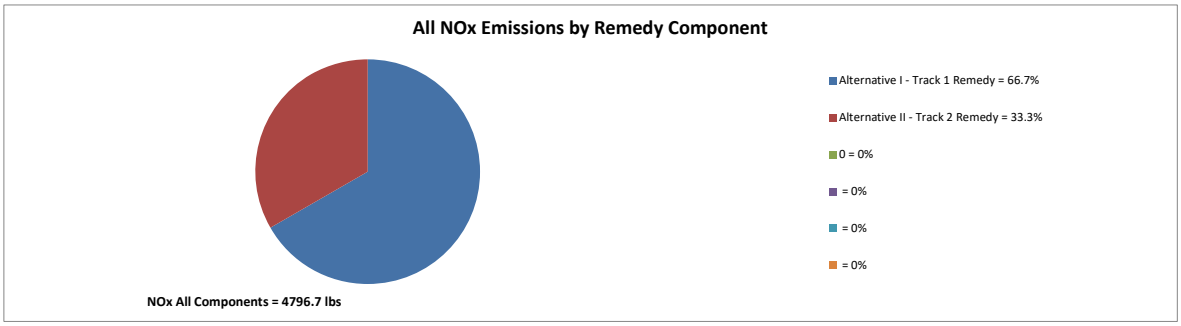
GHG Tons CO2e	Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy	0				Total
On-site (Scope 1)	115.0	70.4	0.0	0.0	0.0	0.0	185.4
Grid Electricity Generation (Scope 2)	1.0	0.0	0.0	0.0	0.0	0.0	1.0
Transportation (Scope 3a)	33.9	6.9	0.0	0.0	0.0	0.0	40.8
Other Off-Site (Scope 3b)	161.0	86.8	0.0	0.0	0.0	0.0	247.9
Total	311.0	164.2	0.0	0.0	0.0	0.0	475.2

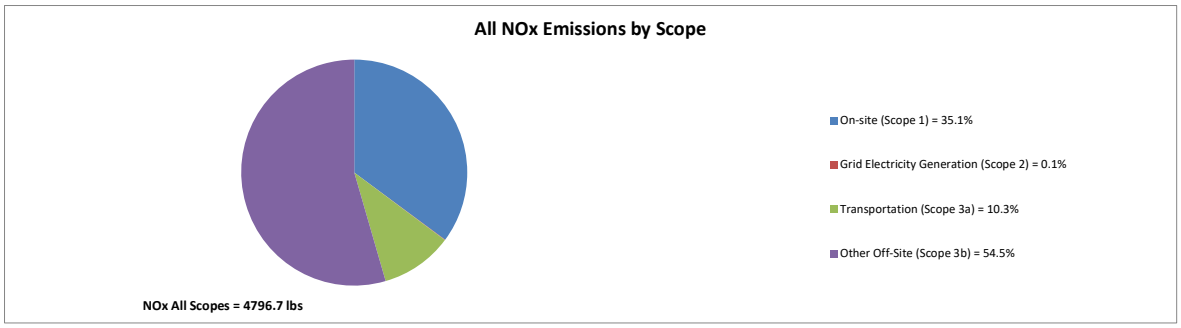
Alternative I - Track 1 Remedy = 65.5%
Alternative II - Track 2 Remedy = 34.5%
0 = 0%
= 0%
= 0%
= 0%

GHG All Components = 475.2 Tons CO2e
GHG All Scopes = 475.2 Tons CO2e

On-site (Scope 1) = 39%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 8.6%
Other Off-Site (Scope 3b) = 52.2%


All NOx Emissions by Remedy Component by Scope
(in Lbs)
3500
3000
2500
2000
1500
1000
500
0
Alternative I - Track 1 Remedy
Alternative II - Track 2 Remedy
0
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 4796.7 lbs


All NOx Emissions by Remedy Component
Alternative I - Track 1 Remedy = 66.7%
Alternative II - Track 2 Remedy = 33.3%
0 = 0%
= 0%
= 0%
= 0%
NOx All Components = 4796.7 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 35.1%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 10.3%
Other Off-Site (Scope 3b) = 54.5%
NOx All Scopes = 4796.7 lbs

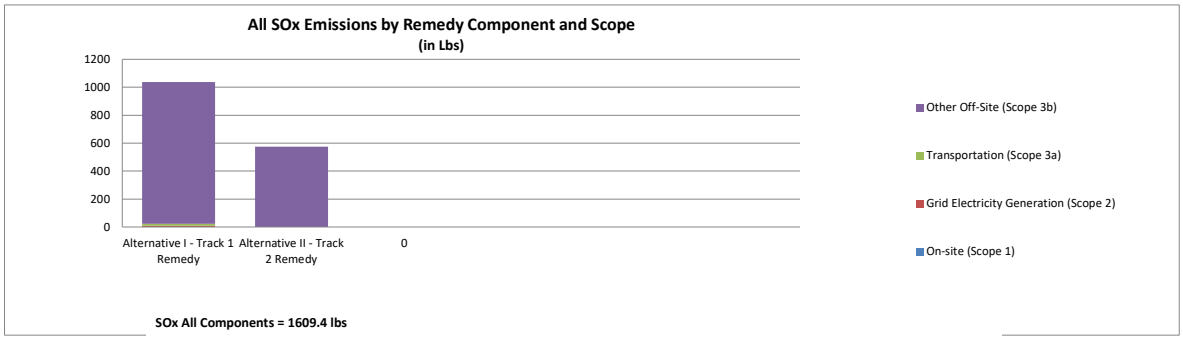
NOx
lbs

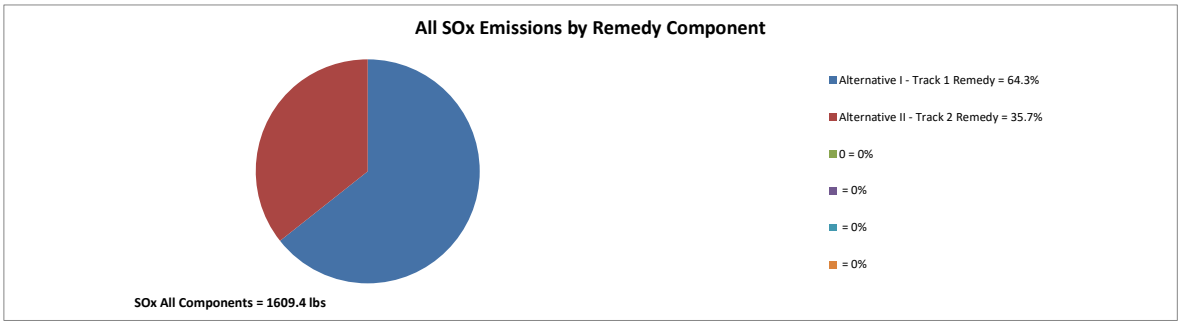
	Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy	0				Total
On-site (Scope 1)	1,044.9	639.5	0.0	0.0	0.0	0.0	1,684.3
Grid Electricity Generation (Scope 2)	4.1	0.1	0.0	0.0	0.0	0.0	4.2
Transportation (Scope 3a)	450.8	44.1	0.0	0.0	0.0	0.0	494.9
Other Off-Site (Scope 3b)	1,698.4	914.9	0.0	0.0	0.0	0.0	2,613.3
Total	3,198.2	1,598.6	0.0	0.0	0.0	0.0	4,796.7

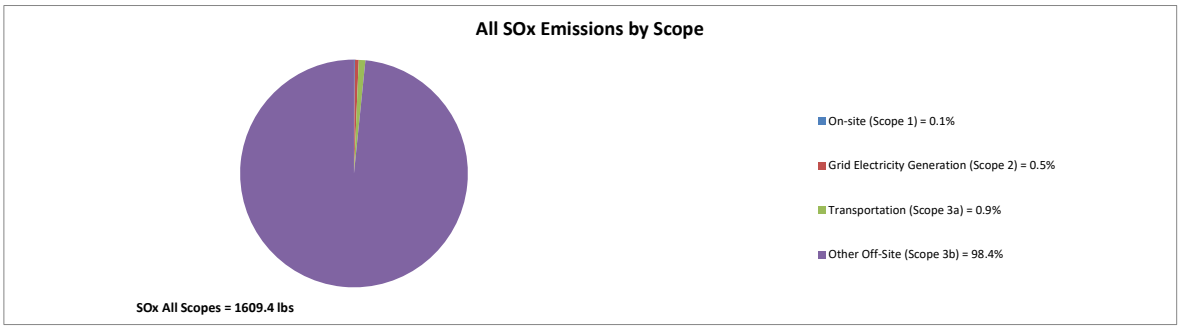
Alternative I - Track 1 Remedy = 66.7%
Alternative II - Track 2 Remedy = 33.3%
0 = 0%
= 0%
= 0%
= 0%

NOx All Components = 4796.7 lbs
NOx All Scopes = 4796.7 lbs

On-site (Scope 1) = 35.1%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 10.3%
Other Off-Site (Scope 3b) = 54.5%


All SOx Emissions by Remedy Component and Scope
(in Lbs)
1200
1000
800
600
400
200
0
Alternative I - Track 1 Remedy
Alternative II - Track 2 Remedy
0
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 1609.4 lbs


All SOx Emissions by Remedy Component
Alternative I - Track 1 Remedy = 64.3%
Alternative II - Track 2 Remedy = 35.7%
0 = 0%
= 0%
= 0%
= 0%
SOx All Components = 1609.4 lbs

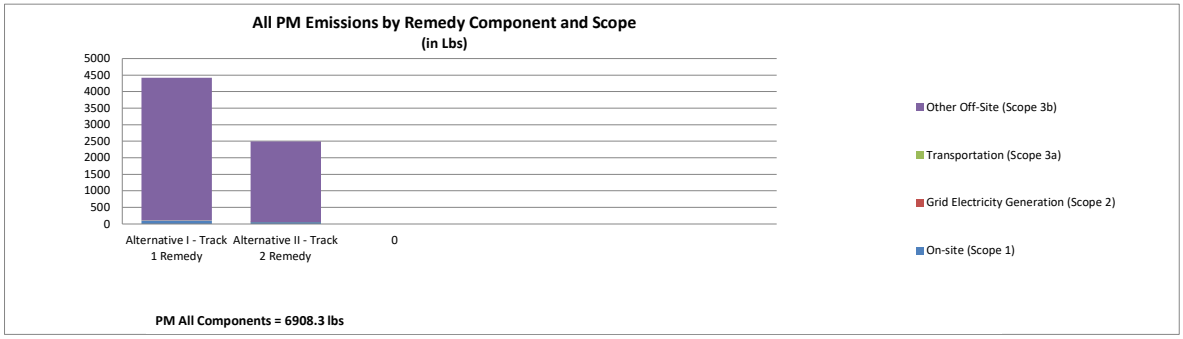

All SOx Emissions by Scope
On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 0.9%
Other Off-Site (Scope 3b) = 98.4%
SOx All Scopes = 1609.4 lbs

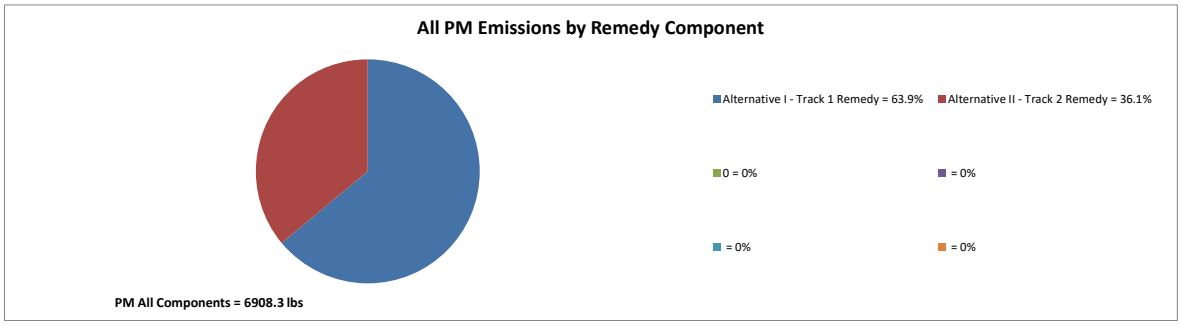
	SOx lbs						
	Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy	0				Total
On-site (Scope 1)	1.3	0.8	0.0	0.0	0.0	0.0	2.2
Grid Electricity Generation (Scope 2)	8.4	0.1	0.0	0.0	0.0	0.0	8.5
Transportation (Scope 3a)	13.9	1.0	0.0	0.0	0.0	0.0	14.9
Other Off-Site (Scope 3b)	1,011.6	572.1	0.0	0.0	0.0	0.0	1,583.7
Total	1,035.3	574.0	0.0	0.0	0.0	0.0	1,609.4

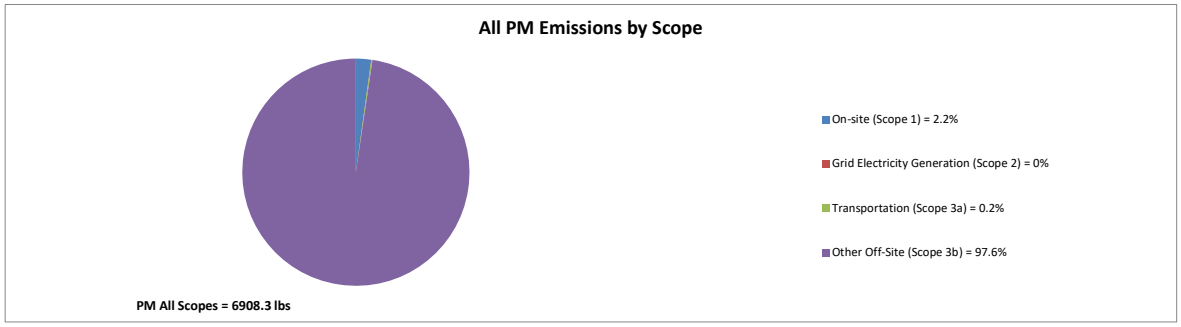
Alternative I - Track 1 Remedy = 64.3%
Alternative II - Track 2 Remedy = 35.7%
0 = 0%
= 0%
= 0%
= 0%

SOx All Components = 1609.4 lbs
SOx All Scopes = 1609.4 lbs

On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 0.9%
Other Off-Site (Scope 3b) = 98.4%


All PM Emissions by Remedy Component and Scope
(in Lbs)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Alternative I - Track 1 Remedy
Alternative II - Track 2 Remedy
0
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 6908.3 lbs


All PM Emissions by Remedy Component
Alternative I - Track 1 Remedy = 63.9%
Alternative II - Track 2 Remedy = 36.1%
0 = 0%
= 0%
= 0%
= 0%
PM All Components = 6908.3 lbs


All PM Emissions by Scope
On-site (Scope 1) = 2.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.2%
Other Off-Site (Scope 3b) = 97.6%
PM All Scopes = 6908.3 lbs

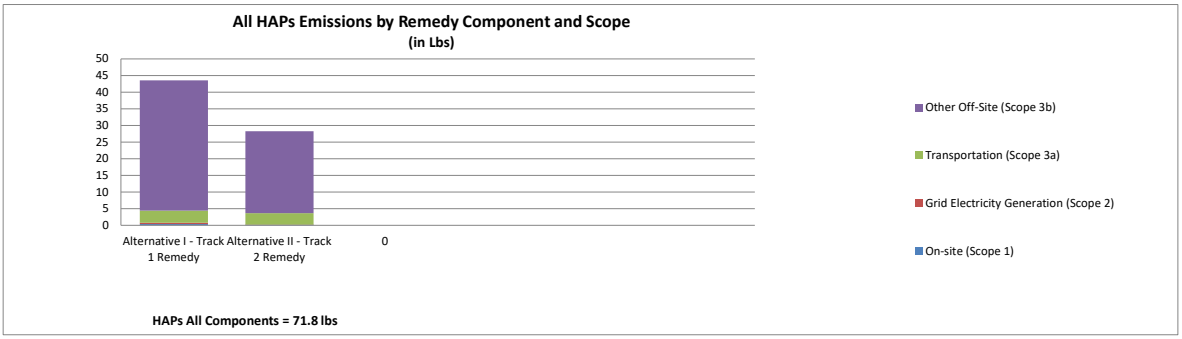
PM
lbs

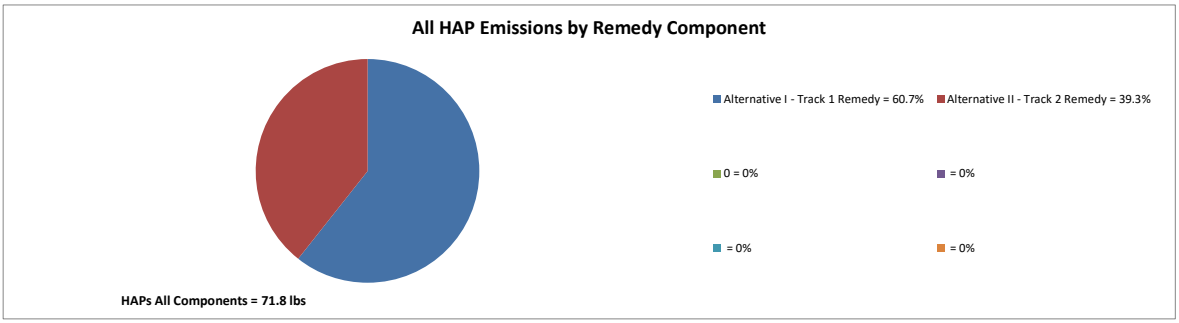
	Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy	0				Total
On-site (Scope 1)	93.1	57.0	0.0	0.0	0.0	0.0	150.1
Grid Electricity Generation (Scope 2)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Transportation (Scope 3a)	10.3	2.1	0.0	0.0	0.0	0.0	12.4
Other Off-Site (Scope 3b)	4,314.3	2,431.5	0.0	0.0	0.0	0.0	6,745.8
Total	4,417.8	2,490.5	0.0	0.0	0.0	0.0	6,908.3

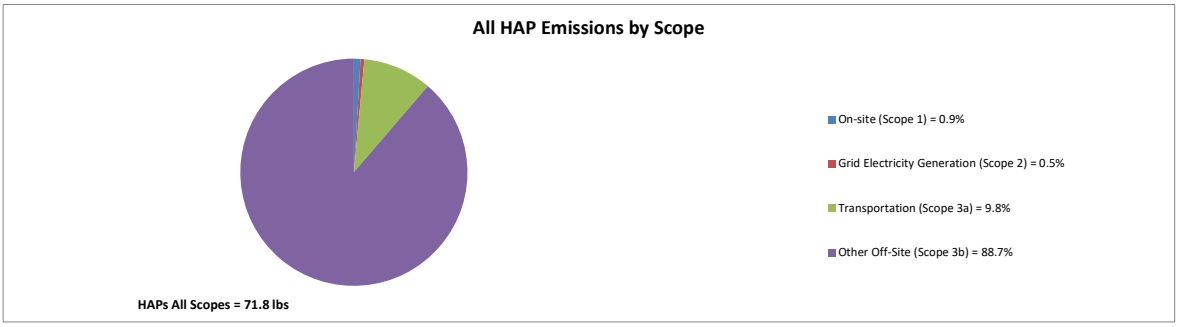
Alternative I - Track 1 Remedy = 63.9%
Alternative II - Track 2 Remedy = 36.1%
0 = 0%
= 0%
= 0%
= 0%

PM All Components = 6908.3 lbs
PM All Scopes = 6908.3 lbs

On-site (Scope 1) = 2.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.2%
Other Off-Site (Scope 3b) = 97.6%


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
50
45
40
35
30
25
20
15
10
5
0
Alternative I - Track 1 Remedy
Alternative II - Track 2 Remedy
0
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 71.8 lbs


All HAP Emissions by Remedy Component
Alternative I - Track 1 Remedy = 60.7%
Alternative II - Track 2 Remedy = 39.3%
0 = 0%
= 0%
= 0%
= 0%
HAPs All Components = 71.8 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.9%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 9.8%
Other Off-Site (Scope 3b) = 88.7%
HAPs All Scopes = 71.8 lbs

HAPs
lbs

	Alternative I - Track 1 Remedy	Alternative II - Track 2 Remedy	0				Total
On-site (Scope 1)	0.4	0.3	0.0	0.0	0.0	0.0	0.7
Grid Electricity Generation (Scope 2)	0.4	0.0	0.0	0.0	0.0	0.0	0.4
Transportation (Scope 3a)	3.6	3.5	0.0	0.0	0.0	0.0	7.0
Other Off-Site (Scope 3b)	39.1	24.5	0.0	0.0	0.0	0.0	63.7
Total	43.5	28.2	0.0	0.0	0.0	0.0	71.8

Alternative I - Track 1 Remedy = 60.7%
Alternative II - Track 2 Remedy = 39.3%
0 = 0%
= 0%
= 0%
= 0%

HAPs All Components = 71.8 lbs
HAPs All Scopes = 71.8 lbs

On-site (Scope 1) = 0.9%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 9.8%
Other Off-Site (Scope 3b) = 88.7%

APPENDIX H
Quality Assurance Project Plan

HALEY ALDRICH

www.haleyaldrich.com

QUALITY ASSURANCE PROJECT PLAN
860 FLUSHING AVENUE
BROOKLYN, NEW YORK
NYSDEC BCP SITE NO. C224424

by
H & A of New York Engineering and Geology, LLP
New York, New York

for
Flushing Holdings NY LLC
Brooklyn, New York

File No. 0211437
May 2026

Executive Summary

This Quality Assurance Project Plan outlines the scope of the quality assurance and quality control activities associated with the site monitoring activities associated with the Remedial Action Work Plan (RAWP) for 860 Flushing Avenue in Brooklyn, New York (Site).

Protocols for sample collection, sample handling and storage, chain-of-custody procedures, and laboratory and field analyses are described herein or specifically referenced to related project documents.

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A	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (April 2023)
B	Project Team Resumes

1. Project Description

This Quality Assurance Project Plan (QAPP) has been prepared as a component of the Remedial Action Work Plan (RAWP) for 860 Flushing Avenue, Brooklyn, New York (Site).

1.1 PROJECT OBJECTIVES

The primary objective for data collection is to collect sufficient data necessary to characterize the subsurface conditions at the Site and determine the nature and extent of contamination.

1.2 SITE DESCRIPTION AND HISTORY

The general Site description and Site history is provided in the Site Description and History Summary that accompanies the RAWP for the Site and incorporated herein by reference.

1.3 LABORATORY PARAMETERS

The laboratory parameters for soil include:

- Target Compound List volatile organic compounds (VOCs) using EPA method 8260C
- Target Compound List semi-volatile organic compounds (SVOCs) using EPA method 8270D
- Total Analyte List (TAL) Metals using EPA method 6010D
- TCL Pesticides using EPA method 8081B
- Polychlorinated biphenyls (PCBs) using EPA method 8082A
- Per- and polyfluoroalkyl substances (PFAS) using EPA method 1633A
- 1,4-Dioxane using EPA method 8270SIM

Note: PFAS will be collected in accordance with the NYSDEC, Division of Environmental Remediation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program, April 2023, enclosed as Attachment A. Sections relevant to soil sample collection at the Site for PFAS analysis include: Appendix A – Quality Assurance Project Plan (QAPP) Guidelines for PFAS, Appendix B – Sampling Protocols for PFAS in Soils, Sediments and Solids, Appendix G – PFAS Analtye List, and Appendix H – Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids.

The analytical laboratory parameters for air samples include:

- VOCs using EPA method TO-15

Laboratory parameters for disposal samples will be determined by the disposal facility after an approved facility has been determined.

1.4 SAMPLING LOCATIONS

The RAWP provides the locations of remedial excavation confirmation sample locations that will be sampled (as applicable). Post-mitigation confirmatory indoor/ambient air sampling will be completed Soil vapor extraction system air samples may be collected as part of system commissioning.

2. Project Organization and Responsibilities

This section defines the roles and responsibilities of the individuals who will perform the RAWP monitoring activities. A NYSDOH certified analytical laboratory will perform the analyses of environmental samples collected at the Site.

2.1 PROJECT TEAM

The following project personnel are anticipated for oversight of the RAWP implementation. Project team resumes are included in Attachment A.

NYSDEC Case Manager	Nour Haredy
NYSDOH Case Manager	Kari Pollard
Qualified Environmental Professional	Mari Cate Conlon, P.G.
Project Manager	Luke J. McCartney, P.G.
Haley & Aldrich Health & Safety Director	Brian Fitzpatrick, CHMM
Health & Safety Officer	Brian Ferguson
Quality Assurance Officer	Katherine Miller
Data Validation / DUSR Preparer	Santa McKenna

2.2 MANAGEMENT RESPONSIBILITIES

The Project Manager is responsible for managing the implementation of the RAWP and monitoring and coordinating the collection of data. The Project Manager is responsible for technical quality control (QC) and project oversight. The Project Manager responsibilities include the following:

- Acquire and apply technical and corporate resources as needed to ensure performance within budget and schedule restraints;
- Review work performed to ensure quality, responsiveness, and timeliness;
- Communicate with the client point of contact concerning the progress of the monitoring activities;
- Assure corrective actions are taken for deficiencies cited during audits of RAWP monitoring activities; and,
- Assure compliance with Site health and safety plan.

2.3 QUALITY ASSURANCE RESPONSIBILITIES

The Quality Assurance (QA) team will consist of a QA Officer and the Data Validation Staff. QA responsibilities are described as follows:

2.3.1 Quality Assurance Officer

The QA Officer reports directly to the Project Manager and will be responsible for overseeing the review of field and laboratory data. Additional responsibilities include the following:

- Assure the application and effectiveness of the QAPP by the analytical laboratory and the project staff;

- Provide input to the Project Manager as to corrective actions that may be required as a result of the above-mentioned evaluations; and,
- Prepare and/or review data validation and audit reports.

The QA Officer will be assisted by the Data Validation staff in the evaluation and validation of field and laboratory generated data.

2.3.2 Data Validation Staff

The Data Validation Staff will be independent of the laboratory and familiar with the analytical procedures performed. The validation will include a review of each validation criterion as prescribed by the guidelines presented in Section 9.2 of this document and be presented in a Data Usability Summary Report (DUSR) for submittal to the QA Officer.

2.4 LABORATORY RESPONSIBILITIES

The ELAP approved laboratory to be used will be Pace Analytical Services, LLC (Pace), located in Westborough, Massachusetts. Laboratory services in support of the RAWP monitoring include the following personnel:

2.4.1 Laboratory Project Manager

The Laboratory Project Manager will report directly to the QA Officer and Project Manager and will be responsible for ensuring all resources of the laboratory are available on an as-required basis. The Laboratory Project Manager will also be responsible for the approval of the final analytical reports.

2.4.2 Laboratory Operations Manager

The Laboratory Operations Manager will report to the Laboratory Project Manager and will be responsible for coordinating laboratory analysis, supervising in-house chain-of-custody reports, scheduling sample analyses, overseeing data review and overseeing preparation of analytical reports.

2.4.3 Laboratory QA Officer

The Laboratory QA Officer will have sole responsibility for review and validation of the analytical laboratory data. The Laboratory QA Officer will provide Case Narrative descriptions of any data quality issues encountered during the analyses conducted by the laboratory. The QA Officer will also define appropriate QA procedures, overseeing QA/QC documentation.

2.4.4 Laboratory Sample Custodian

The Laboratory Sample Custodian will report to the Laboratory Operations Manager and will be responsible for the following:

- Receive and inspect the incoming sample containers;
- Record the condition of the incoming sample containers;
- Sign appropriate documents;
- Verify chain-of-custody and its correctness;
- Notify the Project Manager and Operations Manager of sample receipt and inspection;

- Assign a unique identification number and enter each into the sample receiving log;
- Initiate transfer of samples to laboratory analytical sections; and,
- Control and monitor access/storage of samples and extracts.

2.4.5 Laboratory Technical Personnel

The Laboratory Technical Personnel will have the primary responsibility in the performance of sample analysis and the execution of the QA procedures developed to determine the data quality. These activities will include the proper preparation and analysis of the project samples in accordance with the laboratory's Quality Assurance Manual (QAM) and associated Standard Operating Procedures (SOP).

2.5 FIELD RESPONSIBILITIES

2.5.1 Field Coordinator

The Field Coordinator is responsible for the overall operation of the field team and reports directly to the Project Manager. The Field Coordinator works with the project Health & Safety Officer (HSO) to conduct operations in compliance with the project Health & Safety Plan (HASP). The Field Coordinator will facilitate communication and coordinate efforts between the Project Manager and the field team members.

Other responsibilities include the following:

- Develop and implement field-related work plans, ensuring schedule compliance, and adhering to management-developed project requirements;
- Coordinate and manage field staff;
- Perform field system audits;
- Oversee QC for technical data provided by the field staff;
- Prepare and approve text and graphics required for field team efforts;
- Coordinate and oversee technical efforts of subcontractors assisting the field team;
- Identify problems in the field; resolve difficulties in consultation with the Project QAO, and Project Manager; implement and document corrective action procedures; and,
- Participate in preparation of the final reports.

2.5.2 Field Team Personnel

Field Team Personnel will be responsible for the following:

- Perform field activities as detailed in the RAWP and in compliance with the Field Sampling Plan (FSP; Appendix B of the RIWP) and QAPP.
- Immediately report any accidents and/or unsafe conditions to the Site HSO and take reasonable precautions to prevent injury.

3. Sampling Procedures

The FSP in Appendix B of the RIWP provides the SOPs for sampling required by the AWP. Sampling will be conducted in general accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation (DER-10) and the Sampling, Analysis and Assessment of PFAS under NYSDEC Part 375 Remedial Program (April 2023) when applicable. Proposed sample locations are shown on Figure 1.

3.1 SAMPLE CONTAINERS

Sample containers for each sampling task will be provided by the laboratory performing the analysis. The containers will be cleaned by the manufacturer to meet or exceed the analyte specifications established in the USEPA, "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers", April 1992, OSWER Directive #9240.0-0.5A. Certificates of analysis for each lot of sample containers used will be maintained by the laboratory.

The appropriate sample containers, preservation method, maximum holding times, and handling requirements for each sampling task are provided in Table I.

3.1.1 PFAS-Specific Container Requirements for Soil Samples

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633A. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned samples containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

3.2 SAMPLE LABELING

Each sample will be labeled with a unique sample identifier that will facilitate tracking and cross-referencing of sample information. Field blanks and field duplicate samples also will be numbered with a unique sample identifier to prevent analytical bias of field QC samples.

Refer to the FSP (Appendix B of the RIWP) for the sample labeling procedures.

3.3 FIELD QC SAMPLE COLLECTION

3.3.1 Field Duplicate Sample Collection

3.3.1.1 Soil Samples

Soil field duplicates will be collected as specified in the following procedure:

1. Soils will be sampled directly from acetate liners.
2. Soil for VOC analysis will be removed from the sampling device as specified in the FSP provided as Appendix B of the RIWP.
3. Soil for non-VOC analysis will be removed from the sampling device and collected into clean laboratory provided containers.

3.4 GENERAL DECONTAMINATION PROCEDURES

Care must be taken to minimize the potential for transfer of contaminated materials to the ground or onto other materials. Regardless of the size or nature of the equipment being decontaminated, the process will utilize a series of steps that involve removal of gross material (dirt, grease, oil etc.), washing with a detergent, and multiple rinsing steps with PFAS free water. In lieu of a series of washes and rinse steps, steam cleaning with low-volume, high-pressure equipment (i.e., steam cleaner) is acceptable.

Exploration equipment, and all monitoring equipment in contact with the sampling media must be decontaminated prior to initiating site activities, in between exploration locations to minimize cross-contamination, and prior to mobilizing off site after completion of site work.

The following specific decontamination procedure is recommended for sampling equipment and tools:

- Brush loose material off equipment;
- Wash equipment with laboratory grade detergent (i.e., Alconox or equivalent);
- Rinse with PFAS free water;
- Rinse equipment with PFAS free water;
- Allow water to evaporate before reusing equipment; and
- Wrap equipment in aluminum foil when not being used.

4. Custody Procedures

Sample custody is addressed in three parts: field sample collection, laboratory analysis and final project files. Custody of a sample begins when it is collected by or transferred to an individual and ends when that individual relinquishes or disposes of the sample.

A sample is under custody if:

1. The item is in the actual possession of a person;
2. The item is in the view of the person after being in actual possession of the person;
3. The item was in actual possession and subsequently stored to prevent tampering; or
4. The item is in a designated and identified secure area.

4.1 FIELD CUSTODY PROCEDURES

Field personnel will keep written records of field activities on applicable preprinted field forms or in a bound field notebook to record data collecting activities. These records will be written legibly in ink and will contain pertinent field data and observations. Entry errors or changes will be crossed out with a single line, dated, and initialed by the person making the correction. The Field Coordinator will periodically review field forms and notebooks.

The beginning of each entry in the logbook or preprinted field form will contain the following information:

- Date;
- Start time;
- Weather;
- Names of field personnel (including subcontractors);
- Level of personal protection used at the Site; and,
- Names of all visitors and the purpose of their visit.

For each measurement and sample collected, the following information will be recorded:

- Detailed description of sample location;
- Equipment used to collect sample or make measurement, and the date equipment was calibrated;
- Time sample was collected;
- Description of the sample conditions;
- Depth sample was collected (if applicable);
- Volume and number of containers filled with the sample; and,
- Sampler's identification.

4.1.1 Field Procedures

The following procedure describes the process to maintain the integrity of the samples:

- Upon collection samples are placed in the proper containers. In general, samples collected for organic analysis will be placed in pre-cleaned glass containers and samples collected for inorganic analysis will be placed in pre-cleaned plastic (polyethylene) bottles. Refer to the FSP in Appendix B of the RIWP for sample packaging procedures.

- Samples will be assigned a unique sample number and will be affixed to a sample label. Refer to the FSP in Appendix B of the RIWP for sample labeling procedures.

- Samples will be properly and appropriately preserved by field personnel in order to minimize loss of the constituent(s) of interest due to physical, chemical, or biological mechanisms.

- Appropriate volumes will be collected to ensure that the appropriate reporting limits can be successfully achieved and that the required QC sample analyses can be performed.

4.1.2 Transfer of Custody and Shipment Procedures

- A chain-of-custody (COC) record will be completed at the time of sample collection and will accompany each shipment of project samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until the samples are relinquished to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date and note the time of sample transfer on the COC record.

- Samples will be shipped or delivered in a timely fashion to the laboratory so that holding times and/or analysis times as prescribed by the methodology can be met.

- Samples will be transported in containers (coolers) which will maintain the refrigeration temperature for those parameters for which refrigeration is required in the prescribed preservation protocols.

- Samples will be placed in an upright position and limited to one layer of samples per cooler. Additional bubble wrap or packaging material will be added to fill the cooler. Shipping containers will be secured with strapping tape and custody tape for shipment to the laboratory.

- When samples are split with the NYSDEC representatives, a separate chain-of-custody will be prepared and marked to indicate with whom the samples are shared. The person relinquishing the samples will require the representative's signature acknowledging sample receipt.

- If samples are sent by a commercial carrier, a bill of lading will be used. A copy of the bill of lading will be retained as part of the permanent record. Commercial carriers will not sign the custody record as long as the custody record is sealed inside the sample cooler and the custody tape remains intact.

- Samples will be picked up by a laboratory courier or transported to the laboratory the same day they are collected unless collected on a weekend or holiday. In these cases, the samples will be

stored in a secure location until delivery to the laboratory. Additional ice will be added to the cooler as needed to maintain proper preservation temperatures.

4.2 LABORATORY CHAIN-OF-CUSTODY PROCEDURES

A sample custodian will be designated by the laboratory and will have the responsibility to receive all incoming samples. Once received, the custodian will document if the sample is received in good condition (i.e., unbroken, cooled, etc.) and that the associated paperwork, such as chain-of-custody forms have been completed. The custodian will sign the chain-of-custody forms.

The custodian will also document if sufficient sample volume has been received to complete the analytical program. The sample custodian will then place the samples into secure, limited access storage (refrigerated storage, if required). The sample custodian will assign a unique number to each incoming sample for use in the laboratory. The unique number will then be entered into the sample-receiving log with the verified time and date of receipt also noted.

Consistent with the analyses requested on the chain-of-custody form, analyses by the laboratory's analysts will begin in accordance with the appropriate methodologies. Samples will be removed from secure storage with internal chain-of-custody sign-out procedures followed.

4.3 STORAGE OF SAMPLES

Empty sample bottles will be returned to secure and limited access storage after the available volume has been consumed by the analysis. Upon completion of the entire analytical work effort, samples will be disposed of by the sample custodian. The length of time that samples are held will be at least thirty (30) days after reports have been submitted. Disposal of remaining samples will be completed in compliance with all Federal, State, and local requirements.

4.4 FINAL PROJECT FILES CUSTODY PROCEDURES

The final project files will be the central repository for all documents with information relevant to sampling and analysis activities as described in this QAPP. The Haley & Aldrich Project Manager will be the custodian of the project file. The project files including all relevant records, reports, logs, field notebooks, pictures, subcontractor reports and data reviews will be maintained in a secured, limited access area and under custody of the Project Director or his designee.

The final project file will include the following:

- Project plans and drawings;
- Field data records;
- Sample identification documents and soil boring/monitoring well logs;
- All chain-of-custody documentation;
- Correspondence;
- References, literature;
- Laboratory data deliverables;
- Data validation and assessment reports;
- Progress reports, QA reports; and,
- A final report.

The laboratory will be responsible for maintaining analytical logbooks, laboratory data and sample chain of custody documents. Raw laboratory data files and copies of hard copy reports will be inventoried and maintained by the laboratory for a period of six years at which time the laboratory will contact the Haley & Aldrich Project Manager regarding the disposition of the project related files.

5. Calibration Procedures and Frequency

5.1 FIELD INSTRUMENT CALIBRATION PROCEDURES

Several field instruments will be used for both on-site screening of samples and for health and safety monitoring, as described in the HASP. On-site air monitoring for health and safety purposes may be accomplished using a vapor detection device, such as a Photo-ionization Detector (PID).

Field instruments will be calibrated at the beginning of each day and checked during field activities to verify performance. Instrument specific calibration procedures will be performed in accordance with the instrument manufacturer's requirements.

5.2 LABORATORY INSTRUMENT CALIBRATION PROCEDURES

Reference materials of known purity and quality will be utilized for the analysis of environmental samples. The laboratory will carefully monitor the preparation and use of reference materials including solutions, standards, and reagents through well-documented procedures.

All solid chemicals and acids/bases used by the laboratory will be rated as "reagent grade" or better. All gases will be "high" purity or better. All Standard Reference Materials (SRMs) or Performance Evaluation (PE) materials will be obtained from approved vendors of the National Institute of Standards and Technology (formerly National Bureau of Standards), the U.S. EPA Environmental Monitoring Support Laboratories (EMSL), or reliable Cooperative Research and Development Agreement (CRADA) certified commercial sources.

6. Analytical Procedures

Analytical procedures to be utilized for analysis of environmental samples will be based on referenced USEPA analytical protocols and/or project specific SOPs.

6.1 FIELD ANALYTICAL PROCEDURES

Field analytical procedures include the qualitative measurement of VOC during the collection of soil samples.

6.2 LABORATORY ANALYTICAL PROCEDURES

Laboratory analyses will be based on the USEPA methodology requirements promulgated in:

- "Test Methods for Evaluating Solid Waste," SW-846 EPA, Office of Solid Waste, and promulgated updates, 1986.

6.2.1 List of Project Target Compounds and Laboratory Detection Limits

The method detection limits (MDLs) studies are performed by the laboratories in accordance with the procedures established in the Code of Federal Register, Title 40, Part 136.

Laboratory parameters for soil samples are listed in the RAWP. Laboratory parameters for disposal samples will be determined by the disposal facility after an approved facility has been determined.

6.2.2 List of Method Specific Quality Control Criteria

The laboratory SOPs include a section that presents the minimum QC requirements for the project analyses. Section 7.0 references the frequency of the associated QC samples for each sampling effort and matrix.

7. Internal Quality Control Checks

This section presents the internal QC checks that will be employed for field and laboratory measurements.

7.1 FIELD QUALITY CONTROL

7.1.1 Field Blanks

Internal QC checks will include analysis of field blanks to validate equipment cleanliness. Whenever possible, dedicated equipment will be employed to reduce the possibility of cross-contamination of samples.

7.1.2 Trip Blanks

Trip blanks samples will be prepared by the project laboratory using ASTM Type II or equivalent water placed within pre-cleaned 40 milliliter (ml) VOC vials equipped with Teflon septa. Trip blanks will accompany each sample delivery group (SDG) of environmental samples collected for analysis of VOCs.

Trip blank samples will be placed in each cooler that stores and transports project samples that are to be analyzed for VOCs.

7.2 LABORATORY PROCEDURES

Procedures which contribute to maintenance of overall laboratory quality assurance and control include appropriately cleaned sample containers, proper sample identification and logging, applicable sample preservation, storage, and analysis within prescribed holding times, and use of controlled materials.

7.2.1 Field Duplicate Samples

The precision or reproducibility of the data generated will be monitored through the use of field duplicate samples. Field duplicate analysis will be performed at a frequency of 1 in 20 project samples.

Precision will be measured in terms of the absolute value of the relative percent difference (RPD) as expressed by the following equation:

$$RPD = [|R1-R2|/[(R1+R2)/2]] \; X \; 100\%$$

Acceptance criteria for duplicate analyses performed on solid matrices will be 100% and aqueous matrices will be 35% (or the absolute difference rule was satisfied if detects were less than 5 times the RL for solid and aqueous matrices only). RPD values outside these limits will require an evaluation of the sampling and/or analysis procedures by the project QA Officer and/or Laboratory QA Director. Corrective actions may include re-analysis of additional sample aliquots and/or qualification of the data for use.

7.2.2 Matrix Spike Samples

Ten percent of each project sample matrix for each analytical method performed will be spiked with known concentrations of the specific target compounds/analytes.

The amount of the compound recovered from the sample compared to the amount added will be expressed as a percent recovery. The percent recovery of an analyte is an indication of the accuracy of an analysis within the site-specific sample matrix. Percent recovery will be calculated for matrix spike and matrix spike duplicate (MS/MSD) samples using the following equation.

$$\%\ Recovery = \frac{Spiked\ Sample - Background}{Known\ Value\ of\ Spike} x100\%$$

If the QC value falls outside the control limits (UCL or LCL) due to sample matrix effects, the results will be reported with appropriate data qualifiers. To determine the effect a non-compliant MS recovery has on the reported results, the recovery data will be evaluated as part of the validation process.

7.2.3 Laboratory Control Sample Analyses

The laboratory will perform Laboratory Control Sample (LCS) analyses prepared from SRMs. The SRMs will be supplied from an independent manufacturer and traceable to NIST materials with known concentrations of each target analyte to be determined by the analytical methods performed. In cases where an independently supplied SRM is not available, the LCS may be prepared by the laboratory from a reagent lot other than that used for instrument calibration.

The laboratory will evaluate LCS analyses in terms of percent recovery using the most recent laboratory generated control limits.

LCS recoveries that do not meet acceptance criteria will be deemed invalid. Analysis of project samples will cease until an acceptable LCS analysis has been performed. If sample analysis is performed in association with an out-of-control LCS sample analysis, the data will be deemed invalid.

Corrective actions will be initiated by the Haley & Aldrich QA Officer and/or Laboratory QA Officer to investigate the problem. After the problem has been identified and corrected, the solution will be noted in the instrument run logbook and re-analysis of project samples will be performed, if possible.

The analytical anomaly will be noted in the sample delivery group (SDG) Case Narrative and reviewed by the data validator. The data validator will confirm that appropriate corrective actions were implemented and recommend the applicable use of the affected data.

7.2.4 Surrogate Compound/Internal Standard Recoveries

For VOCs, surrogates will be added to each sample prior to analysis to establish purge and trap efficiency. Quantitation will be accomplished via internal standardization techniques.

The recovery of surrogate compounds and internal standards will be monitored by laboratory personnel to assess possible site-specific matrix effects on instrument performance.

For SVOC analyses, surrogates will be added to the raw sample to assess extraction efficiency. Internal standards will be added to all sample extracts and instrument calibration standard immediately before analysis for quantitation via internal standardization techniques.

Method specific QC limits are provided in the attached laboratory method SOPs. Surrogate compound/internal standard recoveries that do not fall within accepted QC limits for the analytical methodology performed will have the analytical results flagged with data qualifiers as appropriate by the laboratory and will not be noted in the laboratory report Case Narrative.

To ascertain the effect non-compliant surrogate compound/internal standard recoveries may have on the reported results, the recovery data will be evaluated as part of the validation process. The data validator will provide recommendations for corrective actions including but not limited to additional data qualification.

7.2.5 Calibration Verification Standards

Calibration verification (CV) standards will be utilized to confirm instrument calibrations and performance throughout the analytical process. CV standards will be prepared as prescribed by the respective analytical protocols. Continuing calibration will be verified by compliance with method-specific criteria prior to additional analysis of project samples.

Non-compliant analysis of CV standards will require immediate corrective action by the project laboratory QA officer and/or designated personnel. Corrective action may include re-analysis of each affected project sample, a detailed description of the problem, the corrective action undertaken, the person who performed the action, and the resolution of the problem.

7.2.6 Laboratory Method Blank Analyses

Method blank sample analysis will be performed as part of each analytical batch for each methodology performed. If target compounds are detected in the method blank samples, the reported results will be flagged by the laboratory in accordance with standard operating procedures. The data validator will provide recommendations for corrective actions including but not limited to additional data qualification.

8. Data Quality Objectives

Sampling that will be performed as described in the RIWP is designed to produce data of the quality necessary to achieve the minimum standard requirements of the field and laboratory analytical objectives described below. These data are being obtained with the primary objective to assess levels of contaminants of concern associated with the Site.

The overall project data quality objective (DQO) is to implement procedures for field data collection, sample collection, handling, and laboratory analysis and reporting that achieve the project objectives. The following section is a general discussion of the criteria that will be used to measure achievement of the project DQO.

8.1 PRECISION

8.1.1 Definition

Precision is defined as a quantitative measure of the degree to which two or more measurements are in agreement. Precision will be determined by collecting and analyzing field duplicate samples and by creating and analyzing laboratory duplicates from one or more of the field samples. The overall precision of measurement data is a mixture of sampling and analytical factors. The analytical results from the field duplicate samples will provide data on sampling precision. The results from duplicate samples created by the laboratory will provide data on analytical precision. The measurement of precision will be stated in terms of RPD. RPD is defined as the absolute difference of duplicate measurements divided by the mean of these analyses normalized to percentage.

8.1.2 Field Precision Sample Objectives

Field precision will be assessed through collection and measurement of field duplicate samples at a rate of 1 duplicate per 20 investigative samples. The RPD criteria for the project field duplicate samples will be +/- 100% for soil, +/- 35 % for groundwater for parameters of analysis detected at concentrations greater than 5 times (5X) the laboratory RL.

8.1.3 Laboratory Precision Sample Objectives

Laboratory precision will be assessed through the analysis of LCS and laboratory control duplicate samples (LCS/LCSD) and MS/MSD samples for soil samples.

8.2 ACCURACY

8.2.1 Definition

Accuracy relates to the bias in a measurement system. Bias is the difference between the observed and the "true" value. Sources of error are the sampling process, field contamination, preservation techniques, sample handling, sample matrix, sample preparation and analytical procedure limitations.

8.2.2 Field Accuracy Objectives

Sampling bias will be assessed by evaluating the results of field equipment rinse and trip blanks. Equipment rinse and trip blanks will be collected as appropriate based on sampling and analytical methods for each sampling effort.

If non-dedicated sampling equipment is used, equipment rinse blanks will be collected by passing ASTM Type II water over and/or through the respective sampling equipment utilized during each sampling effort. One equipment rinse blank will be collected for each type of non-dedicated sampling equipment used for the sampling effort. Equipment rinse blanks will be analyzed for each target parameter for the respective sampling effort for which environmental media have been collected. (Note: If dedicated or disposable sampling equipment is used, equipment rinse samples will not be collected as part of that field effort.)

Trip blank samples will be prepared by the laboratory and provided with each shipping container that includes containers for the collection of groundwater samples for the analysis of VOC. Trip blank samples will be analyzed for each VOC for which groundwater samples have been collected for analysis.

8.3 LABORATORY ACCURACY OBJECTIVES

Analytical bias will be assessed through the use of laboratory control samples (LCS) and Site-specific matrix spike (MS) sample analyses. LCS analyses will be performed with each analytical batch of project samples to determine the accuracy of the analytical system.

One set of MS/MSD analyses will be performed with each batch of 20 project samples collected for analysis to assess the accuracy of the identification and quantification of analytes within the Site-specific sample matrices. Additional sample volume will be collected at sample locations selected for the preparation of MS/MSD samples so that the standard laboratory RLs are achieved.

The accuracy of analyses that include a sample extraction procedure will be evaluated through the use of system monitoring or surrogate compounds. Surrogate compounds will be added to each sample, standard, blank, and QC sample prior to sample preparation and analysis. Surrogate compound percent recoveries will provide information on the effect of the sample matrix on the accuracy of the analyses.

8.4 REPRESENTATIVENESS

8.4.1 Definition

Representativeness expresses the degree to which sample data represent a characteristic of a population, a parameter variation at a sampling point or an environmental condition. Representativeness is a qualitative parameter that is dependent upon the design of the sampling program. The representativeness criterion is satisfied through the proper selection of sampling locations, the quantity of samples and the use of appropriate procedures to collect and analyze the samples.

8.4.2 Measures to Ensure Representativeness of Field Data

Representativeness will be addressed by prescribing sampling techniques and the rationale used to select sampling locations. Sampling locations may be biased (based on existing data, instrument surveys, observations, etc.) or unbiased (completely random or stratified-random approaches).

8.5 COMPLETENESS

8.5.1 Definition

Completeness is a measure of the amount of valid (usable) data obtained from a measuring system compared to the total amount of the anticipated to be obtained. The completeness goal for all data uses is that a sufficient amount of valid data be generated so that determinations can be made related to the intended data use with a sufficient degree of confidence. Valid data is determined by independent confirmation of compliance with method-specific and project-specific data quality objectives. The calculation of data set completeness will be performed by the following equation.

$$\frac{Number\ of\ Valid\ Sample\ Results}{Total\ Number\ of\ Samples\ Planned} X\ 100 = \%\ Complete$$

8.5.2 Field Completeness Objectives

Completeness is a measure of the amount of valid measurements obtained from measurements taken in this project versus the number planned. Field completeness objective for this project will be greater than (>) 90%.

8.5.3 Laboratory Completeness Objectives

Laboratory data completeness objective is a measure of the amount of valid data obtained from laboratory measurements. The evaluation of the data completeness will be performed at the conclusion of each sampling and analysis effort.

The completeness of the data generated will be determined by comparing the amount of valid data, based on independent validation, with the total laboratory data set. The completeness goal will be >90%.

8.6 COMPARABILITY

8.6.1 Definition

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another.

8.6.2 Measures to Ensure Comparability of Laboratory Data

Comparability of laboratory data will be measured from the analysis of SRM obtained from either EPA Cooperative Research and Development Agreement (CRADA) suppliers or the National Institute of Standards and Technology (NIST). The reported analytical data will also be presented in standard units

of mass of contaminant within a known volume of environmental media. The standard units for various sample matrices are as follows:

- Solid Matrices – micrograms per kilogram (µg/kg) for PFAS analyses, milligrams per kilogram (mg/kg) of media (Dry Weight).

8.7 LEVEL OF QUALITY CONTROL EFFORT

If non-dedicated sampling equipment is used, equipment rinse blanks will be prepared by field personnel and submitted for analysis of target parameters. Equipment rinse blank samples will be analyzed to check for potential cross-contamination between sampling locations that may be introduced during the investigation. One equipment rinse blank will be collected per sampling event to the extent that non-dedicated sampling equipment is used.

If necessary, a separate equipment rinse blank sample will be collected for PFAS using the sample collection procedure described in Section 8.1.1 of the NYSDEC-approved Avangrid Field Sampling Plan. (Note: If dedicated or disposable sampling equipment is used, equipment rinse samples will not be collected as part of that field effort.)

Trip blanks will be used to assess the potential for contamination during sample storage and shipment. Trip blanks will be provided with the sample containers to be used for the collection of groundwater samples for the analysis of VOC. Trip blanks will be preserved and handled in the same manner as the project samples. One trip blank will be included along with each shipping container containing project samples to be analyzed for VOC.

Method blank samples will be prepared by the laboratory and analyzed concurrently with all project samples to assess potential contamination introduced during the analytical process.

Field duplicate samples will be collected and analyzed to determine sampling and analytical reproducibility. One field duplicate will be collected for every 20 or fewer investigative samples collected for off-Site laboratory analysis.

Matrix spikes will provide information to assess the precision and accuracy of the analysis of the target parameters within the environmental media collected. One MS/MSD will be collected for every 20 or fewer investigative samples per sample matrix.

(Note: Soil MS/MSD samples require triple sample volume for VOC only.)

9. Data Reduction, Validation and Reporting

Data generated by the laboratory operation will be reduced and validated prior to reporting in accordance with the following procedures:

9.1 DATA REDUCTION

9.1.1 Field Data Reduction Procedures

Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. The pH, conductivity, temperature, turbidity, DO, ORP and breathing zone VOC readings collected in the field will be generated from direct read instruments. The data will be written into field logbooks immediately after measurements are taken. If errors are made, data will be legibly crossed out, initialed and dated by the field member, and corrected in a space adjacent to the original entry.

9.1.2 Laboratory Data Reduction Procedures

Laboratory data reduction procedures are provided by the appropriate chapter of USEPA, “Test Methods for Evaluating Solid Waste,” SW-846, Third Edition. Errors will be noted; corrections made with the original notations crossed out legibly. Analytical results for soil samples will be calculated and reported on a dry weight basis.

9.1.3 Quality Control Data

QC data (e.g., laboratory duplicates, surrogates, matrix spike, and matrix spike duplicates) will be compared to the method acceptance criteria. Data determined to be acceptable will be entered into the laboratory information management system.

Unacceptable data will be appropriately qualified in the project report. Case narratives will be prepared which will include information concerning data that fell outside acceptance limits and any other anomalous conditions encountered during sample analysis.

9.2 DATA VALIDATION

Data validation procedures of the analytical data will be performed by the Haley & Aldrich QA Officer or designee using the following documents as guidance for the review process:

- "U.S. EPA National Functional Guidelines for Organic Data Review”, "Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15", "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSDEC’s Part 375 Remedial Programs", and the "U.S. EPA National Functional Guidelines for Inorganic Data Review".

- The specific data qualifiers used will be applied to the reported results as presented and defined in the EPA National Functional Guidelines. Validation will be performed by qualified personnel at

the direction of the Haley & Aldrich QAO. Tier 1 data validation (the equivalent of USEPA's Stage 2A validation) will be performed to evaluate data quality.

- The completeness of each data package will be evaluated by the Data Validator. Completeness checks will be administered on all data to determine that the deliverables are consistent with the NYSDEC ASP Category A and Category B data package requirements. The validator will determine whether the required items are present and request copies of missing deliverables (if necessary) from the laboratory.

9.3 DATA REPORTING

Data reporting procedures will be carried out for field and laboratory operations as indicated below:

- Field Data Reporting: Field data reporting will be conducted principally through the transmission of report sheets containing tabulated results of measurements made in the field and documentation of field calibration activities.

- Laboratory Data Reporting: The laboratory data reporting package will enable data validation based on the protocols described above. The final laboratory data report format will include the QA/QC sample analysis deliverables to enable the development of a data usability summary report (DUSR) based on Department DER-10 Appendix 2B.

10. Performance and System Audits

A performance audit is an independent quantitative comparison with data routinely obtained in the field or the laboratory. Performance audits include two separate, independent parts: internal and external audits.

10.1 FIELD PERFORMANCE AND SYSTEM AUDITS

10.1.1 Internal Field Audit Responsibilities

Internal audits of field activities will be initiated at the discretion of the Project Manager and will include the review of sampling and field measurements. The audits will verify that all procedures are being followed. Internal field audits will be conducted periodically during the project. The audits will include examination of the following:

- Field sampling records, screening results, instrument operating records;
- Sample collection;
- Handling and packaging in compliance with procedures;
- Maintenance of QA procedures; and,
- Chain-of-custody reports.

10.1.2 External Field Audit Responsibilities

External audits may be conducted by the Project Coordinator at any time during the field operations. These audits may or may not be announced and are at the discretion of the NYSDEC. The external field audits can include (but are not limited to) the following:

- Sampling equipment decontamination procedures;
- Sample bottle preparation procedures;
- Sampling procedures;
- Examination of health and safety plans;
- Procedures for verification of field duplicates; and,
- Field screening practices.

10.2 LABORATORY PERFORMANCE AND SYSTEM AUDITS

10.2.1 Internal Laboratory Audit Responsibilities

The laboratory system audits are typically conducted by the laboratory QA Officer or designee on an annual basis. The system audit will include an examination of laboratory documentation including sample receiving logs, sample storage, chain-of-custody procedures, sample preparation and analysis and instrument operating records.

At the conclusion of internal system audits, reports will be provided to the laboratory's operating divisions for appropriate comment and remedial/corrective action where necessary. Records of audits and corrective actions will be maintained by the Laboratory QA Officer.

10.2.2 External Laboratory Audit Responsibilities

External audits will be conducted as required, by the NYSDOH or designee. External audits may include any of the following:

- Review of laboratory analytical procedures;
- Laboratory on-site visits; and,
- Submission of performance evaluation samples for analysis.

Failure of any of the above audit procedures can lead to laboratory de-certification. An audit may consist of but not limited to:

- Sample receipt procedures;
- Custody, sample security and log-in procedures;
- Review of instrument calibration logs;
- Review of QA procedures;
- Review of log books;
- Review of analytical SOPs; and,
- Personnel interviews.

A review of a data package from samples recently analyzed by the laboratory can include (but not be limited to) the following:

- Comparison of resulting data to the SOP or method;
- Verification of initial and continuing calibrations within control limits;
- Verification of surrogate recoveries and instrument timing results;
- Review of extended quantitation reports for comparisons of library spectra to instrument spectra, where applicable; and,
- Assurance that samples are run within holding times.

11. Preventive Maintenance

11.1 FIELD INSTRUMENT PREVENTIVE MAINTENANCE

The field equipment preventive maintenance program is designed to ensure the effective completion of the sampling effort and to minimize equipment down time. Program implementation is concentrated in three areas:

- Maintenance responsibilities;
- Maintenance schedules; and,
- Inventory of critical spare parts and equipment.

The maintenance responsibilities for field equipment will be assigned to the task leaders in charge of specific field operations. Field personnel will be responsible for daily field checks and calibrations and for reporting any problems with the equipment. The maintenance schedule will follow the manufacturer's recommendations. In addition, the field personnel will be responsible for determining that an inventory of spare parts will be maintained with the field equipment. The inventory will primarily contain parts that are subject to frequent failure, have limited useful lifetimes and/or cannot be obtained in a timely manner.

11.2 LABORATORY INSTRUMENT PREVENTIVE MAINTENANCE

Analytical instruments at the laboratory will undergo routine and/or preventive maintenance. The extent of the preventive maintenance will be a function of the complexity of the equipment.

Generally, annual preventive maintenance service will involve cleaning, adjusting, inspecting, and testing procedures designed to deduce instrument failure and/or extend useful instrument life. Between visits, routine operator maintenance and cleaning will be performed according to manufacturer's specifications by laboratory personnel.

12. Specific Routine Procedures Used to Address Data Precision, Accuracy, and Completeness

12.1 FIELD MEASUREMENTS

Field-generated information will be reviewed by the Field Coordinator and typically include evaluation of bound logbooks/forms, data entry and calculation checks. Field data will be assessed by the Project Coordinator who will review the field results for compliance with the established QC criteria that are specified in Sections 7.0 and 8.0 of this QAPP. The accuracy of pH and specific conductance will be assessed using daily instrument calibration, calibration check, and blank data. Accuracy will be measured by determining the percent recovery (% R) of calibration check standards. Precision of the pH and specific conductance measurements will be assessed on the basis of the reproducibility of duplicate readings of a field sample and will be measured by determining the RPD. Accuracy and precision of the soil VOC screening will be determined using duplicate readings of calibration checks. Field data completeness will be calculated using the following equation:

$$\text{Completeness} = \frac{\text{Valid (usable) Data Obtained}}{\text{Total Data Planned}} \text{ X } 100$$

12.2 LABORATORY DATA

Laboratory data will be assessed by the Haley & Aldrich QA Officer or designee who will review the laboratory results for compliance with the established QC criteria that are specified in Sections 7.0 and 8.0 of this QAPP.

13. Quality Assurance Reports

Critically important to the successful implementation of the QA Plan is a reporting system that provides the means by which the program can be reviewed, problems identified, and programmatic changes made to improve the plan.

QA reports to management can include:

- Audit reports, internal and external audits with responses;
- Performance evaluation sample results; internal and external sources; and
- Daily QA/QC exception reports/corrective actions.

QA/QC corrective action reports will be prepared by the Haley & Aldrich QA Officer when appropriate and presented to the project and/or laboratory management personnel so that performance criteria can be monitored for all analyses from each analytical department. The updated trend/QA charts prepared by the laboratory QA personnel will be distributed and reviewed by various levels of laboratory management.

References

1. United States Environmental Protection Agency, (1999). EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations. EPA QA/R-5 Interim Final, November 1999.

2. United States Environmental Protection Agency (1991). Preparation Aids for the Development of Category I Quality Assurance Project Plans. U.S. EPA/600/8-91/003, Risk Reduction Engineering Laboratory, Office of Research and Development, Cincinnati, Ohio, February 1991.

3. United States Environmental Protection Agency, (1993). Data Quality Objectives Process for Superfund Interim Final Guidance. U.S. EPA/540/R-93-071, Office of Solid Waste and Emergency Response (OSWER), September 1993.

4. United States Environmental Protection Agency, (1992). Specifications and Guidance for Contaminant-Free Sample Containers. OSWER Directive 9240.0-05A, April 1992.

5. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-002.

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7. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Office of Solid Waste, U.S. EPA, SW-846, November 1986, with updates.

8. New York State Department of Environmental Conservation, NYSDEC Analytical Services Protocol (ASP), Bureau of Environmental Investigation, 1991 with updates.

9. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Technical Guidance for Site Investigation and Remediation, DER-10, May 2010.

10. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program, April 2023.

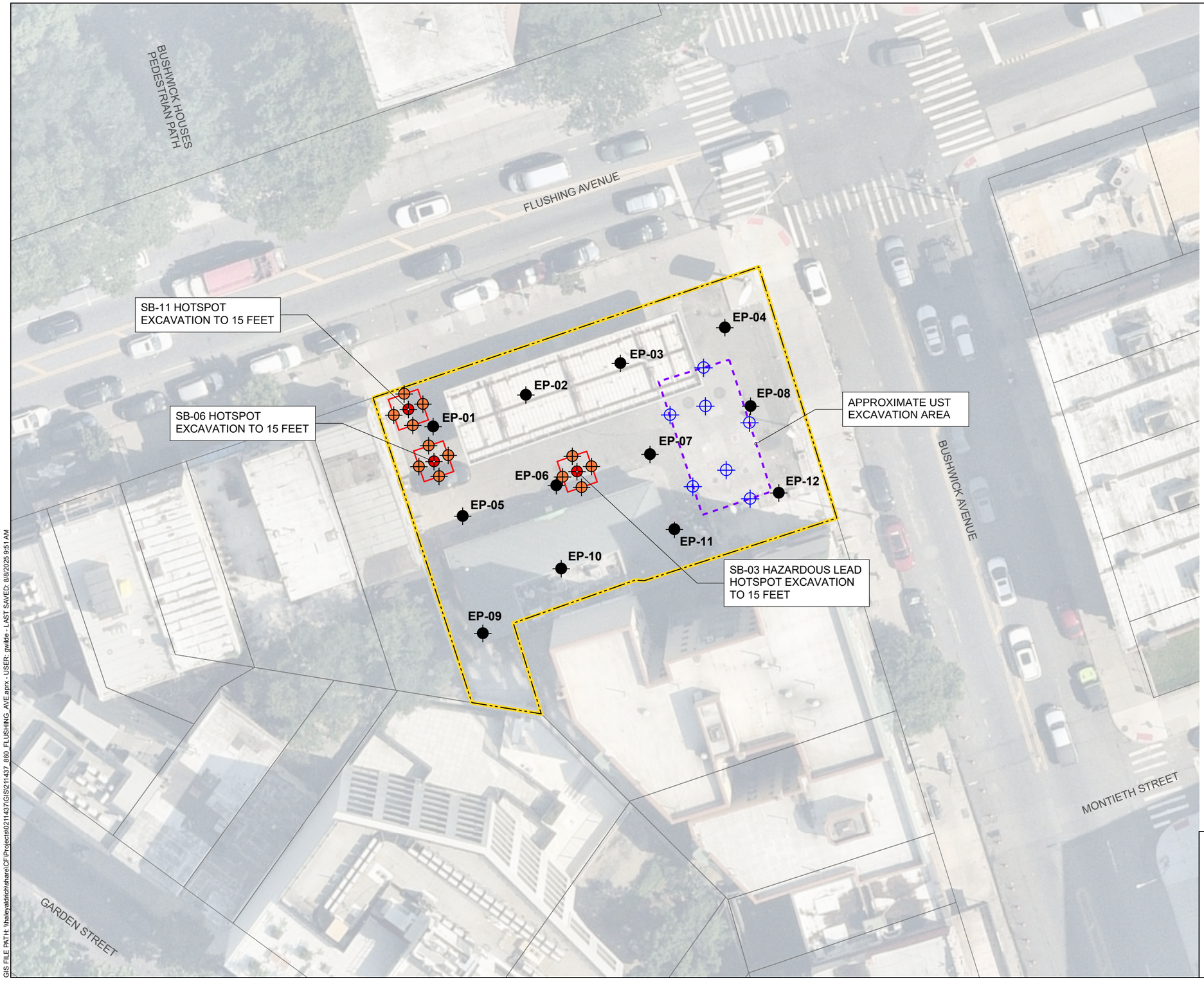
TABLES

TABLE I
SUMMARY OF ANALYSIS METHOD, PRESERVATION METHOD, HOLDING TIME, SAMPLE SIZE REQUIREMENTS AND SAMPLE CONTAINERS
860 FLUSHING AVENUE
BROOKLYN, NEW YORK

Analysis/Method[3]	Sample Type	Preservation	Holding Time	Volume/Weight	Container[4]
Volatile Organic Compounds/8260C	Soil	1 - 1 Vial MeOH/2 Vial Water, Cool, 4 ± 2 °C	14 days[1]	120 mL	3 - 40ml glass vials
Semivolatile Organic Compounds/8270D	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
Pesticides/8081B	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 4 oz Glass
Polychlorinated Biphenyls/8082A	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 4 oz Glass
Metals/6010D	Soil	Cool, 4 ± 2 °C	180 days	60 mL	1 - 4 oz Glass
PFAS/1633A	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - teflon free 250 ml plastic container
1,4-Dioxane/8270	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
Toxicity Characteristic Leaching Procedure Metals	Soil	Cool, 4 ± 2 °C	180 days	120 mL	1 - 4 oz Glass
Volatile Organic Compounds/TO-15	Soil Vapor/Indoor Air	N/A	30 days	2.7 - 6 L	1 - 2.7 L Summa Canister

Notes:
1. Terracores and encores must be frozen within 48 hours of collection
2. Refer to text for additional information.

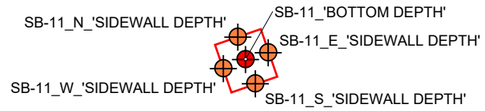
FIGURES



LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- PROPOSED SITE-WIDE EXCAVATION BASE CONFIRMATION SAMPLE
- PROPOSED HOTSPOT BASE CONFIRMATION SAMPLE
- PROPOSED HOTSPOT SIDEWALL CONFIRMATION SAMPLE

HOTSPOT SAMPLE KEY



- PROPOSED UNDERGROUND STORAGE TANK (UST) EXCAVATION SAMPLE, IF REQUIRED (SEE NOTE 4)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION

3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

4. WHEN USTs ARE EXCAVATED, IF CONTAMINATED SOIL IS REMOVED BEYOND THE 10-FOOT REMEDIAL DEPTH, THE NUMBER AND LOCATION OF CONIRMATION SAMPLES BENEATH THE TANK AREAS SHOULD BE COLLECTED PURSUANT TO PARAGRAPH 5.4(b)5 OF DER-10 TECHNICAL GUIDANCE FOR SITE INVESTIGATION AND REMEDIATION.

0 30 60
SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

PROPOSED DOCUMENTATION AND CONFIRMATION SAMPLE MAP

MARCH 2026

FIGURE 16

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LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- SUB-SLAB HORIZONTAL PIPING NETWORK
- SUB-SLAB LEADER PIPE TO VERTICAL RISER
- RISER EXTENDING FROM SUB-SLAB TO THE BUILDING ROOF
- SUB-SLAB VAPOR MONITORING/PRESSURE FIELD TESTING POINT
- SUB-SLAB PIPING END CAP
- INDOOR AIR SAMPLE LOCATION
- AMBIENT AIR SAMPLE LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. PARCEL DATA SOURCE: NEW YORK CITY DEPARTMENT OF CITY PLANNING, INFORMATION TECHNOLOGY DIVISION

3. AERIAL IMAGERY SOURCE: NEARMAP, JULY 3, 2025

4. BUILDING FOUNDATION LAYOUT SOURCE: DRAWING SOE-102.00 - DRAFT FOUNDATION SET DATED JULY 17, 2025

N

0 30 60
SCALE IN FEET

HALEY ALDRICH

860 FLUSHING AVENUE
BROOKLYN, NEW YORK

CONCEPTUAL SSDS SYSTEM LAYOUT WITH SVI SAMPLING PLAN

MARCH 2026

FIGURE 13

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211437\GIS\211437_860_FLUSHING_AVE.aprx - USER: gwilde - LAST SAVED: 8/8/2025 9:51 AM

ATTACHMENT A
Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (April 2023)

NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

April 2023

www.dec.ny.gov

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ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Data Assessment and Application to Site Cleanup Page 3	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	3/28/2023
Water Sample Results Page 3	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.	NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These guidance values also include criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt).Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.	3/28/2023
Soil Sample Results Page 3	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:	NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:	3/28/2023
Protection of Groundwater Page 3	PFOA (ppb) 1.1 PFOS (ppb) 3.7	PFOA (ppb) 0.8 PFOS (ppb) 1.0	3/28/2023

Citation and Page Number	Current Text	Corrected Text	Date
Footnote 2 Page 3	The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	3/28/2023
Testing for Imported Soil Page 4	If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.	If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.	3/28/2023
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third-party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These human health criteria should also be applied to surface water that is used as a water supply. This guidance also includes criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt). Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	0.8	1.0

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These

[2] The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the current SOP developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8). This SOP should be followed when collecting fish for contaminant analysis. Note, however, that the Bureau of Ecosystem Health will not be supplying bags or tags. All supplies are the responsibility of the collector

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

   1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

   2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

   3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

   1. Project and Site Name.

   2. DEC Region.

   3. All personnel (and affiliation) involved in the collection.

   4. Method of collection (gill net, hook and line, etc.)

   5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

   1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

   2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

   3. Date collected.

   4. Sample location (waterway and nearest prominent identifiable landmark).

   5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate “Age” column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish’s tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with

the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **The Bureau of Ecosystem Health will supply the larger bags.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

No materials containing Teflon.
No Post-it notes.
No ice packs; only water ice or dry ice.
Any gloves worn must be powder free nitrile.
No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
Wash hands after handling any food containers or packages as these may contain PFCs.
Keep pre-wrapped food containers and wrappers isolated from fish handling.
Wear clothing washed at least six times since purchase.
Wear clothing washed without fabric softener.
Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name _____ DEC Region _____

Collections made by (include all crew) _____

Sampling Method: □Electrofishing □Gill netting □Trap netting □Trawling □Seining □Angling □Other _____

Preservation Method: □Freezing □Other _____ Notes (SWFDB survey number): _____

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, _____, of _____ collected the
(Print Name) (Print Business Address)

following on _____, 20____ from _____
(Date) (Water Body)

in the vicinity of _____
(Landmark, Village, Road, etc.)

Town of _____, in _____ County.

Item(s) _____

_____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _____, 20_____.

_____ _____
Signature Date

I, _____, received the above mentioned sample(s) on the date specified and assigned identification number(s) _____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_____ _____
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

ATTACHMENT B
Project Team Resumes

MARI CATE CONLON, P.G.

Senior Client Account Manager

EDUCATION

M.S., Geology, Boston College

B.S., Geology with a minor in Economics and Business, Lafayette College

PROFESSIONAL REGISTRATIONS

NY: Professional Geologist (License No. 000769)

PROFESSIONAL SOCIETIES

Big Apple Brownfield Awards, Co-Chair, 2018-2022

Big Apple Brownfield Awards Nomination Committee, 2016-2025

New York City Brownfield Partnership Executive Board, 2021-2025

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)

10-Hour OSHA Construction Safety

8-Hour OSHA Supervisor of Hazardous Waste (29 CFR 1910.120 & 29 CFR 1926.65)

Mari Cate is a senior client account manager with experience in soil, groundwater, and soil vapor investigation and a focus on remedial design and implementation. She is also experienced in the completion of numerous Phase I Environmental Site Assessments (ESAs) and Phase II Environmental Site Investigations (ESIs), site characterization, hazardous materials analysis, and regulatory closure reports as well as remedial design and implementation.

Mari has experience in composing site closure documentation including Remedial Closure Reports and Noise Installation Reports reviewed by the New York City Office of Environmental Remediation (NYCOER) as well as Final Engineering Reports (FERs) and Site Management Plans (SMPs)reviewed by the New York State Department of Environmental Conservation (NYSDEC). Mari Cate has also worked on city rezoning proposals by performing work associated with and composing the Hazardous Materials Analysis chapter included in Final Environmental Impact Statements (FEIS) published by the New York City Department of Planning. Analysis methods were performed in accordance with the City Environmental Quality Review (CEQR) guidelines for neighborhoods including East New York, Brooklyn, Jerome Avenue, Brooklyn, Inwood, and Manhattan.

Mari Cate has managed the investigation, remedial design, remediation, and closeout of inactive Resource Conservation and Recovery Act (RCRA) hazardous waste sites, New York State Superfund sites, and petroleum spill case sites. Her background includes developing and complying with approved SMPs overseeing the operation and maintenance of on-site engineering controls, such as soil vapor extraction systems, sub-slab depressurization systems, product recovery systems, etc., and ensuring the protection of human health and the environment.

RELEVANT PROJECT EXPERIENCE

New York State Superfund and RCRA Inactive Hazardous Waste Sites

Developments, New York State Superfund Site, Former NuHart Plastics Site, New York State Superfund Site (NuHart West), and Brownfield Cleanup Program Site (BCP; NuHart East), Brooklyn, New York. Project Manager for the Former NuHart Plastics Site, a former plasticizer facility with on- and off-site pollutant concerns including a plume of light non-aqueous phase liquid (LNAPL) of varying thickness extending off the site. The facility is divided into two portions: NuHart East which was enrolled in the NYSDEC BCP and NuHart West which is classified as a New York State Superfund and Inactive Hazardous Waste Site requiring remedial measures and closeout with the RCRA program. The Former NuHart Plastics Site is a high-profile site that requires coordination with the NYSDEC, the NYCOER, local regulatory agencies, community stakeholders, and local elected officials.

For NuHart East, management responsibilities included leading the supplemental investigation, preparation of the investigation report, preparation of the Remedial Action Work Plan, implementation of the remedial action, and preparation of closeout documentation. The NuHart East Site received a Certificate of Completion in 2024 and achieved a Track 1 Unrestricted Use remedy via excavation under a negative pressure enclosure, removal and decommissioning of five underground storage tanks (USTs), significant dewatering, and application of zero-valent iron (ZVI) to address residual chlorinated volatile organic compounds (CVOCs). Further, as part of the remedial action, open Spill Case No. 0601852 was addressed and closed with NYSDEC.

For NuHart West, management responsibilities included leading the preparation of the RCRA Closure Work Plan, execution of the RCRA closure activities, preparation of the RCRA Closure Report, preparation of the 100% Remedial Design, implementation of the remedial design, preparation of the SMP and design associated with on- and off-site site management, and preparation of the closure documentation. The NuHart West Site is nearing closure and was remediated via excavation under negative pressure enclosure, significant dewatering with treatment, in-situ soil stabilization, application of ZVI to address chlorinated solvents, installation of an active product recovery system, and ongoing oversight of passive product recovery. Upon closeout, NuHart West will transition from a Class 2 to a Class 4 Inactive Hazardous Waste Site.

Redevelopment and Remediation

Development, 556 Baltic Street, Brooklyn, New York. Project Principal responsible for leading environmental and construction management services required to redevelop a former gasoline service station, auto rental, and car wash facility in the Gowanus neighborhood of Brooklyn, New York. Due to former operation, the site was impacted with petroleum-related volatile organic compounds (VOCs) in soil, groundwater, and soil vapor along with polycyclic aromatic hydrocarbons (PAHs) and heavy metals in soil. In addition to on-site remedial investigation required in the BCP, NYSDEC required off-site investigation to evaluate potential migration of contamination from the site downgradient. The project team oversaw installation of groundwater monitoring wells and soil vapor points off site which identified contaminants of concern associated with the site. Upon further review of the neighborhood history, however, the team was successful in identifying other potential sources such as former uses of neighboring properties including welding, wrecking, auto repair/filling stations, and coal yards. The remedy was restricted to on-site work including excavation of 11,306.43 tons of soil/urban fill of which 6,471.06 tons were handled as hazardous lead-impacted material under RCRA Generator ID NYR000265355. The remedy also included site-wide dewatering, removal and decommissioning of two USTs and the application of sodium and potassium persulfate activated using ferrous sulfide (TSI-FSA™), an in-situ chemical oxidation (ISCO) reagent which was mixed in-situ at the base of the excavation from 18 to 20 feet below grade to address residual impacts in the former gasoline service station area. The remedial action is complete and the site has achieved a Track 2 Restricted Residential remedy. The Certificate of Completion is anticipated in 2025 upon finalization of the SMP.

Development, Bedford Avenue and Beverley Road Redevelopment, Brooklyn, New York. Project Principal responsible for leading environmental and construction management services required to successfully develop a 5.31-acre site in the Flatbush neighborhood of Brooklyn, New York, with four multi-story mixed-use commercial and residential buildings with a total of 264 units between the buildings designated as affordable housing. The site, remediated under the NYSDEC BCP, achieved a split Conditional Track 1 Unrestricted Use remedy (most of the Site) and Track 4 remedy, utilized in order to preserve the landmarked Sears Roebuck & Company Department Store building. The Track 1 area was excavated to depths extending to 30 feet below grade in certain areas. Residual groundwater contamination was treated via injection of activated persulfate (AP-pH) in the northeastern portion of the site to reduce petroleum-based compound concentrations and the injection of ZVI, sodium lactate solution, as well as bioaugmentation culture, in the southwestern portion of the site to reduce elevated chlorinated compound concentrations. Soil excavation within the Track 4 area included removing 1 foot of soil and installing an engineered cap surrounding the landmarked building, with the remainder of the landmarked building to be renovated under the SMP. The Site received a Certificate of Completion in 2024 and remains under site management.

Development, 91 Bruckner Boulevard, Bronx, New York. Project Principal responsible for leading environmental and construction management services required to redevelop a former waterproofing and masonry company facility

located in the south Bronx, New York, under the NYSDEC BCP. The development consists of a seven-story residential building with an affordable housing component and a full cellar encompassing a majority of the site footprint. The site achieved a Track 2 Restricted Residential remedy via excavation of 4,950 tons of soil/urban fill of which 51.77 tons were handled as hazardous lead-impacted material under RCRA Generator ID NYR000265249. In addition, five USTs were identified and decommissioned as part of the remedy via the removal of 1,750 gallons of liquid from the tanks and 800 pounds of oily debris. The site received a Certificate of Completion in 2024 and remains under site management.

Development, 858 Rogers Avenue and 2605 Snyder Avenue, Brooklyn, New York. Project Principal responsible for leading environmental and construction management services required to redevelop a former auto repair and machine shop in the Little Caribbean neighborhood of Brooklyn, New York, under the NYSDEC BCP. The development included two multi-story mixed-use (residential and community facility) buildings, including an affordable housing component under the 421a program. The site achieved a Track 1 Unrestricted Residential remedy via excavation of 7,600.50 cubic yards of soil/urban fill, of which 24.75 tons were handled as hazardous lead-impacted material under RCRA Generator ID NYR000264572. The site received a Certificate of Completion in 2024.

Development, 346 Grand Concourse, Bronx, New York. Project Manager for the nine-story, 60-key commercial building with a one-level deep cellar. Design phase environmental services consisted of guiding the site through the NYCOER Voluntary Cleanup and E-Designation Programs, including Hazmat, Air Quality, and Noise requirements. This program included the submission of a Remedial Investigation Work Plan, implementation of a Remedial Investigation, submittal of a Remedial Investigation Report, Remedial Action Work Plans (Hazmat Air and Noise), oversight of remedial action, and the Final Installation Report for the Certificate of Occupancy.

Development, 590-594 Myrtle Avenue, Brooklyn, New York. Project Manager for the six-story, 12-unit residential building with a one-level deep cellar. Design phase environmental services consisted of guiding the site through the NYCOER Voluntary Cleanup and E-Designation Programs, including Hazmat, Air Quality, and Noise requirements. This program included submission of a Remedial Investigation Work Plan, implementation of a Remedial Investigation, submittal of a Remedial Investigation Report, Remedial Action Work Plans (Hazmat Air and Noise), oversight of remedial action, and the Final Installation Report for the Certificate of Occupancy.

Development, 310 Grand Concourse, Bronx, New York. Project Manager responsible for environmental and construction management services required to successfully navigate this two-building redevelopment project through the NYSDEC BCP and NYCOER E-Designation Program (Air/Noise). Project included site investigation, design, and remediation for the development of two buildings within a 30,000-square-foot lot in the Bronx, New York. Remediation included excavation of approximately 20,000 cubic yards of soil, groundwater extraction and treatment, UST removal, design, and installation of an ex-situ chemical in situ soil stabilization process for elevated levels of metals.

Spill Consulting

The Trump Organization, Spill Consulting Services, New York, New York. Project manager for consulting services provided after incidental release of calcium carbonate ice rink paint to the Central Park Pond from Wollman Rink. Services included liaising with NYSDEC regarding violations, consent order, and required corrective action. Corrective action included designing alterations to the existing on-site drainage plans and routing all meltwater containing paint into the combined sewer system. Coordination was required with the property owner, operations personnel, the New York City Department of Parks, and NYSDEC.

Richmond Gardens Apartments, Spill Management and Closure Services, Staten Island, New York. Project lead responsible for spill closure activities and reporting for Spill 1105661 located at the Richmond Gardens Apartment Complex in the Richmond neighborhood of Staten Island, New York. The spill was opened in 2011 when several USTs were identified adjacent to the apartments at Jersey Street and Hendricks Avenue. The tanks were cleaned and removed and impacted soils surrounding the tank area were excavated to the extent possible. Excavation of all impacted material was not feasible due to the proximity of the tanks to the apartment buildings. Residual

contamination in soil and groundwater remained and was monitored through 2016. Upon reviewing the groundwater monitoring data from over 12 consecutive quarters, it was apparent that monitored natural attenuation was not a feasible option, and an ISCO remedy was approved by NYSDEC. Due to the success of the pilot test, the ISCO injection event was implemented utilizing pressure pulse technology to deliver the alkaline-activated persulfate solution to the subsurface.

State and City Agencies

School Construction Authority, Waste Characterization and Excavation Materials Disposal Plan, Brooklyn, New York. Project manager for consulting services for New York Public School 127. Services included the composition of an Excavated Materials Disposal Plan, collection of waste characterization samples, and preparation of a findings and recommendations report.

Department of City Planning, Rezoning Environmental Impact Statement, Bronx, New York. Project lead for analysis and composing the Hazardous Materials chapter as per CEQR Technical Manual guidelines included in the FEIS for an approximately 92-block area primarily along Jerome Avenue and its east-west commercial corridors in the Bronx. The review assessed the potential for the presence of hazardous materials in soil and/or groundwater at both the projected and potential development sites identified in the reasonable worst-case development scenario under the proposed East New York Rezoning Proposal. Procedures involved site inspections and review of historic Sanborn Fire Insurance Maps, City Directories, and city/state regulatory databases. The assessment identified that each of the 146 projected and potential development sites has some associated concern regarding environmental conditions. As a result, the proposed zoning map actions include E-Designations (E-366) for all privately held projected and potential development sites.

Department of City Planning, Rezoning Environmental Impact Statement, Brooklyn, New York. Project lead for performance analysis and composing the Hazardous Materials chapter as per CEQR Technical Manual guidelines included in the FEIS for an approximately 190-block area of East New York, Cypress Hills, and Ocean Hill neighborhoods of Brooklyn, New York. The review assessed the potential for the presence of hazardous materials in soil and/or groundwater at both the projected and potential development sites identified in the reasonable worst-case development scenario under the proposed East New York Rezoning Proposal. Procedures involved site inspections and review of historic Sanborn Fire Insurance Maps, City Directories, and city/state regulatory databases. The assessment identified that each of the 186 projected and potential development sites has some associated concern regarding environmental conditions. As a result, the proposed zoning map actions include E-Designations (E-366) for all privately held projected and potential development sites.

Due Diligence and Site Characterization

Manufacturing Plants, Multiple Investors, Environmental and Compliance Assessment Portfolio United States. Project manager for completion of Phase I ESAs and Limited Compliance Reviews for multiple auto parts manufacturing facilities throughout the United States. Services included completion of Phase I ESAs in accordance with the ASTM E1527-13 requirements and a limited review of each facility's compliance liabilities including issues pertaining to the RCRA, Greenhouse Gas Emission Standards, and Tier II Emergency and Hazardous Chemical Inventory reporting requirements.

ZHAN SHU, P.E., PH.D.

Senior Project Manager/Technical Specialist

EDUCATION

Ph.D., Environmental Engineering, New Jersey Institute of Technology (NJIT)
B.S., and M.S., Environmental Engineering, National Hua Chiao University, China

PROFESSIONAL REGISTRATIONS

2018/ NJ: Professional Engineer (Reg. No. 24GE05424500)

PROFESSIONAL SOCIETIES

American Society of Civil Engineering
American Chemical Society
New Jersey Society of Women Environmental Professionals
Reviewer, Journal of Environmental Engineering Science
Reviewer, Journal of Science of Total Environment
Reviewer, Journal of Environmental Engineering

SPECIAL STUDIES AND COURSES

OSHA - Hazardous Waste Operations and Emergency Response (OSHA 40-Hour HAZWOPER)
8-Hour OSHA Annual HAZWOPER Refresher
Application of Risk Assessment as a Decision-Making Tool for Contaminated Sites

Zhan has over 11 years of experience in project management, environmental consulting, remediation, engineering, and construction management. She is a licensed professional engineer (P.E.) in the state of New Jersey. She is a senior project manager with experience in soil and groundwater remediation, geochemistry, contaminant hydrogeology, contaminant attenuation and mobility, mechanistic and transport modeling, statistical data analysis, and waste characterization. She has delivered several presentations at professional gatherings, including the Annual International Conference on Soil, Water, Energy, and Air (AEHS) and other technical conferences.

RELEVANT PROJECT EXPERIENCE

Former Pesticide Manufacturing Facility, Site Investigation and Remediation, Middlesex, New Jersey. The 57-acre site is composed of multiple properties that are impacted by former manufacturing activities involving arsenic compounds and other chemicals used as pesticide ingredients. A groundwater remediation system pumps and treats arsenic, pesticides, and volatile organic compounds (VOCs)-impacted groundwater in accordance with New Jersey Department of Environmental Protection (NJDEP) and Publicly Owned Treatment Work (POTW) permits. As project manager, performed a wide variety of tasks related to site investigation and remediation for this project, including:

- Assessed multimedia environmental data, delineated contaminant plumes, completed geologic mapping, and prepared conceptual site model (CSM) and associated interpretation;
- Prepared technical reports (RIR, RASR, RAW, and RAR) for clients and the NJDEP;
- Statistically developed surface water background threshold values (BTV) to evaluate the effectiveness of engineering controls;
- Statistically evaluated remedial alternatives to ensure environmental compliance;
- Assisted in groundwater treatment plant modification projects and feasibility studies, evaluated pilot study results and assessed feasibility of scaling up operations, and prepared associated engineering cost estimate; and

- Prepared engineering design, bid package, and assisted in permit application.

Former Dry Cleaner Facility Remediation, Toms River, New Jersey. As project manager, provided environmental engineering services for an in-site remediation project involving tetrachlorethene (PCE) vapor intrusion. Soil vapor extraction (SVE) and air sparging (AS), along with groundwater monitored natural attenuation (MNA) were applied to reduce contaminant residuals. Conceptually designed intuitional controls—Deed Notice and Classification Exception Area (CEA)—to address on-site residual soil and groundwater contamination.

Active Waste Oil Recycling Facility, Elizabeth, New Jersey. As project manager/project engineer, delineated previous and current light non-aqueous phase liquid (LNAPL) contaminant plume in the groundwater system. Updated facility's Storm Water Pollution Prevention Plan (SWPPP) according to New Jersey Pollution Discharge Elimination System (NJPDES) permit conditions.

The Salvation Army, Asbury Park, New Jersey. As project manager for this underground storage tank (UST) spill case, designed and performed the chemical injection to address petroleum-impacted groundwater and post-monitoring required to move this case toward regulatory closure. The objective of the in situ remediation is to destroy the VOCs in groundwater through chemical oxidation and enhance biodegradation within the source area.

Soil Geobiochemistry Study at DuPont Chambers Works Site (CWKs), Deepwater, New Jersey. As an external consultant for the DuPont Geobiochemistry group, developed protocols for collecting and processing soil core samples in an anaerobic condition, and analyzed the collected data to support the refinement of the site-wide CSM. Assisted in understanding the interactions and mechanisms at the interface as well as in explaining groundwater chemistry, redox conditions, Fe speciation, S speciation, and abiotic/biotic processes.

Former Steel Fabrication Shop, Brownfield Redevelopment Brooklyn, New York. As project manager/project engineer, provided environmental engineering services for a brownfield redevelopment site in the Williamsburg neighborhood of Brooklyn, New York. Previous remedial investigations had documented the presence of PCE in groundwater, soil, and soil gas. Performed a supplemental investigation to delineate the on-site and off-site PCE plumes. Performed the pilot study to evaluate the effectiveness of zero valent iron (ZVI) in treating the high concentrations of chlorinated volatile organic compounds (CVOCs) in groundwater. Also conducted strategic soil management (for hazardous [F-listed] and nonhazardous soil) and remediation as part of site redevelopment and building construction preferred. Reviewed site remedies, including soil excavation, ZVI wall injection, dewatering, in-situ chemical oxidation (ISCO)/in situ chemical reduction (ISCR), sub-slab depressurization system (SSDS), and other remedies.

205 Park Avenue, Brownfield Redevelopment, Brooklyn, New York. As project manager/project engineer, prepared Brownfield Cleanup Program Applications (BCA). Involved in each phase of the project including Phase I Environmental Site Assessment (ESAs), remedial investigations (for chlorinated solvents in soil, groundwater, and soil vapor), CSMs, remedial design (SSDS and ISCO), and long-term operations and maintenance of remedial systems. Prepared the remedial investigation, Remedial Action Work Plan, Site Management Plan (SMP), and Final Engineering Report (FER).

Former Alpine Paper Box Manufacturing Site, Brooklyn, New York. This project was under the jurisdiction of the New York City Office of Environmental Remediation (NYCOER), since an E-Designation for air quality, noise, and HAZMAT was placed on the subject property as part of a rezoning. As project manager/project engineer, performed a Phase I Preliminary Site Assessment, a Phase II Site Investigation, and prepared a Remedial Action Plan. Also prepared Brownfield Cleanup Program Applications and evaluated the potential tax credit for the client.

Former Cascade Laundry Site, Brownfield Redevelopment, Brooklyn, New York. The whole city block has been used as a commercial laundry beginning in the 1920s. USTs were observed, and the site had fuel oil/petroleum-related impacts to both soil and groundwater. As project manager/project engineer, conducted remedial investigation to delineate the vertical and horizontal extent of petroleum contamination in soil. Designed a vapor barrier and passive

SSDS system. Conducted ISCO to address the remaining CVOCs in groundwater. Negotiated with the New York State Department of Environmental Conservation (NYSDEC) to change the conditional track 1 to standard track 1 as the final remedy outcome to obtain more tax credits for the client.

Former Dry Cleaner Site, Brownfield Redevelopment, Coney Island, Brooklyn, New York. As project manager/project engineer, provided environmental services during the rehabilitation and expansion of the expansive, 1970s-era mixed-use complex. Facilitated the BCP applications for two adjacent parcels within the complex: the first for an existing retail space formerly occupied by a dry cleaner; the second application for an adjacent "historic" dry cleaner lot that had been razed as part of urban renewal in the 1960s. Previous site investigations had documented the presence of PCE in soil gas; the Remedial Investigation Work Plan (RIWP) outlined the work required to delineate the vertical and horizontal extent of the impacted soils, soil vapor, and groundwater at both BCP sites. A Remedial Action Work Plan was developed to address contaminated media. An SSDS was designed to protect residential and retail tenants, in conjunction with source area treatments.

296 Wythe Avenue, E-Designation Site, Brooklyn, New York. As project manager/project engineer, managed and oversaw the removal of three USTs and the excavation of non-hazardous soil/fill for off-site disposal. Designed a vapor barrier and passive SSDS. Prepared the OER and NYSDEC-required documents including daily/monthly report, Noise/Air Remedial Action Plan, and Remedial Action Report.

Standard Motor Products, Brownfields Redevelopment, New York. Low levels of chlorinated solvents were detected in the groundwater. As project engineer, contributed to AS and SVE system designed and implemented at the site. Project also entailed operating and managing the system, maintaining the right pressure and flow for the system to effectively remediate the contamination.

JPMorgan Chase, Brownfields Redevelopment, Orangeburg, New York. Served as project engineer. Investigation/remediation/oversight project at a 90+-year-old state hospital campus redeveloped as a database center. The 61-acre site consisted of 32 abandoned and derelict buildings, walkways, roads, and significantly overgrown landscape areas. Initial project work included the preparation of an NYSDEC BCP application and the design and implementation of a fast-track, comprehensive remedial investigation.

Former Nuhart Plastics Site, New York State Superfund Site, Brooklyn, New York. As project engineer, conducted a feasibility study and remedial planning for this former plasticizer facility with on-site and off-site pollutant concerns. Initial site investigations were conducted by others. Project is a high-profile New York State Superfund Site and requires regulatory compliance with NYSDEC and NYCOER, as well as close coordination with local government bodies.

Junior High School 226 Queens (I.S. 226), Queens, New York. As environmental engineer, managed construction support services related to soil management associated with the construction of a New York City school complex and associated utility corridors. Prepared Excavated Material Disposal Plans, reviewed potential disposal facilities, and conducted waste characterization soil sampling.

599 Valley Health Plaza, SSDS, Paramus, New Jersey. As environmental engineer, provided environmental services including a Phase I ESA, Vapor Encroachment Assessment, Phase II ESA, Remedial Action Plan, and Construction Health and Safety Plan. For active SSDS, designed and prepared bid specifications.

2581 & 2587 Atlantic Avenue, 40-44 Georgia Avenue, Brooklyn, New York. Served as environmental engineer and provided environmental services including a Phase I ESA, Vapor Encroachment Assessment, Phase II ESA, Remedial Action Plan, and Construction Health and Safety Plan. Designed the active and passive SSDS systems and prepared bid specifications.

Steel Craft, Newark, New Jersey. Served as environmental engineer and conducted groundwater sampling; delineated and differentiated the on-site and off-site PCE and Trichloroethylene (TCE) plumes.

Oil Spill Risk Assessment, BP and National Oceanic and Atmospheric Administration (NOAA), Gulf of Mexico. Performed risk assessment for oil spill contamination. Statistically evaluated the data obtained from the site. Reviewed reports and conducted associated research.

Contaminant Mobility in Paint Waste during Bridge Rehabilitation, New York State Department of Transportation, New York State. Collaborated with the New York State Department of Transportation (NYSDOT) to investigate the transport and mitigation of the heavy metal contamination from lead-based paint during bridge rehabilitation. Developed a mathematical model using a variety of statistical approaches to rapidly characterize paint waste during bridge rehabilitation. Nine task deliverables were submitted and presented to NYSDOT.

Impact Study on Effects of Superstorm Sandy, National Science Foundation (NSF), Raritan Bay, New Jersey. Investigated water quality, trace metals, nitrogen, phosphate, and related contaminants in the groundwater and sediment in the shorelines along Raritan Bay in New Jersey. Evaluated coastal ecosystem recovery and resilience potential after Superstorm Sandy.

Bio-remediation of Tannery Sludge, China. Conducted bio-remediation using indigenous sulfur-oxidizing bacteria present in the tannery sludge to reduce elevated hexavalent chromium in tannery sludge. Chromium removal rate of 90 percent was achieved.

Fujian Petrochemical Industrial Group Co., Compliance Services, China. Supported lead engineer in the preparation of planning documents and completion of regulatory permit applications. Assisted lead scientist in modifying related EHS programs and procedures to ensure compliance.

PUBLICATIONS

"Field Methods for Rapidly Characterizing Paint Waste during Bridge Rehabilitation," with L. Axe, K. Jahan, and K.V. Ramanujachary, *Chemosphere* 134: 598-605, 2015.

"Metal Concentrations and Distribution in Paint Waste Generated during Bridge Rehabilitation in New York State," with L. Axe, K. Jahan, and K.V. Ramanujachary, *Science of the Total Environment* 526: 262-270, 2015.

"Monitoring Changes in Salinity and Metal Concentrations in New Jersey (USA) Coastal Ecosystems Post Hurricane Sandy," with Y.R. Personna, X. Geng, F. Saleh, N. Jackson, M. Weinstein, and M. Boufadel, *Environ Earth Science*, 73(3): 1169-1177. 2015

"Metal Leaching from the Bridge Paint Waste in the Presence of Steel Grit, ," with L. Axe, K Jahan, and K.V. Ramanujachary, Chemosphere 119, 1105–1112, 2015.

INVITED LECTURER OR SPEAKER

"Thermal Enhanced Recovery for Phthalate-Cutting Oil Mixture Treatability Study – Former Plastic Manufacturing Facility," with D. Winslow, presented at 29th Annual International Conference on Soil, Water, Energy, & Air, March 18-21, 2019.

"Trace metal leaching from bridge paint waste in the presence of iron oxide surfaces," with L. Axe, K. Jahan, K.V. Ramanujachary, Division of Colloid and Surface Chemistry, 246th American Chemical Society (ACS) National Meeting, Indianapolis, Indiana, September 8-12, 2013.

"Leaching behavior of lead and chromium from bridge paint waste in the presence of steel grit," with L. Axe, K. Jahan, and K.V. Ramanujachary, session of Steel Bridges Committee, Transportation Research Board 92nd Annual Meeting, Washington, D.C., January 13-17, 2013.

"Field methods for rapidly characterizing paint waste during bridge rehabilitation," with L. Axe, K. Jahan, and K.V. Ramanujachary, session of Environmental Chemistry for a Sustainable World, 243rd American Chemical Society (ACS) National Meeting, San Diego, California, March 25-29, 2012.

LUKE J. MCCARTNEY, PG

Project Manager

EDUCATION

B.S., Water Resources/Geology (Hydrogeology Focus), State University of New York- Oneonta

PROFESSIONAL REGISTRATIONS

2018/NY: Professional Geologist (PG Reg. No. 000760)

PROFESSIONAL SOCIETIES

New York State Council of Professional Geologists (NYSCPG) – Member

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)

8-Hour OSHA Hazardous Waste Worker Refresher Training (29 CFR 1910.120)

10 Hour OSHA Construction Safety and Health

DOT HazMat Certification

Luke is a highly motivated and detail-oriented professional with more than 28 years of experience in the environmental and construction industry, including field and office-level management of multi-disciplinary teams and implementing projects. He excels at time management, subcontractor and schedule coordination, mentoring junior staff, preparation of technical reports, and maintaining communication/relations between all facets of the project team and clients. He has extensive field experience coordinating and inspecting earthwork, construction oversight, remediation of contaminated soil and groundwater, and remedial system design implementation and operation. He also commits his knowledge to office operations and developing standardized protocols, systems, and efficiencies for office and field teams.

RELEVANT PROJECT EXPERIENCE

Manhattan Management, New York State Department of Environmental Conservation (NYSDEC), Brownfield Cleanup Program (BCP), Brooklyn and Bronx, New York. As Project Manager, Luke was responsible for the execution of Remedial Investigations and Remedial Action Plans for two sites in the New York State Brownfield Cleanup Program (NYS BCP). Both projects involved remediation of contaminated soil during development of the properties into multi-family residential buildings, providing more housing for underdeveloped neighborhoods within New York City. Remedial objectives included both a Track 1 and Track 2 cleanup and through daily coordination with internal teams and external stakeholders during the remedial actions to technical review and compilation of Final Engineering Reports, both projects were completed in compliance with approved plans and achieved Certificates of Completion (COCs) from the NYSDEC.

LendLease/Consigli, New York City (NYC) Department of Design and Construction (DDC) Public Building (PB) Division on behalf of NYC Department of Parks and Recreation (NY Parks), Shirley Chisholm Recreation Center (Design Build), Brooklyn, New York. As Project Manager, Luke leads environmental consulting and geotechnical engineering services for the Shirley Chisholm Recreation Center Design-Build project with a footprint area of about 45,700 sf within Nostrand Playground in Brooklyn, New York. The recreation center will include a three-story building with a total of 76,603 gross square feet (gsf) and will include an indoor pool, areas for social and cultural activities, classrooms, multi-

media rooms, and indoor basketball court, and a gym. The building will be surrounded by landscaped areas and concrete sidewalks.

Luke coordinated environmental consulting services and planning in the design phase of the project to comply with the requirements of an Environmental Assessment Statement (EAS) completed for the site. Luke has guided his project team through completion of a Limited Phase II Environmental Site Assessment, compilation and implementation of a Remedial Action Plan that has included a soil characterization, remedial construction oversight, and a Community Air Monitoring Program (CAMP). Geotechnical services have included permeability testing for design of Stormwater Management Practices (SMPs) and borings for the installation of Consolidated Edison (ConEd) underground electrical vaults. This is an ongoing project with a completion date in late 2025.

Related Companies, New York State Department of Environmental Conservation (NYSDEC), Brownfield Cleanup Program (BCP), Willets Point, Queens, New York. As Field Manager, Luke was responsible for on-site field management of a 20+ acre redevelopment enrolled in the NYSDEC BCP with a significant history of landfilling and multiple sources and types of contamination. He managed daily operations and field staff performing inspections to ensure compliance with technical plans and construction specifications. He coordinated and attended weekly meetings with client and construction teams to provide technical, regulatory, and risk management status updates and guidance. Additionally, Luke ensured that project milestone schedules were achieved, prepared change orders and updated plans to efficiently manage out-of-scope field changes and coordinated and managed subcontractors to finalize scopes and project objectives. He also provided site training and skill development of junior staff.

Park Tower Group, New York City Office of Environmental Remediation (NYCOER), Greenpoint Landing, Brooklyn, New York. For this large-scale urban redevelopment project under NYCOER regulatory oversight, Luke coordinated and managed the field effort during implementation of multiple Remedial Action Work Plans (RAWPs) supporting construction of one parking lot, one Combined Sewer Outfall (CSO) utility line, two new roadways, three affordable-housing residential buildings, and one, 38-story market-rate high rise. He trained and supported field staff during the work and interfaced daily with the project team and client to keep field efforts focused and on track. Additionally, Luke participated in project meetings with client, construction management teams, contractors, and regulatory agency personnel, assisted with project scheduling and issuance of work change orders, technical review of contractor environmental submittals to ensure compliance with RAWPs. He also completed environmental sampling throughout the field activities including delineation and disposal coordination of hazardous metals in soil, completed oversight during the installation of site Engineering Controls (ECs) and commissioning of Sub-Membrane Depressurization (SMD) systems involving Indoor Air Quality (IAQ) Assessments and Sampling, reviewed and completed QA/QC on field-logs and data post-field.

Consolidated Edison (ConEd), Multiple Sites, New York. As Field Manager, Luke completed USEPA Spill Prevention, Control, and Countermeasure (SPCC) compliance inspections at 13 ConEd electrical substations in response to requirements of the NYSDEC. He also reviewed SPCC Plans, historical inspection reports, and facility plans to ascertain site-specific details and recommendations prior to conducting site visits. Additionally, Luke completed walk-throughs of each substation facility to identify and provide management team with detailed summaries and supporting photo-documentation of concerns at each site, participated in meetings with client project, operations, engineering, and legal teams.

Urstadt Biddle Properties, Inc., Wayne, New Jersey. As Project Manager, Luke was responsible for environmental oversight and management during remedial activities related to a dense non-aqueous phase liquid (DNAPL) tetrachloroethylene (PCE) spill. He provided environmental investigation, oversight services, and management during Phase I and Phase II Environmental Site Assessments at the site, including soil and groundwater sampling, sample handling, sewer line video analysis, and soil excavation and disposal. He coordinated subcontractor scopes, reviewed invoices, and compiled a Remedial Investigation and Remedial Action Report for the site for submittal to the New Jersey Department of Environmental Protection (NJDEP)

Town of Putnam Valley, Hydrogeologic Assessment and Delineation of Aquifer Protection Zones, New York. As Project Manager, Luke completed a Hydrogeologic Assessment and Delineation of Aquifer Protection Zones that considered hillslopes, soils, surface waters, groundwater, open spaces, and existing land uses for inclusion in the Towns Master Plan and development of a Comprehensive Plan and Generic Environmental Impact Statement (GEIS). He also completed watershed boundary mapping, oversaw the implementation of aquifer pumping/yield tests, completed visual inspections of watershed features, participated in town meetings in a technical advisement capacity.

PUBLICATIONS

"Creation of Groundwater Resource Maps for Planning Future Development," with W. Canavan, CPG, E. Sivers, and E. Wolley, *American Water Resources Association,* AWRA's Annual Resource Conference, November 2001.

BRIAN FITZPATRICK, CHMM

Corporate Director, Health and Safety

EDUCATION

M.P.A., Environmental Policy, Syracuse University
B.S., Environmental Science, University of Massachusetts-Amherst
A.S., Chemistry, Valley Forge Military Junior College
Commissioned Officer, United States Army

CERTIFICATIONS

Certified Hazardous Materials Manager (Reg. No. 13454)
Certified Department of Transportation Shipper
Certified International Air Transport Authority Shipper

PROFESSIONAL SOCIETIES

Alliance of Hazardous Materials Professionals
Academy of Certified Hazardous Materials Managers, New England Chapter

SPECIAL STUDIES AND COURSES

Department of Transportation
International Air Transport Authority
Incident Commander
Confined Space Entry and Rescue
Radiation Safety Officer
RCRA Hazardous Waste
Massachusetts Industrial Waste Water Operator Grade 2I (expired)

AWARDS

Presidents Club Award (one million hours worked without a recordable injury, Cabot Corporation
Chancellors Award for Excellence, Syracuse University

Brian has over 25 years of experience in developing, implementing, and managing a wide range of environmental, health, and safety (EH&S) solutions for a variety of clients. Brian has served as the Health and Safety Manager and Incident Commander at several research and development sites and has managed extensive programs to maintain and clean contaminated sites under Federal and State regulatory programs. He has provided expertise in managing EH&S programs as a consultant, and has actively developed, implemented, and managed these programs as an EH&S professional for various industries.

Brian is currently working as the Chief Health and Safety Officer for Haley & Aldrich, Inc. He, and his staff, are involved in every project Haley & Aldrich, Inc. undertakes. Brian is involved on several projects, directly overseeing the health and safety on the project site of our staff, our contractors, and the public. Brian also acts as support for our on-site health and safety staff on other larger construction and remediation projects.

Through Brian's leadership our safety culture and focus extend from the top of our organization to each and every Haley & Aldrich employee as well as subconsultants and subcontractors. Utilizing a Behavior Based Safety approach, Haley & Aldrich expects every project team member to play an important role in making our projects safe and has given authority to every Haley & Aldrich employee, subconsultant, and subcontractor to stop any activity at any time for health or safety concerns. Our record illustrates that our hard work is paying off. The company has gone 4 years without a lost time injury, and our TRIR and EMR have consistently improved each of the last 3 years.

RELEVANT PROJECT EXPERIENCE

Haley & Aldrich, Inc., Burlington, Massachusetts. As Chief Health and Safety Officer, Brian has led and facilitated the development and implementation of corporate health and safety (H&S) improvement plans to enhance compliance and improve H&S performance. In Brian's time with Haley & Aldrich, Inc., the company has realized dramatic improvement on H&S goals and in Key Performance Indicators. Brian is responsible for developing a risk competence culture, where our staff are empowered to look for and engage to address risk before anyone is injured. Brian oversees the development, implementation and continuous improvement of all H&S programs for the company. Additional responsibilities include:

- Developing a safety culture through incident reporting, root cause analysis, behavior-based safety, hazard recognition and risk assessment, communication, and developing leaders;
- Monitoring proposed and existing SH&E regulations and legislation to determine their impact on operations and to ensure continued compliance;
- Overseeing the safety, industrial hygiene, and toxicology programs for over 600 staff members engaged in remediation, construction, health and safety, consulting, and general office work across 28 offices in the United States and on assignment to international project sites;
- Continuously seeks to improve H&S performance as measured by the OSHA Incident Rating (IR) and Worker's Compensation Experience Modification Rating (EMR), as well as Leading Indicators developed with the management team; and
- Participating in the corporate audit program as an auditor or lead auditor;

Energy Client, California. As Chief Health and Safety Officer, Brian led and facilitated the Alliance Partnership Safety Council in 2017, is still an active contributor to the council, and hosts routine contractor safety forums for the client. Brian is actively involved in the development and implementation of program safety, health, and environmental (SH&E) plans to ensure safe operations on project sites. Brian developed permits and Health and Safety Plans for large projects and routinely audits the site safety. Additional responsibilities include:

- Driving reporting and behavior-based safety initiatives to support our internal safety culture and developing monthly summary reports to illustrate performance to our client.
- Develop, assess and continuously improve site safety plans and practices, including specific safety protocols for working safely over and around water.
- Worked as an extension of the client's organization to provide assurance that the remedy was completed safely and consistent with client-specific requirements.
- Support on-site safety personnel in ensuring the health and safety of the general public, our staff, and our sub-contracted employees.
- Audits and visits sites to ensure compliance with our internal policies and client-specific requirements.

Energy Client, Ohio. As Chief Health and Safety Officer, Brian supports the project team in developing and executing client and project specific health and safety measures, such as a site specific Health and Safety Plan, Job Hazard Analyses, Industrial Hygiene program, and site specific training. Brian also routinely visits the site to assess current practices and condition and to ensure continuous improvement. Additional responsibilities include:

- Develop, assess, and continuously improve site safety plans and practices, including specific safety protocols to comply with supplemental EH&S requirements such as the Duke Health and Safety Handbook, Environmental Supplemental, and EHS Keys to Life.
- Develop, assess, and continuously improve site safety plans and practices to address the risks associated with the work being performed on site, as well as the environmental conditions and simultaneous operations, including trenching and excavation, hot work, work over and near water, heavy equipment, HAZWOPER, etc.
- Worked as an extension of the client's organization to provide assurance that the remedy was completed safely and consistent with client-specific requirements.
- Support on-site safety personnel in ensuring the health and safety of the general public, our staff, and our sub-contracted employees.
- Audits and visits site to ensure compliance with our internal policies and client-specific requirements.

BRIAN A. FERGUSON

Senior Engineer

EDUCATION

M. S. Geotechnical Engineering, Tufts University, Medford, Massachusetts; 2012
B. S. Civil Engineering, State University of New York - Environmental, Science, and Forestry, Syracuse, New York; 2000
Ass. Science Degree in Applied Science and Technology (Nuclear Engineering), Thomas A. Edison State College, Trenton, New Jersey; 2000

PROFESSIONAL SOCIETIES

Order of the Engineer – 2000
Boston Society of Civil Engineers (BSCE)
American Society of Civil Engineers (ASCE)

SPECIAL STUDIES AND COURSES

American Concrete Institute – Certified Field Technician Certified Grade 1
Radiation Safety and Operations of Nuclear Testing Equipment – Troxler
40-Hour OSHA Hazardous Waste Operations Training (+ 8-Hour annual refresher)
10-Hour OSHA Construction training
Confined Space Entry Training
16-Hour Asbestos Operations and Maintenance

Mr. Ferguson has over six years of experience serving as project engineer on a variety of real estate development projects. His project experience has included monitoring field investigations and performing construction oversight, performing due diligence and engineering analyses, performing geotechnical analyses and developing geotechnical recommendations, and preparing geotechnical reports and project specifications.

In addition to providing engineering design support, Mr. Ferguson has managed and participated in a number of field service activities. Field work has included construction monitoring and documentation of contractors' deep and shallow foundation related construction, including slurry walls, caissons, pile driving, pile cap installation, earthwork, backfilling and compaction, installation of soldier pile and wood lagging support systems, installation of tie backs, reading inclinometers, conducting in-place field unit weight tests, tie-back load testing, seismograph installation, monitoring, and evaluating, and preparation of footing bearing surfaces. Other responsibilities have included site development activities, including placement of utilities and subgrade preparation for roads; observations and testing to determine that work is completed in compliance with contract documents; on-site soil management; sampling of soil and groundwater for chemical laboratory testing and conducting in situ field screening; maintenance of job records including pile driving logs, results of field density tests, records of caisson and footing installations; preparation of daily field reports; in contact with key personnel; and resolution of field related problems.

RELEVANT PROJECT EXPERIENCE

St. Elizabeths Hostpital – West Campus Forensic Evaluations, Washington, D.C. Project Engineer for forensic evaluations on the adaptive reuse of former hospital buildings. Responsibilities included coordination of a field exploration program, including test borings and test pits to obtain subsurface information for project design and construction, overseeing multiple field personnel, subcontractors, assisting with project management, reviewing subcontractors invoices, reviewing and summarizing subsurface data and writing data reports.

TUFTS University, New Central Energy Plant, Medford, MA. Project engineer for a new Central Energy Plant that will house new co-generation steam boilers, centralized chilled water and electrical transformer switchgear that is planned to occupy approximately 20,000 square feet across two or three levels. Responsibilities included coordination of construction monitoring, observing SOE and footing installation, assisting with project management,

reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings.

Lahey Hospital and Medical Center – Stilts Infill Project, Burlington, MA Project Engineer for an addition to the existing Stilts building on the Lahey campus. Responsibilities included coordination and overseeing geotechnical and environmental subsurface investigations, coordination of construction monitoring, observing footing installation, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings.

Gloucester Beauport Hotel, Gloucester, MA Project engineer for a four story hotel with a seawall constructed adjacent to tidal beach. Responsibilities included coordination and overseeing geotechnical and environmental subsurface investigations, coordination of construction monitoring, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings, design and implementation of a sub-slab gas mitigation system.

275 Wyman Street, New Office Building, Waltham, MA. Project engineer for a new office building and parking garage founded on a shallow foundation system. Responsibilities included preparing proposals, assisting with management and planning of a subsurface investigation program, summarizing subsurface data and reviewing geotechnical test boring logs, coordination of construction monitoring and instrumentation monitoring programs, reviewing weekly field construction reports, reviewing and responding to specialty geotechnical design submittals and RFIs by others and attending project meetings.

Suffolk University - 20 Somerset Street, Boston, MA Project engineer for design of 8-story academic building with two levels of below grade finished space. Responsibilities included coordination of construction monitoring, observing SOE and footing installation, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings.

Worcester State University, New Student Housing, Worcester, MA Project engineer for design and construction of a 7-story residence/dining hall with a single level basement and a major site retaining wall structure. Responsibilities included overseeing geotechnical subsurface investigations, provided foundation recommendations and specifications, and prepared a retaining wall contract document. Responsibilities included coordination of construction monitoring, excavation and construction of footings, and soil reuse and management, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings.

University of Massachusetts Boston, General Academic Building No.1, Boston, MA. Project engineer responsible for assisting project manager in preliminary foundation engineering recommendations and construction considerations for a new academic building on a part of Columbia Point, a historic landfill area. Assisted in design phase services that included preparing foundation support design recommendations including the use of high allowable stresses for 190-ft long end-bearing H-piles and application of Slickcoat coating to address downdrag concerns and reduce foundation costs.

Waltham Watch Factory, Waltham, MA project engineer for redevelopment of former watch factory. Responsibilities included construction oversight of new precast parking garage, utilitiy upgrades, soil remediation and management, installation of gas mitigation systems, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings.

Massachusetts Green High Performance Computing Center, Holyoke, MA. Project engineer for 60,000 sq. ft high level computing center and associated support utilities. Redevelopment of the site included recycling 50,000 cy of construction debris into the site fills at this historic site along the Connecticut River. Responsibilities included coordinating geotechnical and environmental field investigations, coordination of construction monitoring, seismic analysis, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals and attending project meetings.

The Shops at Riverwood, Hyde Park, MA. The project consisted of the redevelopment of a colonial era paper mill. The multi-building complex was demolished and the concrete and brick from the previous buildings were recycled. The project involved crushing 50,000 cy of brick and concrete and placement of excavated soils and recycled brick and concrete as compacted fill materials to support proposed buildings, pavement areas, and achieve 5 to 9 ft. raises in grade. Field Representative was responsible for management and reuse of brick and concrete stockpiles, in-place density testing, coordination of test pits, installation of soldier pile and versa-lok walls, and backfilling of underground vaults. Remedial activities included: excavation of 5,000 cy of petroleum contaminated soils, on-site cement batching in a pug mill, and placement of compacted recycled materials in roadway areas; delineation, excavation and off-site disposal of TSCA-regulated PCB contaminated soils associated with historical Askarel transformers and dioxin-contaminated soils associated with historical bleaching operations; and disposition of 1,000 tons of paper mill sludge encountered within an abandoned granite-walled sluiceway structure. In addition, assisted with weekly project meetings, maintaining a record of material reuse, and providing weekly field reports.

Harvard Law School, Cambridge, MA. The Harvard Law School project is located on Massachusetts Avenue in Cambridge. The project consisted of a multistory building above ground with 5 levels below ground for a parking garage. Field Representative was responsible for overseeing the installation of slurry walls into bedrock and LBEs with three installation rigs while monitoring the removal of urban fill and transfer to several different receiving facilities from another portion of the site. The slurry walls were constructed into bedrock. Other Field Representative activities were: testing of the slurry, management of the excavated soils, and record keeping of the Contractor's obstruction and down time of the equipment. In addition, assisted with weekly project meetings, maintaining a record of obstruction and machine time, and providing weekly field reports.

KATHERINE R. MILLER

Project Manager

EDUCATION

B.S., Chemistry, University of Arizona

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120 and 40 CFR 265.16)
8-Hour OSHA Refresher Training (29 CFR 1910.120)
Level IV Data Validation Training

AWARDS

Pinnacle Award, 2009
Pathfinder Award, 2014

In her 10 years at Haley & Aldrich, Katherine has worked on soil and groundwater environmental investigations and the preparation of environmental reports for private, industrial, and government-based project clients. She is a qualified Data Validator capable of performing various levels of validation on laboratory water quality data according to U.S. Environmental Protection Agency (EPA) National Functional Guidelines and to U.S. Department of Energy radiochemical guidelines. She also has experience designing and maintaining databases for project-specific needs.

Project management responsibilities for a $1.5 million per year stormwater project include preparation of subcontractor bids and contracts; preparation of cost estimates, proposals, and reports; coordination of field testing programs; and interpretation of chemical testing results. She has interacted with local regulatory agencies.

RELEVANT PROJECT EXPERIENCE

Confidential Aerospace Manufacturer, Groundwater Monitoring, Western U.S. Katherine served as project manager for the comprehensive stormwater management program. Responsibilities included project finance management and data management including quality assurance/quality control (QA/QC) and interpretation of chemical testing results. Evaluated QA/QC of groundwater quality data, prepared reports and managed data for the site. Performed data validation of quarterly water quality data from over 300 locations according to EPA National Functional Guidelines and to DOE radiochemical guidelines over a six-year period. Also, responsible for updating and maintaining the integrity of over 200,000 records during that time period. Assisted with management of sampling, analysis, and reporting of constituents of concern, ensured compliance with post-closure permit monitoring and reporting requirements, Data Management Plan, QAPP, and Environmental Data Management System, and ensured and maintained 100% compliance with the QAPP and Data Management Plan. Additionally, prepared groundwater data summaries for proposed extraction wells including comparisons to site NPDES outfall limits in support of Groundwater Interim Measures planning.

Asarco Hayden Plant Site, Hayden, Arizona. Katherine assisted with field preparation, QA/QC of analytical data, and data validation as part of the Remedial Investigation/Feasibility Work Plan including soil, sediment, air, process water, surface water, and stormwater.

Former MGP Site, California. Katherine assisted with report preparation, QA/QC of soil and/or groundwater quality data, and data validation for the investigation of three large former MGP sites in an urban, residential setting; includes over 200 residential properties.

General Manufacturing, Leitchfield, Kentucky. Katherine assisted with report preparation, QA/QC of soil and/or groundwater quality data, and data validation for a soil and groundwater RCRA site. Groundwater monitoring is conducted annually at more than 50 locations for volatile organic compounds (VOCs), including 1,4-dioxane and semi-volatile organic compound (SVOCs).

Skyworks Solutions, Inc., Newbury Park, California. Katherine assisted with report preparation, QA/QC of soil and/or groundwater quality data, and data validation at groundwater remediation site. She monitored for VOCs, including 1,4-dioxane, and inorganic chemicals, including hexavalent chromium.

Teledyne Scientific Company, Thousand Oaks, California. Katherine assisted with report preparation for this groundwater assessment site. Monitored natural attenuation has been instituted as the long-term site remedy.

Port of Redwood City, Permitting and Sediment Characterization, California. Katherine assisted with report preparation, QA/QC of sampling data, and data validation.

Kiewit Infrastructure West, Sediment Quality Study, California. Katherine assisted with report preparation, QA/QC of sampling data, and data validation.

Aeolian Yacht Harbor, Permitting, Eel Grass Conservation and Sediment Characterization, California. Katherine assisted with report preparation, QA/QC of sampling data, and data validation.

Marin County, Paradise Cay Permitting and Sediment Characterization, California. Katherine assisted with report preparation, QA/QC of sampling data, and data validation.

SANTA E. MCKENNA

Senior Geologist

EDUCATION

B.S., Geology, State University of New York at Oswego

PROFESSIONAL REGISTRATIONS

2018/ NY: Professional Geologist (Reg. No. 000984)

PROFESSIONAL SOCIETIES

Geological Society of America, Professional Member

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations Training (29 CFR 1910.120)
8-Hour OSHA HAZWOPER Annual Refresher Course
8-Hour OSHA Supervisory Training
10-Hour OSHA Construction Safety
National Safety Council First Aid/CPR Certification

Santa has ten years of experience working as a geologist in support of environmental and geologic investigations. She is experienced in various aspects of site characterization and investigations, having worked on a variety of geotechnical, and contaminated sites, including several manufactured gas plants (MGP), industrial, and refinery sites. She is well versed in the methods and procedures of subsurface investigations and developing data to characterize site geology and subsurface conditions.

As senior geologist she has a strong knowledge of field investigation procedures and is experienced in drilling methods in soil and bedrock. She has also performed extensive remedial investigation and construction monitoring at several environmental sites. Santa has experience in the preparation of proposals, permit applications, geotechnical, and site investigation reporting. She has knowledge in geotechnical and environmental soils logging and analysis. Santa is also experienced in construction monitoring, air monitoring, soil vapor monitoring, and groundwater monitoring well installation and sampling.

RELEVANT PROJECT EXPERIENCE

TY-Lin, highway realignment environmental impact study, Buffalo, New York. Santa served as the assistant project manager and community coordinator on an environmental impact study and geotechnical investigation for a proposed highway relocation within the city of Buffalo. She coordinated the geotechnical investigation, analytical and geotechnical testing, as well as environmental monitoring and testing at boring locations within a NYSDEC Cleanup Program. Santa coordinated a test boring program on land and water and assisted field staff in characterizing subsurface conditions. She also served as the primary contact for communication with property owners, state regulatory representatives, and the client.

Confidential utility client, former MGP site environmental investigation, New York. Santa served as the project manager and coordinated routine environmental monitoring, including an annual groundwater event, monthly sub-slab check, and an annual site inspection to follow the site management plan. She facilitates the reporting for the annual project groundwater monitoring report and the periodic review report. Santa is the primary contact for the client, stakeholders, and state regulatory representatives.

Confidential client, former industrial property remedial measures, Leitchfield, Kentucky. Santa served as the project manager for a vacant industrial facility surrounded by a residential community under an Environmental Protection Agency Consent Order. She facilitated environmental investigations, including monitoring well installation, soil sampling, and routine groundwater sampling events. Santa also coordinated biannual residential indoor air sampling within citizens' homes and directly communicated with residents via phone and letter. She generated monthly progress reports and annual site investigation reporting. Santa was a primary contact for the client, residential community, consultants, and the U.S. Environmental Protection Agency.

Confidential client, brownfield cleanup, Southern Tier, Western New York. Santa served as the data and field task manager for a vacant industrial facility located Western New York. She coordinated field staff and subcontractors' on-site scope and managed incoming data from more than 400 sample locations. She reviewed ongoing sampling against multiple site analysis plans, comparing data to applicable NYSDEC criteria, and drove additional excavation and sampling based on preliminary data review.

Confidential Utility Client Former MGP Site Environmental Investigation, New York. Field geologist responsible for oversight of test borings for soil and bedrock characterization, groundwater monitoring well installations and soil sampling, and monitored large-scale excavation and disposal of soils at an active facility. Santa was also responsible for supervising contractors, Community Air Monitoring Program activities with direct reporting to regulators, and onsite regulator interaction.

Fort Calhoun, environmental reporting, Omaha, Nebraska. As a senior geologist, Santa assisted with research and reporting for an environmental report in connection with the decontamination and decommissioning of the Fort Calhoun nuclear power plant. This report provided current information and significant environmental changes associated with site-specific decommissioning and site closure activities.

Active Construction Site Soil Management and CAMP Monitoring, Corning, New York. As field geologist, Santa was responsible for oversight of excavated material, assist with proper segregation of fill material to be disposed, Community Air Monitoring Program activities with direct reporting to regulators, and onsite regulator interaction. Management of lab data analysis, assisted in report writing, participation at project meetings with client.

Confidential Utility Client Site Environmental Investigation, New York. As field geologist, Santa provided field support for groundwater sampling, manage field staff, and analytical data. She also prepared analytical results, site figures, and investigation reports.

Confidential Utility MGP Site Remediation, Pennsylvania. As field geologist, Santa provided oversight and environmental logging of soils during soft dig, test pits, Geoprobe, auger, and mud rotary activities, conducted groundwater sampling events per state, and site-specific requirements including low flow sampling, assisted in report writing.

Confidential Utility MGP Site Remediation, Pennsylvania. As field geologist, Santa provided health & safety oversight of construction subcontractors, oversight of excavation shoring activities, oversight for impacted and excavated materials and oversight CAMP monitoring during remedial construction activities.

Confidential Utility MGP Site Remediation, Pennsylvania. As field geologist, Santa preformed oversight and environmental logging of soils during soft dig, test pits, Geoprobe, auger activities, oversight of monitoring well, soil vapor point installation, conducted groundwater sampling events per state, and site-specific requirements including low flow sampling, conducted soil vapor and air monitoring investigations, health & safety oversight of construction subcontractors, oversight of site dewatering activities in preparation for remedial excavations, oversight of excavation shoring activities and removal of impacted materials, oversight CAMP monitoring during remedial construction activities.

Bluestone Gas Company 20" Natural Gas Pipeline, Binghamton, New York. As field geologist, Santa provided field support for geotechnical subsurface investigation at proposed natural gas pipeline crossings. Field support included drilling oversight, soil characterization, rock core characterization, and sampling.

Overhead Utility Relocation Project, Glouster City, New Jersey. As field geologist, Santa provided field support for geotechnical subsurface investigation at proposed overhead utility pole relocation sites. Field support included geotechnical drilling oversight, creating geotechnical boring logs, and sampling.

Tesoro Corporation – Portfolio Management Support, Auburn, Washington. As staff geologist, Santa assisted with portfolio management support of active retail and retained liability sites contaminated with gasoline constituents.

Facilitate and support in purchase order and invoice inventory for auditing purposes, Monte Carlo analysis, portfolio risk assessments, and acquisition management.

Confidential Utility Client Site Environmental Investigation, Central Pennsylvania. As staff geologist and data manager, Santa provided all data management responsibilities during investigation phase. She developed a knowledge of PADEP's Act 2 standards and assisted with writing several site investigation reports including the Final Act 2 Report which was approved by the PADEP within 90 days of submittal. Additionally, Santa provided support for field staff with coordinating day to day tasks and laboratory supplies, and sample analysis.

Confidential Client Brownfield Cleanup Project, Henrietta, New York. As staff geologist and data manager, Santa was responsible for all data management during investigation and remediation phases. She developed a knowledge of NYSDEC DER-10 standards and assisted with writing several site investigation reporting including the Final Engineering Report and Site Management Plan. Additionally, Santa provided support for field staff with coordinating day to day tasks and laboratory supplies, and sample analysis, client meetings, waste disposal coordination.

APPENDIX I
Proposed Remedial Action Project Schedule

Remedial Action Project Schedule
860 Flushing Avenue, Brooklyn, New York
BCP Project C224424

PROJECT SCHEDULE		2025						2026												2027	
Task	**Description**	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February
1	Design, Investigation, Permitting																				
2	RIR Submittal to NYSDEC/NYSDOH																				
3	RAWP Submission to NYSDEC/NYSDOH																				
4	NYSDEC RIR/RAWP Review																				
5	Supplemental RI Completed																				
6	Revised RIR Submittal to NYSDEC/NYSDOH																				
7	Revised RAWP Submission to NYSDEC/NYSDOH																				
8	NYSDEC RIR/RAWP Review																				
9	NYSDEC Approval of RIR																				
10	45-Day Public Comment Period																				
11	Final RAWP Submittal/DD Issuance																				
Remedy Implementation Components																					
12	Implementation of Remedy - Remedial Excavation																				
13	SVE Pilot Test																				
14	Submission of Remedial Design Report																				
15	30-Day NYSDEC Review of Remedial Design Report																				
16	SVE System Installation (Subgrade and Above-grade)																				
17	SSDS Installation (Subgrade and Above-grade)																				
18	SSDS/SVE Systems Startup																				
Remedy Deliverables and COC																					
19	Preparation of SMP																				
20	Preparation of FER																				
21	NYSDEC/NYSDOH Review of FER/SMP																				
22	Issuance of COC																				

Notes:

1. Schedule is estimated and subject to change.
2. Implementation of RAWP does not include completion of building construction
3. NYSDEC - New York State Department of Environmental Conservation
4. NYSDOH - New York State Department of Health
5. BCP - Brownfield Cleanup Program
6. RAWP - Remedial Action Work Plan
7. DD - Decision Document
8. SVE - Soil Vapor Extraction
9. SSDS - Sub-Slab Depressurization System
10. SMP - Site Management Plan
11. FER - Final Engineering Report
12. COC - Certificate of Completion
13. COC issuance estimated for December 2026

**Expedited scheduling anticipated to attempt COC in 2026 with flexibility into 2027*

APPENDIX J
NYSDOH Generic and Special Requirements
Community Air Monitoring Program

RECEIVED
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ENVIRONMENTAL QUALITY
REGION 3 - NEW PALTZ

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

P:\Bureau\Common\CommunityAirMonitoringPlan (CAMP)\GCAMPR1.DOC

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m^3 or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work With Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

APPENDIX K
Odor Control Suppressant Safety Data Sheet

SAFETY DATA SHEET

State Industrial Products
5915 Landerbrook Drive
Mayfield Heights, OH 44124
To Order Call: 1-866-747-2229

6935 Davand Drive
Mississauga, Ontario L5T 1L5
To Order Call: 1-800-668-6513

Royal Industrial Park, Bldg "M"
Local #5, Carr 869, km 1.5 Palmas
Cataño, P.R. 00962
To Order Call: 787-275-3185

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: BLANKET 510 WINTERGREEN
Product Description: A floating air freshener.
EPA Registration Number: NA

24 Hour Emergency CHEMTREC Number: 800-424-9300
MSDS Number: 123285
EPA Establishment Number: NA

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

FIFRA Hazard Classification:
Not Applicable

Acute toxicity; oral: Category 4
Skin corrosion/irritation: Category 3

Exclamation Mark

WARNING

Hazard Statements:
H302 Harmful if swallowed. H316_3 Causes mild skin irritation.

Precautionary Statements:
P270 Do not eat, drink or smoke when using this product. P264 Wash hands thoroughly after handling.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	CAS Number	Weight	ACGIH	OSHA
Methyl Salicylate	119-36-8	<12%	NE	NE

The exact percentages have been withheld as a trade secret.

4. FIRST AID MEASURES

P332+P313 IF SKIN irritation occurs: Get medical attention. P301+P312 IF SWALLOWED: call a POISON CENTER or physician if you feel unwell.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

5. FIRE FIGHTING MEASURES

Flashpoint(Method): >200°F [93°C]
Lower Explosive Limit(LEL): NA Upper Explosive Limit(UEL): NA Autoignition Temperature: NA
Flammable Properties: None Expected
Extinguishing Media: Carbon Dioxide, dry chemical, foam.
Fire Fighting Instructions: Wear a self-contained breathing apparatus with full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Ventilate area. Halt spill at source, dike and contain spill. Flush with plenty of water to drain. Dispose of in accordance with Federal, State and Local Regulations regarding waste disposal.

7. HANDLING AND STORAGE

P402 Store in dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use general or local ventilation to keep exposure levels below exposure limits.
Personal Protective Equipment:
Respiratory: Normal room ventilation is adequate. Use a NIOSH/MHSA approved respirator if exposure limits are exceeded.
Eye: Wear approved safety glasses or goggles with unperforated eyeshields where splashing may occur.
Skin: For repeated or prolonged contact, wear chemically impervious gloves such as Nitrile.
Other: An emergency eyewash station or source of clean potable water should be available in case of accidental eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Green
Physical State: Liquid.

Odor: Mint
pH: NA

Solubility in Water: Insoluble
Boiling Point: NA
Freezing Point: NA
Melting Point: NA

Diluted pH: NA
Specific Gravity: 0.902
VOC Content: <3%

10. STABILITY AND REACTIVITY

Stability: Stable
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Do not mix with any other chemicals.
Incompatibility: Solvents, caustics, acids or oxidizers
Hazardous Decomposition Products: Carbon Dioxide, Carbon Monoxide

11. TOXICOLOGICAL INFORMATION

This product contains no ingredient at 0.1% or greater that is listed as a human carcinogen.

Hazardous Ingredients	CAS Number	LD50	LC50
Methyl Salicylate	119-36-8	NE	NE

12. ECOLOGICAL INFORMATION

The product is not expected to be hazardous to the environment.

13. DISPOSAL CONSIDERATIONS

P501 Dispose of container in accordance with all Federal, State and Local Regulations regarding waste disposal.

14. TRANSPORT INFORMATION

DOT Shipping Data: Not Regulated
Canadian TDG: Not Regulated
For International Shipments by Air: Not Regulated
For International Shipments by Vessel: Not Regulated

15. REGULATORY INFORMATION

TSCA: All ingredients in this product are listed or exempt from listing on the TSCA Chemical Inventory.
CEPA: All ingredients in this product are listed or exempt from listing on the Canadian DSL/NDSL.
Proposition 65: This product contains no listed substances known to the State of California to cause cancer, birth defects or reproductive harm, at reportable levels under the statute.
SARA 313: This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of1986 (40CFR372).
VOC: <3%

HMIS RATING: HEALTH = 1 FLAMMABILITY = 0 REACTIVITY = 0 PPE = B

WHMIS RATING: See hazards identified in Section 2 above.

16. OTHER INFORMATION

NA = Not Available or Not Applicable
NE = Not Established

Read and follow all label directions and precautions before using the product. This product is intended for industrial and institutional use only. NOT FOR HOUSEHOLD USE OR RESALE. KEEP OUT OF THE REACH OF CHILDREN. While we believe that the data contained herein is factual and the opinions expressed are those of qualified experts, the data are not to be taken as a warranty or representation for which the company assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and Local Laws and regulations.

Prepared On: 07/02/2018 Replaces: 08/11/2014

FICHE SIGNALÉTIQUE DE SÉCURITÉ

State Industrial Products
5915 Landerbrook Drive
Mayfield Heights, OH 44124
To Order Call: 1-866-747-2229

6935 Davand Drive
Mississauga, Ontario L5T 1L5
To Order Call: 1-800-668-6513

Royal Industrial Park, Bldg "M"
Local #5, Carr 869, km 1.5 Palmas
Cataño, P.R. 00962
To Order Call: 787-275-3185

1. IDENTIFICATION DU PRODUIT CHIMIQUE ET DE LA SOCIÉTÉ

Nom du produit : BLANKET 510 WINTERGREEN
Description du produit : Un refraîchissant d'air de flottement.
EPA Registration Number : NA

Numéro d'urgence CHEMTREC 24 h/24 : 800-424-9300
Numéro de la fiche signalétique de produit : 123285
EPA Establishment Number : NA

2. IDENTIFICATION DES DANGERS

VUE GÉNÉRALE D'URGENCE

Point
d'exclamation

AVERTISSEMENT

Mention de danger:
H302 Nocif en cas d'ingestion. H316_3 Provoque une légère irritation de la peau.

Conseils de prudence:
P270 Ne pas manger, boire ou fumer en manipulant ce produit. P264 Se laver soigneusement la peau après manutention.

3. COMPOSITION/INFORMATION SUR LES INGRÉDIENTS

Ingrédients dangereux	Numéro CAS	Poids	ACGIH	OSHA
salicylate de méthyle	119-36-8	<12%	NE	NE

The exact percentages have
been withheld as a trade secret.

4. PREMIERS SOINS

P332+P313 En cas d'irritation cutanée: consulter un médecin. P301+P312 EN CAS D'INGESTION : Appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise. P301+P330+P331 EN CAS D'INGESTION : Rincer la bouche. NE PAS faire vomir.

5. EN CAS D'INCENDIE

Point d'éclair : >200°F [93°C]
Limite d'explosivité inférieure (LIE) : NA Limite d'explosivité supérieure (LSE) : NA
Température d'auto-inflammation : NA
Propriétés d'inflammabilité : aucune présumée
Moyens d'extinction : Dioxyde de carbone, poudre chimique, mousse extinctrice.
Lutte contre l'incendie : Porter un appareil respiratoire autonome et des vêtements de protection complète.

6. ÉMISSIONS ACCIDENTELLES

Ventiler la zone. Interrompre le déversement à la source, l'endiguer et le contenir. Évacuer à grande eau. Éliminer conformément aux réglementations fédérale, provinciale et locale en vigueuren matière d'élimination des déchets

7. MANIPULATION ET CONSERVATION

P402 Stocker dans un endroit sec.

8. EXPOSITION/PROTECTION INDIVIDUELLE

Moyens techniques : Assurer une ventilation forcée adéquate pour maintenir l'exposition en deçà de la valeur limite d'exposition.
Équipement de protection individuelle :
Respiratoire : La ventilation normale est suffisante. Si les limites d'exposition sont dépassées, utiliser un appareil respiratoire agréé NIOSH/MSHA.
Oculaire : Porter des lunettes de protection homologuées munies d'écrans latéraux non perforés.
Cutanée : En cas de contact répété ou prolongé, porter des gants de protection chimique.
Autre : Un bassin oculaire d'urgence ou une source d'eau potable propre devrait être prêt à être utilisé en cas de contact oculaire accidentel.

9. PROPRIÉTÉS PHYSIQUES ET CH IMIQUES

Aspect : Vert
État de la matière : Liquide
Solubilité dans l'eau : Insoluble
Contenu de VOC : <3%

Odeur : Menthe
Concentrer pH : NA
Dilué pH : NA
Densité : NA
Point de congélation/fusion : NA / NA

10. STABILITÉ ET RÉACTIVITÉ

Stabilité : Stable
Polymérisation dangereuse : Ne se produira pas.
Conditions à éviter : Ne pas mélanger avec d'autres produits chimiques.
Incompatibilité : Les solvants, les produits caustiques, acides ou oxydants
Produits de décomposition dangereuse : Monoxyde de carbone, dioxyde de carbone.

11. INFORMATIONS TOXICOLOGIQUES

Ce produit ne contient aucun ingrédient déclaré cancérogène humain à des teneurs supérieures ou égales à 0,1 %.

Ingrédients dangereux	Numéro CAS	LD50	LC50
salicylate de méthyle	119-36-8	NE	NE

12. INFORMATIONS ÉCOLOGIQUES

Le produit ne devrait pas être dangereuse pour l'environnement.

13. DESTRUCTION

P501 Éliminer le contenant conformément à tous les règlements fédéraux, d'État et locales en matière d'élimination des déchets.

14. TRANSPORT

INFORMATION DE TRANSPORT D.O.T. : non réglementé.
TMD AU CANADA : non réglementé.
Pour les expéditions internationales par Air : non réglementé.
Pour les expéditions internationales par Vessel : non réglementé.

15. INFORMATIONs RÉGLEMENTAIRES

TSCA : Tous les ingrédients contenus dans ce produit figurent ou sont exempts de figurer sur l'inventaire du TSCA.
CEPA : Tous les ingrédients contenus dans ce produit figurent ou sont exempts de figurer sur la LIS et la LES (Canada).
Proposition 65 : Ce produit ne contient aucune substance chimique reconnus dans l'État de Californie pour causer le cancer, des malformations congénitales ou d'autres problèmesde reproduction.
SARA 313 : Ne produit ne contient aucune substance chimique toxique devant être déclarée aux termes de la section 313 de la loi Emergency Planning andCommunity Right-To-Know Act de 1986 (40 CFR 372.65C).

CLASSIFICATION HMIS : SANTÉ = 1 INFLAMMABILITÉ = 0 RÉACTIVITÉ = 0 EPS = B

CLASSIFICATION SIMDUT : Voir les risques identifiés dans la section 2 ci-dessus.

16. AUTRES INFORMATIONS

néant = Non disponible ou sans objet
n.e. = Non établi

Lire et suivre toutes les instructions et les précautions d'emploi figurant sur l'étiquette avant d'utiliser le produit. Ces produits sont réservés uniquement à l'usage industriel et par les collectivités. CES PRODUITS NE SONT PAS DESTINÉS À L'USAGE DOMESTIQUE OU À LA REVENTE. GARDER HORS DE LA PORTÉE DES ENFANTS. Bien qu'à notre avis les informations énoncées ci-dessus soient réelles et que le jugement exprimé soit celui d'experts qualifiés, elles ne doivent pas être considérées comme une garantie ou une déclaration pour lesquelles la société assume une responsabilité légale. Ces informations sont données uniquement pour examen, investigation et vérification. L'utilisation des ces informations doit être déterminée par l'utilisateur conformément à la réglementation et à la loi fédérales, d'État et régionales applicables.

INFORMATIONS SUR LA SANTÉ ET LA SÉCURITÉ : (216) 861-7114

Date de Préparation: 07/02/2018 Remplace : 08/11/2014

PLANILLA DE DATOS DE SEGURIDAD

State Industrial Products
5915 Landerbrook Drive
Mayfield Heights, OH 44124
To Order Call: 1-866-747-2229

6935 Davand Drive
Mississauga, Ontario L5T 1L5
To Order Call: 1-800-668-6513

Royal Industrial Park, Bldg "M"
Local #5, Carr 869, km 1.5 Palmas
Cataño, P.R. 00962
To Order Call: 787-275-3185

State® Since 1911

1. PRODUCTO QUÍMICO Y DATOS DE LA COMPAÑÍA

Nombre del producto: BLANKET 510 WINTERGREEN
Descripción del producto: Un ambientador de aire flotante.
EPA Registration Number: NA

Núm. CHEMTREC las 24 horas: 800-424-9300
Número MSDS: 123285
EPA Establishment Number: NA

2. ENUMERACIÓN DE PELIGROS

DESCRIPCIÓN GENERAL DE LAS SITUACIONES DE EMERGENCIA

Signo de exclamación

ADVERTENCIA

H302 Nocivo en caso de ingestión. H316_3 Puede causar irritación leve de la piel.

P270 No comer, beber ni fumar durante su utilización. P264 Lavar la piel meticulosamente después de la manipulación.

3. COMPOSICIÓN/INFORMACIÓN SOBRE LOS COMPONENTES

Componentes peligrosos	Número CAS	Peso	ACGIH	OSHA
salicilato de metilo	119-36-8	<12%	NE	NE

The exact percentages have been withheld as a trade secret.

4. MEDIDAS DE PRIMEROS AUXILIOS

P332+P313 En caso de irritación cutánea: Consultar a un médico. P301+P312 EN CASO DE INGESTIÓN: llamar a un CENTRO DE TOXICOLOGÍA o médico SI se siente indispuesto. P301+P330+P331 EN CASO DE INGESTIÓN: Limpie la boca. NO provoque el vómito.

5. MEDIDAS PARA COMBATIR INCENDIOS

Pto. inflamabilidad: >200ºF [93ºC]
Límite explosivo inferior (LEL): NA Límite explosivo superior (UEL): NA Temperatura de autoignición: NA
Inflamabilidad: No se espera ninguna.
Medio extinguidor: Dióxido de carbono, productos químicos en polvo, espuma.
Instrucciones para combatir el fuego: Use un aparato de respiración independiente con indumentaria de protección total.

6. MEDIDAS EN CASO DE DERRAME ACCIDENTAL

Ventile el área. Coloque una barrera física y contenga el derrame en el propio sitio de origen. Limpie el derrame con agua en abundancia y vierta todo por el drenaje. Obedezca todos losreglamentos federales, estatales y locales relativos a la disposición final de residuos.

7. MANIPULACIÓN Y ALMACENAMIENTO

P402 Almacenar en un lugar seco.

8. CONTROL DE EXPOSICIÓN/PROTECCIÓN PERSONAL

Controles de ingeniería: Proveer suficiente ventilación mecánica para mantener la exposición por debajo del límite de concentración máxima (Threshold Limit Value, TLV).
Equipo de protección personal:
Respiratorio: Si el límite de exposición en el lugar de trabajo es excedido, se aconseja el uso de un respirador de aire ante la ausencia de control ambiental.
Ojos: Use gafas protectoras o gafas con protección lateral sin perforaciones aprobadas.
Piel: Si el contacto fuera prolongado o repetido, use guantes resistentes a productos químicos.
Otros: Una estación de lavaojos de emergencia o una fuente de agua potable limpia debe estar disponible en caso de contacto accidental con los ojos.

9. PROPIEDADES FÍSICAS Y QUÍMICAS

Aspecto: Verde
Estado de agregación: Líquido
Solubilidad en agua: Insoluble
Contenido de VOC: <3%

Olor: Menta
Concentrarse pH: NA
Diluido pH: NA
Peso específico: 0.902
Punto de congelación/fusión: NA / NA

10. ESTABILIDAD Y REACTIVIDAD

Estabilidad: Estable
Polimerización peligrosa: No ocurrirá.

Condiciones a evitar: No mezcle con otros productos químicos.
Incompatibilidad: Disolventes, productos cáusticos, ácidos u oxidantes
Productos de descomposición peligrosos: Monóxido de carbono, Dióxido de carbono.

11. INFORMACIÓN TOXICOLÓGICA

Este producto no contiene ningún componente en 0.1% o más del que se señale como un carcinógeno humano.

Componentes peligrosos	Número CAS	LD50	LC50
salicilato de metilo	119-36-8	NE	NE

12. INFORMACIÓN ECOLÓGICA

El producto no se espera que sea peligroso para el medio ambiente.

13. SUGERENCIAS PARA SU DISPOSICIÓN FINAL

P501 Elimine el recipiente en conformidad con todas las regulaciones federales, estatales y locales relacionadas con la eliminación de residuos.

14. INFORMACIÓN SOBRE TRANSPORTE

DATOS DE EMBARQUE SEGÚN EL DOT (Ministerio de Transporte de los EE.UU.): No se ha regulado.
TDG CANADIENSE: Producto no regulado. No se ha regulado.
Para los envíos internacionales de Air: No se ha regulado.
Para los envíos internacionales de Vessel: No se ha regulado.

15. INFORMACIÓN SOBRE REGLAMENTOS

TSCA: Todos los químicos de este producto están catalogados o están exentos de ser catalogados en el inventario químico de la Ley de Control de Sustancias Tóxicas(Toxic Substances Control Act, TSCA).
CEPA: Todos los químicos de este producto están catalogados o están exentos de ser catalogados en el DSL/NDSL canadiense.
Propuesta 65: Este producto no contiene sustancias registradas en el Estado de California como causante de cáncer, defectos de nacimiento u otros daños reproductivos.
SARA 313: Este producto no contiene sustancias tóxicas sujetas a los requisitos de información del Artículo 313 de la ley de 1986 (40 CFR 372.65) de Planeamiento anteemergencias y Derecho a Estar Informado de la Comunidad.

CLASIFICACIÓN HMIS: SALUD = 1 INFLAMABILIDAD = 0 REACTIVIDAD = 0 EQUIPO DE PROTECCIÓN PERSONAL= B

CLASIFICACIÓN WHMIS: Ver los riesgos identificados en la Sección 2 anterior.

16. OTRA INFORMACIÓN

NA = No disponible o No se aplica
NE = No se ha establecido

Antes de utilizar este producto, lea y obedezca todas las instrucciones y precauciones. Este producto fue formulado para utilizarse únicamente en el ámbito industrial e institucional. NO ES PARA REVENTA NI PARA USO EN EL ÁMBITO HOGAREÑO. MANTENGA FUERA DEL ALCANCE DE LOS NIÑOS.
Si bien se considera que los datos contenidos en esta planilla son correctos y las opiniones expresadas son las de calificados expertos, los datos no deberán considerarse como garantía ni como declaración por las que la compañía asume responsabilidad legal alguna. Estos datos se brindan sólo para evaluación, investigación y verificación por parte del cliente. El usuario es quien deberá determinar si cualquier uso que se dé a estos datos e información está de acuerdo con las leyes y reglamentos federales, estatales y locales aplicables.

INFORMACIÓN DE SEGURIDAD Y SALUD: (216) 861-7114

Preparado Encendido: 07/02/2018 Reemplaza: 08/11/2014