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REMEDIAL ACTION WORK PLAN
FORMER NEW CITY LINK AUTO REPAIR SITE
547 CONEY ISLAND AVENUE & 50 HINCKLEY PLACE
KINGS COUNTY, NEW YORK
NYSDEC BCP SITE No. C224407

Prepared for
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File No. 0204391
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Certification

I, Suzanne M. Bell, certify that I am currently a New York State (NYS)-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 DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

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

NYS Professional Engineer No. 106301	February 20, 2026 Date	Signature

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.

Table of Contents

		Page
Certification		**i**
List of Tables		**vi**
List of Figures		**vii**
List of Appendices		**viii**
List of Acronyms and Abbreviations		**ix**
Executive Summary		**xiv**
1.	**Introduction**	**1**
1.1	SITE LOCATION AND DESCRIPTION	1
1.2	REDEVELOPMENT PLAN	2
1.3	DESCRIPTION OF SURROUNDING PROPERTY	2
2.	**Site History and Description of Remedial Investigation Findings**	**4**
2.1	SITE HISTORY	4
2.1.1	Past Uses and Ownership	4
2.1.2	Previous Environmental Reports	4
2.1.3	Sanborn Fire Insurance Maps	5
2.2	SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED	5
2.2.1	Remedial Investigation	5
2.2.3	Chemical Analysis	8
2.2.4	Best Management Practices (BMPs)	9
2.3	RI FINDINGS SUMMARY	10
2.3.1	Soil Sampling Results	10
2.3.2	Groundwater Sampling Results	15
2.3.3	Soil Vapor Sampling Results	20
2.4	SIGNIFICANT THREAT	22
2.5	GEOLOGY AND HYDROLOGY	22
2.5.1	Contaminated Fill Material	22
2.5.2	Native Soil	22
2.5.3	Bedrock	22
2.5.4	Hydrogeology	22
2.6	CONTAMINANT CONDITIONS	22
2.6.1	Conceptual Model of Site Contamination	22
2.6.2	Qualitative Human Health Exposure Assessment	24
2.7	FISH & WILDLIFE REMEDIAL IMPACT ANALYSIS	27
2.8	REMEDIAL ACTION OBJECTIVES	27
2.8.1	Groundwater	27
2.8.2	Soil	28
2.8.3	Soil Vapor	28
3.	**Description of Remedial Action Plan**	**29**

3.1 ALTERNATIVE I – TECHNICAL DESCRIPTION 29
3.2 ALTERNATIVE II – TECHNICAL DESCRIPTION 34
3.3 ALTERNATIVE III – TECHNICAL DESCRIPTION 40
3.4 EVALUATION OF REMEDIAL ALTERNATIVES 43
3.4.1 Protection of Human Health and the Environment 44
3.4.2 Compliance with Standards, Criteria, and Guidance 44
3.4.3 Short-Term Effectiveness and Impacts 44
3.4.4 Long-Term Effectiveness and Performance 45
3.4.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material 45
3.4.6 Implementability 45
3.4.7 Cost Effectiveness 46
3.4.8 Community Acceptance 46
3.4.9 Green and Sustainable Remediation 46
3.4.10 Land Use 48
3.5 SELECTION OF THE PREFERRED REMEDY 48
3.5.1 Zoning 48
3.5.2 Surrounding Property Uses 49
3.5.3 Environmental Justice Concerns 49
3.5.4 Land Use Designations 49
3.5.5 Population Growth Patterns 49
3.5.6 Accessibility to Existing Infrastructure 49
3.5.7 Proximity to Cultural Resources 49
3.5.8 Proximity to Natural Resources 49
3.5.9 Off-Site Groundwater Impacts 49
3.5.10 Proximity to Floodplains 49
3.5.11 Geography and Geology of the Site 49
3.5.12 Current Institutional Controls 50
3.6 SUMMARY OF SELECTED REMEDIAL ACTIONS 50

4. Remedial Action Program 52

4.1 GOVERNING DOCUMENTS 52
4.1.1 Standards, Criteria, and Guidance 52
4.1.2 Site Specific Construction Health & Safety Plan 53
4.1.3 Quality Assurance Project Plan 54
4.1.4 Construction Quality Assurance Plan 54
4.1.5 Soil/Materials Management Plan 55
4.1.6 Storm-Water Pollution Prevention Plan 55
4.1.7 Community Air Monitoring Plan 55
4.1.8 Contractors' Site Operations Plan 55
4.1.9 Citizen Participation Plan 55
4.2 GREEN AND SUSTAINABLE REMEDIATION AND CLIMATE RESILIENCY 56
4.2.1 Best Practices and Techniques 57
4.2.2 Reporting 58
4.3 GENERAL REMEDIAL CONSTRUCTION INFORMATION 58
4.3.1 Project Organization 58
4.3.2 Remedial Engineer 59
4.3.3 Remedial Action Construction Schedule 59

4.3.4 Work Hours 59
4.3.5 Site Security 60
4.3.6 Traffic Control 60
4.3.7 Contingency Plan 60
4.3.8 Discovery of Additional Contaminated Soil 60
4.3.9 UST Discovery 60
4.3.10 Worker Training and Monitoring 61
4.3.11 Agency Approvals 61
4.3.12 Pre-Construction Meeting with NYSDEC 61
4.3.13 Emergency Contact Information 61
4.3.14 Remedial Action Costs 61
4.4 SITE PREPARATION 62
4.4.1 Mobilization 62
4.4.2 Monitoring Well Decommissioning 62
4.4.3 Erosion and Sedimentation Controls 62
4.4.4 Temporary Stabilized Construction Entrance(s) 62
4.4.5 Utility Marker and Easements Layout 63
4.4.6 Excavation Support 63
4.4.7 Equipment and Material Staging 63
4.4.8 Truck-Inspection Station 63
4.4.9 Site Fencing 63
4.4.10 Demobilization 64
4.5 REPORTING 64
4.5.1 Daily Reports 64
4.5.2 Monthly Reports 65
4.5.3 Photographs 65
4.5.4 Other Reporting 65
4.5.5 Complaint Management Plan 66
4.5.6 Deviations from the RAWP 66

5. Remedial Action: Material Removal from Site 67

5.1 SOIL CLEANUP OBJECTIVES 67
5.2 REMEDIAL PERFORMANCE EVALUATION (CONFIRMATION SAMPLING) 67
5.2.1 Soil Sampling Frequency 67
5.2.2 Methodology 67
5.2.3 QA/QC 67
5.2.4 Data Validation 68
5.2.5 Reporting 68
5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES 68
5.4 SOIL/MATERIALS MANAGEMENT PLAN 68
5.4.1 Soil Screening Methods 68
5.4.2 Stockpile Methods 69
5.4.3 Materials Excavation and Load Out 69
5.4.4 Materials Transport Off-Site 70
5.4.5 Materials Disposal Off-Site 71
5.4.6 Materials Reuse On-Site 72
5.4.7 Fluids Management 72

5.4.8 Backfill from Off-Site Sources 72
5.4.9 Stormwater Pollution Prevention 73
5.4.10 Contingency Plan 73
5.4.11 Community Air Monitoring Plan 74
5.4.12 Odor, Dust, and Nuisance Control Plan 75

6. Residual Contamination to Remain On-Site 77

7. Engineering Controls 78

7.1 ACTIVE SSDS 78
7.2 SVE SYSTEM 78
7.3 GROUNDWATER MONITORING 78

8. Institutional Controls 80

8.1 ENVIRONMENTAL EASEMENT 80
8.2 SITE MANAGEMENT PLAN 81

9. Final Engineering Report 83

9.1 CERTIFICATIONS 83

10. Schedule 85

References 86

List of Tables

Table No.	Title
1	Alternative I – Track 2 Remedial Cost Estimate
2	Alternative II – Track 4 Remedial Cost Estimate
3	Alternative III – Track 1 Remedial Cost Estimate

List of Figures

Figure No.	Title
1	Project Locus
2	Site Map
3	Sample Location Map
4	Groundwater Contour Map
5	Soil Results Exceedance Map
6	Groundwater Results Exceedance Map
7	Emerging Contaminants in Groundwater Results Exceedance Map
8	Soil Vapor Results Summary Map
9	Alternative I Excavation Plan
10	Alternative II Excavation Plan
11	Alternative III Excavation Plan
12	Confirmation Sample Location Plan
13	Conceptual In-Situ Injection Plan
14	Post-Remediation Groundwater Monitoring Well Location Plan
15A	Conceptual Active SSDS Plan
15B	Typical SSDS Design Details
16	Alternative I and II: Conceptual SVE System Layout
17	Truck Route Map

List of Appendices

Appendix	Title
A	Survey Map
B	Zoning Map
C	Construction Health and Safety Plan
D	NYSDEC Request to Import/Reuse Forms
E	Pre-Design Investigation Scope of Work
F	AP-pH Product Specification Sheets
G	Citizen Participation Plan
H	Environmental Footprint Analysis and Climate Screening Checklist
I	Project Personnel Resumes
J	Quality Assurance Project Plan
K	Proposed Remedial Action Project Schedule
L	Odor Control Suppressant Safety Data Sheet
M	Proposed Development Plans
N	Significant Threat Notice

List of Acronyms and Abbreviations

Acronym	Definition
#	
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations
Symbol	
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
A	
AARCO	AARCO Environmental Services Corp.
Alpha	Alpha Analytical Laboratories, Inc.
AOC	Area of Concern
ASP	Analytical Services Protocol
AWQS	Ambient Water Quality Standards
B	
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BTEX	benzene, toluene, ethylbenzene, xylenes
C	
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHASP	Construction Health & Safety Plan
Coastal	Coastal Environmental Solutions Inc.
COC	contaminant of concern
CP	Commissioners Policy
CPP	Citizen Participation Plan
CQAP	Construction Quality Assurance Plan
CSM	conceptual site model
cu yd	cubic yard
CVA	Climate Vulnerability Assessment
CVOC	chlorinated volatile organic compound
D	
DER	Division of Environmental Remediation
DER-10	Division of Environmental Remediation-10 *(specifically "May 2010 NYSDEC Technical Guidance for Site Investigation and Remediation")*
DUSR	data usability summary report

List of Acronyms and Abbreviations

Acronym	Definition
E	
Eastern	Eastern Environmental Solutions Inc.
EC	engineering controls
ECL	Environmental Conservation Law
EDD	Electronic Data Deliverable
EE	Environmental Easement
EFA	environmental footprint analysis
El.	elevation
ELAP	Environmental Laboratory Approval Program
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
F	
FEMA	Federal Emergency Management Agency
FER	Final Engineering Report
FIRM	Flood Insurance Rate Map
ft bgs	feet below ground surface
FWRIA	Fish and Wildlife Resource Impact Analysis
G	
GAC	granular activated carbon
GPRS	GPRS Inc.
GSR	Green Sustainable Remediation
GV	Guidance Value
H	
Haley & Aldrich of New York	H & A of New York Engineering and Geology, LLP
HAP	hazardous air pollutants
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HVAC	heating, ventilation, and air conditioning
I	
IC	institutional control
in.	inches
ISCO	in-situ chemical oxidation
L	
LSDF	low-sulfur diesel fuel

List of Acronyms and Abbreviations

Acronym	Definition
M	
mg/kg	milligrams per kilogram
MMBTU	million British thermal units
MP	monitoring point
MW	Monitoring Well
N	
NAVD	North American Vertical Datum
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules and Regulations
NYFD	New York City Fire Department
NYS	New York State
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	tetrachloroethene
PDI	pre-design investigation
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PGWSCOs	Protection of Groundwater Soil Cleanup Objectives
PID	photoionization detector
PM-10	10 micrometers and smaller
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
ppt	parts per trillion
P.S.	Public School
PVC	polyvinyl chloride

List of Acronyms and Abbreviations

Acronym	Definition
Q	
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
R	
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	recycled concrete aggregate
RCRA	Resource Conservation and Recovery Act
RE	Remediation Engineer
RI	Remedial Investigation
RIR	Remedial Investigation Report
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
SEQRA	State Environmental Quality Review Act
Site	547 Coney Island Avenue & 50 Hinckley Place, Brooklyn, New York
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SOE	support-of-excavation
SPDES	State Pollutant Discharge Elimination System
sq ft	square feet
SRI	Supplemental Remedial Investigation
SRIWP	Supplemental Remedial Investigation Work Plan
SSDS	sub-slab depressurization system
SURF	Sustainable Remediation Forum
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
SWPPP	Stormwater Pollution Prevention Plan

List of Acronyms and Abbreviations

Acronym	Definition
T	
TAL	Total Analyte List
TCE	trichloroethylene
TCL	Target Compound List
TOGS 1.1.1	Technical and Operational Guidance Series 1.1.1 *(Specifically "June 1998 NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values, Class GA for the protection of a source of drinking water modified per the April 2000 addendum")*
U	
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	545 Coney Island LLC
Y	
York	York Analytical Laboratories, Inc.

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 545 Coney Island LLC for the Former New City Link Auto Repair Site, located at 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, New York (the "Site"). 545 Coney Island LLC applied to and was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). A Brownfield Cleanup Agreement (BCA) was executed by the NYSDEC on August 27, 2024, with 545 Coney Island LLC (the "Volunteer") (BCP Site No. C224407).

This RAWP summarizes the nature and extent of contamination on the Site as determined from data gathered during the Limited Phase II Environmental Site Investigation (ESI) performed by Haley & Aldrich of New York in December 2021, the Remedial Investigation (RI) performed by Haley & Aldrich of New York between February and April 2024 (2024 RI), and the Supplemental Remedial Investigation (SRI) performed by Haley & Aldrich of New York between December 2024 and January 2025. It provides an evaluation of a Track 2 cleanup and other applicable Remedial Action 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 located in the Prospect Park South neighborhood of Brooklyn, New York, and is identified as Block 5114, Lots 1, 3, and 29 on the New York City tax map. The Site is approximately 19,090 square feet (sq ft) (0.44 acres) and is bound by Hinckley Place followed by a mixed-use multi-story commercial and residential building to the north; Beverley Road followed by mixed-use commercial and residential buildings to the south; Coney Island Avenue followed by a "Shell" gasoline service station to the southwest; a "KFC" restaurant to the west; Public School 889 to the northwest; and one- and two-family residential homes to the east. The Project Locus is shown on Figure 1, and existing Site features are displayed on the Site Map provided as Figure 2.

The Site is currently zoned within a residential R6-A zoning district with a commercial C2-4 overlay. The Site is located in an urban area surrounded by residential and commercial properties served by municipal water.

Based on a Phase I Environmental Site Assessment (ESA) completed by Haley & Aldrich of New York in January 2022, Lots 1 and 3 were comprised of one tax lot developed with a two-story residential dwelling in the eastern region of the Site along Hinckley Place as early as 1905. Sometime between 1905 and 1929, a filling station was constructed in the western region of Lot 1 along Coney Island Avenue and included a one-story storefront, a one-story auto-related development, and three gasoline tanks in the northwest corner of the Site. In addition to the continued operation as a gasoline filling station, by 1935, the auto repair facility in the southern region of Lot 1 expanded to include auto laundry, auto greasing, battery service, and tire repairs. In the early 1960s, the existing one-story building on Lot 1 was constructed, and a Certificate of Occupancy dated February 20, 1962, indicated New York Fire Department (NYFD) approval for gasoline tank installation on February 15, 1962. The Site remained

relatively unchanged until the late 1970s. Between 1977 and 1978, the former residential dwelling was razed, and a two-story warehouse was constructed on Lot 3 and utilized for auto parts storage and repair. The gasoline tanks were no longer indicated on Sanborn Fire Insurance Maps after 1977, and parking in the northwest corner was depicted in their place. The Site remained relatively unchanged post-1979 through the present and most recently operated as a construction and plumbing goods supplier warehouse with associated parking, and an auto body and auto repair shop. The northern part of the auto repair shop was also used for auto painting. Lots 1 and 3 are currently vacant, and all structures have been demolished.

According to Sanborn Fire Insurance Maps, Lot 29 was developed with three storefronts along Coney Island Avenue by 1905. By 1929, a two-story dwelling was constructed on the eastern half of the lot. By 1950, the storefronts were demolished. According to a 1966 Certificate of Occupancy, the Site was operating as a dry cleaning and clothes-pressing establishment utilizing perchloroethene solvent. Sanborn Fire Insurance Maps indicate that the dry cleaner continued operating through the late 1970s. A parking lot was present to the south of the dry cleaner. By the late 1970s, the dry cleaner appeared to no longer be in operation, and the dwelling was no longer present. The property remained relatively unchanged through the present and most recently operated as a 7-Eleven convenience store and associated parking lot. Lot 29 is currently vacant, and the convenience store has been demolished.

There are two sensitive receptors that are within a 500-ft radius of the Site:

1) Public School (P.S.) 889 and Middle School (M.S.) 890 – 21 Hinckley Place, Brooklyn, New York 11218, listed as a school and middle school, respectively.
2) Uprising Stars Family WeeCare – 222 E 9th Street, Brooklyn, New York 11218, listed as a daycare.

Properties immediately surrounding the Site are zoned for residential and commercial use.

SUMMARY OF THE 2024 REMEDIAL INVESTIGATION (RI) AND 2024 SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI) FINDINGS

The 2024 RI and SRI were 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 Remedial Investigation Work Plan dated December 2023, prepared by Haley & Aldrich of New York, and the Supplemental Remedial Investigation Work Plan dated December 2024, prepared by Haley & Aldrich of New York. The RI was performed from February 14, 2024, through April 3, 2024. The SRI was performed from December 10, 2024, through January 2, 2025.

The RI consisted of the following:

- Advancement of thirteen soil borings to various depths between approximately 9 and 50 feet (ft) below ground surface (bgs) with samples collected from surface soil (0 to 2 ft bgs), from the bottom of the fill layer (observed between approximately 2 and 5 ft bgs), from development depth at 12 to 14 ft bgs, and, for soil borings converted to monitoring wells, from the 2-ft interval above the groundwater interface (approximately 35 to 40 ft bgs). Select samples were also collected from an intermediate depth where minimal fill material was observed (depths ranging from 9 to 22 ft bgs). An additional soil sample was collected at soil boring B-10 below

where potential visual contamination was observed. A total of 44 soil samples were collected (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.

- Installation of seven 2-inch (in.) diameter groundwater monitoring wells to varied depths between approximately 45 and 50 ft bgs and the collection of seven groundwater samples (plus QA/QC samples).
- Installation of seven temporary soil vapor probes to depths ranging from approximately 12 to 14 ft bgs, and the collection of seven soil vapor samples.

The SRI consisted of the following:

- Advancement of 13 soil borings to various depths between approximately 5 and 65 ft bgs with samples collected from surface soil (0 to 2 in. bgs), from the bottom 2 ft of the fill layer (observed between 1 and 7 ft bgs), from development depth at 15 to 17 ft bgs, and for soil borings converted to monitoring wells, from the 2-ft interval above the groundwater interface, or approximately 36 to 40 ft bgs. Additional soil samples were collected at multiple soil boring locations to vertically delineate areas with visible petroleum impacts, including areas with visible petroleum impacts extending below the water table. A total of 59 soil samples were collected (plus QA/QC samples) for laboratory analysis.
- Installation of 19 2-in. groundwater monitoring wells to various depths between approximately 45 and 65 ft bgs, which included five clusters of three permanent monitoring wells installed at variable depths to aid vertical delineation of on-Site groundwater contamination. Cluster wells contained a shallow well to approximately 45 ft bgs, an intermediate well to approximately 55 ft bgs, and a deep well to approximately 65 ft bgs. Shallow wells were screened from approximately 35 to 45 ft bgs, intermediate wells were screened from approximately 45 to 55 ft bgs, and deep wells were screened from approximately 55 to 65 ft bgs. Nineteen groundwater samples were collected from the newly installed monitoring wells (plus QA/QC samples).
- Installation of six temporary soil vapor probes to depths ranging from approximately 15 to 17 ft bgs and the collection of six soil vapor samples.

All sample locations are shown on Figure 3. A summary of environmental findings of the 2024 RI and SRI includes the following:

- The Site is underlain by a layer of fill material consisting of light to dark brown sand with varying amounts of silt, clay, gravel, brick, concrete, asphalt, and ceramics. Fill extends from the surface to variable depths between approximately 1 and 7 ft bgs throughout the Site. Specifically, fill material was observed from the surface to depths between 1 and 7 ft bgs on Lot 1; 5 and 6 ft bgs on Lot 3; and 1 and 5.5 ft bgs on Lot 29. The fill is underlain by a potential native layer consisting of brown silty or clayey fine to coarse sand and gravel with intermittent lenses of clay and silt extending up to the terminus depth of each boring at depths ranging from 3.5 to 65 ft bgs.
- Groundwater was encountered at depths ranging from approximately 35.88 to 36.71 ft bgs during the initial RI conducted between February and April 2024 and 36.01 to 37.74 ft bgs during the SRI conducted between December 2024 and January 2025. Groundwater flow beneath the Site is generally from the east to west, and a groundwater contour map is provided on Figure 4.
- Soil analytical results were compared to NYSDEC 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs), Protection of Groundwater Soil Cleanup Objectives (PGWSCOs),

and Restricted Residential Soil Cleanup Objectives (RRSCOs). Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) soil sample results are compared to the UUSCO, RRSCO, and PGWSCO Guidance Values (GVs) outlined in the April 2023 PFAS Guidance. Soil analytical results are shown on Figure 5.

Based on the results of the 2024 RI and 2024 SRI, the following areas of concern (AOCs) were identified at the Site:

AOC 1 – Site-Wide Contaminated Fill in Shallow Subsurface Soils

Shallow subsurface soils on the Site are impacted with elevated concentrations of metals, including lead and mercury, and, in some areas, semi-volatile organic compounds (SVOCs; specifically polycyclic aromatic hydrocarbon [PAHs]), pesticides, and polychlorinated biphenyl (PCBs). 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, with the majority of Site-wide fill located from 1 to 7 ft bgs.

AOC 2 – Petroleum Volatile Organic Compound (VOC) Impacts to Soil at the Groundwater Interface on Lot 1

Subsurface soils at the groundwater interface are impacted with petroleum-related VOCs above the UUSCOs, RRSCOs, and PGWSCOs, specifically on Lot 1 in the vicinity of former suspected tank areas. Borings where visual petroleum impacts were observed (elevated photoionization detector [PID] readings, odors, and staining) were delineated vertically to determine the extent of petroleum contamination, and an additional sample was collected where petroleum impacts were no longer observed. Petroleum contamination extended from the groundwater interface in borings B-03, B-20, B-21, and B-22 to a maximum depth of 64 ft bgs in B-22, where petroleum contamination was no longer observed in the sample collected from 64 to 65 ft bgs.

AOC 3 – VOC Impacts to Groundwater

VOCs (specifically petroleum-related VOCs, including benzene, toluene, ethylbenzene, xylenes [BTEX], and the chlorinated volatile organic compound [CVOC] tetrachloroethene [PCE]) were detected above the NYSDEC Ambient Water Quality Standards (AWQS) in groundwater samples at the Site and are likely the result of historical Site uses, including a former gasoline service station and auto repair shop. Petroleum-related VOC AWQS exceedances were primarily detected on the northwestern portion of the Site in the vicinity of the former underground storage tanks (USTs) identified on Sanborn Fire Insurance Maps and in the area of the former auto repair garage. Petroleum-related VOC concentrations in groundwater were detected at the highest concentrations in shallow wells (screened 35 to 45 ft bgs) and generally decreased in concentration with depth. PCE was detected above the AWQS in one well, MW-16S, located on the northwestern portion of the Site. Naphthalene AWQS exceedances were only detected in groundwater samples collected on Lot 1.

AOC 4 – Soil Vapor Impacts

VOCs, including petroleum-related VOCs (BTEX) and CVOCs, are present in the vapor phase at the Site and are likely the result of historical Site use, including the former gasoline service station and auto

repair operations on Lot 1 and former dry cleaning operations on Lot 29. Elevated concentrations of PCE were detected in soil vapor Site-wide, with the highest concentration of PCE detected in SP-05 (15,100 micrograms per cubic meter [µg/m^3]) on the northwestern portion of Lot 29 in the area of the former dry cleaner. PCE was also detected at this location above the UUSCO in B-05, in shallow soil at a maximum concentration of 3.9 milligrams per kilogram (mg/kg), potentially indicating source material.

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 RI and SRI. The RI and SRI resulted in the estimated total of:

- 290.3 metric million British thermal units (MMBtus) of energy used;
- 20.15 tons of total greenhouse gas emissions (CO2e);
- 835.56 pounds (lbs) of Nox + Sox + PM emissions; and,
- 49.53 lbs of hazardous air pollutant (HAP) emissions.

Energy

- 77.62 MMBtus used for on-Site activities, such as well development and sampling.
- 0.24 MMBtus used for Grid Electricity Generation.
- 70.70 MMBtus used for transportation of personnel and investigation materials.
- 141.47 MMBtus used for off-Site activities.

Greenhouse Gas Emissions (CO2e)

- 6.3 tons of CO2e produced from on-Site activities, such as drilling.
- 0.006 tons of CO2e produced from Grid Electricity Generation.
- 5.7 tons of CO2e produced from transportation of contractors, personnel, and investigation materials.
- 8.18 tons of CO2e produced from off-Site activities.

Water Usage

- 17,750 gallons of water were used for the operation of drill rigs during the investigations.

Overall, the main contributors to the environmental footprint of the combined RI and SRI in ascending order are transportation, on-Site equipment use, and off-Site activities (which include diesel fuel production). Off-Site energy use is anticipated to comprise approximately 49 percent of all energy use, and off-Site greenhouse gas emissions to comprise approximately 41 percent of all emissions for the Remedy.

Best Management Practices

The techniques identified below were implemented during the RI to minimize the environmental footprint.

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.

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The potential exposure pathways for the current and future use conditions are discussed below.

Current Use Scenario

Site contamination includes metals and, in some areas, VOCs, SVOCs, pesticides, and PCBs in soil; VOCs in soil vapor; and VOCs, SVOCs, and metals in groundwater. Under current conditions, the likelihood of exposure to soil or groundwater via direct contact, ingestion, or inhalation is limited, as the Site is currently vacant, partially paved with an impervious surface (concrete), and secured with a perimeter construction fence. The Site entrances are each locked and secured, with Site access only granted to personnel associated with the planned development. Potable water for Brooklyn will continue to be sourced from reservoirs in the Catskill and Delaware Watersheds. All intrusive work on the Site will be done in accordance with a Site-Specific Construction Health and Safety Plan (CHASP) and donning of personal protective equipment (PPE).

Construction/Remediation Scenario

The exposure elements described under the current use scenario also exist for all elements during the construction/remediation scenario (i.e., exposure to soil and groundwater during construction and Remedial Action). The overall risk will be minimized by the implementation of a Site-Specific 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 appropriate PPE. Additionally, the Site will be under a 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.

Future Use Scenario:

Under the proposed future condition (after construction/remediation), residual contaminants may remain on Site depending on the remedy achieved. The remaining 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), such as a Site capping system foundation, implementation of institutional controls (ICs), such as land use and groundwater use restrictions, and implementation of a Site Management Plan (SMP) to manage referenced controls.

FISH AND WILDLIFE ASSESSMENT

In addition to the human health exposure assessment, NYSDEC DER-10 requires an on-Site and off-Site Fish and Wildlife Resources Impact Analysis (FWRIA) if certain criteria are met. Based on the requirements stipulated in Section 3.10 and Appendix 3C of DER-10, an FWRIA for the Site is not required.

SUMMARY OF THE REMEDY

Alternative I, a Track 2 remedy, will include the following tasks:

- 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.
- Design and construction of a support-of-excavation (SOE) system to facilitate the Track 2 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover on the Site.
- Decommission existing on-Site monitoring wells, as necessary, in accordance with NYSDEC
- Commissioner Policy (CP)-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 10,600 cubic yards (cu yd) of contaminated fill/native material Site-wide. This includes excavation to 15 ft bgs Site-wide.
- If encountered, removal, decommissioning, and off-Site disposal of any USTs and/or associated appurtenances (e.g., fill lines, vent line, and electrical conduit) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
- Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
- Implementation of in-situ chemical oxidation (ISCO) through existing wells, injection wells, and/or temporary injection points utilizing alkaline-activated persulfate (AP-pH) to reduce elevated concentrations of petroleum-related VOCs in groundwater.
- Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
- 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.
- Backfilling of excavated areas, if needed for development, with certified-clean material (i.e., meeting RRSCOs and PGWSCOs), recycled concrete aggregate (RCA), or virgin, native crushed stone.

- Collection and analysis of documentation soil samples from the excavation base in accordance with DER-10, to document post-excavation conditions.
- Installation, operation, and monitoring of a soil vapor extraction (SVE) system along the perimeter of the Site to prevent off-Site migration of petroleum-related VOCs and CVOCs in soil vapor.
- Installation, operation, and monitoring of an active sub-slab depressurization system (SSDS) to mitigate potential exposures related to soil vapor intrusion.
- Installation of five permanent monitoring wells and commencement of quarterly groundwater monitoring in accordance with DER-10 for a minimum of one year following remedial activities to document groundwater quality beneath the Site.
- Establishment of use restrictions, if necessary, including prohibitions on the use of groundwater from the Site and prohibitions on sensitive Site uses, such as farming or vegetable gardening in residual Site soil, to significantly reduce the potential for future exposure pathways.
- Establish an SMP for ICs and ECs that includes an Institutional and Engineering Control Plan, a Monitoring Plan, and an Operations and Maintenance Plan.
- Recording of an Environmental Easement (EE) to ensure future owners of the Site continue to maintain ECs/ICs as required.

All responsibilities associated with this Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with applicable federal, state, and local rules and regulations.

A remedial program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling, and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable redevelopment; and

- 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 program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as the EPA's Spreadsheets for Environmental Footprint Analysis (SEFA), SiteWise$_{TM}$ (available in the Sustainable Remediation Forum [SURF] library), or a similar NYSDEC-accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction, and material use will be estimated, and 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, will be incorporated into the remedial program, as appropriate. The project 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 implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial program.

Additionally, the remedial program will include 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 program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

1. Introduction

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 545 Coney Island LLC for the proposed development located at 547 Coney Island Avenue and 50 Hinckley Place (Block 5114 Lots 1, 3, and 29) within the Prospect Park South neighborhood of Brooklyn, New York (the Site).

In August 2024, the project (Site No. C224407) was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), and a countersigned Brownfield Cleanup Agreement (BCA) was issued with 545 Coney Island LLC classified as a "Volunteer." The Volunteer proposes to remediate the Site for commercial and residential use.

This RAWP summarizes the nature and extent of contamination as determined from data gathered during the Limited Phase II Environmental Site Investigation (ESI) performed by Haley & Aldrich of New York in December 2021, the Remedial Investigation (RI) performed by Haley & Aldrich of New York between February and April 2024 (2024 RI), and the Supplemental Remedial Investigation (SRI) performed by Haley & Aldrich of New York between December 2024 and January 2025 (2024 SRI). The RAWP provides an evaluation of a Track 2 cleanup and other applicable remedial alternatives, their associated costs, and the recommended and preferred remedy. Remedial Design documents, for both *in-situ* chemical oxidation (ISCO) and the soil vapor extraction (SVE) system, will be prepared and submitted to the NYSDEC for review prior to implementation of both components at the Site.

The remedy described in this document is consistent with the procedures defined by the Division of Environmental Remediation *(*specifically *"May 2010 NYSDEC Technical Guidance for Site Investigation and Remediation")* (DER-10), DER Green Remediation (DER-31), and complies with all applicable federal, state, and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that this Site poses 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 is located in the Prospect Park South neighborhood of Brooklyn and is identified as Block 5114, Lots 1, 3, and 29 on the New York City tax map. The Site is approximately 19,090 square feet (sq ft) (0.44 acres) and is bound by Hinckley Place followed by a mixed-use multi-story commercial and residential building to the north; Beverley Road followed by mixed-use commercial and residential buildings to the south; Coney Island Avenue followed by a "Shell" gasoline service station to the southwest; a "KFC" restaurant to the west; Public School (P.S.) 889 to the northwest; and one- and two-family residential homes to the east. The Project Locus is shown on Figure 1, and existing Site features are displayed on the Site Map provided as Figure 2. A Site survey map is provided in Appendix A.

The Site is currently zoned within a residential R6-A zoning district with a commercial C2-4 overlay. The Site is located in an urban area surrounded by residential and commercial properties served by municipal water. A copy of the zoning map is included in Appendix B.

1.2 REDEVELOPMENT PLAN

The project will consist of a new seven-story mixed-use commercial and residential building with a one-level cellar encompassing the entire Site footprint and extending approximately 12 feet (ft) below current grade. The proposed gross square footage of the cellar is approximately 17,751 sq ft and will be used for building utilities (i.e., mechanical, electrical, plumbing), recreation spaces, bike storage, and will contain 10 residential units. The ground floor will contain 10 residential units, commercial space, and a parking area in the southern portion of the Site along Beverly Road. The proposed square footage of the commercial space is approximately 3,274 sq ft, and the parking area will contain six parking spaces. Floors two through six will contain residential units. The development is anticipated to designate 25 percent of the residential units for affordable housing. The roof (i.e., floor seven) will contain two residential units and storage areas.

The bottom of the proposed general excavation is approximately elevation (El.)[1] +28.385 ft, corresponding to approximately 16 ft below ground surface (bgs). Localized deeper excavations in the northern-central portion of the Site will be excavated up to El. +26.865 ft, corresponding to approximately 17.65 ft bgs, to accommodate the construction of an elevator pit. The support-of-excavation (SOE) will consist of drilled soldier piles and timber lagging along the entire perimeter of the Site and will include drilled tiebacks. After completion of the general excavation, it is anticipated that clean backfill will be imported and placed up to the proposed bottom of footing elevations.

The proposed development plans are included in Appendix M.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located within an urban area of the Prospect Park South neighborhood of Brooklyn, New York, characterized by low-rise commercial buildings, multi-story mixed-use commercial and residential buildings, and one- and two-family homes. There are two sensitive receptors that are within a 500-ft radius of the Site:

1) P.S. 889 and Middle School (M.S.) 890 – 21 Hinckley Place, Brooklyn, New York 11218, listed as a school and middle school, respectively.
2) Uprising Stars Family WeeCare – 222 E 9th Street, Brooklyn, New York 11218, listed as a daycare.

Properties immediately surrounding the Site consist of residential, commercial, and institutional uses.

[1] Elevations are referenced to the North American Vertical Datum of 1988 (NAVD88) unless otherwise noted. The project datum is approximately +44.865 ft, corresponding to current grade level.

Direction	Adjoining Properties	Surrounding Properties
North	Hinckley Place, followed by a multi-story mixed-use commercial and residential building to the north. Coney Island Avenue, followed by a public school to the northwest.	Residential and commercial buildings
South	Beverley Road, followed by multi-story mixed-use commercial and residential buildings.	Residential and commercial buildings
East	One- and two-family residential homes along Hinckley Place and Beverley Road.	Residential buildings
West	Coney Island Avenue, followed by a “KFC” restaurant and a “Shell” gasoline service station.	Residential and commercial buildings

2. Site History and Description of Remedial Investigation Findings

2.1 SITE HISTORY

The Site operated as a filling station before 1977, after which it became a warehouse with parking and an auto repair shop. The following sections describe the Site history, Remedial Investigation, and SRI findings in detail.

2.1.1 Past Uses and Ownership

Based on a Phase I Environmental Site Assessment (ESA) completed by Haley & Aldrich of New York in January 2022, Lots 1 and 3 were comprised of one tax lot developed with a two-story residential dwelling in the eastern region of the Site along Hinckley Place as early as 1905. Sometime between 1905 and 1929, a filling station was constructed in the western region of Lot 1 along Coney Island Avenue and included a one-story storefront, a one-story auto-related development, and three gasoline tanks in the northwest corner of the Site. In addition to the continued operation as a gasoline filling station, by 1935, the auto repair facility in the southern region of Lot 1 expanded to include auto laundry, auto greasing, battery service, and tire repairs. In the early 1960s, the existing one-story building on Lot 1 was constructed, and a Certificate of Occupancy dated February 20, 1962, indicated New York Fire Department (NYFD) approval for gasoline tank installation on February 15, 1962.

The Site remained relatively unchanged until the late 1970s. Between 1977 and 1978, the former residential dwelling was razed, and a two-story warehouse was constructed on Lot 3 and utilized for auto parts storage and repair. The gasoline tanks were no longer indicated on Sanborn Fire Insurance Maps after 1977, and parking in the northwest corner was depicted in their place. The Site remained relatively unchanged post-1979 through the present and was most recently operating as a construction and plumbing goods supplier warehouse with associated parking, and an auto body and auto repair shop. The northern part of the auto repair shop was also used for auto painting. Lots 1 and 3 are currently vacant, and all structures were demolished in late 2024.

2.1.2 Previous Environmental Reports

The following reports were prepared for the Site prior to submission of the Remedial Investigation Report (RIR):

- *GPRS Findings Report,* prepared by GPRS Inc. (GPRS), December 10, 2021;
- *Phase I ESA*, prepared by Haley & Aldrich of New York, January 12, 2022;
- *Limited Phase II Environmental Site Investigation (ESI) Report*, prepared by Haley & Aldrich of New York, January 14, 2022; and
- *Phase I ESA*, prepared by Haley & Aldrich of New York, June 18, 2024.

Previous investigation findings are included in Appendix A of the RIR dated June 2025, prepared by Haley & Aldrich of New York.

2.1.3 Sanborn Fire Insurance Maps

According to Sanborn Fire Insurance Maps, Lot 29 was developed with three storefronts along Coney Island Avenue by 1905. By 1929, a two-story dwelling was constructed on the eastern half of the lot. By 1950, the storefronts were demolished. According to a 1966 Certificate of Occupancy, the Site was operating as a dry cleaning and clothes-pressing establishment utilizing perchloroethene solvent. Sanborn Fire Insurance Maps indicate that the dry cleaner continued operating through the late 1970s. A parking lot was present to the south of the dry cleaner. By the late 1970s, the dry cleaner appeared to no longer be in operation, and the dwelling was no longer present. The property remained relatively unchanged through the present and most recently operated as a 7-Eleven convenience store and associated parking lot. Lot 29 is currently vacant, and the convenience store has been demolished.

All Sanborn Fire Insurance Maps available for this Site were reviewed prior to preparation of the RAWP and are provided in Appendix A of the RIR dated September 2025, prepared by Haley & Aldrich of New York.

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Supplemental Remedial Investigation Work Plan (SRIWP) dated December 2024. The RI was conducted from February to April 2024, and the SRI was conducted from December 2024 through January 2025. The final RIR was submitted to NYSDEC on June 25, 2025.

2.2 SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED

All soil and groundwater samples were relinquished under standard chain-of-custody protocol and delivered via courier to Alpha Analytical Laboratories, Inc. (Alpha), an NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory located in Westborough, Massachusetts, for analysis. Soil vapor samples were relinquished under standard chain-of-custody protocol and delivered via courier to Alpha or York Analytical Laboratories Inc. (York) of Stratford, Connecticut, NYSDOH ELAP-certified laboratory.

2.2.1 Remedial Investigation

2.2.1.1 RI Soil Investigation

During the initial RI, 13 soil borings were advanced to depths between approximately 9 and 50 ft bgs using either a track-mounted direct-push drill rig (Geoprobe® model 6620DT, Eijkelkamp CRS-XL-140 Duo sonic drill rig, or Geoprobe® 8140LS sonic drill rig) operated by a licensed operator provided by Coastal Environmental Solutions Inc. (Coastal) or Eastern Environmental Solutions Inc. (Eastern). Soil samples were collected from dedicated acetate liners using a stainless-steel trowel or sampling spoon.

Soils were logged continuously by field personnel using the Modified Burmeister Soil Classification System. The presence of staining, odors, and photoionization detector (PID) response was noted in soil boring logs. Soil boring logs are provided in Appendix C of the RIR.

Soil samples representative of Site conditions were collected at 13 locations widely distributed across the Site, as shown on Figure 3. Up to four samples were collected at each boring, including from the surface to approximately 2 ft bgs, from the bottom of the fill layer (observed between 2 and 5 ft bgs),

from development depth at 12 to 14 ft bgs, and for soil borings converted to monitoring wells, from the 2-ft interval above the groundwater interface, or approximately 35 to 40 ft bgs. Select samples were also collected from an intermediate depth where minimal fill material was observed (depths ranging from 9 to 22 ft bgs). An additional soil sample was collected at soil boring B-10 below where potential visual contamination was observed.

2.2.1.2 RI Groundwater Investigation

Seven, 2-inch (in.) diameter permanent monitoring wells were installed using a track-mounted direct-push drill rig (Geoprobe® model 6620DT, Eijkelkamp CRS-XL-140 Duo sonic drill rig, or Geoprobe® 8140LS sonic drill rig) operated by Coastal or Eastern to approximately 45 to 50 ft bgs. Each monitoring well was constructed using a 2-in. diameter polyvinyl chloride (PVC) riser pipe with 10 or 20-ft 10-slot (0.01-in.) slotted screens. Each monitoring well was constructed within a 2-in. annular space backfilled with No. 2 certified clean sand fill, followed by a bentonite plug, and 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 well survey on April 3, 2024, groundwater was encountered at depths ranging from 35.49 to 36.71 ft bgs. Well construction logs are provided in Appendix D of the RIR. A groundwater contour map and groundwater elevation data are provided on Figure 4.

2.2.1.3 RI Soil Vapor Investigation

NYSDEC DER-10 requires an assessment of soil vapor for contaminated sites to evaluate the health risk associated with potential exposure to volatile organic compounds (VOCs) through vapor intrusion into occupied spaces. Seven temporary soil vapor probes were installed to assess soil vapor conditions.

Seven temporary soil vapor probes were installed by Coastal using a direct-push drilling rig (Geoprobe®) to advance the stainless-steel probes to approximately 12 to 14 ft bgs. The temporary stainless-steel soil vapor probes were sealed with bentonite, and a tracer gas was used in accordance with NYSDOH protocols to serve as a quality assurance/quality control (QA/QC) measure to verify the integrity of the temporary soil vapor probe seal. In addition, one to three implant volumes were purged prior to the collection of the soil vapor samples. Sampling occurred for the duration of two hours. At the conclusion of the sampling round, tracer monitoring was performed a second time to confirm the integrity of the probe seals. The soil vapor purge log is included in Appendix G of the RIR.

2.2.1.4 RI Samples Collected

During the RI, a total of 44 soil samples (plus QA/QC samples) were collected from the surface at 0 to 2 ft bgs, from the bottom of the fill layer (observed between 2 and 5 ft bgs), from development depth at 12 to 14 ft bgs, and for soil borings converted to monitoring wells, from the 2-ft interval above the groundwater interface, or approximately 35 to 40 ft bgs. Additionally, samples were collected from 5 to 7 ft bgs, 9 to 11 ft bgs, 10 to 12 ft bgs, 11 to 13 ft bgs, 16 to 18 ft bgs, 18 to 20 ft bgs, and 20 to 22 ft bgs in soil borings in B-13, B-12, B-14, B-03, B-04, B-01, B-10, and B-08. Samples were collected using laboratory-provided clean bottle ware, and VOC grab samples were collected using Terra Cores.

A total of seven groundwater samples, one from each monitoring well, were collected for laboratory analysis (plus QA/QC samples). Groundwater monitoring wells were sampled using low-flow sampling

methods. Monitoring wells were purged, and physical and chemical parameters stabilized before samples were taken.

A total of seven soil vapor samples were collected for laboratory analysis, one from each temporary soil vapor probe. Samples were collected in appropriately sized Summa® canisters that were batch certified clean by the laboratory. Sampling occurred for the duration of two hours.

2.2.2 Supplemental Remedial Investigation

2.2.2.1 SRI Soil Investigation

During the December 2024 to January 2025 SRI, 13 additional soil borings were advanced to depths between approximately 5 and 65 ft bgs using a track-mounted direct-push sonic drill rig (either a Geoprobe® 8140LC or Eijkelkamp CRS-XL-140 Duo sonic drill rig) operated by a licensed operator provided by AARCO Environmental Services Corp. (AARCO) or Coastal. Soil samples were collected from dedicated acetate liners using a stainless-steel trowel or sampling spoon.

Soils were logged continuously by field personnel using the Modified Burmeister Soil Classification System. The presence of staining, odors, and PID response was noted in soil boring logs. Soil boring logs are provided in Appendix C of the RIR.

Soil samples representative of Site conditions were collected at 13 locations widely distributed across the Site, as shown in Figure 3. Up to eight samples were collected at each boring, including from the top 0 to 2 in. immediately beneath the impervious Site cover (i.e., surface soils), from the bottom 2 ft of the fill layer (observed between 1 and 7 ft bgs), from development depth at 15 to 17 ft bgs, and for soil borings converted to monitoring wells, from the 2-ft interval above the groundwater interface, or approximately 36 to 40 ft bgs. Two additional samples were collected from B-20 between 6.5 and 9.5 ft bgs, where evidence of petroleum impacts was observed and analyzed for all analytes as further detailed below. Two additional samples were collected from B-23 between 22 and 27 ft bgs, and one additional sample was collected from B-22 between 6 and 7 ft bgs, where evidence of petroleum impacts was observed and analyzed for VOCs. Additional samples were collected from B-18, B-19, B-20, B-21, and B-22 at various depths between 40 and 65 ft bgs for analysis of VOCs to vertically delineate visual/olfactory/PID evidence of petroleum impacts below the water table.

2.2.2.2 SRI Groundwater Investigation

Nineteen 2-in. diameter permanent monitoring wells were installed using a track-mounted direct-push sonic drill rig (either a Geoprobe®8140LC or Eijkelkamp CRS-XL-140 Duo sonic drill rig) operated by Coastal or AARCO to approximately 45 to 65 ft bgs, including five clusters of three permanent monitoring wells installed at variable depths to aid with vertical delineation of on-Site groundwater contamination. Cluster wells contained a shallow well to approximately 45 ft bgs, an intermediate well to approximately 55 ft bgs, and a deep well to approximately 65 ft bgs. Shallow wells were screened from approximately 35 to 45 ft bgs or to straddle the water table. Each monitoring well was constructed using a 2-in. diameter PVC riser pipe with 10-ft 10-slot (0.01-in.) slotted screens. Each monitoring well was constructed within a 2-in. annular space backfilled with No. 2 certified clean sand fill, followed by a bentonite plug, and sealed at grade with steel flush-mount covers. During a monitoring well gauging event concurrent with the well survey on January 3, 2025, groundwater was encountered at depths

ranging from 36.23 to 37.51 ft bgs. Well construction logs are provided in Appendix D of the RIR. A groundwater contour map and groundwater elevation data are provided on Figure 4.

2.2.2.3 SRI Soil Vapor Investigation

Six temporary soil vapor probes were installed by AARCO using a sonic drill rig (e.g., Geoprob® 8140LC) to advance the stainless-steel probes to approximately 15 to 17 ft bgs. The temporary stainless-steel soil vapor probes were sealed with bentonite, and a tracer gas was used in accordance with NYSDOH protocols to serve as a QA/QC measure to verify the integrity of the temporary soil vapor probe seal. In addition, one to three implant volumes were purged prior to the collection of the soil vapor samples. Sampling occurred for the duration of two hours. At the conclusion of the sampling round, tracer monitoring was performed a second time to confirm the integrity of the probe seals. The soil vapor purge log is included in Appendix G of the RIR.

2.2.2.4 SRI Samples Collected

During the SRI, a total of 59 soil samples (plus QA/QC samples) were collected using laboratory-provided clean bottle ware, and VOC grab samples were collected using Terra Cores.

A total of seven groundwater samples, one from each monitoring well, were collected for laboratory analysis (plus QA/QC samples). Groundwater monitoring wells were sampled using low-flow sampling methods. Monitoring wells were purged, and physical and chemical parameters stabilized before samples were taken.

A total of seven soil vapor samples were collected for laboratory analysis, one from each temporary soil vapor probe. Samples were collected in appropriately sized Summa® canisters that were batch certified clean by the laboratory. Sampling occurred for the duration of two hours.

2.2.3 Chemical Analysis

The laboratory analyses performed on the soil, groundwater, and soil vapor samples during both the RI and SRI are summarized below.

Soil samples were analyzed for the following parameters:

- Target Compound List (TCL) VOCs by U.S. Environmental Protection Agency (EPA) Methods 8260D/5035;
- TCL semi-volatile organic compounds (SVOCs) by EPA Method 8270E;
- Total Analyte List (TAL) metals by EPA Method 6010D;
- TCL polychlorinated biphenyls (PCBs) by EPA Method 8082A;
- TCL pesticides by EPA Method 8081B;
- Per- and polyfluoroalkyl substances (PFAS) by EPA Method 1633; and,
- 1,4-dioxane by EPA Method 8270-SIM.

Groundwater samples collected were analyzed for the following parameters:

- TCL VOCs by EPA Method 8260C;
- TCL SVOCs by EPA Method 8270D;
- Total and dissolved TAL metals by EPA Method 6020;
- Total PCBs by EPA Method 8082A;
- TCL pesticides by EPA Method 8081B;
- 1,4-dioxane by EPA Method 8270-SIM; and,
- PFAS by EPA Method 1633.

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

2.2.4 Best Management Practices (BMPs)

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). The techniques identified below were implemented during the RI when relevant to the work completed.

Practice/Technique	Potential Benefits[1]	Applicable to this Work Plan
Use renewable energy where possible or purchase Renewable Energy Credits	Reduce/supplement purchased energy use	
Use of remediation technologies with an intermittent energy supply (i.e., energy use during peak energy generation only)	Reduce energy use	X
Incorporate green building design	Reduce future use impacts	
Reuse existing buildings and infrastructure to reduce waste	Reduce waste and material use	
Reuse and recycle construction and demolition debris and other materials (i.e., grind waste wood and other organics for on-site use)	Reduce waste and material use	
Design cover systems to be usable (i.e., habitat or recreation)	Reduce construction impacts of future development	
Reduce vehicle idling	Reduce air emissions and fuel use	X
Use of low-sulfur diesel fuel (LSDF) or alternate fuels (i.e., biodiesel or E85) when possible	Reduce air emissions	X
Sequence work to minimize double-handling of materials	Reduce construction impacts	X
Use energy-efficient systems and office equipment in the job trailer	Reduce energy use	X

[1]*Potential benefits listed are not comprehensive and will vary depending upon the site and implementation of the practice or technique.*

In order to comply with the requirements of DER-31, the following actions were taken:

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 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.

2.3 RI FINDINGS SUMMARY

Below is a summary of the February through April 2024 RI findings.

2.3.1 Soil Sampling Results

Soil analytical results were compared to NYSDEC Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs), Restricted Residential Soil Cleanup Objective (RRSCOs), and Protection of Groundwater Soil Cleanup Objectives (PGWSCOs). Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) soil sample results are compared to the UUSCO, RRSCO, and PGWSCO Guidance Values (GVs)outlined in the April 2023 PFAS Guidance. Soil analytical results are summarized below and shown on Figure 5.

2.3.1.1 Remedial Investigation

Volatile Organic Compounds

Lots 1 and 3
Six VOCs were detected above UUSCOS, PGWSCOs, and/or RRSCOs in one soil sample (B-03_38-40). 1,2,4-trimethylbenzene was detected above its UUSCO, PGWSCO, and RRSCO at a concentration of 310 parts per million (ppm). 1,3,5-trimethylbenzene (13 ppm), ethylbenzene (4.3 ppm), n-butylbenzene (26 ppm), n-propylbenzene (32 ppm), and total xylenes (estimated concentration 4.1 ppm) were detected above their respective UUSCOs and PGWSCOs. No other VOCs were detected in any soil samples collected on Lots 1 and 3 above applicable standards.

1,3,5-trimethylbenzene, ethylbenzene, b-butylbenzene, n-propylbenzene, and total xylenes were detected above the PGWSCOs in B-03 and were also detected in the groundwater sample collected from the monitoring well co-located with B-03 (MW-03).

Lot 29
One VOC, acetone, was detected above the UUSCO in one soil sample (B-07_38-40) at a concentration of 0.069 ppm. No other VOCs were detected in any soil samples above applicable standards.

Semi-Volatile Organic Compounds

Lots 1, 3, and 29
No SVOCs were detected above applicable standards in any soil sample.

Metals

Lots 1 and 3
Three metals were detected in multiple shallow soil samples (from 0 to 2 ft bgs) at concentrations exceeding the UUSCOs, including lead (maximum concentration of 311 ppm in B-03_0-2), mercury (maximum concentration of 0.186 ppm in B-04_0-2), and zinc (maximum concentration of 506 ppm in B-14_0-2).

One metal, nickel, was detected at concentrations exceeding the UUSCO in both shallow and deeper soil samples (from 0 to 40 ft bgs) at a maximum concentration of 86.8 ppm in B-01_16-18. No other metals were detected in any soil samples above applicable standards.

Lot 29
Two metals were detected in multiple shallow and deep soil samples at concentrations exceeding the UUSCOs, including lead (maximum concentration of 294 ppm in B-12 _9-11) and nickel (maximum concentration of 98.5 ppm in B-08_38-40). No other metals were detected in any soil samples above applicable standards.

Polychlorinated Biphenyls

Lots 1, 3, and 29
No PCBs were detected in any soil samples above applicable standards.

Pesticides

Lots 1 and 3
The pesticides 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT were detected at concentrations exceeding the UUSCOs in two soil samples collected from the 0 to 2 ft bgs interval at the Site. Each pesticide was detected at a maximum concentration in B-04_0-2; 4,4'-DDD at a maximum concentration of 0.00843 ppm, 4,4'-DDE at a maximum concentration of 0.0121 ppm, and 4,4'-DDT at a maximum concentration of 0.00908 ppm. No other pesticides were detected in any soil samples above applicable standards.

Lot 29
No pesticides were detected in any soil samples above applicable standards.

Emerging Contaminants

Lots 1 and 3
1,4-dioxane was not detected above laboratory detection limits in any soil samples collected on Lots 1 and 3. PFOS and PFOA were not detected in any soil samples above applicable standards. Concentrations of total PFOA/PFOS ranged from non-detect to a maximum concentration of 0.505 parts per billion (ppb) in B-03_0-2.

Lot 29
1,4-dioxane was not detected above laboratory detection limits in any soil samples collected on Lot 29. PFOS and PFOA were not detected in any soil samples above applicable standards. Concentrations of total PFOA/PFOS ranged from non-detect to a maximum concentration of 0.325 ppb in B-08_0-2.

2.3.1.2 Supplemental Remedial Investigation

Volatile Organic Compounds

VOC exceedances of applicable criteria in soil were vertically delineated during the SRI, as shown on Figure 5.

Lots 1 and 3
One VOC, 1,2,4-trimethylbenzene, was detected above the UUSCO, RRSCO, and PGWSCO in three soil samples collected from the saturated zone on Lot 1, at a maximum concentration of 160 ppm in B-20_43.5-44.5.

Four VOCs were detected above UUSCOs and/or PGWSCOs in multiple soil borings collected from the saturated zone on Lot 1, including 1,3,5-trimethylbenzene (maximum concentration of 30 ppm in B-20_43.5-44.5), ethylbenzene (maximum concentration of 27 ppm in B-21_47.5-48.5), n-propylbenzene (maximum concentration 21 ppm in B-20_43.5-44.5), and total xylenes (maximum concentration of 73 ppm in B-21_47.5-48.5). Naphthalene was detected above UUSCOs and PGWSCOs, but not RRSCOs, in one soil boring collected from the saturated zone on Lot 1, B-20_43.5-44.5, at a concentration of 18 ppm.

1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, n-propylbenzene, naphthalene, and total xylenes were detected in B-20 above the PGWSCOs and were also detected in the groundwater sample collected at the monitoring well co-located with B-20 (MW-14). 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, n-propylbenzene, and total xylenes were detected in B-21 and B-22 above the PGWSCOs and were also detected in the groundwater samples collected from monitoring wells co-located at B-21 and B-22, MW-15, and MW-16.

Acetone was detected above the UUSCO and PGWSCO in multiple shallow soil samples collected on Lots 1 and 3, at a maximum estimated concentration of 0.1 ppm in B-22_1-3.

No other VOCs were detected above applicable standards in any soil samples collected on Lots 1 and 3.

Lot 29
2-butanone was detected above UUSCOs and PGWSCOs, but not RRSCOs, in one shallow soil sample, B-05_0-0.17, at an estimated concentration of 0.22 ppm. Tetrachloroethene (PCE) was detected above UUSCOs and PGWSCOs in two shallow soil samples collected from B-05, B-05_0-0.17, and B-05_0.5-1, at a maximum concentration of 3.9 ppm in B-05_0-0.17.

No other VOCs were detected above applicable standards in any soil samples collected on Lot 29.

Semi-Volatile Organic Compounds

Lots 1 and 3
Five SVOCs were detected above UUSCOs, RRSCOs, and/or PGWSCOs in two shallow soil samples collected from Lots 1 and 3, all detected at a maximum concentration in soil sample B-26_3-5, including benzo(a)anthracene (maximum concentration of 14 ppm), benzo(a)pyrene (maximum concentration of 12 ppm), benzo(b)fluoranthene (maximum concentration of 17 ppm), chrysene (maximum concentration of 14 ppm), and indeno(1,2,3-cd)pyrene (maximum concentration of 4.3 ppm). Dibenz(a,h)anthracene was detected above the UUSCO and RRSCO in one soil sample, B-26_3-5, at a concentration of 1.6 ppm. Benzo(k)fluoranthene was detected above the UUSCO and PGWSCO in one soil sample, B-26_3-5, at a concentration of 3.8 ppm.

No other SVOCs were detected above applicable standards in any soil samples collected on Lots 1 and 3.

Lot 29
Four SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), were detected above UUSCOs, RRSCOs, and/or PGWSCOs in two shallow soil samples collected from Lot 29, all detected at a maximum concentration in B-16_5-7, including benzo(a)anthracene (maximum concentration of 2.6 ppm), benzo(a)pyrene (maximum concentration of 2.4 ppm), benzo(b)fluoranthene (maximum concentration of 3.1 ppm), and indeno(1,2,3-cd)pyrene (maximum concentration of 1.5 ppm). Dibenz(a,h)anthracene was detected above the UUSCO and RRSCO in one soil sample, B-16_5-7, at a maximum concentration of 0.35 ppm. Chrysene was detected above the UUSCO and PGWSCO in two soil samples, at a maximum concentration of 2.8 ppm B-16_5-7. Benzo(k)fluoranthene was detected above the UUSCO in one sample, B-16_5-7, at a concentration of 0.98 ppm.

No other SVOCs were detected above applicable standards in any soil samples collected on Lot 29.

Metals

Lots 1 and 3
Two metals, lead and mercury, were detected above the UUSCOs in multiple shallow soil samples at maximum concentrations of 388 ppm in B-20_1-3 and 0.8 ppm in B-19_0.5-1, respectively. The detected concentration of mercury in B-19_0-1 also exceeded the PGWSCO. Zinc was detected above UUSCOs in four shallow soil samples, at a maximum concentration of 425 ppm in B-17_3-5. Nickel was detected above the UUSCO in multiple shallow and deep soil samples, at a maximum concentration of 71.1 ppm in B-19_36-38. Copper was detected above the UUSCO in B-17_0-0.17 at a concentration of 99.5 ppm.

No other metals were detected above applicable standards in any soil samples collected on Lots 1 and 3.

Lot 29
One metal, arsenic, was detected above the UUSCO, RRSCO, and PGWSCO in one shallow soil sample, B-06_3-5, at a maximum concentration of 29.4 ppm. Three metals were detected above UUSCOs in multiple shallow samples, including copper (maximum concentration of 72.6 ppm in B-16_0-0.17), mercury (maximum concentration of 0.476 ppm in B-16_5-7), and zinc (maximum concentration of 313 ppm in B-16_5-7). Lead was detected in multiple shallow soil samples above the UUSCO, RRSCO, and/or PGWSCO in multiple shallow soil samples at a maximum concentration of 1,520 ppm in B-16_5-7.

Nickel was detected in multiple shallow and deep soil samples above the UUSCO at a maximum estimated concentration of 87.8 ppm in the duplicate sample collected at B-16_15-17.

No other metals were detected above applicable standards in any soil samples collected on Lot 29.

Polychlorinated Biphenyls

Lots 1 and 3
Total PCBs were detected above the UUSCO, RRSCO, and/or PGWSCO in five shallow soil samples, at a maximum concentration of 3.65 ppm in B-26_3-5.

No other PCBs were detected above applicable standards in any soil samples collected on Lots 1 and 3.

Lot 29
No PCBs were detected above applicable standards in any soil samples collected on Lot 29.

Pesticides

Lots 1 and 3
Two pesticides, 4,4'-DDD and 4,4'-DDE, were detected at concentrations exceeding the UUSCOs in three soil samples, at maximum concentrations in B-17_15-17 of 0.0656 ppm and 0.00953 ppm, respectively. 4,4'-DDT and dieldrin were detected above UUSCOs in B-17_15-17 at concentrations of 0.65 ppm and 0.00772 ppm, respectively.

No other pesticides were detected above applicable standards in any soil samples collected on Lots 1 and 3.

Lot 29
Three pesticides were detected in multiple shallow soil samples above UUSCOs, at maximum concentrations in B-16_0-0.17, including 4,4'-DDE (0.0844 ppm), 4,4'-DDT (0.16 ppm), and dieldrin (0.0344 ppm).

No other pesticides were detected above applicable standards in any soil samples collected on Lot 29.

Emerging Contaminants

Lots 1 and 3
1,4-dioxane was not detected above applicable standards in any soil samples collected on Lots 1 and 3. PFOS was detected above the GV of 0.88 ppb for unrestricted use and the GV of 1 ppb for protection of groundwater in one soil sample, B-17_15-17, at a maximum concentration of 3.09 ppb. PFOA was not detected in any soil samples above applicable standards. Concentrations of total PFOA/PFOS ranged from non-detect to a maximum concentration of 3.4 ppb in B-17_15-17.

Lot 29
1,4-dioxane was not detected above laboratory detection limits in any soil samples collected on Lot 29. PFOS and PFOA were not detected in any soil samples above applicable standards. Concentrations of total PFOA/PFOS ranged from non-detect to a maximum concentration of 0.729 ppb in B-16_0-0.17.

2.3.2 Groundwater Sampling Results

Groundwater analytical results were compared to 6 NYCRR Part 703.5 NYSDEC Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1) Ambient Water Quality Standards (AWQS). 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 Figures 6 and 7.

2.3.2.1 Remedial Investigation

Volatile Organic Compounds

Lots 1 and 3
Thirteen VOCs were detected above the AWQS in three of the five groundwater samples, each detected at maximum concentrations in groundwater sample MW-03_20240228, including 1,2,4,5-tetramethylbenzene (maximum concentration 51 micrograms per liter [µg/L]), 1,2,4-trimethylbenzene (maximum concentration 560 µg/L), 1,3,5-trimethylbenzene (maximum concentration 160 µg/L), ethylbenzene (maximum concentration 590 µg/L), isopropylbenzene (maximum concentration 71 µg/L), n-butylbenzene (maximum concentration 20 µg/L), n-propylbenzene (maximum concentration 140 µg/L), naphthalene (maximum concentration 160 µg/L), o-xylene (maximum concentration 27 µg/L), p-isopropyltoluene (maximum concentration 9.1 µg/L), m,p-xylenes (maximum concentration 1,300 µg/L), sec-butylbenzene (maximum concentration 18 µg/L), toluene (maximum concentration 26 µg/L), and total xylenes (maximum concentration 1,300 µg/L). No other VOCs were detected above the AWQS in any groundwater sample.

Lot 29
No VOCs were detected above the AWQS in groundwater samples collected on Lot 29.

Semi-Volatile Organic Compounds

Lots 1 and 3
Two SVOCs were detected above the AWQS in multiple groundwater samples. Benzo(k)fluoranthene was detected in MW-02 at a concentration of 0.01 µg/L. Naphthalene was detected in three of the five groundwater samples at a maximum concentration of 87 µg/L in MW-03. No other SVOCs were detected above the AWQS in any groundwater samples collected on Lots 1 and 3.

Lot 29
Three SVOCs, specifically PAHs, were detected above the AWQS in the groundwater sample collected from MW-08 at estimated concentrations, including benzo(b)fluoranthene (0.02 µg/L), benzo(k)fluoranthene (0.01 µg/L), and indeno(1,2,3-cd)pyrene (0.03 µg/L). No other SVOCs were detected above the AWQS in groundwater samples collected on Lot 29.

Polychlorinated Biphenyls

No PCBs were detected above the AWQS in any groundwater sample collected from all three lots.

Dissolved Metals

Lots 1 and 3
Four dissolved metals were detected in multiple groundwater samples above the AWQS, including iron (maximum concentration 3,010 µg/L in MW-03), magnesium (maximum concentration 43,600 µg/L in MW-01), manganese (maximum concentration 1,969 µg/L in MW-03), and sodium (162,000 µg/L in MW-03). No other dissolved metals were detected above the AWQS in any groundwater sample.

Lot 29
Three dissolved metals were detected in one or both groundwater samples above the AWQS, including magnesium (maximum concentration 37,200 µg/L in MW-07), manganese (maximum concentration 402.8 µg/L in MW-08), and sodium (maximum concentration 71,500 µg/L in MW-08). No other dissolved metals were detected above the AWQS in any groundwater samples collected on Lot 29.

Total Metals

Lots 1 and 3
Six total metals were detected above the AWQS in multiple groundwater samples, including chromium (maximum concentration 400.2 µg/L in MW-09), iron (maximum concentration 8,070 µg/L in MW-09), magnesium (maximum concentration 44,900 µg/L in MW-01), manganese (maximum concentration 2,187 µg/L in MW-03), nickel (maximum concentration 217.8 µg/L in MW-09), and sodium (maximum concentration 149,000 µg/L in MW-03). No other total metals were detected above the AWQS in any groundwater sample.

Lot 29
Three total metals were detected above the AWQS in one or both groundwater samples, including magnesium (maximum concentration 37,800 µg/L in MW-08), manganese (maximum concentration 406.2 µg/L in MW-08), and sodium (maximum concentration 76,200 µg/L in MW-08). No other total metals were detected above the AWQS in any groundwater samples collected on Lot 29.

Pesticides

No pesticides were detected above the AWQS in any groundwater sample collected in all three lots.

Emerging Contaminants

Lots 1 and 3
Concentrations of 1,4-dioxane were compared to the GV of 0.35 ppb issued on March 15, 2023, by the NYSDEC. PFOA/PFOS compounds in groundwater are compared to the NYSDEC March GV of 6.7 parts per trillion (ppt) and 2.7 ppt, respectively. Figure 7 provides emerging contaminant data in groundwater. 1,4-dioxane was not detected in any groundwater samples above laboratory detection limits.

PFOS was detected above the GV of 2.7 ppt in seven groundwater samples, including one duplicate, at a maximum concentration of 61.3 ppt in MW-3. PFOA was detected above the GV of 6.7 ppt in seven of the groundwater samples, including one duplicate, at a maximum concentration of 66.9 ppt in MW-6. Total PFOA/PFOS concentrations in groundwater samples ranged from an estimated value of 12.2 ppt in MW-7 to a maximum concentration of 99.1 ppt in MW-3 and MW-6.

Lot 29
1,4-dioxane was not detected in any groundwater samples above laboratory detection limits. PFOS was detected above the GV of 2.7 ppt in both groundwater samples collected on Lot 29 at a concentration of 61.9 ppt in MW-07 and 56.9 ppt in MW-08. PFOA was detected above the GV of 6.7 ppt in both groundwater samples collected on Lot 29 at a concentration of 141 ppt in MW-07 and 179 ppt in MW-08. Total PFOA/PFOS concentration was 202.9 ppt in MW-07 and 235.9 ppt in MW-08.

2.3.2.2 Supplemental Remedial Investigation

Volatile Organic Compounds

Lots 1 and 3
Twelve VOCs were detected above the AWQS in multiple groundwater samples collected, including 1,2,4,5-tetramethylbenzene (maximum concentration of 88 ppb in MW-15), 1,2,4-trimethylbenzene (maximum concentration of 1,500 ppb in MW-15), 1,3,5-trimethylbenzene (maximum concentration of 360 ppb in MW-15), ethylbenzene (maximum concentration of 1,600 ppb in MW-15), isopropylbenzene (maximum concentration of 95 ppb in MW-15), m,p-xylenes (maximum concentration of 4,200 ppb in MW-15), naphthalene (maximum concentration of 410 ppb in MW-15), n-butylbenzene (maximum estimated concentration of 24 ppb in MW-15), n-propylbenzene (maximum concentration of 230 ppb in MW-15), o-xylene (maximum concentration of 450 ppb in MW-12S), toluene (maximum concentration of 120 ppb in MW-12S), and total xylenes (maximum concentration of 4,300 ppb in MW-15). 2-phenylbutane was detected above the AWQS in two samples, MW-10S and MW-15, at a concentration of 7 ppb and an estimated concentration of 16 ppb, respectively. Chloroform and cymene were detected above the AWQS in one sample, MW-16S, both at a maximum estimated concentration of 7.6 ppb. PCE was detected above the AWQS in one sample, MW16S, at a concentration of 9.1 ppb.

No other VOCs were detected above the AWQS in any groundwater samples collected on Lots 1 and 3.

Lot 29
Three VOCs were detected above the AWQS in two groundwater samples, MW-05 and MW-06, including isopropylbenzene (maximum concentration of 7.3 ppb in MW-06), m,p-xylenes (maximum concentration of 23 ppb in MW-05), and total xylenes (maximum concentration of 23 ppb in MW-05). Three VOCs were detected above the AWQS in one groundwater sample, MW-06, including 1,2,4-trimethylbenzene at a concentration of 7 ppb, ethylbenzene at a concentration of 30 ppb, and n-propylbenzene at a concentration of 8.8 ppb.

No other VOCs were detected above the AWQS in any groundwater samples collected on Lot 29.

Semi-Volatile Organic Compounds

Lots 1 and 3
One SVOC, naphthalene, was detected above the AWQS in multiple groundwater samples at a maximum concentration of 180 ppb in MW-12S. The SVOC indeno(1,2,3-cd)pyrene was detected above the AWQS in MW-10I at an estimated concentration of 0.04 ppb.

No other SVOCs were detected above the AWQS in any groundwater samples collected on Lots 1 and 3.

Lot 29
Five SVOCs, specifically PAHs, were detected above the AWQS in two groundwater samples, all at maximum estimated concentrations in MW-13I, including benzo(a)anthracene at an estimated concentration of 0.04 ppb, and benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene all at maximum estimated concentrations of 0.05 ppb.

No other SVOCs were detected above the AWQS in any groundwater samples collected on Lot 29.

Polychlorinated Biphenyls

No PCBs were detected above the AWQS in any groundwater samples collected on Lots 1, 3, and 29.

Dissolved Metals

Lots 1 and 3
Two dissolved metals were detected above the AWQS in multiple groundwater samples, including manganese (maximum concentration of 1,840 ppb in MW-10S) and sodium (maximum concentration of 138,000 ppb in MW-14). Iron was detected above the AWQS in three samples, at a maximum concentration of 925 ppb in MW-12I. Additionally, antimony and magnesium were detected above the AWQS in one groundwater sample each, at an estimated concentration of 3.93 ppb in MW-16S and 40,400 ppb in MW-10S, respectively.

No other dissolved metals were detected above the AWQS in any groundwater samples collected on Lots 1 and 3.

Lot 29
Two dissolved metals were detected above the AWQS in multiple groundwater samples, including manganese at a maximum concentration of 1,315 ppb in MW-06 and sodium at a maximum concentration of 90,700 ppb in MW-13S. Antimony and magnesium were detected above the AWQS in two groundwater samples each, at a maximum estimated concentration of 3.38 ppb in MW-13I and a maximum concentration of 40,200 ppb in MW-13D, respectively.

No other dissolved metals were detected above the AWQS in any groundwater samples collected on Lot 29.

Total Metals

Lots 1 and 3
Three total metals were detected above the AWQS in multiple groundwater samples, including iron (maximum concentration of 4,060 ppb in MW-11S), manganese (maximum concentration of 2,221 ppb in MW-16D), and sodium (maximum concentration of 171,000 ppb in MW-14). Magnesium was detected above the AWQS in three groundwater samples, at a maximum concentration of 41,300 ppb in MW-10S.

No other total metals were detected above the AWQS in any groundwater samples collected on Lots 1 and 3.

Lot 29
Three total metals were detected above the AWQS in multiple groundwater samples, including iron (maximum concentration of 1,580 ppb in MW-13S), magnesium (maximum concentration of 44,300 ppb in MW-13D), manganese (maximum concentration of 1,221 ppb in MW-06), and sodium (maximum concentration of 92,000 ppb in MW-05). Magnesium was detected in two groundwater samples, at a maximum concentration of 44,300 ppb in the duplicate sample collected at MW-13D.

No other total metals were detected above the AWQS in any groundwater samples collected on Lot 29.

Pesticides

No PCBs were detected above the AWQS in any groundwater samples collected on Lots 1, 3, and 29.

Emerging Contaminants

Concentrations of 1,4-dioxane were compared to the GV of 0.35 ppb issued on March 15, 2023, by the NYSDEC. PFOA/PFOS in groundwater are compared to the NYSDEC March GVs of 6.7 ppt and 2.7 ppt, respectively. Figure 7 provides emerging contaminant data in groundwater.

Lots 1 and 3
1,4-dioxane was detected above the laboratory detection limit but below the GV of 0.35 ppb in one groundwater sample, MW-10I, at an estimated concentration of 0.141 ppb. PFOA was detected above the GV of 6.7 ppt in each of the 14 groundwater samples collected, at a maximum concentration of 347 ppt in MW-16S. PFOS was detected above the GV of 2.7 ppt in each of the 14 groundwater samples collected, at a maximum concentration of 51.4 ppt in MW-11I.

Lot 29
1,4-dioxane was not detected above laboratory detection limits in any groundwater samples collected. PFOA was detected above the GV of 6.7 ppt in each of the six groundwater samples collected, including one duplicate sample, at a maximum concentration of 186 ppt in MW-13I. PFOS was detected above the GV of 2.7 ppt in each of the six groundwater samples collected, including one duplicate sample, at a maximum concentration of 47.6 ppt in MW-13I.

2.3.3 Soil Vapor Sampling Results

Figure 8 provides the soil vapor sampling locations as well as a summary of soil vapor data from the sampling event.

2.3.3.1 Remedial Investigation

Lots 1 and 3
Total VOC concentrations ranged from 440.6 micrograms per cubic meter (µg/m^3) in SP-01 to a maximum of 1,184.5 µg/m^3 in SP-09. Total chlorinated volatile organic compound (CVOC) concentrations ranged from 10.7 µg/m^3 in SP-03 to a maximum of 1,097.8 µg/m^3 in SP-09. Total benzene, toluene, ethylbenzene, xylenes (BTEX) concentrations ranged from 69.8 µg/m^3 in SP-03 to 115.8 µg/m^3 in SP-02.

The VOC acetone was detected at elevated concentrations in the soil vapor sample SP-03 at a concentration of 290 µg/m^3. Several petroleum-related VOCs were detected at elevated concentrations in soil vapor samples collected from Lots 1 and 3, including m,p-xylenes (maximum concentration 49.1 µg/m^3 in SP-02), and toluene (maximum concentration 39.2 µg/m^3 in SP-02).

PCE and trichloroethylene (TCE) were detected in each of the four soil vapor samples above laboratory detection limits at maximum concentrations of 1,070 µg/m^3 and 27.8 µg/m^3, respectively, in soil vapor sample SP-09. 1,1,1-trichloroethane was detected in one soil vapor sample, SP-01, above laboratory detection limits at a concentration of 2.28 µg/m^3.

Lot 29
Total VOC concentrations ranged from 174.8 µg/m^3 in SP-04 to a maximum of 9,589.9 µg/m^3 in SP-07. Total CVOC concentrations ranged from 99.8 µg/m^3 in SP-04 to a maximum of 365 µg/m^3 in SP-07. Total BTEX concentrations ranged from 10.4 µg/m^3 in SP-04 to 152.8 µg/m^3 in SP-07.

Several VOCs were detected at elevated concentrations in soil vapor samples, including 1,3-butadiene (1,200 µg/m^3 in SP-07), 2-butanone (maximum concentration 94 µg/m^3 in SP-07), acetone (maximum concentration 280 µg/m^3 in SP-07), carbon disulfide (maximum concentration 540 µg/m^3 in SP-07), hexane (maximum concentration 4,500 µg/m^3 in SP-07). Additionally, the petroleum-related VOC, toluene, was detected at an elevated concentration in SP-07 at 110 µg/m^3.

PCE and TCE were detected in each of the three soil vapor samples collected on Lot 29 above laboratory detection limits at maximum concentrations of 270 µg/m^3 and 81 µg/m^3 in SP-07, respectively. Cis-1,2-dichloroethene was detected above laboratory detection limits in SP-07 and SP-08 at concentrations of 14 µg/m^3 and 1.4 µg/m^3, respectively.

2.3.3.2 Supplemental Remedial Investigation

Lots 1 and 3
Total VOC concentrations in soil vapor samples ranged from 1,702.4 µg/m^3 in SP-13 to a maximum of 7,582.42 µg/m^3 in SP-10. Total CVOC concentrations ranged from 831.4 µg/m^3 in SP-13 to a maximum of 4,335 µg/m^3 in SP-10. Total BTEX concentrations ranged from 167.7 µg/m^3 in SP-13 to 613.6 µg/m^3 in SP-10.

The CVOCs cis-1,2-dichloroethene and methylene chloride were detected above laboratory detection limits in SP-10 at concentrations of 289 µg/m^3 and 102 µg/m^3, respectively. PCE and TCE were detected in both soil vapor samples above laboratory detection limits, at maximum concentrations in soil vapor sample SP-10 of 3,830 µg/m^3 and 114 µg/m^3, respectively. No other CVOCs were detected above laboratory detection limits in any soil vapor samples collected on Lots 1 and 3.

Several petroleum-related VOCs were detected at elevated concentrations in both soil vapor samples collected on Lots 1 and 3, at maximum concentrations in soil vapor sample SP-10, including benzene (108 µg/m^3), ethylbenzene (58.6 µg/m^3), m,p-xylenes (173 µg/m^3), o-xylene (131 µg/m^3), and toluene (143 µg/m^3).

Several VOCs were detected at elevated concentrations, at maximum concentrations in SP-10, including 1,2,4-trimethylbenzene (317 µg/m^3), 1,3,5-trimethylbenzene (130 µg/m^3), 1,3-butadiene (259 µg/m^3), 2,2,4-trimethylpentane (677 µg/m^3), 2-butanone (169 µg/m^3), acetone (622 µg/m^3), and hexane (126 µg/m^3).

Lot 29

Total VOC concentrations ranged from 1,248.02 µg/m^3 in SP-12 to a maximum of 18,390.5 µg/m^3 in SP-05. Total CVOC concentrations ranged from 377.52 µg/m^3 in SP-12 to a maximum of 16,136 µg/m^3 in SP-05. Total BTEX concentrations ranged from 65.07 µg/m^3 in SP-11 to 657.3 µg/m^3 in SP-06.

PCE and TCE were detected above laboratory detection limits in each of the four soil vapor samples collected, at maximum concentrations in SP-05 of 15,100 µg/m^3 and 295 µg/m^3, respectively. Cis-1,2-dichloroethene was detected above laboratory detection limits in three of the four soil vapor samples collected, at a maximum concentration of 741 µg/m^3 in SP-05. Methylene chloride was detected above laboratory detection limits in one soil vapor sample, SP-06, at a concentration of 18.7 µg/m^3. 1,1,1-trichloroethane was detected above laboratory detection limits in one soil vapor sample, SP-12, at a concentration of 1.12 µg/m^3. No other CVOCs were detected above laboratory detection limits in any soil vapor samples collected on Lot 29.

Several petroleum-related VOCs were detected at elevated concentrations in soil vapor samples collected on Lot 29, including benzene (maximum concentration 355 µg/m^3 in SP-06), ethylbenzene (maximum concentration 22.7 µg/m^3 in SP-06), m,p-xylenes (maximum concentration 82.5 µg/m^3 in SP-05), o-xylenes (maximum concentration 24.8 µg/m^3 in SP-06), and toluene (maximum concentration 194 µg/m^3 in SP-06).

Several VOCs were detected at elevated concentrations in multiple soil samples collected, including 1,3-butadiene (maximum concentration of 392 µg/m^3 in SP-06), 2-butanone (maximum concentration of 295 µg/m^3 in SP-05), acetone (maximum concentration of 1,470 µg/m^3 in SP-06), carbon disulfide (maximum concentration of 844 µg/m^3 in SP-06), hexane (maximum concentration of 458 µg/m^3 in SP-06), isopropyl alcohol (maximum concentration of 156 µg/m^3 in SP-05), n-heptane (maximum concentration of 110 µg/m^3 in SP-12), and tert-butyl alcohol (maximum concentration of 138 µg/m^3 in SP-05).

2.4 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have determined that the Site poses a significant threat to human health and the environment. Notice of that determination has been provided for public review. A copy of the notice is included in Appendix N.

2.5 GEOLOGY AND HYDROLOGY

2.5.1 Contaminated Fill Material

Based on field observations from the RI and SRI, the Site is underlain by a layer of fill material consisting of light to dark brown sand with varying amounts of silt, clay, gravel, brick, concrete, asphalt, and ceramics. Fill extends from the surface to variable depths between approximately 1 and 7 ft bgs throughout the Site.

2.5.2 Native Soil

The fill is underlain by a potential native layer consisting of brown silty or clayey fine to coarse sand and gravel with intermittent lenses of clay and silt extending up to the terminus depth of each boring at depths ranging from 3.5 to 65 ft bgs.

2.5.3 Bedrock

Bedrock was not encountered during the RI and SRI. Depth to bedrock is anticipated to be greater than 100 ft bgs. 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, dated 1994, bedrock beneath the Site consists of muscovite-biotite-quartz schist.

2.5.4 Hydrogeology

Groundwater was encountered at depths ranging from approximately 35.88 to 36.71 ft bgs during the RI and 36.01 to 37.74 ft bgs during the SRI. Groundwater beneath the Site generally flows from east to west, with depth to water measurements ranging from El. 7.60 ft at MW-11S to El. 9.01 ft at MW-01 (North American Vertical Datum of 1988 [NAVD88]). A groundwater contour map is provided in Figure 4.

2.6 CONTAMINANT CONDITIONS

2.6.1 Conceptual Model of Site Contamination

A conceptual site model (CSM) was developed based on the findings of the RI and SRI. The purpose of this model is to develop a simplified framework for understanding the sources of contamination, potential migration pathways, and potentially complete exposure pathways. The following is a description of each.

2.6.1.1 Potential Sources of Contamination

Subsurface soils are impacted with elevated concentrations of metals, and, in some areas, SVOCS, pesticides, and PCBs, consistent with characteristics of contaminated fill found throughout the New York

City area. Contaminated fill material varies throughout the Site, extending to depths as great as 7 ft bgs. Native soils are also impacted with VOCs, mainly at the groundwater interface on Lot 1. The petroleum-related VOCs (including BTEX) in soil, soil vapor, and groundwater, and the CVOCs (specifically PCE) in groundwater in the northwestern portion of the Site can likely be attributed to former Site operations, including a gasoline service station and auto repair operations. CVOCs in soil and soil vapor can likely be attributed to the former dry cleaner on Lot 29.

2.6.1.2 Description of Areas of Concern

Based on Site observations, Site development history, and the findings of the previous environmental reports, four areas of concern (AOCs) were identified.

AOC 1 – Site-Wide Contaminated Fill in Shallow Subsurface Soils

Shallow subsurface soils on the Site are impacted with elevated concentrations of metals, including lead and mercury, and, in some areas, SVOCs (specifically PAHs), pesticides, and PCBs. 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, with the majority of Site-wide fill located from 1 to 7 ft bgs.

AOC 2 – Petroleum VOC Impacts to Soil at the Groundwater Interface on Lot 1

Subsurface soils at the groundwater interface are impacted with petroleum-related VOCs above the UUSCOs, RRSCOs, and PGWSCOs, specifically on Lot 1 in the vicinity of former suspected tank areas. Borings where visual petroleum impacts were observed (elevated PID readings, odors, and staining) were delineated vertically to determine the extent of petroleum contamination, and an additional sample was collected where petroleum impacts were no longer observed. Petroleum contamination extended from the groundwater interface in borings B-03, B-20, B-21, and B-22 to a maximum depth of 64 ft bgs in B-22, where petroleum contamination was no longer observed in the sample collected from 64 to 65 ft bgs.

AOC 3 – VOC Impacts to Groundwater

VOCs (specifically petroleum-related VOCs, including BTEX, and the CVOC PCE) were detected above the NYSDEC AWQS in groundwater samples at the Site and are likely the result of historical Site uses, including a former gasoline service station and auto repair shop. Petroleum-related VOC AWQS exceedances were primarily detected on the northwestern portion of the Site in the vicinity of the former underground storage tanks (USTs) identified on Sanborn Fire Insurance Maps and in the area of the former auto repair garage. Petroleum-related VOC concentrations in groundwater were detected at the highest concentrations in shallow wells (screened 35 to 45 ft bgs) and generally decreased in concentration with depth. PCE was detected above the AWQS in one well, MW-16S, located on the northwestern portion of the Site. Naphthalene AWQS exceedances were only detected in groundwater samples collected on Lot 1.

AOC 4 – Soil Vapor Impacts

VOCs, including petroleum-related VOCs (BTEX) and CVOCs, are present in the vapor phase at the Site and are likely the result of historical Site use, including the former gasoline service station and auto-repair operations on Lot 1 and former dry cleaning operations on Lot 29. Elevated concentrations of PCE were detected in soil vapor Site-wide, with the highest concentration of PCE detected in SP-05 (15,100 µg/m^3) on the northwestern portion of Lot 29 in the area of the former dry cleaner. PCE was also detected at this location above the UUSCO in B-05, in shallow soil at a maximum concentration of 3.9 milligrams per kilogram (mg/kg), potentially indicating source material.

2.6.2 Qualitative Human Health Exposure Assessment

A qualitative human health exposure assessment (QHHEA) 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.

2.6.2.1 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 and mostly paved with an impervious surface (asphalt or concrete). 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 Site owner plans to develop the property as a new mixed-use commercial and residential building, consistent 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.

2.6.2.2 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, water) at the point of exposure. Section 2.3 discusses the contaminants of concern (COCs) present in the Site media at elevated concentrations above background levels. In general, these are metals and, in some areas, VOCs, SVOCs, pesticides, and PCBs in soil; VOCs detected in soil vapor; and VOCs, SVOCs, and metals in groundwater.

2.6.2.3 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." Additional pathways could include skin contact, inhalation, and incidental ingestion of VOCs present in soil and groundwater when and where construction workers are involved in subsurface activities where volatiles are present at elevated concentrations.

2.6.2.4 Exposure Route and Mechanisms

The point of exposure is a location where actual or potential human contact with a contaminated medium may occur. Based on the exceedances of VOCs, SVOCs, metals, pesticides, and PCBs above UUSCOs and/or RRSCOs in certain areas in soil, VOCs (including BTEX and CVOCs) detected in soil vapor, and exceedances of the AWQS for SVOCs, VOCs, and total/dissolved metals in groundwater, the point of exposure is defined as the entire Site.

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 points of exposure identified above, potential routes of exposure are listed below:

<u>Current Use Scenario</u>

Lots 1, 3, and 29 are currently vacant and are mostly paved with an impervious surface (asphalt or concrete). The risk of exposure to contaminated soil and contaminated groundwater is very low, other than during subsurface investigations or other activities that disturb the subsurface. 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

<u>Construction/Remediation Scenario</u>

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 USTs (if present) and excavation and off-Site

disposal of soil 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 (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

Future Use Scenario

The anticipated remedial approach includes excavation of contaminated soil, installation of a soil vapor mitigation system, and treatment of contaminated groundwater. In the absence of removal of impacted material, remaining contaminant release and transport would include migration of contaminated groundwater and volatilization of contaminants from soil and/or groundwater into the vapor phase. 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

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. For VOCs present in soil vapor, the potential exists for exposure through pathways associated with soil vapor intrusion. This would include the indoor vapor intrusion pathway (also referred to as “soil vapor intrusion”).

Concerning the indoor air pathway, under the current and future use scenario, soil vapor intrusion is a relevant transport mechanism. Soil vapor intrusion would entail soil vapor migrating from under the building slab and potentially impacting the indoor air above the slab. Concerning skin contact, inhalation, and incidental ingestion of volatile organics present in soil and groundwater, the potential exists for exposure to VOCs for construction workers involved in subsurface activities where volatiles are present at elevated concentrations.

2.6.2.5 Exposure Assessment

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

Current Use Scenario

Site COCs include metals and, in some areas, VOCs, SVOCs, pesticides, and PCBs in soil; VOCs detected in soil vapor; and VOCs, SVOCs, and metals in groundwater. Under current conditions, the likelihood of exposure to soil or groundwater is limited. Lots 1, 3, and 29 are currently vacant and mostly paved with an impervious surface (asphalt or concrete). The Site entrances are locked and secured, with Site access only granted to personnel associated with the planned development. Potable water for Brooklyn will

continue to be sourced from reservoirs in the Catskill and Delaware Watersheds. Intrusive work on the Site will be done in accordance with a Site-specific Health and Safety Plan (HASP) and the donning of personal protective equipment (PPE).

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 a RAWP, which will include a Soil Materials Management Plan 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.

Future Use Scenario

Under the proposed future condition (after construction/remediation), residual contaminants may remain on-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 Site capping system foundation, and implementation of ICs such as land use and groundwater use restrictions.

2.7 FISH & 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 in the early 1900s and most recently operated as a warehouse occupied by Delt Hardware, a construction and plumbing goods supplier, on Lot 3, a one-story garage utilized for auto painting and repair operated by “New City Link Auto Repair” on Lot 1, and, a 7-Eleven convenience store and associated parking lot on Lot 29, is located in the Prospect Park South 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 directly 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 Fish and Wildlife Resource Impact Analysis for the Site.

2.8 REMEDIAL ACTION OBJECTIVES

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

2.8.1 Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Remove the source of ground or surface water contamination.

2.8.2 Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

2.8.3 Soil Vapor

RAOs for Public Health Protection:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

3. Description of Remedial Action Plan

3.1 ALTERNATIVE I – TECHNICAL DESCRIPTION

Alternative I, a Track 2 remedy, will include the following tasks:

- 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.
- Design and construction of a SOE system to facilitate the Track 2 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover on the Site.
- Decommission existing on-Site monitoring wells, as necessary, in accordance with NYSDEC Commission Policy (CP)-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 10,600 cubic yards (cu yd) of contaminated fill/native material Site-wide. This includes excavation to 15 ft bgs Site-wide.
- If encountered, removal, decommissioning, and off-Site disposal of any USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
- Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
- Implementation of ISCO through existing wells, injection wells, and/or temporary injection points utilizing alkaline-activated persulfate (AP-pH) to reduce elevated concentrations of petroleum-related VOCs in groundwater.
- Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
- 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.
- Backfilling of excavated areas, if needed for development, with certified-clean material (i.e., meeting RRSCOs and PGWSCOs), recycled concrete aggregate (RCA), or virgin, native crushed stone.
- Collection and analysis of documentation soil samples from the excavation base in accordance with DER-10, to document post-excavation conditions.
- Installation, operation, and monitoring of a SVE system along the perimeter of the Site to prevent off-Site migration of petroleum-related VOCs and CVOCs in soil vapor.

- Installation, operation, and monitoring of an active sub-slab depressurization system (SSDS) to mitigate potential exposures related to soil vapor intrusion.
- Installation of five permanent monitoring wells and commencement of quarterly groundwater monitoring in accordance with DER-10 for a minimum of one year following remedial activities to document groundwater quality beneath the Site.
- Establishment of use restrictions, if necessary, including prohibitions on the use of groundwater from the Site and prohibitions on sensitive Site uses, such as farming or vegetable gardening in residual Site soil, to significantly reduce the potential for future exposure pathways.
- Establish a Site Management Plan (SMP) for ICs and ECs that includes an Institutional and Engineering Control Plan, a Monitoring Plan, and an Operations and Maintenance Plan.
- Recording of an Environmental Easement (EE) to ensure future owners of the Site continue to maintain ECs/ICs as required.

The Alternative I remediation extent is shown on Figure 9 and is based on data presented in the January 2022 Limited Phase II ESI Report, the June 2025 RIR, and the proposed development plans. The requirements for each of the Alternative I tasks are described below.

On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix C) 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 Aeroqual® AQS1 Air Quality Monitors capable of recording data and calculating 15-minute averages. Field personnel will monitor Site perimeters for visible dust and odors.

Support of Excavation

To accommodate removal of soil for the Track 2 remedy, an SOE system will require construction. The proposed development requires soldier piles with timber lagging, whalers, and tiebacks along the perimeter of the Site as part of the SOE. Excavations are anticipated to be completed above the water table throughout the Site.

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, and analytical 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 EPA 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.

Fill and Soil Removal

To achieve Track 2, soil removal and disposal will extend from surface grade to 15 ft bgs throughout the entire Site. The estimated volume of material requiring removal and off-Site disposal for a Track 2 cleanup is approximately 10,600 cu yd. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts. The Alternative I excavation plan is shown in Figure 9.

UST Removal

If encountered, USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) will be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5 and 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances would be registered and administratively closed with the NYSDEC Petroleum Bulk Storage (PBS) unit. Petroleum-impacted soil would be excavated and disposed of off-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).

Excavation Backfill

As required for construction purposes, imported material will consist of clean fill that meets the RRSCOs and PGWSCOs 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. 100 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 D.

Documentation/Endpoint 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 to document remaining contamination at the Site. An estimated 22 documentation soil samples, plus QA/QC samples, would be collected and analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals, PFAS, and 1,4-dioxane. Due to the presence and requirement of SOE systems (e.g., soldier piles/timber lagging) along the Site's legal boundaries and excavation of the entire Site footprint, sidewall samples cannot be safely or feasibly

collected for several reasons that include, but are not limited to, structural integrity of the SOE and damage risk to adjacent properties and/or public utility infrastructure. Sidewall samples are not included in the proposed documentation/endpoint sampling plan. The proposed documentation sample locations are included in Figure 12.

Alkaline-Activated Persulfate Groundwater Treatment

AP-pH injections would be conducted throughout the Site up to four locations as shown in Figure 13. The injections would be conducted via existing monitoring wells, and/or temporary or permanent injection points, and would include the introduction of persulfate and sodium hydroxide solution. Using an approximately 20 ft radius of influence (ROI), at least four points would be needed to treat groundwater and saturated soils exceeding the PGWSCOs in the northwestern portion of the Site where elevated concentrations of petroleum-related VOCs were detected in groundwater.

The remedy would treat impacted groundwater and saturated soils from 35 to 65 ft bgs through the activation of persulfate by the sodium hydroxide solution; the AP-pH works by breaking the bonds between the carbon and hydrogen in petroleum-based compounds. A pre-design investigation (PDI) will be conducted prior to the Remedial Action to confirm the vertical extent of treatment by the injections, the ROI, and finalize the remedial design. A PDI scope of work is provided as Appendix E.

Following the PDI, Haley & Aldrich will submit a PDI Report that summarizes the results along with the final remedial design for groundwater, as described above. The PDI Report will be submitted to the NYSDEC for review and approval prior to implementation.

Post-remediation groundwater sampling would be conducted to evaluate the effectiveness of the AP-Ph groundwater treatment. Specifications of the alkaline-activated persulfate are provided as Appendix F.

Sub-Slab Depressurization System

An active SSDS would be installed, consisting of horizontal perforated piping installed in a permeable layer under the vapor barrier (20-mil Stego® or equivalent). The permeable layer will be 8-in. thick ¾-in. washed aggregate, or similar permeable material. The horizontal piping would consist of 3-in. diameter perforated Schedule 40 PVC pipes with leader pipes connecting to vertical risers. The vertical risers would be constructed of solid steel pipe risers and exit through the building slab with sealed penetrations. Each vertical riser would have a sample port assembly installed in the cellar. The exhaust point of the riser would 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. At least six sub-slab vapor monitoring points would be installed in the permeable layer to allow for the collection of sub-slab vapor samples.

The preliminary location and layout of the active SSDS are shown in Figure 15A. Typical SSDS design details are shown in Figure 15B. The location and layout of the SSDS may be altered to accommodate structural, electrical, sewer, utility, and other aspects of building construction.

Soil Vapor Extraction System and Pilot Test

An SVE system would be installed along the eastern perimeter of the Site and in the soil vapor source area located in the central-west portion of the Site. This would be designed to prevent off-Site migration of soil vapor potentially impacted with petroleum-related VOCs and CVOCs. Site-wide groundwater impacts above the AWQS were observed from 40 to 60 ft bgs during the RI. Therefore, the vertical extent of potentially impacted soil vapor is based on the bottom of excavation (15 ft bgs) and the approximate depth of the groundwater table (35 ft bgs).

A conceptual layout of the SVE system is shown in Figure 16. This layout is based on an assumed ROI of 15 ft, which is based on the Site geology. A blower that can provide adequate vacuum and air flow to achieve a 15 ft ROI will be determined during a pilot test.

Prior to the pilot test, vapor extraction point (VEP) locations will be installed to approximately 30 ft bgs where the vertical SVE treatment zone would be from approximately 20 to 30 ft bgs. This approximately 10-ft vertical zone will be treated with a single VEP well screen. The VEPs would be 2-in. diameter, schedule 40 PVC and have 0.010-in. slot screens. Each VEP well pipe would enter the first-floor area through sealed penetrations in the concrete floor. The 2-in. diameter pipes would each have a dedicated sample port and valve to monitor individual VEPs separately. Additionally, monitoring points (MPs) will be installed at a depth of 25 ft bgs and consist of 12-in. stainless steel screens, connected to the surface with Teflon tubing. Once installed, a pilot test would be conducted on several VEPs throughout the Site with a regenerative blower. Vacuum readings will be collected at the MPs at different applied vacuums and flow rates to determine the vacuum demand to achieve a 15 ft ROI. The SVE pilot test results will be incorporated into a remedial design and submitted to the NYSDEC for review and approval before implementation at the Site.

After the pilot test, the above-grade components of the SVE system will be installed, which will connect each VEP to a 4-in. diameter header pipe and will direct air flow to an air-water separator, blower, and vapor treatment system. The air-water separator would be used to separate condensate from the vapor stream. The extracted water would be pumped from the separator to a tank. Any collected water would be characterized and properly disposed of off Site. Off-gas from the SVE blower would be treated with two drums of granular activated carbon (GAC) in series. The exhaust point of the SVE system shall be at least 12 in. above the highest roof surface and at least 10 ft away from any adjacent building or HVAC intakes. The operation of the SVE system will continue until influent concentrations show no remaining contamination or indicate asymptotic conditions and will not be discontinued without written approval from NYSDEC.

Post-Remediation Groundwater Sampling

Following completion of the remediation, groundwater samples will be collected to document groundwater quality at the Site. An estimated six groundwater samples representing upgradient (PRMW-05), source/treatment area (PRMW-01 through PRMW-03), and downgradient (PRMW-04 and PRMW-05) samples, plus QA/QC samples, will be collected and analyzed for VOCs quarterly for a minimum of one year post-remediation.

SMP and EE

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 a 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 SSDS and SVE system.

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 Excavation Work Plan which details the provisions for the management of future excavations in areas of remaining contamination;
2. Descriptions of the provisions of the EE, including any land use and/or groundwater use restrictions;
3. Provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the Site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
4. Provision for the management and inspection of the identified ECs;
5. Maintaining Site access controls and NYSDEC notification;
6. The steps necessary for the periodic reviews and certification of the ICs and ECs;
7. A Monitoring Plan to assess the performance and effectiveness of the remedy. The Monitoring Plan will include, but may not be limited to:
    a. Visual monitoring of the building slab to rule out any vapor intrusion pathways in buildings developed on the Site, as may be required by the Institutional and Engineering Control Plan discussed above; and
8. A schedule of monitoring and frequency of submittals to NYSDEC.

3.2 ALTERNATIVE II – TECHNICAL DESCRIPTION

Alternative II, a Track 4 remedy, will include the following tasks:

- 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.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover on the Site.

- Decommission existing on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 1,400 cu yd of contaminated fill/native material Site-wide to achieve a Track 4 restricted use remedy. Excavation will be to 2 ft bgs Site-wide.
- If encountered, removal, decommissioning, and off-Site disposal of any USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
- Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
- Implementation of ISCO through existing wells, injection wells, and/or temporary injection points utilizing AP-pH to reduce elevated concentrations of petroleum-related VOCs in groundwater.
- Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
- 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.
- Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting RRSCOs), RCA, or virgin, native crushed stone.
- Collection and analysis of documentation soil samples from the excavation base and sidewalls in accordance with DER-10, to document post-excavation conditions.
- Construction of a composite cover system consisting of a minimum of 4 in. of subbase (RCA) overlain by a 12-in. concrete slab and installation of a waterproofing/vapor barrier (20-mil thick) to mitigate the potential for a soil vapor exposure pathway under the building.
- Installation, operation, and monitoring of an SVE system along the perimeter of the Site to prevent off-Site migration of petroleum-related VOCs and CVOCs in soil vapor.
- Installation, operation, and monitoring of an active SSDS to mitigate potential exposures related to soil vapor intrusion.
- Installation of five permanent monitoring wells and commencement of quarterly groundwater monitoring in accordance with DER-10 for a minimum of one year following remedial activities to document groundwater quality beneath the Site.
- Establishment of use restrictions, if necessary, including prohibitions on the use of groundwater from the Site and prohibitions on sensitive Site uses, such as farming or vegetable gardening in residual Site soil, to significantly reduce the potential for future exposure pathways.
- Establish an SMP for ICs and ECs that includes an Institutional and Engineering Control Plan, a Monitoring Plan, and an Operations and Maintenance Plan.
- Recording of an EE to ensure future owners of the Site continue to maintain ECs/ICs as required.

The Alternative II remediation extent is shown on Figure 10 and is based on data presented in the RI and SRI. The requirements for each of the Alternative II tasks are described below.

On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix C) 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 Aeroqual® AQS1 Air Quality Monitors capable of recording data and calculating 15-minute averages. Field personnel will monitor Site perimeters for visible dust and odors.

Support of Excavation

No SOE system would be required for the Track 4 remedy.

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, and analytical 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 EPA 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.

Fill and Soil Removal

Metals, and in some areas, SVOCs, were detected in contaminated fill material at concentrations that exceed RRSCOs. To achieve Track 4, soil removal and disposal will extend from surface grade to 2 ft bgs throughout the entire Site to remove contaminated fill material. The estimated volume of material requiring removal and off-Site disposal for a Track 4 cleanup is approximately 1,400 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 10.

UST Removal

If encountered, USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) would be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5 and 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances

would be registered and administratively closed with the NYSDEC PBS unit. Petroleum-impacted soil would be excavated and disposed of off-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.

Excavation Backfill

As required for construction purposes, imported material will consist of clean fill that meets the RRSCOs and PGWSCOs 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. 100 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 D.

Documentation/Endpoint 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 sidewalls of the proposed remedial excavation at a frequency of one sample per 30 linear ft to document remaining contamination at the Site. An estimated 22 documentation soil samples, plus QA/QC samples, would be collected and analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals, PFAS, and 1,4-dioxane. The proposed confirmation sample locations are included in Figure 12.

Composite Cover System

As part of the construction, a composite cover system would be installed, consisting of a minimum of 4 in. of subbase (RCA) overlain by a 12-in. concrete slab and installation of a waterproofing/vapor barrier (20-mil thick) to reduce the potential for a soil vapor exposure pathway. Under the Track 4 remedy, the composite cover system would function as ECs to be monitored under Site management.

Alkaline-Activated Persulfate Groundwater Treatment

AP-pH injections would be conducted throughout the Site up to four locations as shown in Figure 13. The injections would be conducted via existing monitoring wells, and/or temporary or permanent injection points, and would include the introduction of persulfate and sodium hydroxide solution. Using an approximately 20-ft ROI, at least four injection points would be needed to treat groundwater and saturated soil where contamination exceeds the PGWSCOs in the northwestern portion of the Site where elevated concentrations of petroleum-related VOCs were detected in groundwater.

The remedy would treat impacted groundwater and saturated soils from 35 to 65 ft bgs through the activation of persulfate by the sodium hydroxide solution; the AP-pH works by breaking the bonds between the carbon and hydrogen in petroleum-based compounds. A PDI will be conducted prior to the

Remedial Action to confirm the vertical extent of treatment by the injections, the ROI, and finalize the remedial design. A PDI scope of work is provided as Appendix E.

Following the PDI, Haley & Aldrich will submit a PDI Report that summarizes the results along with the final remedial design for groundwater, as described above. The PDI Report will be submitted to the NYSDEC for review and approval prior to implementation.

Post-remediation groundwater sampling would be conducted to evaluate the effectiveness of the AP-Ph groundwater treatment. Specifications of the alkaline-activated persulfate are provided as Appendix F.

Post-Remediation Groundwater Sampling

Following completion of the remediation, groundwater samples will be collected to document groundwater quality at the Site. An estimated six groundwater samples representing upgradient (PRMW-05), source/treatment area (PRMW-01 through PRMW-03), and downgradient (PRMW-04 and PRMW-05) samples, plus QA/QC samples, will be collected and analyzed for VOCs quarterly for a minimum of one year post-remediation.

Sub-Slab Depressurization System

An active SSDS would be installed, consisting of horizontal perforated piping installed in a permeable layer under the vapor barrier (20-mil Stego or equivalent). The permeable layer will be 8-in. thick ¾-in. washed aggregate, or similar permeable material. The horizontal piping would consist of 3-in. diameter perforated Schedule 40 PVC pipes with leader pipes connecting to vertical risers. The vertical risers would be constructed of solid steel pipe risers and exit through the cover systems with sealed penetrations. Each vertical riser would 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 HVAC intakes. It will be complete with a check valve to prevent air flow into the SSDS, and a rain cap. At least six sub-slab vapor monitoring points would be installed in the permeable layer to allow for the collection of sub-slab vapor samples.

The preliminary location and layout of the active SSDS are shown in Figure 15A. Typical SSDS design details are shown in Figure 15B. The location and layout of the SSDS may be altered to accommodate structural, electrical, sewer, utility, and other aspects of building construction.

Soil Vapor Extraction System and Pilot Test

An SVE system would be installed along the eastern perimeter of the Site and in the soil vapor source area located in the central-west portion of the Site. This would be designed to prevent off-Site migration of soil vapor potentially impacted with petroleum-related VOCs and CVOCs. Site-wide groundwater impacts above the AWQS were observed from 40 to 60 ft bgs during the RI. Therefore, the vertical extent of potentially impacted soil vapor is based on the bottom of excavation (15 ft bgs) and the approximate depth of the groundwater table (35 ft bgs).

A conceptual layout of the SVE system is shown in Figure 16. This layout is based on an assumed ROI of 15 ft, which is based on the Site geology. A blower that can provide adequate vacuum and air flow to achieve a 15 ft ROI will be determined during a pilot test.

Prior to the pilot test, VEP locations will be installed to approximately 30 ft bgs, where the vertical SVE treatment zone would be from approximately 20 to 30 ft bgs. This approximately 10-ft vertical zone will be treated with a single VEP well screen. The VEPs would be 2-in. diameter schedule 40 PVC and have 0.010-in. slot screens. Each VEP well pipe would enter the first-floor area through sealed penetrations in the concrete floor. The 2-in. diameter pipes would each have a dedicated sample port and valve to monitor individual VEPs separately. Additionally, MPs will be installed at a depth of 25 ft bgs and consist of 12-in. stainless steel screens, connected to the surface with Teflon tubing. Once installed, a pilot test would be conducted on several VEPs throughout the Site with a regenerative blower. Vacuum readings will be collected at the MPs at different applied vacuums and flow rates to determine the vacuum demand to achieve a 15 ft ROI. The SVE pilot test results will be incorporated into a remedial design and submitted to the NYSDEC for review and approval before implementation at the Site.

After the pilot test, the above-grade components of the SVE system will be installed, which will connect each VEP to a 4-in. diameter header pipe and will direct air flow to an air-water separator, blower, and vapor treatment system. The air-water separator would be used to separate condensate from the vapor stream. The extracted water would be pumped from the separator to a tank. Any collected water would be characterized and properly disposed of off Site. Off-gas from the SVE blower would be treated with two drums of GAC in series. The exhaust point of the SVE system shall be at least 12 in. above the highest roof surface and at least 10 ft away from any adjacent building or HVAC intakes. The operation of the SVE system will continue until influent concentrations show no remaining contamination or indicate asymptotic conditions and will not be discontinued without written approval from NYSDEC.

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 a NYSDEC-approved SMP, including maintenance of the cover system; 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.

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 Excavation Work Plan which details the provisions for the management of future excavations in areas of remaining contamination;
2. Descriptions of the provisions of the EE, including any land use and/or groundwater use restrictions;

3. Provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the Site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
4. Provision for the management and inspection of the identified ECs;
5. Maintaining Site access controls and NYSDEC notification;
6. The steps necessary for the periodic reviews and certification of the ICs and ECs;
7. A Monitoring Plan to assess the performance and effectiveness of the remedy. The Monitoring Plan will include, but may not be limited to:
    a. Visual monitoring of the cover system to rule out any vapor intrusion pathways in buildings developed on the Site, as may be required by the Institutional and Engineering Control Plan discussed above; and
8. A schedule of monitoring and frequency of submittals to NYSDEC.

3.3 ALTERNATIVE III – TECHNICAL DESCRIPTION

Alternative III, a Track 1 remedy, will include the following tasks:

- 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.
- Design and construction of an SOE system to facilitate the Track 1 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover on the Site.
- Decommission existing on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 29,100 cu yd of contaminated fill/native material Site-wide that exceeds UUSCOs as defined by 6 NYCRR Part 375-6.8. Excavation will be to 45 ft bgs in the northwest corner of the Site, to 65 ft bgs along the western portion of the Site to remove petroleum-impacted soil, and to 40 ft bgs on the remainder of the Site.
- If encountered, removal, decommissioning, and off-Site disposal of any USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
- Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
- Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.

- Dewatering, characterization, and treatment of water accumulated in excavations prior to discharge to a NYSDEC-approved sewer/sanitary line (pending permits), or localized dewatering with containerization, classification, and disposal at an approved receiving facility.
- 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.
- Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), RCA, or virgin, native crushed stone.
- Collection and analysis of confirmation soil samples from the Site-wide remedial excavation base in accordance with DER-10, to document post-excavation conditions and achievement of Track 1 UUSCOs.
- Completion of a soil vapor intrusion evaluation in accordance with DER-10 and NYSDOH Final Guidance on Soil Vapor Intrusion following the completion of the entire building envelope, with HVAC in place and functioning.

The Alternative III remediation extent is shown on Figure 11 and is based on data presented in RI and SRI. The requirements for each of the Alternative III tasks are described below.

On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix C) 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 Aeroqual® AQS1 Air Quality Monitors capable of recording data and calculating 15-minute averages. Field personnel will monitor the Site perimeters for visible dust and odors.

Support of Excavation

To accommodate the removal of soil for a Track 1 remedy and prevent any migration of off-Site contamination onto the Site, an SOE system up to 65 ft bgs would be required. Excavations are anticipated to be completed below the water table throughout the Site; therefore, significant dewatering will occur and will need to be managed and disposed of off-Site in accordance with local and state regulations. A dewatering permit application would be submitted to the New York City Department of Environmental Protection (NYCDEP). Upon approval, the dewatering design would be submitted to NYSDEC.

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, and analytical 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 EPA 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.

Fill and Soil Removal

Metals, and in some areas, SVOCs, were detected in contaminated fill material at concentrations that exceed the UUSCOs and RRSCOs. Petroleum-related VOCs were detected in soil at and below the groundwater interface in the northwest portion of the Site. To achieve Track 1, excavation will be to 45 ft bgs in the northwest corner of the Site, to 65 ft bgs along the western portion of the Site to remove petroleum-impacted soil, and to 40 ft bgs on the remainder of the Site. The estimated volume of material requiring removal and off-Site disposal for a Track 1 cleanup is approximately 29,100 cu yd. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts. The Alternative III excavation plan is shown in Figure 11.

UST Removal

If encountered, USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) would be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5 and 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances would be registered and administratively closed with the NYSDEC PBS unit. Petroleum-impacted soil would be excavated and disposed of off-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.

Excavation Backfill

Backfilling to 15 ft bgs would be required for the proposed development. Imported material will consist of clean fill that meets the UUSCOs or other acceptable fill material, such as virgin stone from a quarry or RCA. Approximately 18,500 cu yd of backfill would be anticipated for post-remediation and construction purposes. 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. 100 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 D.

Fluids Management

Liquids to be removed from the Site, including dewatering fluids, would be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. Liquids discharged into the NYC sewer system would be addressed through approval by the NYCDEP. Based on the depth to water, significant dewatering would be anticipated to facilitate the excavation of material to a minimum depth of 40 ft bgs (Site-wide) with localized areas to 65 ft bgs for the removal of contaminated material. A dewatering and treatment system would be designed by the remediation contractor's New York State-licensed P.E.

Dewatered fluids would not be recharged back to the land surface or subsurface. Dewatering fluids would be managed off-Site in a manner consistent with federal, state, and local rules and regulations. Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, and/or river) is prohibited without a State Pollutant Discharge Elimination System (SPDES) permit.

Confirmation/Endpoint 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 to confirm Track 1 UUSCOs were achieved. An estimated 22 confirmation soil samples, plus QA/QC samples, would be collected and analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals, PFAS, and 1,4-dioxane. The proposed confirmation sample locations are included in Figure 12.

Post-Remedy Soil Vapor Intrusion Evaluation

Several VOCs were detected at concentrations above the laboratory detection limits in soil vapor samples throughout the Site and are proposed to be addressed through source soil removal.

Following Remedial Actions and prior to occupancy, indoor air samples would be collected in areas proposed for commercial or residential purposes to determine the potential for vapor intrusion.

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.

- Protection of human health and the environment
- Compliance with Standards, Criteria, and Guidance (SCG)
- Short-term effectiveness and impacts
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of contaminated material
- Implementability

- Cost-effectiveness
- Community acceptance
- Green and Sustainable Remediation (including climate resiliency)
- Land use

3.4.1 Protection of Human Health and the Environment

Alternative III would provide the most overall protection to human health and the environment by removing from the Site all impacted material exceeding UUSCOs to depths of 40 to 65 ft bgs; however, it is the most expensive, difficult to implement, and has the most short-term impacts on the surrounding community. Alternative I protects human health and the environment by removing impacted material exceeding RRSCOs up to 15 ft across the Site and through the implementation of ISCO injections to treat petroleum-impacted groundwater in the northwest portion of the Site. Alternative II also protects human health and the environment by removing impacted material exceeding RRSCOs up to 2 ft bgs throughout the Site. Additionally, installation of ECs, including an active SSDS and SVE system, would be installed under Alternative I, and an active SSDS, SVE system, and composite cover system under Alternative II. Each alternative will maintain the protection of human health and the environment by implementing a Site-specific CHASP and CAMP (details are discussed in Section 4.1). OSHA requirements for on-Site construction safety will be followed by Site contractors performing work.

3.4.2 Compliance with Standards, Criteria, and Guidance

Each alternative will be in compliance with applicable SCGs listed in Section 4.1 by removing Site sources of contamination to achieve the RAOs. While implementing any of the three remedies, 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

Alternatives I and III will have more significant short-term adverse impacts and risks to the community because there will be potential complications and risks involved with designing and constructing SOE and underpinning for the building and structures adjoining the Site, especially in the case of Alternative III, which involves significant excavation up to 65 ft bgs and dewatering of contaminated groundwater. Potential impositions on roadway and pedestrian traffic associated with construction may result from remedial excavation to achieve a Track 1 or 2 cleanup. Increased truck traffic in these alternatives, relative to Alternative I, would be necessary to haul out the additional soil that exceeds RRSCOs to 15 ft bgs across the Site to achieve Track 2 standards or to 65 ft bgs to achieve Track 1 standards.

Under Alternative I, the excavated soil and fill would require up to approximately 530, 20-cu-yd truck trips for disposal (assuming the maximum estimated remedial excavation depth of 15 ft bgs across the Site footprint). Implementing Alternative I would require approximately four to five months of effort (assuming normal work hours). Under Alternative II, the excavated soil and fill would require up to approximately 70, 20-cu-yd truck trips for disposal (assuming the maximum estimated remedial excavation depth of 2 ft bgs across the Site footprint). Implementing Alternative I would require

approximately two to three months of effort (assuming normal work hours). Under Alternative III, the excavated contaminated soil and fill would require approximately 1,455 20-cu-yd truck trips for disposal. Implementing Alternative III would require approximately 12 to 14 months of effort (assuming normal work hours). Under Alternative III, notably more impacted material would be excavated, potentially creating further exposure to the nearby community. As a result, Alternative III proposes the greatest short-term adverse impacts and risks to the community as well as the largest carbon footprint for remediation. Alternatives I and II will result in similar, though lesser, short-term adverse impacts and risks to the community and a drastically reduced carbon footprint.

Truck traffic will be routed on the most direct course using major thoroughfares where possible, and flaggers will be used to protect pedestrians at Site entrances and exits. Waiting times associated with 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 remedial alternatives, dust will be controlled by the on-Site application of water spray as needed. ECs, such as slowing the pace of work, applying foam and/or dust suppressant, and/or covering portions of the excavation, will be used to suppress odors/dust when required. Work will be modified or stopped according to the action levels defined in the CAMP. Therefore, short-term impacts are similar for each alternative.

3.4.4 Long-Term Effectiveness and Performance

Alternative III will remove contaminated soil from the Site exceeding UUSCOs, while Alternative I will remove contaminated soil from the Site exceeding RRSCOs up to 15 ft bgs, and Alternative II will remove contaminated soil exceeding RRSCOs from the site up to 2 ft bgs and will be documented in post-excavation documentation soil sampling. Alternatives I and III include the sitewide removal of contaminated fill. Alternatives I and II require the installation of an active SSDS to mitigate soil vapor intrusion. Alternative I will require a post-construction soil vapor intrusion evaluation to evaluate the potential for vapor intrusion into the newly constructed building. For both Alternatives I and II, ECs and/or ICs will be in place for the long-term protection of human health and the environment.

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

Each remedial alternative 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 Alternative III will be technically challenging because of SOE requirements associated with the protection of the neighboring building and streets and would require dewatering. This remedy will consist primarily of excavation with standard bucket excavators. Alternative III would also require the use of special long-reach excavator equipment to achieve the excavation depth required to remove impacts above UUSCOs. 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 expected to require schedule extensions and additional costs. This alternative, while considered feasible, is most expensive and poses more safety risks with excavations extending to these proposed depths.

The technical feasibility of implementing Alternatives I and II is much more feasible compared to Alternative III, as significantly less excavation would be required, and dewatering would not be necessary to complete the remedial excavation. These alternatives will 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. Additional coordination between trades may be required.

3.4.7 Cost Effectiveness

Alternative I – Based on the assumptions detailed for Alternative I, the estimated remediation cost of a Track 2 cleanup is approximately $6,189,000. Alternative I is more cost-effective in the short-term and comparable in cost for the long-term to the Alternative II remedy as both remedies would require some SMP operation, maintenance, and monitoring obligations. Table 1 details the individual cost components used to prepare this cost estimate.

Alternative II – Based on the assumptions detailed for Alternative II, the estimated remediation cost of a Track 4 cleanup is approximately $5,162,000. Contamination would remain on the Site after the remedial excavation, and there would be costs for long-term maintenance, Site management, and monitoring activities upon completion of remedial activities. Table 2 details the individual cost components used to arrive at this cost estimate.

Alternative III - Based on the assumptions detailed for Alternative III, the estimated remediation cost of a Track 1 cleanup is approximately $10,671,000. Table 3 details the individual cost components used to arrive at this cost estimate.

3.4.8 Community Acceptance

Each remedial alternative 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 G. Substantive public comments will be addressed before the remedy is approved.

3.4.9 Green and Sustainable Remediation

Each remedial alternative will implement BMPs for green and sustainable remediation. An environmental footprint analysis (EFA) and climate screening checklist are provided in Appendix H. Each alternative's EFA summary is provided below:

Alternative I

Waste Generation: All waste generation would be due to soil and concrete disposal during the remedial excavation.

Energy Usage: Approximately 70 percent of energy usage will be due to off-Site transportation and disposal, while another approximately 30 percent will be due to excavation and backfill activities.

Emissions: Approximately 70 percent of emissions will be due to transportation and off-Site emissions related to management and disposal of exported materials, while another 30 percent will be due to on-Site equipment emissions during excavation.

Water Usage: Approximately 70 percent of water usage will be due to truck wash activities, while the remaining 30 percent will be due to the ISCO injections.

While Alternative I results in a higher carbon footprint due to excavation of soil to 15 ft bgs over Alternative II (excavation to 2 ft bgs), it provides increased protection of public health and the environment through source removal and control.

Alternative II

Waste Generation: All waste generation would be due to soil and concrete disposal during the remedial excavation.

Energy Usage: Approximately 60 percent of energy usage will be due to off-Site transportation and disposal, while another approximately 40 percent is due to excavation and backfill activities.

Emissions: Approximately 60 percent of emissions will be due to transportation and off-Site emissions related to management and disposal of exported materials, while another approximately 40 percent will be due to on-Site equipment emissions during excavation.

Water Usage: Approximately 75 percent of water usage will be due to the ISCO injections, while the remaining 25 percent will be due to truck wash activities during the remedial excavation.

Alternative II (excavation to 2 ft bgs) is more sustainable than Alternative III, as it will treat groundwater contamination with in-situ methods instead of source removal, resulting in a greener remediation.

Alternative III

Waste Generation: All waste generation would be due to soil and concrete disposal during the remedial excavation.

Energy Usage: Approximately 80 percent of energy usage will be due to excavation and backfill activities, including off-Site transportation and disposal.

Emissions: Approximately 75 percent of emissions will be due to transportation and off-Site emissions related to management and disposal of exported materials, while another approximately 25 percent will be due to on-Site equipment emissions during excavation.

Water Usage: Approximately 95 percent of water usage would be due to the truck wash and dewatering activities during the remedial excavation.

Alternative III would result in the highest carbon footprint due to the need for increased soil removal through trucking material to disposal facilities.

3.4.10 Land Use

The current, intended, and reasonably anticipated future residential and commercial land use of the Site and its surroundings are compatible with all remedial alternatives and the current zoning. The proposed development will include a new multi-story mixed-use commercial and residential building. Low- to mid-rise commercial and residential buildings, and one- and two-family homes 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 achieves the Remedial Action goals established for the redevelopment project and is effective in the short-term. Alternative I effectively reduces contaminant mobility and toxicity and is a better alternative in the reduction of contaminant volume and toxicity than Alternative II. Alternative I is similar to that of Alternative II in the long-term, as both would require the establishment of ICs and installation of ECs for soil remaining on-Site above RRSCOs. The excavation depths for Alternative III are significantly higher than those of Alternatives I and II, and would also require dewatering, resulting in a significantly higher cost.

Alternative I is preferred over Alternative II and III due to implementability and cost-effectiveness, as it also provides overall protection to human health and the environment at a lesser cost. Therefore, Alternative I is the recommended remedial alternative for this Site.

Figure 9 depicts the Alternative I remedial plan, Figure 10 depicts the Alternative II remedial plan, and Figure 11 depicts the Alternative III remedial plan. The extents of remedial excavation are based on data presented in the RIR prepared by Haley & Aldrich of New York.

3.5.1 Zoning

The Site is currently zoned R6-A for residential use with a C2-4 overlay for commercial use. The Site is located in an urban area characterized by multi-story commercial and residential buildings.

3.5.2 Surrounding Property Uses

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

3.5.3 Environmental Justice Concerns

Per the "Potential Environmental Justice Areas in Northern Brooklyn, Kings County, New York," the Site is not in a potential Environmental Justice area. 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 future use is not expected to cause or increase a disproportionate burden on the community.

3.5.4 Land Use Designations

There are no federal or state land use designations.

3.5.5 Population Growth Patterns

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

3.5.6 Accessibility to Existing Infrastructure

The Site is accessible via existing infrastructure.

3.5.7 Proximity to Cultural Resources

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

3.5.8 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.

3.5.9 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.

3.5.10 Proximity to Floodplains

According to the Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) dated September 5, 2007 (Map No. 3604970213F), the Site is not located within a floodplain.

3.5.11 Geography and Geology of the Site

The Site geology is described in Section 2.5.

3.5.12 Current Institutional Controls

There are currently no ICs being implemented at the Site.

3.6 SUMMARY OF SELECTED REMEDIAL ACTIONS

Alternative I, a Track 2 remedy, will include the following:

- 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.
- Design and construction of an SOE system to facilitate the Track 2 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover on the Site.
- Decommission existing on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 10,600 cu yd of contaminated fill/native material Site-wide. This includes excavation to 15 ft bgs Site-wide.
- If encountered, removal, decommissioning, and off-Site disposal of any USTs and/or associated appurtenances (e.g., fill lines, vent lines, and electrical conduits) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
- Implementation of a preliminary waste characterization to facilitate off-Site disposal of excavated soil/fill.
- Implementation of ISCO through existing wells, injection wells, and/or temporary injection points utilizing AP-pH to reduce elevated concentrations of petroleum-related VOCs in groundwater.
- Screening for indications of contamination (by visual means, odor, and monitoring with PIDs) of excavated material during intrusive Site work.
- 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.
- Backfilling of excavated areas, if needed for development, with certified-clean material (i.e., meeting RRSCOs), RCA, or virgin, native crushed stone.
- Collection and analysis of documentation soil samples from the excavation base in accordance with DER-10, to document post-excavation conditions.
- Installation, operation, and monitoring of an SVE system along the perimeter of the Site to prevent off-Site migration of petroleum-related VOCs and CVOCs in soil vapor.
- Installation, operation, and monitoring of an SSDS to mitigate potential exposures related to soil vapor intrusion.

- Installation of five permanent monitoring wells and commencement of quarterly groundwater monitoring in accordance with DER-10 for a minimum of one year following remedial activities to document groundwater quality beneath the Site.
- Establishment of use restrictions, if necessary, including prohibitions on the use of groundwater from the Site and prohibitions on sensitive Site uses, such as farming or vegetable gardening in residual Site soil, to significantly reduce the potential for future exposure pathways.
- Establish an SMP for ICs and ECs that includes an Institutional and Engineering Control Plan, a Monitoring Plan, and an Operations and Maintenance Plan.
- Recording of an EE to ensure future owners of the Site continue to maintain ECs/ICs as required.

All responsibilities associated with the Remedial Action, including permitting and pre-treatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations. Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the NYSDEC-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER.

4. Remedial Action Program

4.1 GOVERNING DOCUMENTS

The primary documents governing the Remedial Action are summarized in this section.

4.1.1 Standards, Criteria, and Guidance

The following SCGs are typically applicable to Remedial Action projects in New York State, and will be consulted and adhered to as applicable:

- 29 Code of Federal Regulations (CFR) Part 1910.120 – Hazardous Waste Operations and Emergency Response
- 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 –SPDES Permits
- CFR Title 29 Part 1910.120 - Hazardous Waste Operations and Emergency Response Standard
- CFR Title 29 Part 1926 - Safety and Health Regulations for Construction
- CP-43 – Commissioner 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)
- 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 C). The CHASP will apply to remedial and construction-related work on Site. The CHASP provides a mechanism for establishing on-Site safe working conditions, safety organization, procedures, and PPE requirements during 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
- Safety data sheets (SDS)

The Volunteer and associated parties preparing the remedial documents submitted to the State and those performing the construction work are responsible for the preparation of a CHASP and for performance of the work according to the CHASP and applicable laws. The CHASP and requirements defined in this RAWP pertain to 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, whose resume is included in Appendix I. If required, confined space entry will comply with OSHA requirements to address the potential risk posed by combustible and toxic gases.

4.1.3 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) has been prepared that describes the quality control 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 J 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 report review.

4.1.4 Construction Quality Assurance Plan

A Construction Quality Assurance Plan (CQAP) will be prepared by the General Contractor 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 quality and implement the CQAP. A list of engineering personnel involved in implementation of the CQAP and procedures that will be carried out by the remedial engineering team are listed in Section 4.3.1. Project personnel resumes are provided in Appendix I.

The CQAP will include the following:

- Responsibilities and authorities of the organizations and the key personnel involved in the design and construction of the remedy.
- Qualifications of the QA personnel that demonstrate that they possess the training and experience necessary to fulfill project-specific responsibilities.
- The observations and tests that will be used to monitor construction and the frequency of performance of such activities.
- The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures, as addressed in the plans and specifications.
- Requirements for project coordination meetings between the Applicant and its representatives, the Construction Manager, Excavation Contractor, remedial or environmental subcontractors, and other involved parties.
- Description of the reporting requirements for QA activities including such items as daily summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.
- Description of the final documentation retention provisions.

4.1.5 Soil/Materials Management Plan

A Soil/Materials Management Plan (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 Storm-Water 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-Site from the onset 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 one 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 Plan

Details of the CAMP are discussed in Section 5.4.11.

4.1.8 Contractors' Site Operations Plan

The Remediation Engineer (RE) will review plans and submittals for this remedial project, and Contractor and subcontractor document submittals, and will confirm that plans and submittals are in compliance with this RAWP. The RE is responsible for ensuring that later document submittals for this remedial project, including Contractor and subcontractor document submittals, are in compliance with this RAWP. Remedial documents, including Contractor and subcontractor document submittals, will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work associated with the remedial document.

4.1.9 Citizen Participation Plan

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

1. Brooklyn Community Board 14

   810 East 16th Street
   Brooklyn, New York 11230
   Attn: Shawn Campbell
   Email: info@cb14brooklyn.com
   Phone: 718.859.6357

2. Brooklyn Public Library- Cortelyou Branch

   1305 Cortelyou Road at Argyle Road
   Brooklyn, New York 11226
   Attn: Chered Spann, Supervising Librarian
   Email: cspann@bklynlibrary.org
   Phone: 718.693.7763
   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

3. NYSDEC Region 2

   1 Hunter's Point Plaza
   47-20 21st Street
   Long Island City, New York 11101-5401
   Hours: Monday to Friday - 8:30 a.m. to 4:45 p.m.
   Call for an appointment

In addition, an electronic repository can be accessed via DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/C224407/.

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 NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

4.2 GREEN AND SUSTAINABLE REMEDIATION AND CLIMATE RESILIENCY

An EFA was conducted for the Track 2 remedy and is provided in Appendix H. The total energy usage, greenhouse gas emissions, and hazardous air pollutants (HAPs) are estimated as follows:

- 5,215 million British thermal units (MMBTUs);
- 825,611 pounds of carbon dioxide (CO_2);
- 4,358 pounds of nitrogen oxides (NO_X);
- 1,457 pounds of sulfur oxides (SO_X);
- 6,694 pounds of particulate matter (PM); and,
- 53 pounds of HAPs.

A climate screening checklist was prepared to evaluate if the remedy would be impacted by major storm flooding, extreme temperatures, increased precipitation, wind, sea level rise, and wildfires. Based on the Site location and selected remedy, inspections should be conducted after severe storms to evaluate the active remedy. Additionally, dewatering systems should be inspected prior to anticipated storm events that could result in a power outage, if needed. The climate screening checklist is provided in Appendix H.

The work completed as part of this work plan will comply with all NYSDEC guidance documents, including DER-31: Green Remediation (NYSDEC, 2011). To ensure compliance with DER-31, the work will be completed using the best practices and techniques described below. Specific reporting methods relative to DER-31 are further described below.

4.2.1 Best Practices and Techniques

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 addition, the NYSDEC expects that the techniques identified below will be implemented at sites unless a site-specific evaluation demonstrates impracticability or favors an alternative green approach:

Practice/Technique	Potential Benefits[1]	Applicable to this Work Plan
Use renewable energy where possible or purchase Renewable Energy Credits	Reduce/supplement purchased energy use	
Use of remediation technologies with an intermittent energy supply (i.e., energy use during peak energy generation only)	Reduce energy use	
Incorporate green building design	Reduce future use impacts	X
Reuse existing buildings and infrastructure to reduce waste	Reduce waste and material use	
Reuse and recycle construction and demolition debris and other materials (i.e., grind waste wood and other organics for on-site use)	Reduce waste and material use	
Design cover systems to be usable (i.e., habitat or recreation)	Reduce construction impacts of future development	X
Reduce vehicle idling	Reduce air emissions and fuel use	X
Use of LSDF or alternate fuels (i.e., biodiesel or E85) when possible	Reduce air emissions	X
Sequence work to minimize double-handling of materials	Reduce construction impacts	X
Use energy-efficient systems and office equipment in the job trailer	Reduce energy use	X
[1]*Potential benefits listed are not comprehensive and will vary depending upon the site and implementation of the practice or technique.*		

In order to comply with the requirements of DER-31, the following actions will be taken:

1. All vehicles and fuel-consuming equipment on the Site will be shut off if not in use for more than three minutes;
2. If necessary, any soil cover placed on the Site will meet 6 NYCRR Part 375 RRSCOs and PGWSCOs and will allow future use of the Site in a residential setting;
3. Work will be sequenced, to the extent practicable, to allow the direct loading of waste containers for off-Site disposal;
4. To the extent practicable, energy-efficient systems and office equipment will be utilized within the Site trailers; and
5. All vehicles and equipment that consume diesel fuel will be required to use ultra-LSDF.

4.2.2 Reporting

All green and sustainable practices and techniques employed will be discussed in the FER.

4.3 GENERAL REMEDIAL CONSTRUCTION INFORMATION

4.3.1 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 Appendix I.

NYSDEC Case Manager	Yildiz Palumbo
NYSDOH Case Manager	Sarita Wagh
Remediation Engineer	Suzanne M. Bell, P.E.
Principal/Qualified Environmental Professional (QEP)	James M. Bellew
Project Manager	Emily Butler
Haley & Aldrich of New York Health & Safety Director	Brian Fitzpatrick, CHMM
Health & Safety Officer	Brian Ferguson
Field Team Leader/Quality Assurance Officer	Sarah A. Commisso

Haley & Aldrich of New York personnel, under the direct supervision of the QEP and the RE, will be on the Site during implementation of the RAWP to monitor particulates and organic vapor 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 on a weekly basis. 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 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.

4.3.2 Remedial Engineer

The RE for this project will be Suzanne M. Bell, P.E. The RE is a registered professional engineer licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program at the Site. The RE will certify in the FER that the remedial activities were observed by qualified environmental professionals under their supervision and that the remediation requirements set forth in this RAWP and other relevant provisions of Environmental Conservation Law (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 communication 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.

4.3.3 Remedial Action Construction Schedule

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

4.3.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings (NYCDOB) construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Volunteer of any variances issued by the NYCDOB. NYSDEC reserves the right to deny alternate remedial construction hours.

4.3.5 Site Security

Site access will be controlled by gate entrances to the property. The Site perimeter will be secured with gated, 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.

4.3.6 Traffic Control

Site traffic will be controlled through designated points of access along Coney Island 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.

4.3.7 Contingency Plan

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

4.3.8 Discovery of Additional Contaminated Soil

During remediation and construction, the soil will be continuously monitored by the RE's field representatives via visual, olfactory, and instrumental field screening techniques to identify additional soil that may not be suitable for disposal at the NYSDEC-approved disposal facility. If such soil is identified, the suspected impacts will be confirmed by collecting and analyzing samples in accordance with the NYSDEC-approved facility's requirements. If the previously approved facility is not permitted to receive the impacted soil, the soil will be excavated and disposed of off-Site at a permitted facility that can receive the material.

Identification of unknown or unexpected contaminated media identified by screening during ground-intrusive Site work will be promptly communicated to the NYSDEC Case Manager. These findings will be detailed in the monthly BCP progress report.

4.3.9 UST Discovery

In the event a UST is discovered during excavation, it will be decommissioned as per the 6 NYCRR Parts 612.2 and 613.9 and DER-10 Section 5.5. After removal of the tank and residual contents, confirmatory post-excavation soil samples will be collected as outlined in DER-10 if deemed necessary by the NYSDEC and/or the RE.

Post-excavation soil samples are not expected where the proposed excavation would extend below the UST unless visual, olfactory, or instrumental field screening techniques indicate the potential for contamination. If petroleum-impacted soils are encountered, they will be segregated, characterized, and disposed of at an appropriate off-Site facility. Closure documentation, including affidavits, bills of lading, and tank disposal receipts, will be included in the FER. If necessary, the NYSDEC PBS registration will be updated.

In the event USTs are encountered during ground-intrusive activities, the NYSDEC Case Manager will be promptly notified, and pertinent information will be included in the monthly BCP progress report.

4.3.10 Worker Training and Monitoring

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

4.3.11 Agency Approvals

The Volunteer has addressed all State Environmental Quality Review Act (SEQRA) requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with current zoning for the property as determined by the local zoning or planning agency (i.e., New York City Department of City Planning). A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

A list of all federal, state, and local governmental permits, certificates, or other approvals or authorizations required to perform the remedial and development work have been, or will be, obtained prior to the start of the Remedial Action. These include, but are not limited to, new building permits, sidewalk permits, Fire Department of New York permits, and access agreements. A complete list of all federal, state, and local governmental permits will be provided in the FER. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency.

All planned remedial or construction work in regulated wetlands and adjacent areas will be specifically approved by the NSYDEC Division of Natural Resources to ensure that it meets the requirements for substantive compliance with those regulations prior to the start of construction. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose.

4.3.12 Pre-Construction Meeting with NYSDEC

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

4.3.13 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.

4.3.14 Remedial Action Costs

Detailed summaries of the total estimated costs of the Alternative I (Track 2), Alternative II (Track 4), and Alternative III (Track 1) remedies are included in Tables 1, 2, and 3, respectively.

4.4 SITE PREPARATION

4.4.1 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 remediation;
- Mobilizing necessary remediation personnel, equipment, and materials to the Site;
- Constructing one or more stabilized construction entrances 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
- Mark-out excavation hotspot areas (if identified during the RI or preliminary waste characterization sampling event).

4.4.2 Monitoring Well Decommissioning

Existing groundwater monitoring wells will be either protected during remediation and development for use in post-remedial monitoring or will be properly decommissioned in accordance with NYSDEC CP-43. The only exception to this is if the full length of the well is to be excavated during remediation. Similarly, existing soil vapor probes will be properly decommissioned unless they are to be fully removed during remediation or used for post-remedial monitoring. Decommissioning documentation will be provided in the FER.

4.4.3 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 selected and implemented, as needed, to minimize erosion and sedimentation off Site. The BMPs include, but are not limited to, silt fences or haybales to slow runoff and trap sediment, truck wash stations, and stabilized construction entrances to prevent mud tracking onto roads.

4.4.4 Temporary Stabilized Construction Entrance(s)

Temporary stabilized construction entrances will be installed at the existing curb cuts along Coney Island Avenue. The entrances 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.

4.4.5 Utility Marker and Easements Layout

545 Coney Island LLC 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 performance of the work under this RAWP. 545 Coney Island LLC and its Contractors are solely responsible for the safe execution of the work performed under this RAWP. 545 Coney Island LLC 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 and easements on the Site.

4.4.6 Excavation Support

Appropriate management of the structural stability of on-Site or off-Site structures during Site activities is the sole responsibility of 545 Coney Island LLC and its Contractors. 545 Coney Island LLC and its Contractors are solely responsible for the safe execution of the work performed under this RAWP. 545 Coney Island LLC 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, 545 Coney Island LLC and its Contractors are solely responsible for the implementation of the required, appropriate, or necessary health and safety measures during the performance of work conducted under this RAWP.

4.4.7 Equipment and Material Staging

The Contractor will notify the RE and 545 Coney Island LLC 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 usage by Site personnel.

4.4.8 Truck-Inspection 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-Site and returning the soil to the Site.

4.4.9 Site Fencing

The Site will continue to 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.

4.4.10 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.

4.5 REPORTING

Periodic reports and an FER will be required to document the Remedial Action. The RE, Suzanne M. Bell, will be responsible for certifying the FER and is licensed to practice engineering in the State of New York. Should Ms. Bell 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.

4.5.1 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 on a daily basis. 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, 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, they will be included in the daily reports. Emergency conditions and changes to the RAWP will be directly communicated to the NYSDEC Case Manager.

4.5.2 Monthly Reports

Monthly reports will consist of a summary of remedial work performed at the Site throughout the month 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;
- Tracking and comparison of Green Sustainable Remediation (GSR) metrics determined during the design process;
- Unresolved delays encountered that may affect the schedule; and
- CPP activities during this reporting period and activities anticipated in support of the CPP for the next reporting period.

Monthly Reports will be submitted to NYSDEC and NYSDOH Case Managers by the 10th day of each month following the reporting period.

4.5.3 Photographs

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, the source area, and the Site structures before, during, and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the FER.

4.5.4 Other Reporting

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the Remedial Action and reported in the FER, including a comparison to the goals established during the remedial program. Regular updates to the metrics (Spreadsheets for Environmental Footprint Analysis [SEFA], SiteWiseTM, or otherwise approved method) should be included in the monthly reports. The Climate Screening process and results will be documented in the form of a completed checklist and brief letter report in the FER. If the Climate Screening results indicate that a Climate Vulnerability Assessment (CVA) is necessary, a complete CVA Report will be developed. The CVA Report will be included as an Appendix or Attachment in relevant documents and/or submitted as a standalone report. Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.5.5 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 kept 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. Resolution will be documented and submitted to the NYSDEC. A representative of the Volunteer will reply within two weeks of receipt of the complaint to the complaint provider to ensure resolution.

4.5.6 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

As part of the preferred Alternative I remedy, excavation, stockpiling, off-Site transport, and disposal of up to approximately 10,600 cu yd of contaminated fill/native material that exceed RRSCOs up to 15 ft bgs will be required. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts.

5.1 SOIL CLEANUP OBJECTIVES

SCOs for the Site to 15 ft bgs will be the RRSCOs and PGWSCOs for those contaminants found in Site groundwater. Soil and materials management will be conducted in accordance with the SMMP as described below.

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 remedial excavation base Site-wide, and from the bottom of each deeper remedial excavation in accordance with NYSDEC DER-10, or at an alternative frequency approved by NYSDEC. Confirmation samples will be collected to document contamination remaining on the Site after completion of the Track 2 remedy and will be compared to the Track 2 RRSCOs and PGWSCOs for those contaminants found in Site groundwater.

A total of 22 confirmation soil samples, plus QA/QC samples, would be collected from the base of the Site-wide remedial excavation. Proposed confirmation sample locations are shown on Figure 12.

5.2.2 Methodology

Confirmation soil samples will be collected from the base of the remedial excavations 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. 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 ELAP-certified laboratory. Should additional soil samples be deemed necessary (e.g., additional tank closure, unknown environmental condition through visual evidence of a remaining source, or over-excavation of failed confirmation sample), confirmation sampling will be conducted in accordance with NYSDEC DER-10.

5.2.3 QA/QC

QC procedures for confirmation soil sampling are included in the QAPP (refer to Appendix J). 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.

5.2.4 Data Validation

ASP Category B deliverables will be prepared for remedial performance samples collected during 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.

5.2.5 Reporting

Analytical laboratories that analyze confirmation soil samples, prepare results, and perform contingency sampling will be NYSDOH ELAP-certified. The FER will include a table of confirmation sample data with highlights or a summary of exceedances of SCOs and a spider map showing all SCO exceedances. Confirmation sampling will be performed in accordance with DER-10 sampling frequency requirements. Confirmation samples will be collected at a rate of 900 sq ft from the base of the remedial excavation.

5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

The preferred Alternative I remedy includes the excavation to 15 ft bgs, stockpiling, off-Site transport, and disposal of 10,600 cu yd of contaminated fill material that exceeds the RRSCOs and PGWSCOs for contaminants in groundwater and treating up to approximately 480,000 gallons of groundwater. Groundwater is approximately 35 ft bgs and is not anticipated to be encountered and removed during the Remedial Action.

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 comingling impacted with non-impacted soil.

5.4.1 Soil Screening Methods

Visual, olfactory, and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the direction of the RE during all remedial and development excavations into known or potentially contaminated material. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during the development phase, such as excavations for foundations and for utility work, prior to issuance of the COC. All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, RI, and Remedial Action 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 qualified environmental professionals. Resumes will be provided for all personnel responsible for field screening (e.g., those representing the RE) of invasive work for unknown contaminant sources during remediation and development work.

5.4.2 Stockpile Methods

Material will be live-loaded to the extent practicable. If stockpiles are needed, they will be used as necessary to separate and stage excavated material pending loading or characterization sampling. Separate stockpile areas will be constructed to avoid comingling materials and will be located within the bounds of the Site; locations within the Site may change due to the nature of the remedial and development construction activities. 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 a minimum 6-mil plastic sheeting or tarps, which will be securely anchored to the ground. Stockpiles will be routinely inspected, and broken sheeting covers will be promptly replaced.
- 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.
- Each stockpile 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 run-off.
- Water will be available on Site at suitable supply and pressure for use in dust control.
- Stockpiles will be inspected at a minimum of once each week and after every storm event. Results of inspection will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.
- If encountered, stockpiling hazardous-impacted on Site will be avoided as necessary, and material will be live-loaded into trucks permitted to transport hazardous waste.

5.4.3 Materials Excavation and Load Out

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

Loaded vehicles leaving the Site will be appropriately lined, securely covered, manifested, and placarded in accordance with the appropriate federal, state, and local requirements, including applicable transportation requirements (i.e., New York State Department of Transportation [NYSDOT] and NYCDOT requirements). Trucks hauling historical fill material will not be lined unless free liquids are present or

the material is grossly impacted. Hazardous wastes derived from the Site will be stored, transported, and disposed of in compliance with applicable local, state, and federal regulations.

An outbound-truck inspection and wash station will be operated on the Site. Trucks will be washed, as necessary, before leaving the Site, and Site ingress and egress points will be cleaned of dirt and other materials to prevent material generated during remediation and development from being tracked off Site.

The Volunteer and its contractors are solely responsible for the safe performance of all invasive and other work performed under this RAWP and for the structural integrity of excavations and structures that may be affected by excavations (such as building foundations and bridge footings).

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 be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this RAWP. Mechanical processing of contaminated fill and contaminated soil on the Site is prohibited unless otherwise approved by NYSDEC.

The excavation will be surveyed, and survey information will be shown on maps to be included with the FER.

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 north on Coney Island Avenue, West to Prospect Expressway, onto I-287 to the Verrazano Bridge. 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 routes to and from the Site and take into account 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 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.

All trucks will be washed 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 facilities have not been determined at the time of this report submittal; however, facility determination will be reported to the NYSDEC Case Manager prior to off-Site transport and disposal of excavated material. About 10,600 cu yd of impacted soil will be excavated and disposed of off Site. Soil, fill, or solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed of in accordance with local, state (including 6 NYCRR Part 360), and federal regulations.

Hazardous soil, if encountered, 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 EPA and the OSHA HAZWOPER regulations. As such, the handling, transport, and disposal of this fill material are subject to EPA and the 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 an EPA RCRA generator ID number;
2. Hazardous waste must be transported to a facility permitted by RCRA 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 by properly permitted (Part 364) transporters and facilities.

Unregulated off-Site management of materials from this Site is prohibited without formal NYSDEC approval. Material that does not meet UUSCOs, such as non-hazardous contaminated fill material, contaminated soil, and hazardous lead-impacted material, is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360-16 Registration Facility). Non-hazardous contaminated fill material, contaminated soil, and hazardous lead-impacted material transported off Site will be handled, at a minimum, as a solid waste per 6 NYCRR Part 360.

The following documentation, to be included in the FER, will be obtained for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms to applicable laws:

- A letter from the RE or one or more of the Volunteers 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 located 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 chemical data for the material being transported (including waste characterization and RI data).
- A letter from each receiving facility stating that it is in receipt of the correspondence (above) and acceptance of the material is approved.

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 the Site.
- Replacing or substituting data collected as part of the RI.
- Replacing or substituting confirmation or documentation sampling as described in NYSDEC DER-10, Section 5.4.
- Modifying remedial decisions as formalized in a NYSDEC-approved Decision Document.

5.4.6 Materials Reuse On-Site

Materials reuse is not anticipated at the Site. If on-Site material is proposed for reuse, material will be stockpiled and sampled at a frequency consistent with the recommendations of Table 5.4(e)10 in DER-10 in order to confirm UUSCOs are achieved prior to placing backfill. It is noted that only soils meeting the requirements in this section may be reused. Soil proposed for reuse must be non-hazardous, must not be grossly contaminated, and must meet UUSCOs. Soil proposed for reuse will not contain organic matter, including wood, roots, stumps, etc., or other solid waste derived from clearing and grubbing. Soil removed during implementation of the remedy will not be reused in a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

5.4.7 Fluids Management

Liquids 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 NYCDEP. Based on the depth to water, dewatering is not anticipated to facilitate excavation of material that exceeds the RRSCOs and construction of foundation components. 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

Materials proposed for import onto the Site are anticipated for the Track 2 remedy. It is anticipated that approximately 2,500 cu yd of backfill will be required from a NYSDEC-approved source. Documentation of the material will be provided to the 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 a 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 RRSCOs. 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 “exempt” fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by the NYSDEC. The contents of this RAWP and NYSDEC approval of this RAWP should not be considered an approval for this purpose.

If residual soils do not meet the RRSCOs and PWGSCOs for contaminants in groundwater, a geotextile fabric or equivalent material will be placed on this surface to provide a visual reference. This demarcation layer will constitute the top of the “Residuals Management Zone,” which requires adherence to special conditions for disturbance of contaminated residual soils defined in the SMP. The demarcation layer will be surveyed by a surveyor licensed to practice in the state of New York and will be included in the FER and SMP.

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 a 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 4.3.7, if USTs or other previously unidentified contaminant sources are encountered, sampling will be performed on the product, if encountered, and surrounding subsurface materials (e.g., soil, stone). Chemical analyses will include Part 375 VOCs, SVOCs, PCBs, pesticides, metals, and PFAS. 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 and daily BCP progress reports.

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 shutdown 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 and particulates will be monitored using Aeroqual® AQS1 Air Quality Monitors or other equivalent 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.

Daily CAMP reports will be provided to NYSDEC and NYSDOH Case Managers for review. CAMP exceedances and the correction actions taken will be communicated to the NYSDEC and NYSDOH Case Managers within one business day.

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.

Odor Control

This odor control plan is capable of controlling emissions of nuisance odors off 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 emission, 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; and (c) use of staff to monitor odors in surrounding neighborhoods. Odor control suppressant will be available on-Site during ground-intrusive work, as necessary.

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.

Dust Control

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

Other Nuisances

A plan for rodent control will be developed and used by the remediation contractor during Site preparation (including clearing and grubbing) and 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 the NYCDEP noise control standards. Safety data sheets of the proposed odor suppressants are provided in Appendix L.

6. Residual Contamination to Remain On-Site

Residual contaminated soil, groundwater, and soil vapor will exist beneath the Site after the remedy is complete; therefore, ECs/ICs are required to protect human health and the environment. These ECs/ICs are described hereafter. Long-term management of EC/ICs and residual contamination will be executed under a Site-specific SMP that will be included in the FER.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The Site will have at least three primary EC systems: (1) an active SSDS fitted with a blower system, (2) an SVE system fitted with a blower system, and (3) groundwater monitoring wells associated with the ISCO injections.

ICs, including recording of an EE and SMP, will provide long-term management and protection of human health and the environment from residual contamination remaining in place. If further development is proposed for this Site, the SMP will guide potential penetration of the cap and handling and disposal of contaminated materials.

Remaining contamination left on-Site after implementation of the selected Track 2 remedy will be managed in place using EC/ICs and an NYSDEC-approved SMP to be included in the FER.

7. Engineering Controls

Following completion of the preferred Track 2 remedy, both ECs and ICs will be required as part of the Remedial Action, including installation of an active SSDS and SVE system.

7.1 ACTIVE SSDS

Installation of an active SSDS during construction will be considered an EC. The SSDS will consist of a horizontal perforated PVC pipeline within a permeable layer immediately beneath the building foundation slab and a vapor barrier system connecting to steel risers penetrating through the building to the roof and blower fans attached to each riser. Pilot test results and as-builts will be provided in the FER. Pressure field extension testing will be performed periodically following SSDS commissioning to confirm the efficacy of the system. BMPs that will be performed during the SSDS design and implementation may include, but are not limited to, evaluating if a remediation system could be protective with an intermittent energy supply, designing for efficiency to reduce indirect emissions of electricity production, design an adaptable system, and integrating the design with the contemplated reuse of the Site.

7.2 SVE SYSTEM

Installation of an SVE system during construction will be considered an EC. The SVE system will be installed in the source area and along the eastern perimeter of the Site to prevent off-Site migration of soil vapor potentially impacted with petroleum-related VOCs and CVOCs. Soil vapor will be removed with the SVE system and treated with GAC prior to discharge to the atmosphere. Pilot test results and as-builts will be provided in the FER. BMPs that will be performed during the SVE design and implementation may include, but are not limited to, evaluating if a remediation system could be protective with an intermittent energy supply, addressing sources more aggressively to reduce long-term operation and maintenance of the system, designing for efficiency to reduce indirect emissions of electricity production, designing an adaptable system, and integrating the design with the contemplated reuse of the Site.

7.3 GROUNDWATER MONITORING

Volume and density application rates for AP-pH will be based on the manufacturer's recommendations and the PDI. A letter from the manufacturer stating recommended dosage rates will be provided to NYSDEC and will be included in the PDI Report and the FER. As described in Section 3.1, the PDI Report will contain the final remedial design elements for the ISCO remedy. Monitoring well construction diagrams, injection calculations, and manufacturer documentation for the injections will be presented in the FER. BMPs that will be performed during the ISCO injections may include, but are not limited to, using a technology that permanently destroys contamination to reduce impacts associated with long-term Site management and permanent infrastructure, addressing sources more aggressively to reduce long-term monitoring, and integrating the remedial design with the contemplated reuse of the Site.

Groundwater monitoring activities to assess the performance of the remedy, or natural attenuation following the removal of contaminant sources, will continue, as determined by NYSDOH and NYSDEC, and until residual groundwater concentrations are found to be below NYSDEC standards or have been

asymptotic over an extended period. Monitoring will continue until permission is granted in writing by NYSDEC and NYSDOH. Monitoring activities will be outlined in the Monitoring Plan of the SMP. It is anticipated that, following remediation, a minimum of eight quarterly monitoring events will be performed.

8. Institutional Controls

Under Alternative I, anticipated to achieve a Track 2 remedy for proposed restricted residential use, ICs would: (1) restrict the Site's use to restricted residential, commercial, and industrial uses, although land use is subject to local zoning laws; and (2) restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDEC or NYSDOH.

8.1 ENVIRONMENTAL EASEMENT

An EE, as defined in Article 71 Title 36 of the ECL, is required when residual contamination is left on-Site after the Remedial Action is complete. As part of this remedy, an EE approved by the NYSDEC will be filed and recorded with the New York 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 the New York County Office of the City Register before the Certificate of Completion can be issued by NYSDEC. ICs are required under this remedy to implement, maintain, and monitor these EC systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil, and restricting the use of the Site to restricted residential 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 associated with this Site include:

- 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 this SMP;
- A soil vapor mitigation system consisting of an SSDS under all building structures must be inspected, certified, operated, and maintained as required by the SMP;
- An SVE system in the west-central and eastern boundary of the Site must be inspected, certified, operated, and maintained as required by the SMP;
- A soil vapor mitigation system consisting of an SSDS under all building structures 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;
- Groundwater, soil vapor, and other 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, including but not limited to groundwater monitoring wells and soil vapor probes, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;
- 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 the 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 restricted residential use only, provided the long-term ECs and ICs included in the SMP are employed; and
- The Controlled Property may not be used for a higher level of use, such as unrestricted use, without an amendment or extinguishment of this EE.

8.2 SITE MANAGEMENT PLAN

Site management is the last phase of remediation and begins with the approval of the FER and issuance of the Certificate of Completion for the Remedial Action. Site management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible for ensuring that all Site management responsibilities defined in the EE and the SMP are performed.

The SMP should include methods to incorporate and track GSR. Measures should be taken to maintain a cost-effective, protective remedy that remains conscientious of the Site's environmental footprint. At a minimum, the following should be assessed: waste generation, energy usage, emissions, and water usage.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of ECs/ICs; (2) a Monitoring Plan for implementation of Site monitoring; (3) an Operation and Maintenance Plan for implementation of remedial mitigation and treatment systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. This SMP will be prepared in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation and the guidelines provided by NYSDEC. Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The SMP will be based on the certifying period relative to the date of issuance of the COC. The first submission will be due 16 months after the issuance of the COC, and annually (or at another frequency as approved by NYSDEC) thereafter.

The SMP in the FER will include a monitoring plan for groundwater at the downgradient Site perimeter to evaluate Site-wide performance of the remedy. Appropriately placed groundwater monitor wells will also be installed in the source/treatment area and downgradient for the purpose of evaluating the effectiveness of the remedy that is implemented. No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

As part of the SMP, following completion of the remediation, groundwater samples will be collected to document groundwater quality at the Site. An estimated five groundwater samples, plus QA/QC samples, will be collected and analyzed for VOCs quarterly for a minimum of one year post-remediation. The quarterly sampling program may be reduced with NYSDEC approval. Additionally, the Site management program will include an evaluation of the impact of climate change on the project site and ECs.

9. Final Engineering Report

A FER will be submitted to the NYSDEC following implementation of the remedy defined in this RAWP. The FER will be prepared in conformance with NYSDEC DER-10 and will include the following:

- Documentation that the remedial work required under this RAWP has been completed and has been performed in substantial conformance with this plan.
- A summary of the locations and characteristics of material removed from the Site, including the surveyed map(s) of each area, as necessary.
- As-built drawings for constructed elements, certifications, manifests, and bills of lading.
- A description of the changes to the remedy from the elements provided in the RAWP and associated design documents, if any.
- A tabular summary of performance evaluation sampling results and material characterization results, and other sampling and chemical analyses performed as part of the remedy.
- Written and photographic documentation of remedial work performed under this remedy.
- A summary of documentation sampling results to show contamination remaining on-Site in soils above the RRSCOs.
- Documentation of treatment and/or disposal of material removed from the Site, including excavated contaminated soil, historical fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with the disposal of material must also include records and approvals for receipt of the material.
- Documentation of the origin and chemical quality of each material type imported onto the Site.
- 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 the FER and issuance of a Certificate of Completion, the daily or weekly reports and monthly BCP progress reports must be submitted in digital format (i.e., PDF).

9.1 CERTIFICATIONS

The following certification will appear in front of the FER Executive Summary. The certification will be signed by the RE, Suzanne M. Bell, P.E., who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped.

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].

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] 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.

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. I, [name], of [business address], am certifying as Owner's Designated Site Representative (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site.

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 the implementation of the RAWP is expected to take about one to two weeks, pending the issuance of the Decision Document (estimated to be April 2026). 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 about four to five months to complete (April 2026 to August 2026). After completion of the remedy, an FER will be drafted and subsequently submitted to the NYSDEC for review and approval in the fourth quarter of 2026. A proposed project schedule is included in Appendix K.

References

1. Brownfield Cleanup Program Application. Former New City Link Auto Repair Site. Prepared for 545 Coney Island LLC by Haley & Aldrich of New York for submission to the New York State Department of Environmental Conservation. Submitted in February 2024.

2. Limited Phase II Environmental Site Investigation Report. 545 Coney Island Avenue & 50 Hinckley Place, Prepared for Riverside Developers USA, Inc., by Haley & Aldrich of New York. January 2022.

3. Phase I Environmental Site Assessment. 545 Coney Island Avenue & 50 Hinckley Place. Prepared for Riverside Developers USA, Inc., by Haley & Aldrich of New York. Submitted in January 2022.

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

5. Remedial Investigation Report. Former New City Link Auto Repair Site. Prepared for 545 Coney Island LLC by Haley & Aldrich of New York for submission to the New York State Department of Environmental Conservation. Submitted in June 2025.

6. 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.

7. New York State Department of Environmental Conservation, Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), April 2023.

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

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

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

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TABLES

TABLE 1
ALTERNATIVE I - TRACK 2 REMEDIAL COST ESTIMATE
547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE, BROOKLYN NEW YORK
BCP SITE NO. C224407

Consulting/Engineering Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Waste Characterization	Lump Sum	$ 45,000	1	$ 45,000
2	Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.)	Month	$ 5,000	8	$ 40,000
3	Remedial Oversight	Month	$ 40,000	5	$ 200,000
4	Documentation Sampling (including QA/QC samples and contingency samples)	Sample	$ 1,500	30	$ 45,000
5	Post-Excavation Groundwater Sampling Program	Quarter	$ 6,000	8	$ 48,000
6	Final Engineering Report, Site Management Plan and COC Coordination	Lump Sum	$ 65,000	1	$ 65,000
7	Site Management (quarterly groundwater monitoring, engineering control monitoring, reporting)	Year	$ 50,000	5	$ 250,000
				Consulting/Engineering Subtotal	$ 693,000
Contractor Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Mobilization/Demobilization, Site Maintenance, Security, etc.	Allowance	$ 300,000	1	$ 300,000
2	Truck Wash Station	Month	$ 25,000	5	$ 125,000
3	Management/Handling Contaminated Material	Cubic Yard	$ 40	10,600	$ 424,000
4	Support of Excavation	Linear Foot	$ 4,000	665	$ 2,660,000
5	Transport and Disposal of Fill Material	Ton	$ 50	10,600	$ 530,000
6	Backfill Procurement, Placement, and Compaction	Cubic Yard	$ 28	0	$ -
7	Underground Storage Tank Removal (Contingency Budget)	Lump Sum	$ 50,000	1	$ 50,000
8	Groundwater Treatment	Lump Sum	$ 100,000	1	$ 100,000
9	Sub-Slab Depressurization System (SSDS) Materials & Installation	Lump Sum	$ 250,000	1	$ 250,000
10	Soil Vapor Extraction System	Lump Sum	$ 75,000	1	$ 75,000
				Contractor Subtotal	$ 4,514,000
				Total	$ 5,207,000
				15% Contingency	$ 781,050
				Estimated Total (Rounded to the nearest $1,000)	$ 5,988,000

Notes:

1. Assuming a conditional Track 2 Remedy requiring excavations to remove soil exceeding Track 2 RRSCOs.

2. Assumes density of 1.5 tons per cubic yard of fill/soil.

3. Assumes dewatering will not be required.

4. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks.

5. Costs are estimated and subject to change. Costs do not include new building construction.

6. RAWP implementation is assumed to take 4-5 months.

7. 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.

8. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.

TABLE 2
ALTERNATIVE II - TRACK 4 REMEDIAL COST ESTIMATE
547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE, BROOKLYN NEW YORK
BCP SITE NO. C224407

Consulting/Engineering Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Waste Characterization	Lump Sum	$ 45,000	1	$ 45,000
2	Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.)	Month	$ 5,000	8	$ 40,000
3	Remedial Oversight	Month	$ 40,000	4	$ 160,000
4	Documentation Sampling (including QA/QC samples and contingency samples)	Sample	$ 1,500	30	$ 45,000
5	Post-Excavation Groundwater Sampling Program	Quarter	$ 6,000	8	$ 48,000
6	Final Engineering Report, Site Management Plan and COC Coordination	Lump Sum	$ 65,000	1	$ 65,000
7	Site Management (quarterly groundwater monitoring, engineering control monitoring, reporting)	Year	$ 50,000	5	$ 250,000
				Consulting/Engineering Subtotal	$ 653,000
Contractor Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Mobilization/Demobilization, Site Maintenance, Security, etc.	Allowance	$ 300,000	1	$ 300,000
2	Truck Wash Station	Month	$ 25,000	4	$ 100,000
3	Management/Handling Contaminated Material	Cubic Yard	$ 40	1,400	$ 56,000
4	Support of Excavation	Linear Foot	$ 4,000	665	$ 2,660,000
5	Transport and Disposal of Fill Material	Ton	$ 50	1,400	$ 70,000
6	Backfill Procurement, Placement, and Compaction	Cubic Yard	$ 28	0	$ -
7	Underground Storage Tank Removal (Contingency Budget)	Lump Sum	$ 50,000	1	$ 50,000
8	Groundwater Treatment	Lump Sum	$ 100,000	1	$ 100,000
9	Sub-Slab Depressurization System (SSDS) Materials & Installation	Lump Sum	$ 250,000	1	$ 250,000
10	Composite Cover System (inc. vapor barrier)	Lump Sum	$ 250,000	1	$ 250,000
11	Soil Vapor Extraction System	Lump Sum	$ 75,000	1	$ 75,000
				Contractor Subtotal	$ 3,911,000
				Total	$ 4,564,000
				15% Contingency	$ 684,600
				Estimated Total (Rounded to the nearest $1,000)	$ 5,249,000

Notes:

1. Assuming a conditional Track 4 Remedy

2. Assumes density of 1.5 tons per cubic yard of fill/soil.

3. Assumes dewatering will not be required.

4. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks.

5. Costs are estimated and subject to change. Costs do not include new building construction.

6. RAWP implementation is assumed to take 3-4 months.

7. 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.

8. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.

TABLE 3
ALTERNATIVE III - TRACK 1 REMEDIAL COST ESTIMATE
547 CONEY ISLAND AVE AND 50 HINCKLEY PL, BROOKLYN NEW YORK
BCP SITE NO. C224407

Consulting/Engineering Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Waste Characterization	Lump Sum	$ 150,000	1	$ 150,000
2	Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.)	Month	$ 5,000	20	$ 100,000
3	Remedial Oversight	Month	$ 40,000	12	$ 480,000
4	Endpoint Sampling	Sample	$ 1,500	45	$ 67,500
5	Soil Vapor Intrusion Evaluation	Lump Sum	$ 20,000	1	$ 20,000
6	Soil Vapor Intrusion Reporting	Lump Sum	$ 10,000	1	$ 10,000
7	Final Engineering Report and COC Coordination	Lump Sum	$ 65,000	1	$ 65,000
				Consulting/Engineering Subtotal	$ 892,500
Contractor Costs					
Task	**Description**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
1	Mobilization/Demobilization, Site Maintenance, Security, etc.	Allowance	$ 400,000	1	$ 400,000
2	Truck Wash Station	Month	$ 25,000	12	$ 300,000
3	Management/Handling Contaminated Material	Cubic Yard	$ 40	29,100	$ 1,164,000
4	Support of Excavation	Linear Foot	$ 5,000	665	$ 3,325,000
5	Transport and Disposal of Fill Material	Ton	$ 50	29,100	$ 1,455,000
6	Backfill Procurement, Placement, and Compaction	Cubic Yard	$ 28	18,500	$ 518,000
7	Underground Storage Tank Removal (Contingency Budget)	Lump Sum	$ 75,000	1	$ 75,000
8	Dewatering Contractor Design	Allowance	$ 150,000	1	$ 150,000
9	Site-wide Dewatering	Allowance	$ 750,000	1	$ 750,000
				Contractor Subtotal	$ 8,137,000
				Total	$ 9,029,500
				15% Contingency	$ 1,354,425
				Estimated Total (Rounded to the nearest $1,000)	$ 10,384,000

Notes:

1. Assuming a Track 1 Remedy.

2. Assumes density of 1.5 tons per cubic yard of fill/soil.

3. Costs are estimated and subject to change. Costs do not include new building construction.

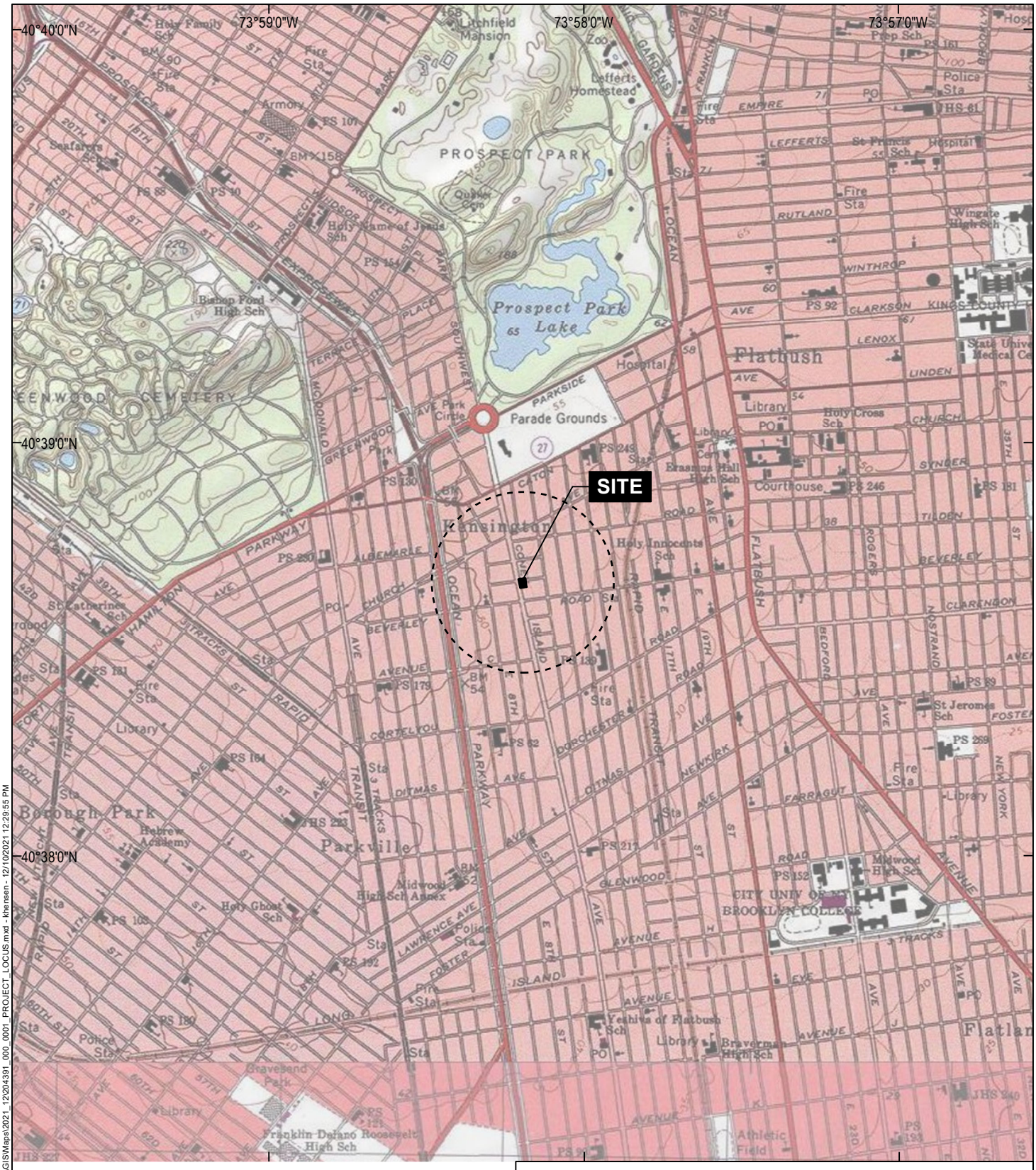
4. RAWP implementation is assumed to take up to 15 months.

5. 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.

6. This estimate includes only an estimate of legal fees associated with attorneys involved in the project

7. This estimate does not include insurance fees or outside consulting fees not listed here.

FIGURES



NY

1/2-mile radius

N

MAP SOURCE: USGS
SITE COORDINATES: 40°38'39"N, 73°58'10"W

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
JULY 2025

FIGURE 1

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LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

SITE PLAN

JULY 2025

FIGURE 2

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LEGEND

REMEDIAL INVESTIGATION (RI)

- SOIL BORING
- MONITORING WELL
- SOIL VAPOR PROBE
- SOIL BORING/PERMANENT MONITORING WELL

2021 PHASE II SITE INVESTIGATION

- PHASE II SOIL BORING/PERMANENT MONITORING WELL
- PHASE II SOIL BORING
- PHASE II SURFACE SOIL SAMPLE
- PHASE II SOIL VAPOR PROBE OR CO-LOCATED AMBIENT AIR SAMPLE
- PHASE II SUB-SLAB VAPOR PROBE

SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI)

- SOIL BORING
- SOIL BORING/PERMANENT MONITORING WELL
- SOIL BORING/PERMANENT NESTED OR CLUSTERED MONITORING WELL
- SOIL VAPOR PROBE
- APPROXIMATE LOCATION OF UNDERGROUND STORAGE TANK (UST) INDICATED ON SANBORN FIRE INSURANCE MAPS
- APPROXIMATE LOCATION OF FORMER ABOVEGROUND STORAGE TANK (AST)
- FORMER DRY CLEANER
- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

SAMPLE LOCATION PLAN

JULY 2025

FIGURE 3

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_01_SR\0204391_000_0003_SAMPLE_LOCATION_PLAN.mxd - khensen - 2/11/2025 2:28:33 PM

LEGEND

MONITORING WELL WITH **GROUNDWATER ELEVATION** IN FEET

- REMEDIAL INVESTIGATION (RI)
- PHASE II SOIL BORING/PERMANENT MONITORING WELL
- SOIL BORING/PERMANENT MONITORING WELL (SRI)
- GROUNDWATER ELEVATION CONTOUR, 0.5-FT INTERVAL, DASHED WHERE INFERRED
- FORMER DRY CLEANER
- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. RI GROUNDWATER ELEVATIONS MEASURED ON 3 APRIL 2024 AND SRI GROUNDWATER ELEVATIONS MEASURED ON 27 DECEMBER 2024.
3. SRI = SUPPLEMENTAL REMEDIAL INVESTIGATION
4. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
4. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP

JULY 2025

FIGURE 4

GIS: \\haleyaldrich.com\share\CF\Projects\02\204391\GIS\Maps\2025_02\204391_000_0004_GROUNDWATER_CONTOUR_MAP.mxd - dfm - 2/14/2025 12:10:42 PM

B-20	12/12/2024 L2473278-01 B-20_0-0.17 0 - 0.17 (ft)	12/12/2024 L2473278-02 B-20_1-3 1 - 3 (ft)	12/12/2024 L2473278-03 B-20_6.5-7.5 3.5 - 7.5 (ft)	12/12/2024 L2473278-04 B-20_8.5-9.5 8.5 - 9.5 (ft)	12/12/2024 L2473278-05 B-20_15-17 15 - 17 (ft)	12/12/2024 L2473278-06 B-20_38-40 38 - 40 (ft)	12/12/2024 L2473278-07 B-20_43.5-44.5 43.5 - 44.5 (ft)	12/12/2024 L2473278-08 B-20_46-47 46 - 47 (ft)
Total Metals (mg/kg)								
Lead	320	328	62.1	41.1	29.4	12	-	-
Mercury	0.25	0.25	ND (0.071)	ND (0.072)	ND (0.069)	ND (0.065)	-	-
Nickel	8.96	29.4	33	33.9	30.8	16.8	-	-
Zinc	162	169	33.5	29.5	19.2	37.7	-	-
Volatile Organic Compounds (mg/kg)								
1,2,4-Trimethylbenzene	ND (0.0023)	ND (0.0037)	ND (0.0024)	ND (0.0026)	0.00057 J	0.0016 J	160	0.89
1,3,5-Trimethylbenzene	ND (0.0023)	ND (0.0037)	ND (0.0024)	ND (0.0026)	ND (0.002)	0.00026 J	30	0.0057
Acetone	ND (0.017)	ND (0.018)	ND (0.012)	0.057	0.0046 J	ND (0.012)	ND (1.2)	ND (0.012)
Ethylbenzene	ND (0.0011)	ND (0.0018)	ND (0.0012)	ND (0.0013)	ND (0.00098)	ND (0.0012)	14	0.0071
Naphthalene	ND (0.0046)	ND (0.0074)	ND (0.0048)	ND (0.0052)	ND (0.0039)	ND (0.0048)	18	0.0061
n-Propylbenzene	ND (0.0011)	ND (0.0018)	ND (0.0012)	ND (0.0013)	ND (0.00098)	ND (0.0012)	21	0.0066
Xylene (Total)	ND (0.0011)	ND (0.0018)	ND (0.0012)	ND (0.0013)	ND (0.00098)	ND (0.0012)	21	0.0094

B-22	12/13/2024 L2473618-07 B-22_0-0.17 0 - 0.17 (ft)	12/13/2024 L2473618-08 B-22_1-3 1 - 3 (ft)	12/13/2024 L2473618-09 B-22_6-7 6 - 7 (ft)	12/13/2024 L2473618-10 B-22_15-17 15 - 17 (ft)	12/16/2024 L2473931-10 B-22_37-39 37 - 39 (ft)	12/16/2024 L2473931-07 B-22_40-41 40 - 41 (ft)	12/16/2024 L2473931-08 B-22_64-65 64 - 65 (ft)
Total Metals (mg/kg)							
Nickel	7.04	21.9	-	40.3	36.6	-	-
Semi-Volatile Organic Compounds (mg/kg)							
Benzo(a)anthracene	ND (0.53)	1.7	-	ND (0.1)	ND (0.1)	-	-
Benzo(a)pyrene	ND (0.7)	1.8	-	ND (0.14)	ND (0.14)	-	-
Benzo(b)fluoranthene	ND (0.53)	1.9	-	ND (0.1)	ND (0.1)	-	-
Chrysene	ND (0.53)	1.8	-	ND (0.1)	ND (0.1)	-	-
Indeno(1,2,3-cd)pyrene	ND (0.7)	0.93	-	ND (0.14)	ND (0.14)	-	-
Volatile Organic Compounds (mg/kg)							
1,2,4-Trimethylbenzene	ND (0.0035)	ND (0.0024)/ND (0.002)	0.11 J	ND (0.0032)	0.00043 J	53	ND (0.0026)
1,3,5-Trimethylbenzene	ND (0.0035)	ND (0.0024)/ND (0.002)	0.039 J	ND (0.0032)	ND (0.0021)	16	ND (0.0026)
Acetone	ND (0.018)	0.0395 J	ND (0.012)	ND (0.016)	ND (0.01)	ND (1.2)	ND (0.013)
Ethylbenzene	ND (0.0018)	ND (0.0012)/ND (0.001)	0.026 J	ND (0.0016)	0.00031 J	18	0.00021 J
n-Propylbenzene	ND (0.0018)	ND (0.0012)/ND (0.001)	0.035 J	ND (0.0016)	ND (0.001)	8.4	ND (0.0013)
Xylene (Total)	ND (0.0018)	ND (0.0012)/0.0006 J	0.19 J	ND (0.0016)	ND (0.001)	24	ND (0.0013)

B-21	12/13/2024 L2473618-01 B-21_0-0.17 0 - 0.17 (ft)	12/13/2024 L2473618-02 B-21_3-5 3 - 5 (ft)	12/13/2024 L2473618-03 B-21_15-17 15 - 17 (ft)	12/13/2024 L2473618-04 B-21_36.5-38.5 36.5 - 38.5 (ft)	12/13/2024 L2473618-05 B-21_47.5-48.5 47.5 - 48.5 (ft)	12/13/2024 L2473618-06 B-21_59-60 59 - 60 (ft)
Total Metals (mg/kg)						
Lead	782	22.4	14.2	7.4	-	-
Mercury	0.84	ND (0.088)	ND (0.077)	ND (0.066)	-	-
Nickel	29.8	33.8	30.7	62.3	-	-
Volatile Organic Compounds (mg/kg)						
1,2,4-Trimethylbenzene	ND (0.0031)	ND (0.0056)/ND (0.0018)	ND (0.002)	0.00064 J	79	0.00067 J
1,3,5-Trimethylbenzene	ND (0.0031)	ND (0.0056)/ND (0.0018)	ND (0.002)	0.00021 J	22	ND (0.0024)
Ethylbenzene	ND (0.0015)	ND (0.0028)/ND (0.0009)	ND (0.0009)	ND (0.0011)	27	0.00045 J
n-Propylbenzene	ND (0.0015)	ND (0.0028)/ND (0.0009)	ND (0.0009)	ND (0.0011)	15	0.00024 J
Xylene (Total)	ND (0.0015)	ND (0.0028)/ND (0.0009)	ND (0.0009)	ND (0.0011)	73	0.0012 J

B-15	02/19/2024 L2408940-01 B-15_0-2 0 - 2 (ft)
Total Metals (mg/kg)	
Nickel	49.8

SB-5	12/15/2021 L2169121-01 SB-5_0-1 0 - 1 (ft)	12/15/2021 L2169121-02 SB-5_5-6 5 - 6 (ft)
Total Metals (mg/kg)		
Nickel	30.7	28.4

B-19	12/16/2024 L2473931-01 B-19_0-0.17 0 - 0.17 (ft)	12/16/2024 L2473931-02 B-19_0.5-1 0.5 - 1 (ft)	12/16/2024 L2473931-03 B-19_15-17 15 - 18 (ft)	12/16/2024 L2473931-04 B-19_36-38 36 - 38 (ft)	12/16/2024 L2473931-05 B-19_42.5-43.5 42.5 - 43.5 (ft)	12/16/2024 L2473931-06 B-19_62-63 62 - 63 (ft)
Total Metals (mg/kg)						
Lead	1,180	1,230	4.81	13.5	-	-
Mercury	0.219	0.8	ND (0.081)	ND (0.076)	-	-
Nickel	11.5	11.2	57.3	39.5	-	-
Volatile Organic Compounds (mg/kg)						
Xylene (Total)	ND (0.0013)	ND (0.001)	ND (0.00099)	ND (0.0012)	0.01 J[0.78]	0.0021 J

B-02	02/20/2024 L2409088-01 B-02_0-2 0 - 2 (ft)	02/20/2024 L2409088-03 B-02_12-14 12 - 14 (ft)	02/20/2024 L2409088-02 B-02_20-22 20 - 22 (ft)	02/20/2024 L2409088-04 B-02_38-40 38 - 40 (ft)
Total Metals (mg/kg)				
Nickel	47.4	54.4 J	41.9	39.9

SB-3	12/15/2021 L2169121-03 SB-3_0-1 0 - 1 (ft)	12/15/2021 L2169121-04 SB-3_5-6 5 - 6 (ft)
Total Metals (mg/kg)		
Copper	67.8	27.2
Lead	329	18.7
Mercury	0.213	ND (0.084)
Nickel	30.3	28.1
Zinc	163	27.2

B-14	02/21/2024 L2409494-01 B-14_0-2 0 - 2 (ft)	02/21/2024 L2409494-02 B-14_9-11 9 - 11 (ft)	02/21/2024 L2409494-03 B-14_12-14 12 - 14 (ft)
Total Metals (mg/kg)			
Zinc	506 J	16.8 J	15.3 J

B-17	12/20/2024 L2475441-02 B-17_0-0.17 0 - 0.17 (ft)	12/20/2024 L2475441-03 B-17_3-5 3 - 5 (ft)	12/20/2024 L2475441-04 B-17_15-17 15 - 17 (ft)	12/20/2024 L2475441-05 B-17_36-38 36 - 38 (ft)
Total Metals (mg/kg)				
Copper	60.4	23.8	9.36	5.82
Lead	1,110	13.8	5.79	1.79 J
Nickel	13.8	13.8	11.8	9.7
Zinc	580	58.2	21.2	9.4
Pesticides (mg/kg)				
4,4'-DDD	ND (0.00194)	ND (0.00198)	0.0058	ND (0.00184)
4,4'-DDE	ND (0.00194)	ND (0.00198)	0.00852	ND (0.00184)
4,4'-DDT	ND (0.00194)	ND (0.00198)	0.054	ND (0.00184)
Dieldrin	ND (0.00121)	ND (0.00122)	0.00272	ND (0.00115)
PFAS (ug/kg)				
Perfluorooctanesulfonic acid (PFOS)	0.196 J	ND (0.199)	1.88	ND (0.196)

B-05	12/20/2024 L2475441-12 B-05_0-0.17 0 - 0.17 (ft)	12/20/2024 L2475441-13 B-05_0.5-1 0.5 - 1 (ft)	12/20/2024 L2475441-09 DUP-03_20241220 15 - 17 (ft)	12/20/2024 L2475441-14 B-05_15-17 15 - 17 (ft)	12/20/2024 L2475441-15 B-05_36-38 36 - 38 (ft)
Total Metals (mg/kg)					
Lead	35.1	10.2	11.2	9.17	3.76 J
Nickel	30.5	26.6	46.4	34.7	22.7
Pesticides (mg/kg)					
4,4'-DDE	0.0706	0.0104	ND (0.00185)	ND (0.00186)	ND (0.00186)
4,4'-DDT	0.11	0.0123	ND (0.00185)	ND (0.00186)	ND (0.00186)
Dieldrin	0.0249	0.00423	ND (0.00103)	ND (0.00104)	ND (0.00104)
Semi-Volatile Organic Compounds (mg/kg)					
Benzo(a)anthracene	1.4	0.2	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(a)pyrene	1.2	0.18	ND (0.14)	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	1.6	0.2	ND (0.1)	ND (0.1)	ND (0.1)
Chrysene	1.3	0.19	ND (0.1)	ND (0.1)	ND (0.1)
Indeno(1,2,3-cd)pyrene	0.61	0.1 J	ND (0.14)	ND (0.14)	ND (0.14)
Volatile Organic Compounds (mg/kg)					
2-Butanone (Methyl Ethyl Ketone)	0.22 J	ND (0.6)	0.0029 J	ND (0.014)	ND (0.015)
Tetrachloroethene	3.9	2.6	0.002 J	0.0043 J	0.0013 J

B-11	02/14/2024 L2408139-06 B-11_0-2 0 - 2 (ft)	02/14/2024 L2408139-07 B-11_10-12 10 - 12 (ft)	02/14/2024 L2408139-08 B-11_12-14 12 - 14 (ft)
Total Metals (mg/kg)			
Nickel	24.8 J	49.8 J	32.8 J
Zinc	288	31.9 J	17.3 J

B-03	02/14/2024 L2408139-01 B-03_0-2 0 - 2 (ft)	03/14/2024 L2408139-03 B-03_11-13 11 - 13 (ft)	02/14/2024 L2408139-04 B-03_12-14 12 - 14 (ft)	02/14/2024 L2408139-05 B-03_38-40 38 - 40 (ft)
Total Metals (mg/kg)				
Lead	331 J	12.4 J	8.91 J	10.8 J
Nickel	23.4 J	43.9 J	43.2 J	42.0 J
Volatile Organic Compounds (mg/kg)				
1,2,4-Trimethylbenzene	ND (0.002)	ND (0.003)	ND (0.0026)	310
1,3,5-Trimethylbenzene	ND (0.002)	ND (0.003)	ND (0.0026)	15
Ethylbenzene	ND (0.00098)	ND (0.0015)	ND (0.0013)	4.3
n-Butylbenzene	ND (0.00098)	ND (0.0015)	ND (0.0013)	26
n-Propylbenzene	ND (0.00098)	ND (0.0015)	ND (0.0013)	32
Xylene (Total)	ND (0.00098)	ND (0.0015)	ND (0.0013)	4.1 J

SB-2	12/16/2021 L2169533-05 SB-2_0.5-1.5 0.5 - 1.5 (ft)	12/16/2021 L2169533-06 SB-2_2-4 2 - 4 (ft)
Total Metals (mg/kg)		
Lead	45.2	10.4
PCBs (mg/kg)		
Polychlorinated biphenyls (PCBs)	0.424	0.0385 J
Pesticides (mg/kg)		
4,4'-DDD	ND (0.00172)	0.00284
4,4'-DDE	0.00245	0.0109
4,4'-DDT	ND (0.00334)	0.00539 J

B-23	12/19/2024 L2475089-09 B-23_0-0.17 0 - 0.17 (ft)	12/19/2024 L2475089-10 B-23_3-5 3 - 5 (ft)	12/19/2024 L2475089-11 B-23_15-17 15 - 17 (ft)
Total Metals (mg/kg)			
Lead	109	57.2	14.6
Nickel	15.2	21.3	52.9
PCBs (mg/kg)			
Polychlorinated biphenyls (PCBs)	3.41	1.33	ND (0.0501)

B-25	12/19/2024 L2475088-01 B-25_3-5 3 - 5 (ft)
Total Metals (mg/kg)	
Lead	119
Zinc	158
PCBs (mg/kg)	
Polychlorinated biphenyls (PCBs)	0.833

B-26	12/19/2024 L2475088-02 B-26_3-5 3 - 5 (ft)
PCBs (mg/kg)	
Polychlorinated biphenyls (PCBs)	3.65
Semi-Volatile Organic Compounds (mg/kg)	
Benzo(a)anthracene	14
Benzo(a)pyrene	14
Benzo(b)fluoranthene	17
Benzo(k)fluoranthene	5.8
Chrysene	14
Dibenz(a,h)anthracene	1.8
Indeno(1,2,3-cd)pyrene	8.4

B-01	02/15/2024 L2408519-01 B-01_0-2 0 - 2 (ft)	02/15/2024 L2408519-03 B-01_12-14 12 - 14 (ft)	02/15/2024 L2408519-02 B-01_16-18 16 - 18 (ft)	02/15/2024 L2408519-04 B-01_36-38 36 - 38 (ft)
Total Metals (mg/kg)				
Lead	1,080	6.53 J	4.18 J	3.17 J
Nickel	23.1 J	34.8 J	40.4 J	41.4 J

B-10	02/15/2024 L2408519-05 B-10_0-2 0 - 2 (ft)	02/15/2024 L2408519-06 B-10_12-14 12 - 14 (ft)	02/15/2024 L2408519-07 B-10_18-20 18 - 20 (ft)	02/15/2024 L2408519-08 B-10_20-22 20 - 22 (ft)
Total Metals (mg/kg)				
Nickel	35.2	28.5 J	71.2 J	50.8 J
Pesticides (mg/kg)				
4,4'-DDD	0.00764	0.0012 J	-	ND (0.00159)
4,4'-DDE	0.00391 J	ND (0.00156)	-	ND (0.00159)
4,4'-DDT	0.00861 J	0.00195	-	ND (0.00159)

B-04	02/15/2024 L2408519-09 B-04_0-2 0 - 2 (ft)	02/15/2024 L2408519-11 B-04_11-13 11 - 13 (ft)	02/15/2024 L2408519-10 B-04_12-14 12 - 14 (ft)	02/15/2024 L2408519-12 B-04_35-37 35 - 37 (ft)
Total Metals (mg/kg)				
Lead	1,080	4.21 J	17.2 J	4.46 J
Mercury	0.186	ND (0.096)	ND (0.088)	ND (0.074)
Nickel	13.2 J	36.2 J	52.7 J	73.5 J
Pesticides (mg/kg)				
4,4'-DDD	0.00383	ND (0.00159)	ND (0.00164)	-
4,4'-DDE	0.0211	ND (0.00159)	0.00164	-
4,4'-DDT	0.00381	ND (0.00159)	0.00192	-

B-09	02/20/2024 L2409088-07 B-09_0-2 0 - 2 (ft)	02/20/2024 L2409088-08 B-09_10-12 10 - 12 (ft)	02/20/2024 L2409088-09 B-09_12-14 12 - 14 (ft)
Total Metals (mg/kg)			
Nickel	43.5 J	22.2	30.4 J

B-18	12/18/2024 L2474666-01 B-18_0-0.17 0 - 0.17 (ft)	12/18/2024 L2474666-02 B-18_4-6 4 - 6 (ft)	12/18/2024 L2474666-09 DUP-01_20241218 4 - 6 (ft)	12/18/2024 L2474666-03 B-18_15-17 15 - 17 (ft)	12/18/2024 L2474666-04 B-18_36-38 36 - 38 (ft)	12/18/2024 L2474666-05 B-18_42-43 42 - 43 (ft)	12/18/2024 L2474666-06 B-18_47-48 47 - 48 (ft)
Total Metals (mg/kg)							
Lead	1,180	38.3	45.1	10.5	8.39	-	-
Mercury	0.193	0.067 J	0.09	ND (0.082)	ND (0.069)	-	-
Nickel	13	27.1	43.5	31.2	56.8	-	-
PCBs (mg/kg)							
Polychlorinated biphenyls (PCBs)	0.696	0.00774 J	0.0237 J	ND (0.0962)	ND (0.0522)	-	-
Pesticides (mg/kg)							
4,4'-DDD	ND (0.00172)	0.00332 P	0.00383	ND (0.00185)	ND (0.00163)	-	-
4,4'-DDE	0.00251	0.00340 P	0.00294 P	ND (0.00185)	ND (0.00163)	-	-
Volatile Organic Compounds (mg/kg)							
Acetone	ND (0.0091)	0.064	0.032	0.04	ND (0.012)	ND (0.011)	ND (0.011)

B-06	12/20/2024 L2475441-10 B-06_0-0.17 0 - 0.17 (ft)	12/20/2024 L2475441-11 B-06_3-5 3 - 5 (ft)	12/20/2024 L2475441-06 B-06_15-17 15 - 17 (ft)	12/20/2024 L2475441-07 B-06_36-38 36 - 38 (ft)
Total Metals (mg/kg)				
Arsenic	8.2	29.4	3.36	2.35
Lead	71.8	174	8.69	6.34
Nickel	33.1	29	63.3	58
Pesticides (mg/kg)				
4,4'-DDE	0.0149	0.0207	ND (0.00167)	ND (0.00162)
4,4'-DDT	0.0315	0.0376	ND (0.00167)	ND (0.00162)
Dieldrin	0.0051	0.00688	ND (0.00104)	ND (0.00101)

B-08	03/21/2024 L2415481-04 B-08_0-2 0 - 2 (ft)	03/21/2024 L2415481-09 DUP-02_20240321 0 - 2 (ft)	03/21/2024 L2415481-05 B-08_12-14 12 - 14 (ft)	03/21/2024 L2415481-07 B-08_38-40 38 - 40 (ft)
Total Metals (mg/kg)				
Lead	84.3	132	8.22	6.12
Nickel	11.4 J+	18.1 J+	64.8 J+	58.1 J+

B-24	12/19/2024 L2475089-14 B-24_0-0.17 0 - 0.17 (ft)	12/19/2024 L2475089-15 B-24_4-6 4 - 6 (ft)	12/19/2024 L2475089-16 B-24_15-17 15 - 17 (ft)
Total Metals (mg/kg)			
Nickel	14.3	36	31.6
Zinc	288	42.3	54

B-16	12/19/2024 L2475089-03 B-16_0-0.17 0 - 0.17 (ft)	12/19/2024 L2475089-04 B-16_5-7 5 - 7 (ft)	12/19/2024 L2475089-05 B-16_15-17 15 - 17 (ft)	12/19/2024 L2475089-06 DUP-02_20241219 15 - 17 (ft)	12/19/2024 L2475089-07 B-16_36-38 36 - 38 (ft)
Total Metals (mg/kg)					
Copper	72.8	1520	9.63	22.6	11.6
Lead	2,080	1,520	9.63	13.1	5.33
Mercury	0.313	0.478	ND (0.071)	ND (0.072)	ND (0.07)
Nickel	30.2	31.1	36	58.2	37
Zinc	1,540	3,810	36	58.2	27
Pesticides (mg/kg)					
4,4'-DDE	0.0583	ND (0.0018)	ND (0.00158)	ND (0.00158)	ND (0.00171)
4,4'-DDT	0.145	0.0139	ND (0.00158)	ND (0.00158)	ND (0.00171)
Dieldrin	0.0349	ND (0.00112)	ND (0.000986)	ND (0.000986)	ND (0.00107)
Semi-Volatile Organic Compounds (mg/kg)					
Benzo(a)anthracene	0.28	2.6	ND (0.1)	ND (0.1)	ND (0.11)
Benzo(a)pyrene	0.26	2.4	ND (0.14)	ND (0.14)	ND (0.15)
Benzo(b)fluoranthene	0.33	3.1	ND (0.1)	ND (0.1)	ND (0.11)
Benzo(k)fluoranthene	0.11 J	0.98	ND (0.1)	ND (0.1)	ND (0.11)
Chrysene	0.29	2.8	ND (0.1)	ND (0.1)	ND (0.11)
Dibenz(a,h)anthracene	0.04 J	0.36	ND (0.1)	ND (0.1)	ND (0.11)
Indeno(1,2,3-cd)pyrene	0.15 J	1.4	ND (0.14)	ND (0.14)	ND (0.15)

B-12	03/22/2024 L2415793-05 B-12_0-2 0 - 2 (ft)	03/22/2024 L2415793-06 B-12_9-11 9 - 11 (ft)	03/22/2024 L2415793-07 B-12_12-14 12 - 14 (ft)
Total Metals (mg/kg)			
Lead	1,080	1,080	12.4
Mercury	0.232	0.058 J	ND (0.078)
Nickel	47.5	37	49.3
Zinc	64	132	49.3

B-13	03/21/2024 L2415481-01 B-13_0-2 0 - 2 (ft)	03/21/2024 L2415481-08 DUP-01_20240321 0 - 2 (ft)	03/21/2024 L2415481-02 B-13_5-7 5 - 7 (ft)	03/21/2024 L2415481-03 B-13_12-14 12 - 14 (ft)
Total Metals (mg/kg)				
Lead	55.8	89	31.4	3.16
Nickel	25.8 J+	30.2 J+	29 J+	64.2 J+

B-07	03/22/2024 L2415793-01 B-07_0-2 0 - 2 (ft)	03/22/2024 L2415793-08 DUP-01_20240322 0 - 2 (ft)	03/22/2024 L2415793-02 B-07_2-4 2 - 4 (ft)	03/22/2024 L2415793-03 B-07_12-14 12 - 14 (ft)	03/22/2024 L2415793-04 B-07_38-40 38 - 40 (ft)
Total Metals (mg/kg)					
Lead	1,080	48.4	7.41	7.01	7.69
Nickel	13	18.5	42.6	66	52.3
Volatile Organic Compounds (mg/kg)					
Acetone	ND (0.0099)	ND (0.0095)	ND (0.01)	ND (0.01)	0.069

LEGEND

- SOIL BORING, REMEDIAL INVESTIGATION (RI)
- SOIL BORING, PHASE II INVESTIGATION
- SOIL BORING, SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI)
- SITE BOUNDARY
- PARCEL BOUNDARY

	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
Total Metals (mg/kg)			
Arsenic	16	16	13
Cadmium	7.5	4.3	2.5
Copper	1720	270	50
Lead	450	400	63
Mercury	0.73	0.81	0.18
Nickel	130	310	30
Zinc	2480	10000	109
Pesticides (mg/kg)			
4,4'-DDD	14	13	0.0033
4,4'-DDE	17	8.9	0.0033
4,4'-DDT	136	7.9	0.0033
Dieldrin	0.1	0.2	0.005
PCBs (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
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.5
Volatile Organic Compounds (mg/kg)			
1,2,4-Trimethylbenzene	3.6	52	3.6
1,2-Dichloroethane	0.02	3.1	0.02
1,3,5-Trimethylbenzene	8.4	52	8.4
2-Butanone (Methyl Ethyl Ketone)	0.12	100	0.12
Acetone	0.05	100	0.05
Benzene	0.06	4.8	0.06
Ethylbenzene	1	41	1
Naphthalene	12	100	12
n-Butylbenzene	12	100	12
n-Propylbenzene	3.9	100	3.9
Tetrachloroethene	1.3	19	1.3
Xylene (Total)	1.6	100	0.26
PFAS (ug/kg)			
Perfluorooctanesulfonic acid (PFOS)	1	44	0.88

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SOIL SAMPLE 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 (SCOS), RESTRICTED-RESIDENTIAL SCOS, AND 40 CFR 261 SUBPART C AND TABLE 1 OF 40 CFR 261.24.
3. NY-RESR = NYSDEC PART 375 RESTRICTED-RESIDENTIAL USE SCO
4. NY-UNRES = NYSDEC PART 375 UNRESTRICTED USE SCO
5. NY-PGW = NYDEC PART 375 PROTECTION OF GROUNDWATER CRITERIA
6. EXCEEDANCES OF THE NY-UNRES SCOS ARE SHADED GRAY
7. EXCEEDANCES OF THE NY-UNRES AND NY-RESRR ARE SHADED YELLOW
8. EXCEEDANCES OF THE NY-PGW ARE SHOWN IN BLACK TEXT
9. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
10. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

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SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

SOIL RESULTS EXCEEDANCE MAP

JULY 2025

FIGURE 5

DB| FILE PATH: I:\Map\Projects\2024\397\GIS\March2025_01_SR\2024397_000_0005_SOIL_RESULTS_EXCEEDANCE_MAP.mxd - khensen - 1/20/2025 10:01:49 AM

MW-15	01/02/2025 L2500072-04
Metals	
Iron, Total	2640
Manganese, Dissolved	1373
Manganese, Total	1542
Sodium, Dissolved	118000
Sodium, Total	133000
Semi-Volatile Organic Compounds	
Naphthalene	120
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	88
1,2,4-Trimethylbenzene	1500
1,3,5-Trimethylbenzene	360
2-Phenylbutane (sec-Butylbenzene)	16 J
Ethylbenzene	1600
Isopropylbenzene (Cumene)	95
m,p-Xylenes	4200
Naphthalene	410
n-Butylbenzene	24 J
n-Propylbenzene	230
o-Xylene	59
Toluene	66
Xylene (Total)	4300

MW-16I	01/02/2025 L2500072-03
Metals	
Iron, Total	812
Manganese, Dissolved	1060
Manganese, Total	1198
Sodium, Dissolved	104000
Sodium, Total	122000
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	6
1,2,4-Trimethylbenzene	44
1,3,5-Trimethylbenzene	15
Ethylbenzene	32
m,p-Xylenes	48
Naphthalene	12
n-Propylbenzene	8.5
Xylene (Total)	48

MW-14	01/02/2025 L2500072-02
Metals	
Iron, Total	878
Manganese, Total	330.8
Sodium, Dissolved	138000
Sodium, Total	171000
Semi-Volatile Organic Compounds	
Naphthalene	40
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	10
1,2,4-Trimethylbenzene	120
1,3,5-Trimethylbenzene	19
Ethylbenzene	220
Isopropylbenzene (Cumene)	22
m,p-Xylenes	180
Naphthalene	70
n-Propylbenzene	32
o-Xylene	11
Xylene (Total)	190

MW-16D	01/02/2025 L2500072-05
Metals	
Iron, Total	3980
Manganese, Dissolved	1818
Manganese, Total	2221
Sodium, Dissolved	96200
Sodium, Total	114000
Volatile Organic Compounds	
1,2,4-Trimethylbenzene	8
Ethylbenzene	7.6
m,p-Xylenes	11
Xylene (Total)	11

MW-16S	01/02/2025 L2500072-01
Metals	
Antimony, Dissolved	3.93 J
Iron, Dissolved	306 J
Iron, Total	1540
Sodium, Dissolved	65100
Sodium, Total	70000
Semi-Volatile Organic Compounds	
Naphthalene	150
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	20
1,2,4-Trimethylbenzene	430
1,3,5-Trimethylbenzene	120
Chloroform (Trichloromethane)	7.6 J
Cymene (p-Isopropyltoluene)	7.6 J
Ethylbenzene	1200
Isopropylbenzene (Cumene)	50
m,p-Xylenes	1200
Naphthalene	280
n-Butylbenzene	7 J
n-Propylbenzene	84
o-Xylene	16 J
Tetrachloroethene	9.1
Toluene	17 J
Xylene (Total)	1200 J

MW-03	02/28/2024 L2410744-02
Metals	
Chromium, Total	133.3
Iron, Dissolved	3010
Iron, Total	6810
Magnesium, Total	35600
Manganese, Dissolved	1969
Manganese, Total	2187
Sodium, Dissolved	162000
Sodium, Total	149000
Semi-Volatile Organic Compounds	
Naphthalene	87
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	51
1,2,4-Trimethylbenzene	560
1,3,5-Trimethylbenzene	160
2-Phenylbutane (sec-Butylbenzene)	18
Cymene (p-Isopropyltoluene)	9.1 J
Ethylbenzene	590
Isopropylbenzene (Cumene)	71
m,p-Xylenes	1300
Naphthalene	160
n-Butylbenzene	20
n-Propylbenzene	140
o-Xylene	27
Toluene	28
Xylene (Total)	1300

MW-01	02/27/2024 L2410449-01
Metals	
Magnesium, Dissolved	43600
Magnesium, Total	44900
Sodium, Dissolved	134000
Sodium, Total	136000

MW-12D	12/30/2024 L2476467-06
Metals	
Iron, Total	582
Manganese, Dissolved	424.5
Manganese, Total	445.5
Sodium, Dissolved	99900
Sodium, Total	112000
Semi-Volatile Organic Compounds	
Naphthalene	16
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	14
1,2,4-Trimethylbenzene	200
1,3,5-Trimethylbenzene	62
Ethylbenzene	91
Isopropylbenzene (Cumene)	13
m,p-Xylenes	300
Naphthalene	35
n-Propylbenzene	36
o-Xylene	23
Xylene (Total)	320

MW-12S	12/30/2024 L2476467-03
Metals	
Sodium, Dissolved	131000
Sodium, Total	140000
Semi-Volatile Organic Compounds	
Naphthalene	180
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	46
1,2,4-Trimethylbenzene	990
1,3,5-Trimethylbenzene	270
Ethylbenzene	1200
Isopropylbenzene (Cumene)	70
m,p-Xylenes	3400
Naphthalene	310
n-Butylbenzene	14 J
n-Propylbenzene	150
o-Xylene	450
Toluene	120
Xylene (Total)	3900

MW-12I	12/30/2024 L2476467-02
Metals	
Iron, Dissolved	925
Iron, Total	2070
Magnesium, Total	38900
Manganese, Dissolved	1229
Manganese, Total	1422
Sodium, Dissolved	124000
Sodium, Total	147000
Volatile Organic Compounds	
Ethylbenzene	7.6
Isopropylbenzene (Cumene)	20
m,p-Xylenes	32
n-Propylbenzene	27
Toluene	6
Xylene (Total)	35

MW-04	02/28/2024 L2410744-01	02/28/2024 L2410744-03
Metals		
Iron, Total	346	306
Magnesium, Dissolved	36200	36700
Magnesium, Total	33600	37700
Sodium, Dissolved	81100	81700
Sodium, Total	65600	70800

MW-11I	12/30/2024 L2476467-05
Metals	
Manganese, Dissolved	374.4
Manganese, Total	411.3
Sodium, Dissolved	73000
Sodium, Total	80800

MW-11S	12/30/2024 L2476467-04
Metals	
Iron, Dissolved	569
Iron, Total	4060
Manganese, Dissolved	528
Manganese, Total	716.8
Sodium, Dissolved	61700
Sodium, Total	76800
Volatile Organic Compounds	
n-Propylbenzene	5.4

MW-11D	12/30/2024 L2476467-01
Metals	
Magnesium, Total	38100
Manganese, Dissolved	914.5
Manganese, Total	973.6
Sodium, Dissolved	44700
Sodium, Total	50100
Semi-Volatile Organic Compounds	
Indeno(1,2,3-cd)pyrene	ND (0.1)
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	5.6
1,2,4-Trimethylbenzene	25
1,3,5-Trimethylbenzene	7.4
n-Propylbenzene	8.3

MW-10I	12/27/2024 L2476251-01
Metals	
Iron, Total	1070
Manganese, Dissolved	571.8
Manganese, Total	628
Sodium, Dissolved	89500
Sodium, Total	94800
Semi-Volatile Organic Compounds	
Indeno(1,2,3-cd)pyrene	0.04 J
Volatile Organic Compounds	
Ethylbenzene	47
Isopropylbenzene (Cumene)	9.3
m,p-Xylenes	100
n-Propylbenzene	12
o-Xylene	6.4
Xylene (Total)	110

MW-10S	12/27/2024 L2476251-04
Metals	
Iron, Total	2920
Magnesium, Dissolved	40400
Magnesium, Total	41300
Manganese, Dissolved	1840
Manganese, Total	1949
Sodium, Dissolved	93200
Sodium, Total	93000
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	22
2-Phenylbutane (sec-Butylbenzene)	7
Ethylbenzene	38
Isopropylbenzene (Cumene)	43
m,p-Xylenes	36
Naphthalene	12
n-Butylbenzene	5.2
n-Propylbenzene	89
Toluene	12
Xylene (Total)	38 J

MW-09	02/29/2024 L2411068-02
Metals	
Chromium, Total	400.2
Iron, Dissolved	2830
Iron, Total	8070
Magnesium, Dissolved	35500
Manganese, Dissolved	1605
Manganese, Total	1649
Nickel, Total	217.8
Sodium, Dissolved	104000
Sodium, Total	99000
Semi-Volatile Organic Compounds	
Naphthalene	21 J+
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	14
Ethylbenzene	18
Isopropylbenzene (Cumene)	21
m,p-Xylenes	27
Naphthalene	50
n-Propylbenzene	50
Xylene (Total)	27

MW-10D	12/27/2024 L2476251-06
Metals	
Sodium, Dissolved	84600
Sodium, Total	82300

MW-05	12/30/2024 L2476467-08
Metals	
Iron, Total	1020
Manganese, Dissolved	655.6
Manganese, Total	720.1
Sodium, Dissolved	83600
Sodium, Total	92000
Volatile Organic Compounds	
Isopropylbenzene (Cumene)	5.2
m,p-Xylenes	23
Xylene (Total)	23

MW-13I	12/27/2024 L2476251-05
Metals	
Antimony, Dissolved	3.38 J
Iron, Total	329
Manganese, Dissolved	638.6
Manganese, Total	682.4
Sodium, Dissolved	77600
Sodium, Total	81600
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.04 J
Benzo(a)pyrene	0.02 J
Benzo(b)fluoranthene	0.05 J
Benzo(k)fluoranthene	0.05 J
Chrysene	0.05 J
Indeno(1,2,3-cd)pyrene	0.05 J

MW-13D	12/27/2024 L2476251-02	12/27/2024 L2476251-03
Metals		
Antimony, Dissolved	3.28 J	0.67 J
Magnesium, Dissolved	39800	40200
Magnesium, Total	43700	44300
Sodium, Dissolved	79800	81300
Sodium, Total	80700	84300
Semi-Volatile Organic Compounds		
Benzo(a)anthracene	0.03 J	ND (0.1)
Benzo(b)fluoranthene	0.04 J	ND (0.1)
Benzo(k)fluoranthene	0.04 J	ND (0.1)
Chrysene	0.04 J	ND (0.1)
Indeno(1,2,3-cd)pyrene	0.04 J	ND (0.1)

MW-13S	12/27/2024 L2476251-07
Metals	
Iron, Total	1580
Manganese, Dissolved	544.8
Manganese, Total	570.9
Sodium, Dissolved	90700
Sodium, Total	90100

MW-07	04/03/2024 L2418136-01
Metals	
Magnesium, Dissolved	37200
Magnesium, Total	36500
Sodium, Dissolved	65800
Sodium, Total	63800

MW-08	04/03/2024 L2418136-02
Metals	
Magnesium, Dissolved	36900
Magnesium, Total	37800
Manganese, Dissolved	402.8
Manganese, Total	406.2
Sodium, Dissolved	71500
Sodium, Total	76200
Semi-Volatile Organic Compounds	
Benzo(b)fluoranthene	0.02 J
Benzo(k)fluoranthene	0.01 J
Indeno(1,2,3-cd)pyrene	0.03 J

MW-06	12/30/2024 L2476467-07
Metals	
Iron, Total	366
Manganese, Dissolved	1315
Manganese, Total	1221
Sodium, Dissolved	61000
Sodium, Total	64500
Volatile Organic Compounds	
1,2,4-Trimethylbenzene	7
Ethylbenzene	30
Isopropylbenzene (Cumene)	7.3
m,p-Xylenes	5.3
n-Propylbenzene	8.8
Xylene (Total)	5.3

MW-02	02/29/2024 L2411068-01
Metals	
Chromium, Total	70.26
Iron, Dissolved	2000
Iron, Total	3800
Magnesium, Dissolved	37400
Magnesium, Total	35200
Manganese, Dissolved	1546
Manganese, Total	1461
Sodium, Dissolved	116000
Sodium, Total	102000
Semi-Volatile Organic Compounds	
Benzo(k)fluoranthene	0.01 J
Naphthalene	46 J+
Volatile Organic Compounds	
1,2,4,5-Tetramethylbenzene	27
1,2,4-Trimethylbenzene	200
1,3,5-Trimethylbenzene	40
2-Phenylbutane (sec-Butylbenzene)	6 J
Ethylbenzene	310
Isopropylbenzene (Cumene)	33
m,p-Xylenes	270
Naphthalene	92
n-Butylbenzene	8
n-Propylbenzene	76
Xylene (Total)	270

LEGEND

- MONITORING WELL
- SITE BOUNDARY
- PARCEL BOUNDARY

	New York TOGS 111 Ambient Water Quality Standards
Metals (ug/L)	
Antimony, Dissolved	3
Chromium, Total	50
Iron, Dissolved & Total	300
Magnesium, Dissolved & Total	35000
Manganese, Dissolved & Total	300
Nickel, Total	100
Sodium, Dissolved & Total	20000
Semi-Volatile Organic Compounds (ug/L)	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Naphthalene	10
Volatile Organic Compounds (ug/L)	
1,2,4,5-Tetramethylbenzene	5
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
2-Phenylbutane (sec-Butylbenzene)	5
Chloroform (Trichloromethane)	7
Cymene (p-Isopropyltoluene)	5
Ethylbenzene	5
Isopropylbenzene (Cumene)	5
m,p-Xylenes	5
Naphthalene	10
n-Butylbenzene	5
n-Propylbenzene	5
o-Xylene	5
Tetrachloroethene	5
Toluene	5
Xylene (Total)	5

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND OPERATIONAL GUIDANCE SERIES (TOGS) 1.1.1. AMBIENT WATER QUALITY STANDARDS (AWQS).
3. RESULTS SHADED GRAY EXCEED NYSDEC AWQS.
4. RESULTS ARE DISPLAYED IN MICROGRAMS PER LITER (µg/L).
5. MONITORING WELLS WERE SURVEYED APRIL 2024.
6. GROUNDWATER SAMPLES FROM MONITORING WELLS MW-01, MW-02, MW-03, MW-04, MW-05, MW-06, MW-09, MW-10S, MW-11S, MW-12S, MW-13S, MW-14, MW-15, AND MW-16S COLLECTED AT APPROXIMATELY 40 FEET BELOW GRADE SURFACE (FT BGS); MW-07 AND MW-08 AT APPROXIMATELY 45 FT BGS; MW-10I, MW-11I, MW-12I, MW-13I, AND MW-16I AT APPROXIMATELY 50 FT BGS; AND MW-10D, MW-11D, MW-12D, MW-13D, AND MW-16D AT APPROXIMATELY 60 FT BGS.
7. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
8. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

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SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

GROUNDWATER RESULTS EXCEEDANCE MAP

JULY 2025

FIGURE 6

GIS FILE PATH: I:\haleyaldrich.com\share\GIS\Projects\0034391\GIS\Maps\2025_01_SR\0034391_000_0006_GROUNDWATER_RESULTS_EXCEEDANCE_MAP.mxd - khenwein - 1/23/2025 2:29:05 PM

MW-14	01/02/2025 L2500072-02
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	21.5
Perfluorooctanoic acid (PFOA)	136

MW-01	02/27/2024 L2410449-01
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	42.7
Perfluorooctanoic acid (PFOA)	321

MW-11I	12/30/2024 L2476467-05
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	51.4
Perfluorooctanoic acid (PFOA)	134

MW-11D	12/30/2024 L2476467-01
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	43.5
Perfluorooctanoic acid (PFOA)	134

MW-03	02/28/2024 L2410744-02
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	34.6
Perfluorooctanoic acid (PFOA)	137

MW-11S	12/30/2024 L2476467-04
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	27.3
Perfluorooctanoic acid (PFOA)	81.4

MW-16D	01/02/2025 L2500072-05
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	24.8
Perfluorooctanoic acid (PFOA)	96.8

MW-04	02/28/2024 L2410744-01	02/28/2024 L2410744-03
PFAS (ng/L)		
Perfluorooctanesulfonic acid (PFOS)	34.2	34.4
Perfluorooctanoic acid (PFOA)	152	156

MW-16S	01/02/2025 L2500072-01
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	21.8
Perfluorooctanoic acid (PFOA)	347

MW-16I	01/02/2025 L2500072-03
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	45.7
Perfluorooctanoic acid (PFOA)	138

MW-10D	12/27/2024 L2476251-06
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	45.6
Perfluorooctanoic acid (PFOA)	146 J

MW-15	01/02/2025 L2500072-04
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	29.2
Perfluorooctanoic acid (PFOA)	184

MW-06	12/30/2024 L2476467-07
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	26.2
Perfluorooctanoic acid (PFOA)	31.5

MW-12D	12/30/2024 L2476467-06
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	47.1
Perfluorooctanoic acid (PFOA)	165

MW-13I	12/27/2024 L2476251-05
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	47.6
Perfluorooctanoic acid (PFOA)	186

MW-12S	12/30/2024 L2476467-03
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	15.8
Perfluorooctanoic acid (PFOA)	196

MW-13S	12/27/2024 L2476251-07
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	31.3
Perfluorooctanoic acid (PFOA)	77

MW-12I	12/30/2024 L2476467-02
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	33.2
Perfluorooctanoic acid (PFOA)	251

MW-13D	12/27/2024 L2476251-02	12/27/2024 L2476251-03
PFAS (ng/L)		
Perfluorooctanesulfonic acid (PFOS)	38	43.8
Perfluorooctanoic acid (PFOA)	134	134

MW-02	02/29/2024 L2411068-01
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	28.8
Perfluorooctanoic acid (PFOA)	145

MW-09	02/29/2024 L2411068-02
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	31.1
Perfluorooctanoic acid (PFOA)	143

MW-08	04/03/2024 L2418136-02
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	56.9 J
Perfluorooctanoic acid (PFOA)	179 J

MW-10I	12/27/2024 L2476251-01
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	33.4
Perfluorooctanoic acid (PFOA)	142

MW-10S	12/27/2024 L2476251-04
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	9
Perfluorooctanoic acid (PFOA)	65.9

MW-05	12/30/2024 L2476467-08
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	15
Perfluorooctanoic acid (PFOA)	162

MW-07	04/03/2024 L2418136-01
PFAS (ng/L)	
Perfluorooctanesulfonic acid (PFOS)	61.9
Perfluorooctanoic acid (PFOA)	141

MW-14 MW-01 MW-11I MW-11D MW-03 MW-11S MW-16D MW-04 MW-16S MW-03 MW-16I MW-15 MW-10D MW-12D MW-12S MW-12I MW-02 MW-06 MW-10I MW-10S MW-09 MW-10D MW-13I MW-13S MW-13D MW-08 MW-05 MW-07

LOT: 1 LOT: 3 LOT: 29

HINCKLEY PL CONEY ISLAND AVE BEVERLEY RD

LEGEND

- REMEDIAL INVESTIGATION (RI) WELL
- 2021 PHASE II SITE INVESTIGATION MONITORING WELL
- SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI) WELL
- SITE BOUNDARY
- PARCEL BOUNDARY

	NYSDEC April 2023 PFAS Guidance Values
Metals (ug/L)	
Antimony, Dissolved	3
Chromium, Total	50
Iron, Dissolved & Total	300
Magnesium, Dissolved & Total	35000
Manganese, Dissolved & Total	300
Nickel, Total	100
Sodium, Dissolved & Total	20000
Semi-Volatile Organic Compounds (ug/L)	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Naphthalene	10
Volatile Organic Compounds (ug/L)	
1,2,4,5-Tetramethylbenzene	5
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
2-Phenylbutane (sec-Butylbenzene)	5
Chloroform (Trichloromethane)	7
Cymene (p-Isopropyltoluene)	5
Ethylbenzene	5
Isopropylbenzene (Cumene)	5
m,p-Xylenes	5
Naphthalene	10
n-Butylbenzene	5
n-Propylbenzene	5
o-Xylene	5
Tetrachloroethene	5
Toluene	5
Xylene (Total)	5

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. EMERGING CONTAMINANTS ANALYTICAL RESULTS COMPARED TO THE NYSDEC APRIL 2023 GUIDANCE VALUES (NYSDEC GV) FOR PFOA, PFOS, AND 1,4-DIOXANE.
3. RESULTS SHADED GRAY EXCEED NYSDEC AWQS.
4. RESULTS ARE DISPLAYED IN NANOGRAMS PER LITER (ng/L).
5. RI MONITORING WELLS WERE SURVEYED IN APRIL 2024 AND SRI MONITORING WELLS WERE SURVEYED IN DECEMBER 2024.
6. GROUNDWATER SAMPLES COLLECTED FROM MONITORING WELLS MW-01, MW-02, MW-03, MW-04, MW-05, MW-06, MW-09, MW-10S, MW-11S, MW-12S, MW-13S, MW-14, MW-15, AND MW-16S COLLECTED AT APPROXIMATELY 40 FT BGS; SAMPLES FROM MONITORING WELLS MW-07 and MW-08 COLLECTED AT APPROXIMATELY 45 FT BGS; SAMPLES FROM MONITORING WELLS MW-10I, MW-11I, MW-12I, MW-13I, AND MW-16I COLLECTED AT APPROXIMATELY 50 FT BGS; AND SAMPLES FROM MONITORING WELLS MW-10D, MW-11D, MW-12D, MW-13D, AND MW-16D COLLECTED AT APPROXIMATELY 60 FT BGS.
7. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
8. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

0 20 40 60 80
SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

EMERGING CONTAMINANTS IN GROUNDWATER RESULTS EXCEEDANCE MAP

JULY 2025

FIGURE 7

GIS FILE PATH: I:\haleyaldrich.com\share\CP\Projects\60243915\GIS\Maps\2025_02_RI\02439150_060_0007_EMERGING_CONTAMINANTS_IN_GROUNDWATER_RESULTS.mxd - Jhensen - 5/29/2025, 10:59:13 AM

SV-4	12/16/2021 CK00872
VOCs	
1,2,4-Trimethylbenzene	6.88
1,3,5-Trimethylbenzene	1.86
2-Butanone (Methyl Ethyl Ketone)	81.6
2-Hexanone (Methyl Butyl Ketone)	21.4
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	6.09
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.45
Acetone	29.7
Benzene	1.05
Carbon disulfide	15.2
Carbon tetrachloride	0.31
Dichlorodifluoromethane (CFC-12)	3.02
Ethanol	8.76
Ethylbenzene	3.64
Hexane	2.12
Isopropyl Alcohol (2-Propanol)	1.25
m,p-Xylenes	13.5
n-Butylbenzene	1.08
N-Heptane	3.78
o-Xylene	4.6
Propylene (Propene)	13.6
Styrene	1.7
Tetrachloroethene	418
Toluene	62.1
Trichloroethene	3.32
Trichlorofluoromethane (CFC-11)	1.27
Calculated Totals	
Total BTEXs	84.89
Total CVOCs	421.63
Total VOCs	708.28

SV-1	12/16/2021 CK00873
VOCs	
1,2,4-Trimethylbenzene	7.52
1,3,5-Trimethylbenzene	2.26
2-Butanone (Methyl Ethyl Ketone)	13.8
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	8.2
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	8.07
Acetone	82.9
Benzene	6.19
Carbon disulfide	2.53
Carbon tetrachloride	0.33
Cyclohexane	8.43
Dichlorodifluoromethane (CFC-12)	2.42
Ethanol	24.1
Ethylbenzene	8.03
Hexane	13.7
Isopropyl Alcohol (2-Propanol)	6.56
m,p-Xylenes	37.6
n-Butylbenzene	1.13
N-Heptane	11.2
o-Xylene	13.7
Propylene (Propene)	51.1
Styrene	2.31
Tetrachloroethene	122
Tetrahydrofuran	4.72
Toluene	30.2
Trichloroethene	0.72
Trichlorofluoromethane (CFC-11)	1.33
Calculated Totals	
Total BTEXs	95.72
Total CVOCs	123.05
Total VOCs	470.85

SV-2	12/16/2021 CK00874
VOCs	
1,2,4-Trimethylbenzene	14.6
1,3,5-Trimethylbenzene	3.67
2-Butanone (Methyl Ethyl Ketone)	110
2-Hexanone (Methyl Butyl Ketone)	23.9
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	3.28
Acetone	155
Carbon disulfide	1.76
Carbon tetrachloride	0.81
Chloroform (Trichloromethane)	4.49
Dichlorodifluoromethane (CFC-12)	5.54
Ethanol	68.2
Ethylbenzene	5.12
Hexane	1.82
Isopropyl Alcohol (2-Propanol)	8.65
m,p-Xylenes	20.5
n-Butylbenzene	2.08
N-Heptane	3.92
o-Xylene	7.64
Propylene (Propene)	5.04
Styrene	1.01
Tetrachloroethene	92.9
Tetrahydrofuran	10.1
Toluene	86.2
Trichloroethene	0.58
Trichlorofluoromethane (CFC-11)	1.31
Calculated Totals	
Total BTEXs	119.46
Total CVOCs	94.29
Total VOCs	638.12

SP-03	02/27/2024 L2410442-03
VOCs	
1,2,4-Trimethylbenzene	5.95
1,3,5-Trimethylbenzene	1.07
1,4-Dichlorobenzene	2.24
2,2,4-Trimethylpentane	4.45
2-Butanone (Methyl Ethyl Ketone)	2.95
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	1.23
Acetone	290
Benzene	1.32
Bromomethane (Methyl Bromide)	0.909
Chloromethane (Methyl Chloride)	0.568
Cyclohexane	1.63
Dichlorodifluoromethane (CFC-12)	9.99
Ethanol	157
Ethyl acetate	32.1
Ethylbenzene	10.6
Hexane	5.96
Isopropyl Alcohol (2-Propanol)	85.5
m,p-Xylenes	33.7
N-Heptane	3.18
o-Xylene	6.73
Tert-Butyl Alcohol (tert-Butanol)	1.78
Tetrachloroethene	8.41
Toluene	17.4
Trichloroethene	2.3
Calculated Totals	
Total BTEXs	69.75
Total CVOCs	10.71
Total VOCs	686.967

SP-13	12/19/2024 L2475117-03
VOCs	
1,2,4-Trimethylbenzene	15.8
1,3-Butadiene	159
2-Butanone (Methyl Ethyl Ketone)	68.4
2-Hexanone (Methyl Butyl Ketone)	15.2
Acetone	194
Benzene	33.2
Carbon disulfide	34.3
Cyclohexane	10.4
Ethylbenzene	12.8
Hexane	122
m,p-Xylenes	42.5
N-Heptane	63.1
o-Xylene	15.9
Tert-Butyl Alcohol (tert-Butanol)	21.1
Tetrachloroethene	793
Toluene	63.3
Trichloroethene	25.4
Calculated Totals	
Total BTEXs	167.7
Total CVOCs	831.4
Total VOCs	1702.4

SV-5	12/16/2021 CK00876
VOCs	
1,1,1-Trichloroethane	13.7
1,1,2,2-Tetrachloroethane	5.78
1,2,4-Trimethylbenzene	14.1
1,3,5-Trimethylbenzene	3.9
2-Butanone (Methyl Ethyl Ketone)	107
2-Hexanone (Methyl Butyl Ketone)	32.9
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	12.1
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	11.2
Acetone	254
Benzene	2.15
Bromodichloromethane	2.26
Carbon disulfide	10.9
Carbon tetrachloride	1.25
Chloroform (Trichloromethane)	27.7
Chloromethane (Methyl Chloride)	1.38
Dichlorodifluoromethane (CFC-12)	3.26
Ethanol	24.1
Ethylbenzene	6.6
Hexane	4.3
Isopropyl Alcohol (2-Propanol)	4.67
m,p-Xylenes	24.6
n-Butylbenzene	1.91
N-Heptane	5.65
o-Xylene	9.33
Styrene	3.24
Tetrachloroethene	500
Tetrahydrofuran	9.11
Toluene	91.9
Trichloroethene	5.96
Trichlorofluoromethane (CFC-11)	1.43
Calculated Totals	
Total BTEXs	134.58
Total CVOCs	520.91
Total VOCs	1197.36

SP-02	02/27/2024 L2410442-02
VOCs	
1,2,4-Trimethylbenzene	9.64
1,3,5-Trimethylbenzene	2.02
2-Butanone (Methyl Ethyl Ketone)	3.42
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	3.5
Acetone	18.2
Benzene	1.58
Dichlorodifluoromethane (CFC-12)	2.23
Ethylbenzene	11.7
Hexane	1.91
m,p-Xylenes	49.1
N-Heptane	3.37
o-Xylene	14.2
Styrene	3.73
Tert-Butyl Alcohol (tert-Butanol)	3.36
Tetrachloroethene	271
Toluene	39.2
Trichloroethene	27.7
Calculated Totals	
Total BTEXs	115.78
Total CVOCs	298.7
Total VOCs	465.86

SP-09	02/27/2024 L2410442-04
VOCs	
1,2,4-Trimethylbenzene	3.84
Acetone	12
Ethylbenzene	7.08
m,p-Xylenes	27.4
o-Xylene	8.38
Tetrachloroethene	1070
Toluene	28
Trichloroethene	27.8
Calculated Totals	
Total BTEXs	70.86
Total CVOCs	1097.8
Total VOCs	1184.5

SP-01	02/27/2024 L2410442-01
VOCs	
1,1,1-Trichloroethane	2.28
1,2,4-Trimethylbenzene	6.74
1,3,5-Trimethylbenzene	1.47
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	2.01
Acetone	16.7
Benzene	2.13
Chlorobenzene	8.52
Chloroform (Trichloromethane)	1.16
Chloromethane (Methyl Chloride)	0.44
Dichlorodifluoromethane (CFC-12)	5.14
Ethanol	15.2
Ethylbenzene	10.1
Hexane	4.12
Isopropyl Alcohol (2-Propanol)	1.67
m,p-Xylenes	34
N-Heptane	3.2
o-Xylene	10.1
Styrene	1.42
Tert-Butyl Alcohol (tert-Butanol)	1.59
Tetrachloroethene	281
Toluene	22.4
Trichloroethene	7.9
Trichlorofluoromethane (CFC-11)	1.31
Calculated Totals	
Total BTEXs	78.73
Total CVOCs	291.18
Total VOCs	440.6

SP-12	12/20/2024 L2475582-01
VOCs	
1,1,1-Trichloroethane	1.12
1,2,4-Trimethylbenzene	14.4
1,3,5-Trimethylbenzene	4.17
1,3-Butadiene	52.4
2,2,4-Trimethylpentane	7.61
2-Butanone (Methyl Ethyl Ketone)	62.2
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	4.29
Acetone	134
Benzene	56.9
Carbon disulfide	81.6
Chloroform (Trichloromethane)	8.01
Chloromethane (Methyl Chloride)	5.84
Cyclohexane	15
Dichlorodifluoromethane (CFC-12)	2.24
Ethylbenzene	15.6
Hexane	155
m,p-Xylenes	45.6
N-Heptane	110
o-Xylene	17.3
Styrene	1.43
Tetrachloroethene	364
Toluene	75.7
Trichloroethene	12.4
Trichlorofluoromethane (CFC-11)	1.21
Calculated Totals	
Total BTEXs	211.1
Total CVOCs	377.52
Total VOCs	1248.02

SP-08	03/22/2024 24C1497-03
VOCs	
1,2,4-Trimethylbenzene	0.76
1,3-Butadiene	7.2
2,2,4-Trimethylpentane	0.434
2-Butanone (Methyl Ethyl Ketone)	27
2-Hexanone (Methyl Butyl Ketone)	3.7
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	0.99
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	5.8
Acetone	67
Benzene	8.3
Carbon disulfide	160
Chloroform (Trichloromethane)	6
Chloromethane (Methyl Chloride)	0.54
cis-1,2-Dichloroethene	1.4
Cyclohexane	2.2
Dichlorodifluoromethane (CFC-12)	1.5
Ethylbenzene	1.2
Hexane	8.2
Isopropyl Alcohol (2-Propanol)	3.2
m,p-Xylenes	4
N-Heptane	6.9
o-Xylene	1.9
Propylene (Propene)	50
Tetrachloroethene	130
Toluene	4.4
Trichloroethene	5.4
Calculated Totals	
Total BTEXs	19.8
Total CVOCs	136.6
Total VOCs	510.024

SV-3	12/16/2021 CK00871
VOCs	
1,2,4-Trimethylbenzene	18.4
1,4-Dioxane	109
2-Butanone (Methyl Ethyl Ketone)	52.5
2-Hexanone (Methyl Butyl Ketone)	24.4
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.6
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	11.3
Acetone	224
Chloroform (Trichloromethane)	7.51
cis-1,2-Dichloroethene	2590
Ethanol	118
Ethylbenzene	15.6
Isopropyl Alcohol (2-Propanol)	9.09
m,p-Xylenes	63.4
Methyl Tert Butyl Ether (MTBE)	27.3
o-Xylene	19.6
Propylene (Propene)	10.7
Styrene	14.2
Tetrachloroethene	4410
Tetrahydrofuran	6.63
Toluene	93.4
trans-1,2-Dichloroethene	6.18
Trichloroethene	405
Calculated Totals	
Total BTEXs	192
Total CVOCs	7405
Total VOCs	8250.81

SP-10	12/19/2024 L2475117-02
VOCs	
1,2,4-Trimethylbenzene	317
1,3,5-Trimethylbenzene	130
1,3-Butadiene	259
2,2,4-Trimethylpentane	677
2-Butanone (Methyl Ethyl Ketone)	169
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	89.5
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	29.1
Acetone	622
Benzene	108
Carbon disulfide	66
Chloroform (Trichloromethane)	23.7
Chloromethane (Methyl Chloride)	5.22
cis-1,2-Dichloroethene	289
Cyclohexane	16.8
Ethylbenzene	58.6
Hexane	126
m,p-Xylenes	173
Methylene chloride (Dichloromethane)	102
N-Heptane	84.4
o-Xylene	131
Tert-Butyl Alcohol (tert-Butanol)	19.1
Tetrachloroethene	3830
Toluene	143
Trichloroethene	114
Calculated Totals	
Total BTEXs	613.6
Total CVOCs	4335
Total VOCs	7582.42

SP-05	12/20/2024 L2475582-02
VOCs	
1,3-Butadiene	135
2-Butanone (Methyl Ethyl Ketone)	295
Acetone	855
Benzene	72.5
Carbon disulfide	360
Chloromethane (Methyl Chloride)	22.1
cis-1,2-Dichloroethene	741
Hexane	146
Isopropyl Alcohol (2-Propanol)	156
m,p-Xylenes	82.5
N-Heptane	84.4
Tert-Butyl Alcohol (tert-Butanol)	138
Tetrachloroethene	15100
Toluene	101
Trichloroethene	295
Calculated Totals	
Total BTEXs	256
Total CVOCs	16136
Total VOCs	18390.5

SP-06	12/19/2024 L2475117-01
VOCs	
1,2,4-Trimethylbenzene	9.44
1,3-Butadiene	392
2,2,4-Trimethylpentane	15.7
2-Butanone (Methyl Ethyl Ketone)	240
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	14.1
Acetone	1470
Benzene	355
Carbon disulfide	844
Chloromethane (Methyl Chloride)	69
cis-1,2-Dichloroethene	9.59
Cyclohexane	33.2
Ethanol	72.9
Ethylbenzene	22.7
Hexane	458
m,p-Xylenes	60.8
Methylene chloride (Dichloromethane)	18.7
N-Heptane	259
o-Xylene	24.8
Tert-Butyl Alcohol (tert-Butanol)	53.7
Tetrachloroethene	1210
Toluene	194
Trichloroethene	57
Calculated Totals	
Total BTEXs	657.3
Total CVOCs	1295.29
Total VOCs	5883.63

SP-11	12/20/2024 L2475582-03
VOCs	
1,2,4-Trimethylbenzene	2.79
1,3-Butadiene	46.7
2,2,4-Trimethylpentane	3.2
2-Butanone (Methyl Ethyl Ketone)	84.3
2-Hexanone (Methyl Butyl Ketone)	7.38
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	7.95
Acetone	203
Benzene	12.7
Carbon disulfide	34.9
Chloroform (Trichloromethane)	23.7
Chloromethane (Methyl Chloride)	0.84
cis-1,2-Dichloroethene	9.08
Cyclohexane	5.95
Dichlorodifluoromethane (CFC-12)	2.13
Ethanol	15.3
Ethylbenzene	5.52
Hexane	26.5
Isopropyl Alcohol (2-Propanol)	4.38
m,p-Xylenes	21
N-Heptane	15.4
o-Xylene	8.25
Tert-Butyl Alcohol (tert-Butanol)	19.7
Tetrachloroethene	4120
Tetrahydrofuran	3.39
Toluene	17.6
Trichloroethene	65.6
Calculated Totals	
Total BTEXs	65.07
Total CVOCs	4194.68
Total VOCs	4767.26

SP-04	03/22/2024 24C1497-01
VOCs	
1,2,4-Trimethylbenzene	1.1
2,2,4-Trimethylpentane	0.466
2-Butanone (Methyl Ethyl Ketone)	2.3
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	0.9
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	1.1
Acetone	29
Benzene	1
Carbon disulfide	2.5
Carbon tetrachloride	0.31
Chloroform (Trichloromethane)	18
Chloromethane (Methyl Chloride)	0.58
Dichlorodifluoromethane (CFC-12)	2
Ethylbenzene	1.1
Hexane	0.7
Isopropyl Alcohol (2-Propanol)	1.1
m,p-Xylenes	4.7
N-Heptane	1.6
o-Xylene	2
Propylene (Propene)	2.4
Tetrachloroethene	99
Toluene	1.6
Trichloroethene	0.45
Trichlorofluoromethane (CFC-11)	0.93
Calculated Totals	
Total BTEXs	10.4
Total CVOCs	99.76
Total VOCs	174.836

SP-07	03/22/2024 24C1497-02
VOCs	
1,3-Butadiene	1200
2,2,4-Trimethylpentane	6.09
2-Butanone (Methyl Ethyl Ketone)	94
2-Hexanone (Methyl Butyl Ketone)	34
Acetone	280
Carbon disulfide	540
Chloroform (Trichloromethane)	35
Chloromethane (Methyl Chloride)	13
cis-1,2-Dichloroethene	14
Cyclohexane	270
Ethylbenzene	16
Hexane	4500
m,p-Xylenes	18
N-Heptane	2100
o-Xylene	8.8
Tetrachloroethene	270
Toluene	110
Trichloroethene	81
Calculated Totals	
Total BTEXs	152.8
Total CVOCs	365
Total VOCs	9589.89

LEGEND

REMEDIAL INVESTIGATION (RI)

- SOIL VAPOR PROBE

2021 PHASE II SITE INVESTIGATION

- SOIL VAPOR PROBE OR CO-LOCATED AMBIENT AIR SAMPLE, PHASE II INVESTIGATION
- SUB-SLAB VAPOR PROBE, PHASE II INVESTIGATION

SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI)

- SOIL VAPOR PROBE
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ALL DETECTED ANALYTES SHOWN ON FIGURE.
3. SOIL VAPOR ANALYSIS – VOLATILE ORGANIC COMPOUNDS (VOCs)
4. RESULTS ARE DISPLAYED IN MICROGRAMS PER CUBIC METER (µg/M3)
5. TOTAL DETECTED CONCENTRATION OF BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES (BTEX).
6. TOTAL VOCs IS THE SUM OF ALL THE DETECTED CONCENTRATIONS.
7. 2021 PHASE II SUB-SLAB VAPOR SAMPLES COLLECTED AT 1 TO 2 FEET BELOW GROUND SURFACE (FT BGS); 2021 PHASE II SOIL VAPOR SAMPLES COLLECTED AT 10 FT BGS; 2024 RI SOIL VAPOR SAMPLES COLLECTED AT 12 TO 14 FT BGS; AND 2024 SRI SOIL VAPOR SAMPLES COLLECTED AT 15 TO 17 FT BGS.
8. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
9. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 20 40 60 80

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

SOIL VAPOR RESULTS SUMMARY MAP

JULY 2025

FIGURE 8

GIS FILE PATH: I:\haleyaldrich.com\share\GIS\Projects\202439\GIS\Maps\2025_07_RI\R0\24391_000_0009_SOIL_VAPOR_RESULTS_SUMMARY_MAP.mxd khemers 5/29/2025 9:17:42 AM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- PROPOSED REMEDIAL EXCAVATION DEPTHS IN FEET BELOW GROUND SURFACE (FT BGS)
- 15 FT BGS

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

ALTERNATIVE I EXCAVATION PLAN

JULY 2025

FIGURE 9

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

BLOCK 5114 SITE BOUNDARY

PARCEL BOUNDARY

PROPOSED REMEDIAL EXCAVATION DEPTHS IN FEET BELOW GROUND SURFACE (FT BGS)

2 FT BGS

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

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0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YOR

ALTERNATIVE II EXCAVATION PLAN

JULY 2025

FIGURE 10

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY

PROPOSED REMEDIAL EXCAVATION DEPTHS IN FEET BELOW GROUND SURFACE (FT BGS)

- 40 FT BGS
- 45 FT BGS
- 65 FT BGS

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YOR

ALTERNATIVE III EXCAVATION PLAN

JULY 2025

FIGURE 11

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- CONFIRMATION SAMPLE LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YOR

CONFIRMATION SAMPLE LOCATION PLAN

JULY 2025

FIGURE 12

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\1\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- PROPOSED GROUNDWATER TREATMENT AREA
- APPROXIMATE INJECTION POINT LOCATION WITH 20 FOOT RADIUS OF INFLUENCE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YOR

CONCEPTUAL IN-SITU INJECTION PLAN

JULY 2025

FIGURE 13

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- POST-REMEDIATION GROUNDWATER MONITORING WELL LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024
4. BUILDING LAYOUT FROM ARCHITECTURAL SET FOR CONEY ISLAND AVENUE NEW RESIDENTIAL DEVELOPMENT, FLOOR PLAN - CELLAR (SHEET A100.00) PREPARED BY DANIEL M. CONDATORE, RA, DATED MARCH 5, 2025.

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YOR

POST-REMEDIATION GROUNDWATER MONITORING WELL LOCATION PLAN

JANUARY 2026

FIGURE 14

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- CONCEPTUAL SUB-SLAB HORIZONTAL PIPING NETWORK
- POTENTIAL SUB-SLAB VAPOR MONITORING POINT
- RISER PIPE EXTENDING FROM SUB-SLAB TO BUILDING ROOF

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

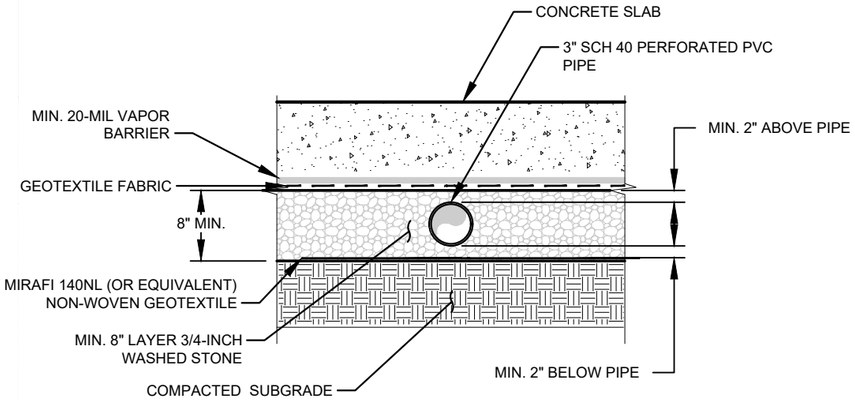
547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW Y

CONCEPTUAL ACTIVE SSDS PLAN

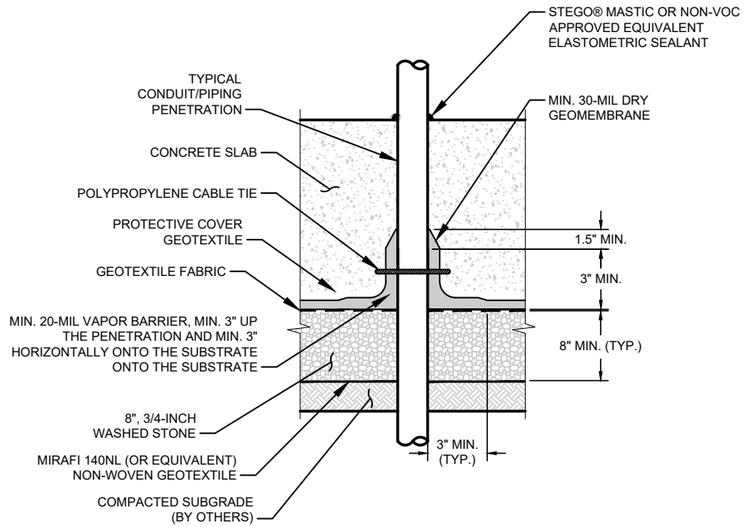
JULY 2025

FIGURE 15A

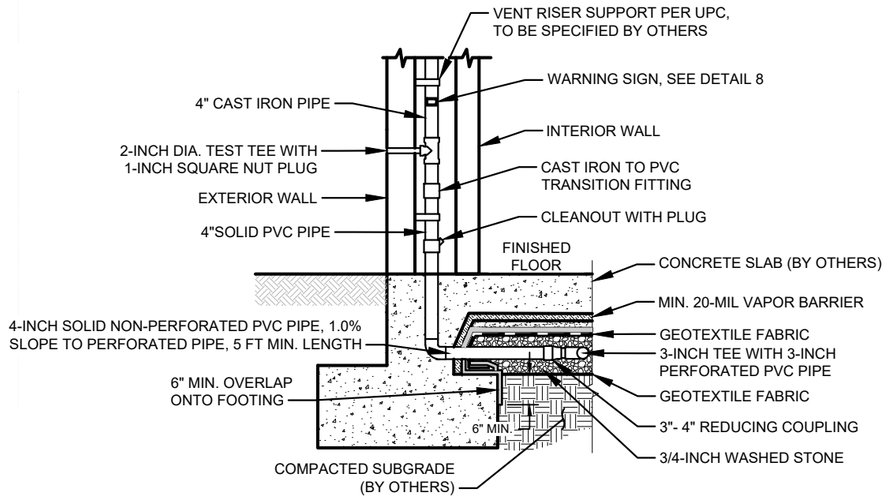
GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM



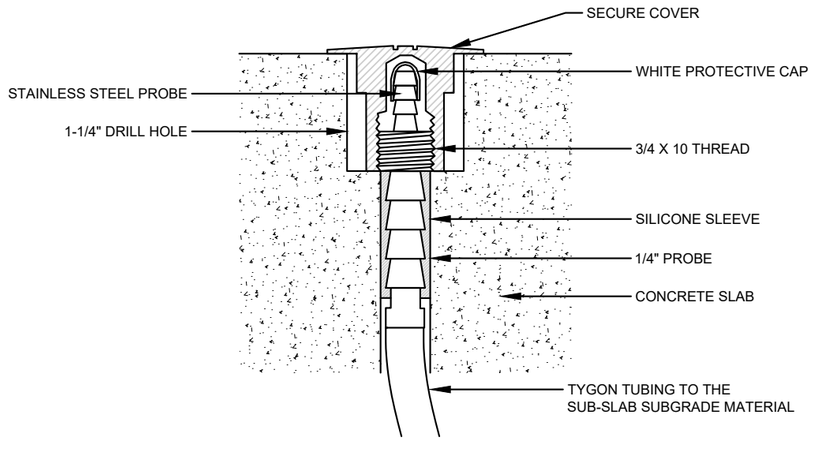
1 **SUB-SLAB PIPING WITHIN GAS PERMEABLE LAYER (TYP.)**
NTS



3 **PIPE PENETRATION SEAL - CABLE TIE (TYP.)**
NTS



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



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

HALEY ALDRICH

547 CONEY ISLAND AVENUE & 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

TYPICAL SSDS DESIGN DETAILS

JULY 2025

FIGURE 15B

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

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- PROPOSED SVE WELL
- ASSUMED 15 FT RADIUS OF INFLUENCE
- PROPOSED SVE MONITORING POINT

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024
4. DEFINITIONS:
FT BGS = FEET BELOW GROUND SURFACE
SVE = SOIL VAPOR EXTRACTION
5. CONCEPTUAL SVE WELL CONSTRUCTION:
ALTERNATIVE I - EACH LOCATION WILL HAVE AN SVE WELL SCREENED FROM 20 TO 30 FT BGS
ALTERNATIVE II - EACH LOCATION WILL HAVE THREE CO-LOCATED SVE WELLS SCREENED FROM 5 TO 15 FT BGS, 15 TO 25 FT BGS, AND 25 TO 30 FT BGS.
6. SOIL VAPOR PROBE LOCATIONS SHOWN ARE FROM FIGURE 8.

N

0 30 60
SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

ALTERNATIVE I AND II:
CONCEPTUAL SVE SYSTEM LAYOUT

SEPTEMBER 2025

FIGURE 16

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

N

0 30 60

SCALE IN FEET

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- TRUCK INGRESS
- TRUCK EGRESS

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

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YOR

TRUCK ROUTE MAP

JULY 2025

FIGURE 17

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:26:33 PM

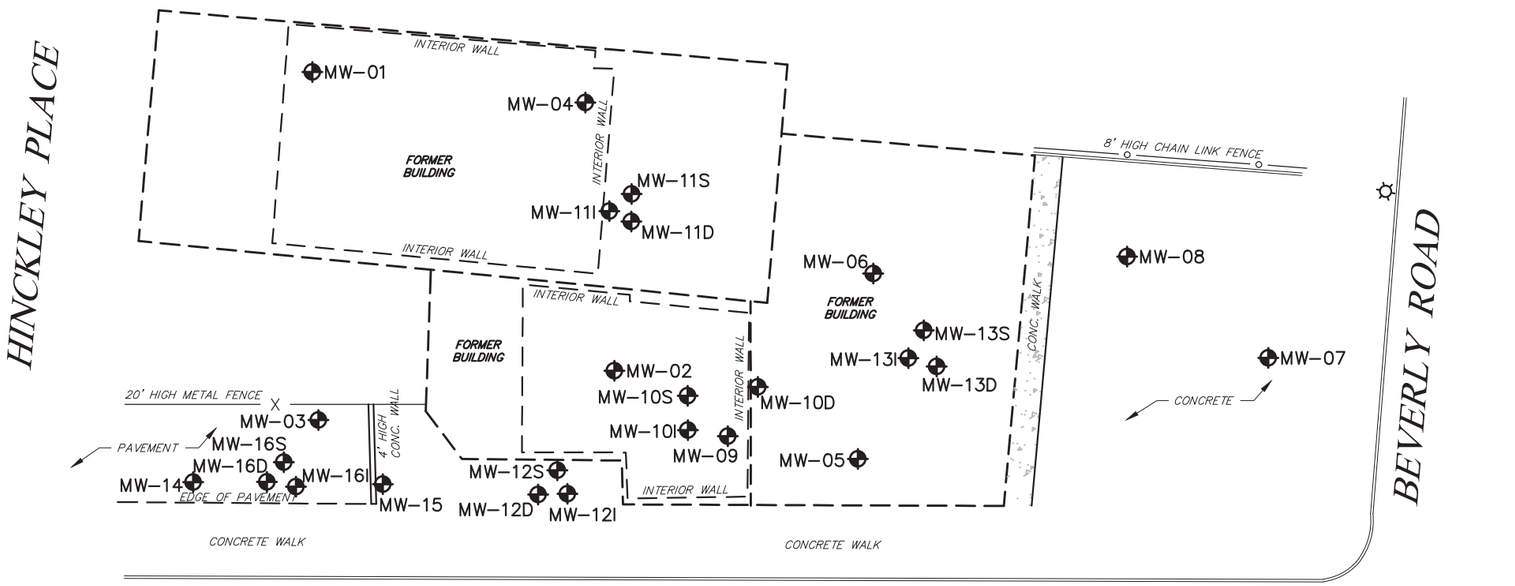
APPENDIX A
Survey Map

MONITORING WELLS	GROUND	RIM	PVC	DATE OF SURVEY
MW-01	45.62 CONC	45.63	45.43	April 3, 2024
MW-02	44.21 CONC	44.23	44.04	April 3, 2024
MW-03	45.31 PAVE	45.34	44.80	April 3, 2024
MW-04	45.65 CONC	45.67	45.47	April 3, 2024
MW-07	44.75 CONC	44.77	44.56	April 3, 2024
MW-08	44.44 CONC	44.46	44.16	April 3, 2024
MW-09	44.32 CONC	44.32	43.97	April 3, 2024
MW-05	44.50	44.83	44.48	December 30, 2024
MW-06	44.28	44.73	44.48	December 30, 2024
MW-10D	44.84	45.33	44.92	December 30, 2024
MW-10I	45.13 PAVE	45.20	44.98	December 30, 2024
MW-10S	45.06 PAVE	45.19	44.91	December 30, 2024
MW-11D	45.60	45.62	45.05	December 30, 2024
MW-11I	45.59 PAVE	45.60	45.36	December 30, 2024
MW-11S	45.64 PAVE	45.65	45.36	December 30, 2024
MW-12D	45.00 PAVE	45.02	44.66	December 30, 2024
MW-12I	45.02 PAVE	44.99	44.65	December 30, 2024
MW-12S	45.08 PAVE	45.07	44.78	December 30, 2024
MW-13D	44.54	44.93	44.72	December 30, 2024
MW-13I	44.29	44.44	43.99	December 30, 2024
MW-13S	44.22	44.82	44.50	December 30, 2024
MW-14	44.91	44.99	44.58	December 30, 2024
MW-15	45.04 PAVE	44.96	44.44	December 30, 2024
MW-16D	45.16 PAVE	45.17	44.77	December 30, 2024
MW-16I	45.10 PAVE	44.99	44.68	December 30, 2024
MW-16S	45.26 PAVE	45.23	44.85	December 30, 2024

NOTES:

1. FIELD WORK PERFORMED ON MARCH 3, 2024 AND DECEMBER 30, 2024.
2. ELEVATION DATUM NAVD 1988 DERIVED USING GPS RECEIVERS AND KEYNET. CORS STATION: NYBR BROOKLYN PIER CORS ARP ELEV=42.13' (NAVD 1988)

NY LONG ISLAND STATE PLANE COORDINATE SYSTEM NAD 1983



CONEY ISLAND AVENUE

GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

REV	DATE	DESCRIPTION	BY	CHKD
2	01/03/2025	ADDED MW – SURVEYED 12-30-2024	R.M,	D.J.N.
1	04/11/2024	REVISED MW-07 AND MW-08	P.C.	D.J.N.

STATE OF NEW YORK · JAMES J. HEISER · 20937 · LICENSED LAND SURVEYOR

DATE 01/03/2025

James J. Heiser
Professional Land Surveyor
JHEISER@DPKCONSULTANTS.NET

N.J. Lic: 24GS04331100
PA. Lic: SU075616
N.Y. Lic: 050932-1
CT. Lic: 70476
DE. LIC: S6-0010858

Date: 04/04/24 | Dr.: P.C. | Chk.: C.S. | SCALE: 1" = 30' | JOB No. 24-10274 | Dwg: 24-10274MW01

DPK LAND SURVEYING

DPK LAND SURVEYING, LLC
200 METROPLEX DRIVE - STE. 285, EDISON, NJ 08817
P:732-764-0100 F: 732-764-0990
NEW YORK CERTIFICATE OF AUTHORIZATION NO. 0012585

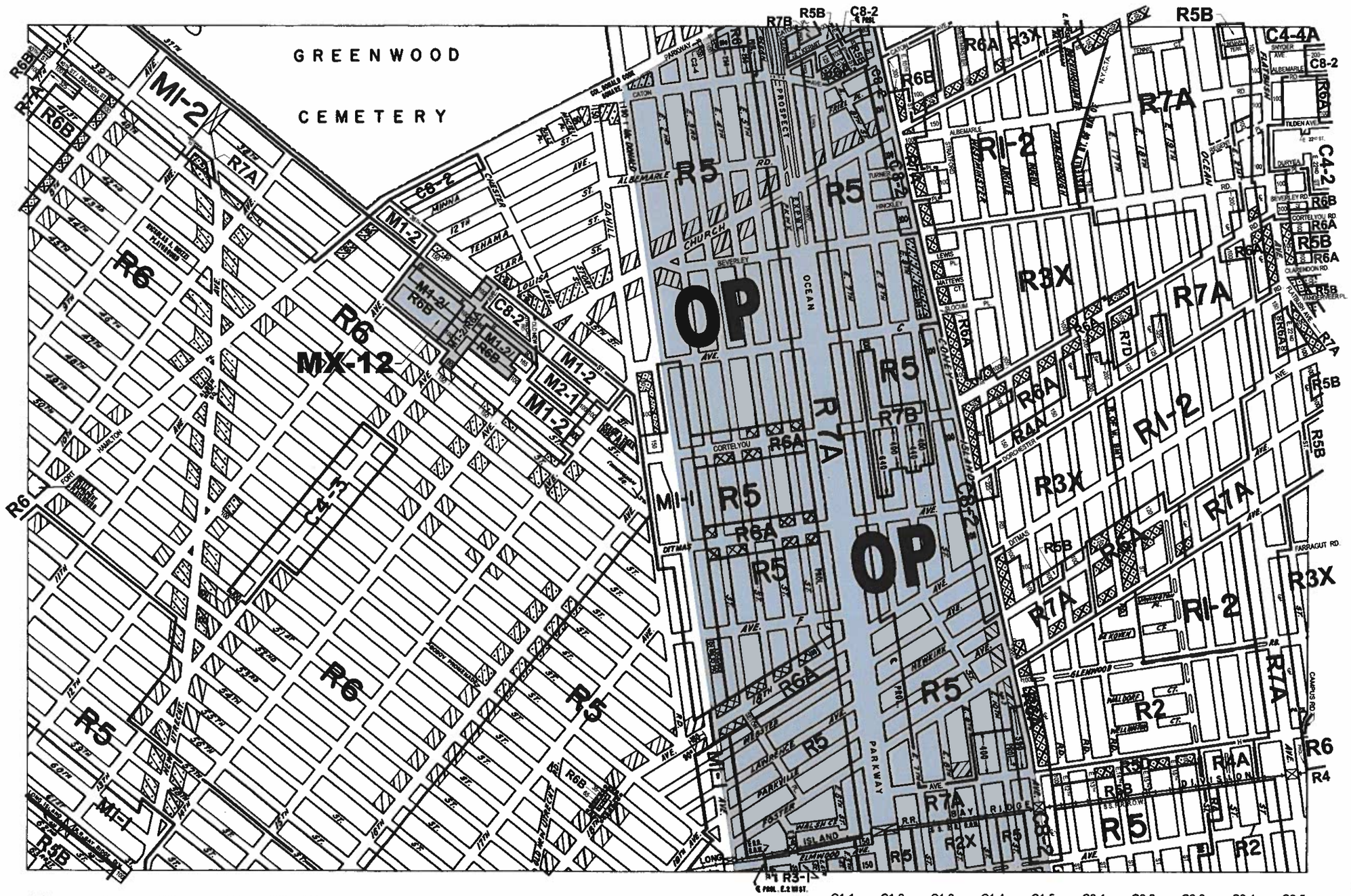
MONITORING WELL LOCATION MAP

FOR:
HALEY & ALDRICH

545 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

S:_Projects\2024\24-10274\CAD\24-10274MW01.dwg Jan 07, 2025-4:48pm BY:(RogerMaandal)

APPENDIX B
Zoning Map


GREENWOOD
CEMETERY
OP
OP
OP
MX-12
R6
R5
R7A
R7B
R6A
R6B
R5B
R3X
R1-2
R4A
R4
R2
R2X
R3-1
M1-1
M1-2
M2-1
C8-2
C4-4A
C4-2
C4-3
PROSPECT
CHURCH
OCEAN
PARKWAY
FLATBUSH
FARRAGUT RD.
ALBEMARLE
CORTELYOU
DITMAS
BEVERLEY
LINCOLN PL.
E. 7TH
E. 17TH
E. 18TH
E. 21ST
E. 22ND ST.
E. 2 ST.
E. 3 ST.
E. 4 ST.
E. 5 ST.
E. 6 ST.
E. 8 ST.
E. 9 ST.
E. 10 ST.
E. 11 ST.
E. 12 ST.
E. 13 ST.
E. 14 ST.
E. 15 ST.
E. 16 ST.
E. 17 ST.
E. 18 ST.
E. 19 ST.
E. 20 ST.
E.

APPENDIX C
Construction Health and Safety Plan

HALEY & ALDRICH, INC.
CONSTRUCTION HEALTH AND SAFETY PLAN

FOR

Former New City Link Auto Repair Site

547 Coney Island Avenue & 50 Hinckley Place, Brooklyn, New York 11218
Project/File No. 0204391

Gensuite EZ Scan®
BI - Developers

Prepared By: Delia Freliech	**Date: 7/21/2025**
Approvals: The following signatures constitute approval of this Health & Safety Plan.	
Field Safety Manager: Luke McCartney	**Date: 1/23/2026**
Project Manager: Zach Simmel	**Date: 1/23/2026**
HASP Valid Through: 12-31-2026	

Table of Contents

		Page
	STOP WORK AUTHORITY	i
	STOP WORK AUTHORITY	i
ISSUANCE AND COMPLIANCE		**II**
	Emergency Event Procedures	iii
EMERGENCY EVENT PROCEDURES		**III**
	PROJECT INFORMATION AND CONTACTS	iv
PROJECT INFORMATION AND CONTACTS		**IV**
DIRECTIONS TO THE NEAREST HOSPITAL		**V**
DIRECTIONS TO THE NEAREST URGENT CARE		**VI**
1.	**WORK SCOPE**	**1**
	Project Task Breakdown	1
	Subcontractor(s) Tasks	1
2.	**SITE OVERVIEW / DESCRIPTION**	**2**
	Site Classification	2
	Site Description	2
	Background and Historic Site Usage	2
	Site Status	2
	Site Plan	3
	Work Areas	3
	Hazard Assessment	4
3.	**HAZARD ASSESSMENT**	**5**
	Site Chemical Hazards	5
	Site Hazards Checklist	8
	Weather	8
	High Winds	8
	Biological	9
	Location/Terrain	11
	Miscellaneous	12
	Task Hazard Summary	14
	Task Physical Hazards Checklist	17
	Summary of Physical Hazards & Controls	17
4.	**PROTECTIVE MEASURES**	**25**
	Required Safety & Personal Protective Equipment	25
5.	**TRAINING REQUIREMENTS**	**26**
	Site Specific Training Requirements	26
	Task Specific Training Requirements	26
6.	**AIR MONITORING PLAN AND EQUIPMENT**	**27**

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

Air Monitoring/Screening Equipment Requirements 27
Monitoring Plans 27

7. DECONTAMINATION & DISPOSAL METHODS 28

Personal Hygiene Safeguards 28
Decontamination Supplies 28
Location of Decontamination Station 28
Standard Personal Decontamination Procedures 29
Disposal Methods 30
Disposal of Single Use Personal Protective Equipment 30

8. SITE CONTROL 31

Communication 31
Visitors 31
Zoning 31

9. SITE SPECIFIC EMERGENCY RESPONSE PLAN 32

Pre-Emergency Planning 32
Onsite Emergency Response Equipment 32
EVACUATION ALARM 33
EVACUATION ROUTES 33
EVACUATION MUSTER POINT(S)/ SHELTER AREA(S) 33
EVACUTION RESPONSE DRILLS 33
Emergency Type 34
Notification 34
Response Action 34
Evacuation Plan/Route 34

10. HASP ACKNOWLEDGEMENT FORM 35

ATTACHMENT A 1
ATTACHMENT B 1
ATTACHMENT C 1
ATTACHMENT D 1
ATTACHMENT E 1
ATTACHMENT F 1

Attachments

Attachment A	HASP Amendment Form
Attachment B	Training Requirements
Attachment C	Roles and Responsibilities
Attachment D	Job Safety Analyses
Attachment E	Project Site Forms

Note: This HASP is developed for Haley & Aldrich purposes only and not for use by others.

STOP WORK AUTHORITY

In accordance with the H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York; hereinafter referred to as Haley & Aldrich in this document) 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.
- A Haley & Aldrich subcontractor is in breach of site safety requirements and/or their own site Health and Safety Plan (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, the person stopping work, the 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 supporting 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 the implementation of the Statement of Work (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, Site Safety Officer (SSO), and/or 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 are 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 (SOPs). Both the manual and SOPs can be located on Haley & Aldrich's Company Intranet. When appropriate, users of this HASP should always refer to these resources and incorporate them 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 is 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.

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PROJECT INFORMATION AND CONTACTS	
Project Name: Former New City Link Auto Repair Site	**Haley & Aldrich File No.:** 0204391
Location: 545-547 Coney Island Avenue & 50 Hinckley Place, Brooklyn, New York 11218	
Client/Site Contact: Phone Number:	Zelig Weiss (917) 684-8399
Haley & Aldrich Field Representative: Phone Number: Emergency Phone Number:	**Zavier Richards** (929) 696-2279 (347) 353-7989
Haley & Aldrich Project Manager: Phone Number: Emergency Phone Number:	**Zach Simmel** (646) 277-5690 (646) 787-7669
Field Safety Manager: Phone Number: Emergency Phone Number:	**Brian Ferguson** (617) 886-7439 (617) 908-2761
Subcontractor Project Manager: Phone Number:	**TBD**
Nearest Hospital: Address: (see map on next page) Phone Number:	University Hospital-Brooklyn 450 Clarkson Ave Brooklyn, New York 11203 (718) 270-1000
Nearest Occ. Health Clinic: http://www.talispoint.com/liberty/ext/	**CALL ACUITY** **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:	FDNY Engine 281/Ladder 147 1210 Cortelyou Rd, Brooklyn, New York 11218

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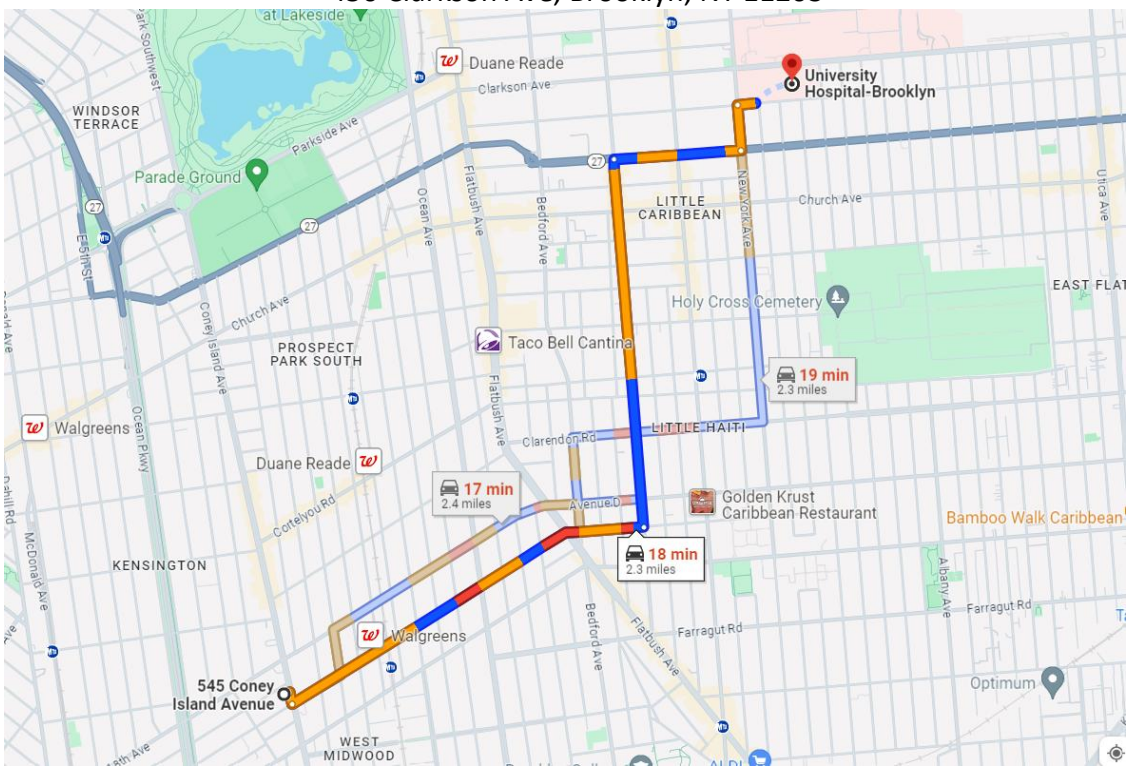
DIRECTIONS TO THE NEAREST HOSPITAL

Liberty Mutual Medical Location Directory

University Hospital-Brooklyn
450 Clarkson Ave, Brooklyn, NY 11203



Directions to the Nearest Hospital:

18 min (2.3 miles)

via Newkirk Ave and Jean Jacques Dessalines Blvd/Rogers Ave

Best route now due to traffic conditions

545 Coney Island Ave
Brooklyn, NY 11218

- Head northeast toward Coney Island Ave — 59 ft
- Turn right onto Coney Island Ave — 154 ft
- Turn left at the 1st cross street onto Newkirk Ave — 1.0 mi
- Turn left onto Jean Jacques Dessalines Blvd/Rogers Ave — 0.9 mi
- Turn right onto Linden Blvd — 0.3 mi
- Turn left onto New York Ave — 0.1 mi
- Turn right at the 1st cross street onto Lenox Rd — 223 ft

Univ Hospital-Brooklyn
450 Clarkson Ave, Brooklyn, NY 11203

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DIRECTIONS TO THE NEAREST URGENT CARE

Liberty Mutual Medical Location Directory

CALL ACUITY
888-397-8099

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1. WORK SCOPE

This Site-Specific HASP 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:

Remedial Oversight activities on the Site will require equipment mobilization, removal of underground storage tanks (USTs) and/or associated appurtenances if encountered, removal of the concrete building slabs, support of excavation (SOE) installation, excavation and off-site disposal of historic fill and contaminated soil up to 17 feet below ground surface (ft bgs), collection of confirmation endpoint samples, and installation of an active sub-slab depressurization system (SSDS).

Project Task Breakdown

Task No.	Task Description	Employee(s) Assigned	Work Date(s) or Duration
1	Remedial Oversight	Zavier Richards	5 months
2	Soil Sampling	Zavier Richards	5 months
3	In-situ Chemical Oxidation Reagent Injection Oversight	Zavier Richards	2 weeks
4	SSDS/SVE Installation Oversight	Zavier Richards	4 weeks

Subcontractor(s) Tasks

Firm Name	Work Activity	Work Date(s) or Duration
N/A	N/A	N/A

Projected Start Date: 3/1/2025

Projected Completion Date: 12/31/2026

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2. SITE OVERVIEW / DESCRIPTION

Site Classification

Vacant

Site Description

The Site, identified as Block 5114 Lots 1,3, and 29 on the New York City tax map in a residential and commercial zoning district (R6-A and C2-4), is about 19,090 square feet (sq ft). The site is currently a vacant lot partially covered with a concrete slab. At this time, we understand the proposed development includes a mixed-use (residential and commercial), mixed-income development that will include one cellar level requiring excavation to approximately 15 ft bgs and provide new affordable residential rental units. Depth to groundwater is approximately 36 to 37 ft bgs.

Background and Historic Site Usage

The Site was developed with a dwelling along Hinckley Place by 1905. By the late 1920s, a filling station was present along Coney Island Avenue with three gasoline tanks present in the northwest corner of the Site. Additionally, a store was present adjacent to the filling station and the dwelling remained along Hinckley Place. By 1935 the auto repair facility in the southern region of Lot 1 expanded to include auto laundry, auto greasing, battery service, and tire repairs. In the early 1960s, the existing one-story building on Lot 1 was constructed, and a Certificate of Occupancy dated 20 February 1962 indicated New York Fire Department (NYFD) approval for gasoline tank installation on 15 February 1962. The Site remained relatively unchanged until the late 1970s. Between 1977 and 1978, the former residential dwelling was razed, and a two-story warehouse was constructed in Lot 3 and utilized for auto parts storage and repair. The gasoline tanks were no longer indicated on Sanborn Fire Insurance Maps after 1977, and parking in the northwest corner was depicted in its place. The Site remained relatively unchanged post-1979 through the present and was most recently operating as a construction and plumbing goods supplier warehouse with associated parking, and an auto body and auto repair shop. The northern part of the auto repair shop was also used for auto painting. Lots 1 and 3 are currently vacant.

According to Sanborn Fire Insurance Maps, Lot 29 was developed with three storefronts along Coney Island Avenue by 1905. By 1929, a two-story dwelling was constructed on the eastern half of the lot. By 1950, the storefronts were demolished. According to a 1966 Certificate of Occupancy, the Site was operating as a dry cleaning and clothes-pressing establishment utilizing perchloroethene solvent. Sanborn Fire Insurance Maps indicate that the dry cleaner continued operating through the late 1970s. A parking lot was present to the south of the dry cleaner. By the late 1970s, the dry cleaner appeared to no longer be in operation and the dwelling was no longer present. The property remained relatively unchanged through the present and most recently operated as a 7-Eleven convenience store and associated parking lot. The Site is currently vacant and all structures, including the 7-11 convenience store, have been demolished.

Site Status

Indicate current activity status and describe operations at the site:

Inactive

Lots 1 , 3 and 29 are currently vacant.

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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: The entire Site will be utilized as an active work area

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Site Plan

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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
Organochlorine Pesticides	Soil	0.0844	mg/kg
1,3,5-Trimethylbenzene	Soil	30	mg/kg
1,2,4-Trimethylbenzene	Soil	310	mg/kg
BTEX/VOCs	Soil	73	mg/kg
Tetrachloroethene	Soil	3.9	mg/kg
Naphthalene	Soil	18	mg/kg
n-Propylbenzene	Soil	21	mg/kg
2-Butanone	Soil	0.22	mg/kg
Acetone	Soil	0.069	mg/kg
Polycyclic aromatic hydrocarbons (PAHs)	Soil	3.8	mg/kg
Polychlorinated biphenyls (PCBs)	Soil	3.65	mg/kg
Arsenic	Soil	29.4	mg/kg
Copper	Soil	99.5	mg/kg
Lead	Soil	1,520	mg/kg
Mercury	Soil	0.476	mg/kg
Nickel	Soil	98.5	mg/kg
Zinc	Soil	506	mg/kg

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Naphthalene	**Groundwater**	**410**	**ug/L**
BTEX/VOCs	**Groundwater**	**8,620**	**ug/L**
Tetrachloroethylene	**Groundwater**	**9.1**	**ug/L**
Tetrachloroethylene	**Soil Vapor**	**15100**	**Micrograms per cubic meter ug/kg**
Trichloroethylene	**Soil Vapor**	**295**	**ug/m3**
Cis- 1,2-Dichloroethylene	**Soil Vapor**	**741**	**ug/m3**
BTEX/VOCs	**Soil Vapor**	**355**	**ug/m3**

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.

1,2,4-Trimethylbenzene: is a colorless liquid chemical with a strong, pleasant scent. 1,2,4-trimethylbenzene is a major part of what is known in the petroleum industry as the 'C9 fraction.' Oil refineries produce large amounts of C9 fraction each year for use as a gasoline additive.

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.

Tetrachloroethene: is a colorless liquid with a sharp sweet odor. Tetrachloroethylene vapor is heavier than air and will be found in low lying areas.

Naphthalene: is a colorless or white/brown solid in flake or cake form, with mothball odor. Commonly found in coal tar, gasoline, or diesel fuels. Used to make mothballs and lubricants. This is a carcinogen

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and should be handled with extreme caution. Is a combustible solid and when heated is a dangerous fire hazard. Finely dispersed particles can form explosive mixtures. Absorption will cause irritation or burning to skin or eyes. Inhalation will cause irritation to nose and throat. High exposures will lead to headache, fatigue, tremors, and nausea. May also cause damage to liver and kidneys. The PEL 10 ppm averaged over an 8 hour shift.

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.

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.

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.

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.

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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.

Site Hazards Checklist			
Weather			
High Winds	Cold Temperatures	Hot Temperatures	Lightning Storms

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 Advisories 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 are 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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Lightning Storms

Where the threat of electrical storms and the hazard of lightning exist staff shall ensure site procedures exist to: (1) detect when lightning is in the near vicinity and when there is a potential for lightning and (2) to notify appropriate site personnel of these conditions and (3) implement protocols to stop work and seek shelter.

The 30-30 Rule states that if time between seeing the lightning and hearing the thunder is less than 30 seconds, you are in danger and must seek shelter. You must also stay indoors for more than 30 minutes after hearing the last clap of thunder.

Biological			
Mosquitoes	Stinging Insects	Small Mammals	Wildlife Droppings

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.

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

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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). 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

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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.

Wildlife Droppings

Project sites involving abandoned buildings may bring staff into contact with animal droppings. There are many diseases that one can be exposed to from a variety of animals.

Mice and Rats
Hantavirus is transmitted to humans from dried droppings, urine, or saliva of mice and rats. The disease begins as a flu-like illness with fever, chills, and muscle aches, but can rapidly progress to a life-threatening condition marked by respiratory failure as fluids fill the lungs. Persons working in infested buildings are at increased risk to this disease, particularly during dusty clean-up activities.

Birds and Bats
Large populations of roosting birds may present a disease risk. The most serious health risks arise from disease organisms that grow in the nutrient-rich accumulations of bird droppings, feathers and debris under a roost, particularly if roosts have been active for years.

Histoplasmosis and Cryptococcosis are the most common fungal diseases associated with bird and bat dropping. Infection occurs when spores, carried by the air, are inhaled, especially after a roost has been disturbed. The active and inactive roosts of blackbirds, starlings and cowbirds have also been found to be heavily contaminated with fungus spores. Most infections are mild and produce either no symptoms or a minor influenza-like illness. Occasionally the disease can cause high fever, blood abnormalities, pneumonia and even death.

Do not touch droppings with unprotected hands. Avoid disturbing the droppings and generating dust. Employee work practices and dust control measures that eliminate or reduce dust generation during removal of manure from a building will also reduce risks of infection and development of disease. Use an industrial vacuum cleaner with a high-efficiency (HEPA) filter to bag contaminated material.

Location/Terrain			
Slip/Trip/Falls	SIMOPS	Economically Depressed	Choose an item.

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

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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.

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.

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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 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 – 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.

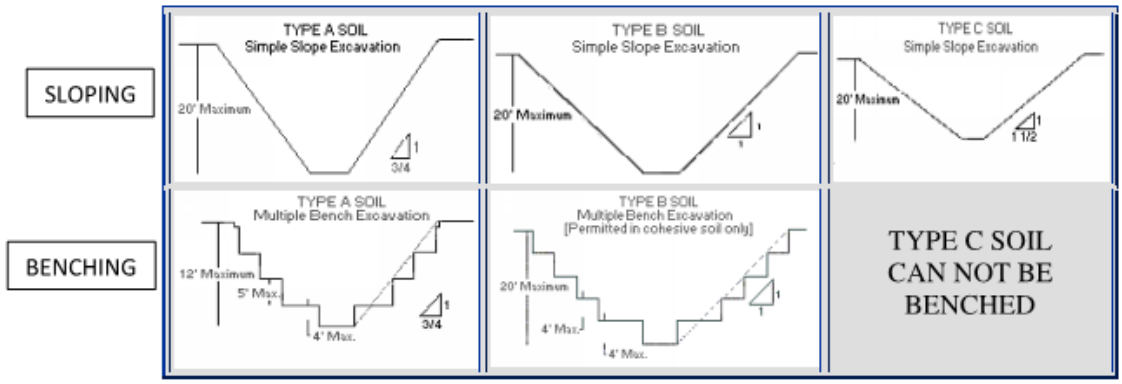
Excavations five (5) feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If the depth is less than five (5) feet deep, a competent person may determine that a protective system is not required. Trenches 20 feet deep or greater require that the protective 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.

- **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.

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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 1 - 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 1 - Stockpiling (Remedial Oversight)

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 2 – 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

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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.

Task 3 – ISCO Injection Oversight

Soil treatment and material abatement is commonly conducted at construction sites as part of building construction, earthwork, soil management and environmental remedial activities. Types of treatment and abatement include, but are not limited to: metals treatment in soil, ex-situ treatment and processing of petroleum impacted soils, in-situ stabilization of soils, and asbestos and PCB abatement and removal in building materials and associated soils. These activities are often conducted during demolition activities, building and utility excavations, foundation installation, soil preparation for offsite disposal, and other environmental remedial processes. Familiarity with basic heavy construction safety and site conditions are essential components during soil treatment or abatement performed on active sites. Potential hazards related to soil treatment and abatement operations include, but are not limited to: exposure to dust or water generated from treatment and abatement, underground or overhead utilities, site vehicle traffic and heavy equipment operations, familiarity with non-typical processing and abatement equipment (such as pug mills, processing plants, soil mixers, abatement enclosures, etc.), contact or exposure to impacted soil, water or materials, and encountering unknown toxic or hazardous substances. While staff members do not operate heavy equipment, they may work in close proximity to the equipment and can be exposed to the same hazards as the Contractor. Staff should maintain a safe distance from dust and spray generated from treatment/abatement of materials and from the variety of heavy construction equipment used to treat the soil and materials (excavators, excavator mounted mixers, plants, pug mills). It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

Task 4 – SSDS/SVE Installation

An active SSDS/SVE will be installed beneath the building slab. The SSDS/SVE will consist of a horizontal and vertical perforated piping installed in a permeable layer under the vapor barrier. The permeable layer will consist of washed aggregate, or similar permeable material. The horizontal piping will consist of perforated schedule 40 PVC pipes with leader pipes connecting to the vertical risers. The vertical risers will be constructed of solid steep pipe risers and exit through the cover systems with sealed penetrations. Each riser will have a sample port assembly installed in the cellar. Potential hazards

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related to SSDS/SVE installation oversight include, but are not limited to: potential running soils, dislodged excavated soils, and lack of proper access and egress. Care should be taken while entering and exiting excavations or trenches, and when assessing the SSDS/SVE installation.

Task Physical Hazards Checklist				
Potential Task Hazards	**Task 1** **Remedial Oversight**	**Task 2** **Soil Sampling**	**Task 3** **In-Situ Oxidation Reagent Injection Oversight**	**Task 4** **SSDS/SVE Installation Oversight**
Congested Area	☒	☒	☒	☒
Energized Equipment	☒	☒	☐	☐
Ergonomics	☒	☒	☒	☒
Excavation/Trenching	☒	☒	☐	☐
Generated Wastes	☒	☐	☒	☐
Ground Disturbance	☒	☐	☒	☒
Hand/Power Tools	☐	☒	☒	☒
Heavy Equipment	☒	☐	☒	☒
Line of Fire	☒	☒	☒	☐
Manual Lifting	☒	☒	☐	☐
Noise	☒	☐	☒	☒
Overhead Utilities	☒	☐	☒	☐
Slippery Surfaces	☒	☒	☒	☒
Sharp Objects	☒	☒	☐	☐
Underground Utilities	☒	☐	☒	☒
Other: Specify	☐	☐	☐	☐

Summary of Physical Hazards & Controls

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.

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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.

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.

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.

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- 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

Excavation & Trenches

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.

See OP1001 Excavation and Trenching Safety for more information.

Controls

- Do not enter an exaction unless it has been inspected and has appropriate protective measures in place: shoring, benching, or sloping.
    - Protective measures are required for excavations that are 5 feet or deeper.
- If entry is required verify with the on-site competent person that:
    - no atmospheric hazards exist or have the potential to exist
    - there is no standing water or water removal operations are in place
    - the daily inspection has occurred
    - spoil piles, equipment or other is at least 2 feet from the edge
    - There is safe access and egress to the excavation which can include ladders, steps, ramps or other safe means. The means of access and egress shall be no more than 25’ away.
- If there is any doubt about the safety of the excavation personnel will not enter the excavation or trench and will contact the PM and the Regional Safety Manager.
- Do not stand on the long side of the cut. If required ensure there are no tension cracks.

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 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.

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- 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.

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.

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- 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.

Line of Fire

Line of fire refers to the path an object will travel. Examples of line of fire situations typically observed on project sites include lifting/hoisting, lines under tension, objects that can fall or roll, pressurized objects or lines, springs or stored energy, work overhead, vehicles and heavy equipment.

Controls

- Never walk under a suspended load.
- Be aware and stay clear of tensioned lines such as cable, chain and rope.
- Be cautious of torque stresses that drilling equipment and truck augers can generate. Equipment can rotate unexpectedly long after applied torque force has been stopped.
- Springs and other items can release tremendous energy if compressed and suddenly released
- Items under tension and pressure can release tremendous energy if it is suddenly released.
- Not all objects may be overhead; be especially mindful of top-heavy items and items being transported by forklift or flatbed.
- Secure objects that can roll such as tools, cylinders, and pipes.
- Stay clear of soil cuttings or soil stockpiles generated during drilling operations and excavations, be aware that chunks of soil, rocks, and debris can fall or roll.

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.

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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.
- 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

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* For those locations where the utility has specified more stringent safe distances, those distances shall be observed.

Controls

- 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.

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 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.

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

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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.

Underground Utilities

Various forms of underground/overhead utility lines or conveyance pipes may be encountered during site activities. Prior to the start of intrusive operations, utility clearance is mandated, as well as obtaining authorization from all concerned public utility department offices. Should intrusive operations cause equipment to come into contact with utility lines, the SHSO, Project Manager, and Regional H&S Manager shall be notified immediately. Work will be suspended until the client and applicable utility agency is contacted and the appropriate actions for the situation can be addressed.

See OP1020 Work Near Utilities for complete information.

Controls

- Obtain as-built drawings for the areas being investigated from the property owner;
- Visually review each proposed soil boring locations with the property owner or knowledgeable site representative;
- Perform a geophysical survey to locate utilities;
- Hire a private line locating firm to determine location of utility lines that are present at the property;
- Identifying a no-drill or dig zone;
- Hand dig or use vacuum excavation in the proposed ground disturbance locations if insufficient data is unavailable to accurately determine the location of the utility lines.

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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**
	Remedial Oversight	Soil Sampling	ISCO Oversight	SSDS/SVE Installation Oversight
Hard hat	☒	☒	☒	☒
Safety Glasses	☒	☒	☒	☒
Safety Toed Shoes	☒	☒	☒	☒
Nitrile Gloves	☒	☒	☒	☒
Class 2 Safety Vest	☒	☒	☒	☒
Hearing Protection	☒	☐	☒	☒
Cut Resistant Gloves	☒	☒	☒	☒
Level of protection required	D	D	D	D
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)
40-hour Site Safety Training
Site Specific Orientation
Choose an item.

Task Specific Training Requirements				
Required Training Type	**Task 1**	**Task 2**	**Task 3**	**Task 4**
	Remedial Oversight	Soil Sampling	ISCO Oversight	SSDS/SVE Installation Oversight
RCRA Haz Waste Generator	☒	☐	☐	☐

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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? No

Is perimeter monitoring required for community protection? Yes

Air monitoring plan not applicable No

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.

***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.

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.

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.

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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:

Temporary Fencing
Cones
Barricades

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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 X 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	General First Aid Kit	1 Kit	Throughout Site
Fire Extinguisher	Post-emergency cleanup	At least 1	Throughout Site
Emergency PPE	**Specific Type**	**Quantity Stocked**	**Location Stored**
Gloves - "Nitrile"	General Nitrile Glove	1 Box	With H&A Personnel

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 locations 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 given location after site-specific training		*SHELTER LOCATION* Will be given location after site-specific training	
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

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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

Date printed: 1/22/2026 at 5:37 PM

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HALEY ALDRICH	JOB HAZARD ANALYSIS		
	Job/Operation Title: Oversight of Drilling and Direct Push Injections	**JHA No.:** JHA-X	**Date:**
Project: Hinkley Place – Coney Island Ave	**Location(s):**	**Job Start Date:**	**Analysis Developed By:** Elizabeth Bishop
Person(s) Performing This Job: H&A Oversight, Subcontractor	**SSO:**	**Duration:**	**Analysis Reviewed By:** Elizabeth Bishop

Task/Step	Potential Hazards	Consequence	Recommended Safe Job Procedures
1. Tailgate Meeting **2. Verify Boring Locations Have Been Marked and Cleared of Utilities** **Verify One-Call ticket number(s) are valid prior to any ground disturbance and utility/site owners have marked utilities before the start of any ground disturbance task.**	Slips/Trips/Falls	Physical Injury	-Survey area for uneven surfaces and other tripping hazards; Remove all trip hazards by keeping materials/objects organized and out of walkways; - Equipment will be stored unless in use. - Place cuttings in location away from traffic and other site functions
	Struck by vehicle	Physical Injury	- Work zone will be barricaded - Watch for vehicles when out of the exclusion zone - If location in right of way Traffic Control will be setup
	Utility Strikes	Physical Injury, electrical shock	- Follow procedures for utility clearance outlined in OP1020 Working Near Utilities. - Visually check area to validate overhead clearance and utility mark outs
3. Calibrate and Inspect Air Monitoring Equipment	Tool Hazards	Pinch Points Cuts	- Inspect all tools prior to use; tagged or remove tools that are cracked, chipped or dulled; - Use Level 2 abrasion/cut resistant gloves during activities if there is a potential for cuts or broken skin from pinch points, etc;
4. Inspect DPT and Injection rig	Manual Lifting	Muscle strains/sprains	- Keep load in close to the body; Keep hips and shoulders aligned (no twisting); Maintain stability (keep a balanced position); and Use 2 people for lifts >50 lbs;

Voltage (Nominal, kV, alternating current)	Required Minimal Radial Clearance Distance (feet)
Up to 50	10
Over 50 to 175	15
Over 175 to 350	20
Over 350 to 550	27
Over 550 to 1,000	45
Over 1,000	Established by utility owner operator or registered PE qualified with respect to electrical power

5. Position and Setup Drill Rig **6. Advance Boring** **7. Oversee mixing and injection of chemical reagents**			- Reduce travel distance when there is a need to carry/lift materials
	Drilling Equipment	Pinch Points/Crushing Flying Debris/Rotating Parts	- Keep body parts clear of rig when adjusting and raising hammer assembly; - Inspect rods and sampler during operation-remove damaged equipment from use; - Keep clear of drive caps, thread connections, and sampler shoe when assembling/disassembling the tool string, advancing and withdrawing the sampler; Ensure any rotating parts are properly guarded.
	Excessive Noise	Hearing Loss	- Personnel will wear ear plugs or muffs within 25 feet of any operating equipment and implement a system of hand signals understood by all.
	Chemical Exposure	Illness from Inhalation Irritation to Skin and Eyes Illness from Ingestion	- Follow Air Monitoring Plan included in section 6.0 of the HASP; - Calibrate and inspect monitoring equipment before use; -Ensure subcontractors mixing/injecting chemicals wear tight-fitting goggles and a face shield. Don a face shield where splash hazards are likely. Wear chemical protective gloves per SDS recommendations (Neoprene gloves, 0.11 mm nitriles). - Maintain eyewash within work zone in the event that employees eyes come into contact contaminated material. -No eating or drinking in the work area, designated areas will be made available. -Ensure employees wash hands before eating, smoking, taking medication, chewing gum/tobacco, using restrooms, or applying cosmetics and before leaving the work area for the day.
	Energized Equipment	Electrical shock or potential fire	- Ensure type ABC, 20-lb, fully charged fire extinguisher is within 25’ of work area; - All equipment and cords will be inspected prior to being brought on site and they have a proper ground; - Additionally, prior to each use, personnel will perform a pre-use inspection to ensure that it is still safe to operate. - Equipment must be operated and maintained in accordance with manufacturer’s guidelines.

	Spills	Environmental Release	• Prior to mixing or injection activities, ensure spill containment is appropriately set up and spill response materials are readily available in the work area where spills may occur. • Ensure the injection pump is shut off prior to disconnecting/moving any injection lines. • Prior to reenergizing the injection lines ensure the subcontractor verifies all hose fittings are properly connected and locked with a zip-tie, whip check, and the injection ball valve is open.
	Pressurized Lines	Injury, Spills	• Suction and discharge hoses may be under pressure. • Stage hoses so that a clear walking path is available at all times. Do not walk over injection hoses. • Ensure injection hose has a whip check in place (e.g. safety chain, cable, or strap at each end) and/or other secure locking devices at all connection to prevent whipping in the event of failure.

FIELD HAZARDS ANALYSIS			

POTENTIAL SITE HAZARDS OF THIS JOB	
Site Hazards	**Description/Health Hazards**
Biological	- Be aware that small animals, snakes, and insects may be in the area. - Long pants, sleeved shirts and insect repellent will be worn, and caution will be used if walking in tall grass or overgrown areas to minimize potential hazards associated with insects, snakes and vermin. - DEET can be used to control exposure to insects. Personnel shall follow the directions for use of DEET. - Be aware of spiders, do not pick up and debris without carefully checking the area, and wear gloves when moving debris to protect bare hands from exposure to spiders and/or insects. - Employees allergic to insect stings shall be identified and necessary actions taken to treat in the event of a sting will be available on site.
Severe Weather	Field activities will stop during lightning. - Operators, field crew, and other support personnel will move out of the work zone and take shelter within an approved shelter or hard top vehicles with windows up; - Every effort must be taken to remain dry, and a spare change of clothing for each personnel will be available; - The SSO will specify the shelter, work will not resume until lightning and thunder has stopped for a minimum of 30 minutes.

Natural Disasters	- The Site is located within an active geological active zone where earthquakes may happen. The SSO will discuss the danger of earthquakes and what to do in case it happens at the orientation meeting, and every day during daily safety meetings.
Heat Stress	-Employees and subcontractors crew should be aware of potential health effects and/or physical hazards of working during hot weather. Safeguard against the effects and hazards of heat stress by drinking keeping hydrated, and taking sufficient work breaks in a shaded area. If staff member feels the effect of heat stress, seek a cool/shaded location and drink water and contact the SSO/CSM. Symptoms of heat stress, exhaustion include profuse sweating, weakness, nausea, vomiting, headache, lightheadedness, and muscle cramps.
Cold Stress	- Dress appropriately for wet/cold weather. If staff member feels the effect of stress, seek warm location and drink warm non-caffeinated beverages. Provide adequate work rest time frame during both cold and hot weather as necessary. Without proper protection, cold injuries, such as frostbite, can occur even when the temperature is above freezing (32 degrees F, 0 degrees C). This is especially true if there is a high wind or if a glove or sock gets wet.

HAZARD CONTROL MEASURES USED FOR THIS JOB

Administrative Controls: OP1020 – Working Near Utilities OP1024 - PPE OP1026 - Hand and Power Tools	**Required Forms:** Tailgate Form Air Monitoring Recording Form Utility Locator Report	**Required PPE:** Long pants, Hi-Viz vest, Hard Hat (if overhead hazards exist) Safety toed boots, safety glasses with side shields, and Nitrile gloves, cut resistant or leather gloves (as needed)
Required Training: 40 Hour Hazwoper 8 Hour Hazwoper	**Required Safety Equipment:** First Aid Kit Barricades PID 10.6 eV Lamp	**Other Information:**

Employee Signatures:	Date:

Employee Signatures:	Date:

A signed copy of this JHA must be posted while the applicable subcontractor is working on-site and be available to any employee upon request.

HALEY ALDRICH	6.0 JOB HAZARD ANALYSIS
	Job/Operation Title: Construction Monitoring

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
1. On Site Driving and Parking	Vehicular Motion	Motor Vehicle Accident	• Ensure to follow site-specific speed limits when driving on construction sites (e.g., 5 to 10 mph). • Consult with site management for established parking zones. Park vehicle as far from equipment, active work zones, and excavations as possible.
2. Construction Monitoring Observations	Simultaneous Operations	Serious Injury or Fatality (SIF)	• Coordinate project with existing site activities. • Identify and understand the hazards associated with simultaneous operations on site. • Integrate site communication protocols and communicate to all project staff. • Integrate site emergency response protocols, where appropriate, and communicate to all project staff.
	Heavy Equipment Movement/Struck-By/Caught Between	Serious Injury or Fatality (SIF)	• Always maintain awareness of traffic flow and swing radius of large equipment. • Use spotters/traffic control to direct traffic around loading and unloading areas. • Designate travel path and stop/direct traffic during moving of equipment and supplies. • Ensure to get visible/verbal confirmation from operators and spotters before approaching or crossing in path of heavy equipment (e.g., nod, hands-off-controls signal). • **Maintain safe distance while equipment is in operation.**
	Overhead/Tipping Hazards	Serious Injury or Fatality (SIF)	• Visually check area to validate potential overhead hazards (cranes, drill rigs, work on structures overhead). • Establish and stand clear of exclusion zone for active work involving high energy hazards (e.g., heavy equipment operation and movement, lifting operations). • Do not stand under or near suspended loads or equipment or areas where equipment may tip or roll over.

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
2. Construction Monitoring Observations	Particulates Not Otherwise Regulated (PNOR)	Illness from Inhalation	• Avoid breathing in construction dusts. • Stand upwind of visible airborne dusts, request dust suppression, and increase distance. • Consult with H&S if construction dusts may include: silica containing concrete products, wood dusts, demolition dusts, or particulates from metal working.
	Open Excavations	Falls/Injury/Cave-In	• Barricades, warning tapes, and signs should be placed surrounding the excavation. • Maintain a distance of 2 feet or greater from the edge of an excavation at all times. • No entry when standing water exists, sloughing present, or any other life-threating hazard present. • Excavations greater than 4 feet will be evaluated as a potential confined space by a certified Excavation Competent Person. • Excavation Competent Person must approve all entries into excavations over 4 feet deep. Document daily excavation inspections. • Protective systems (sloping, benching, shielding, etc.) should be utilized as deemed necessary by the Excavation Competent Person. • Keep spoils and stockpiles a minimum of 2 feet from edge of open excavations. • For excavations 4 feet or deeper, ladders should be placed every 25 feet for access and egress.
	Working at Heights	Falls/Injury	• Heights 6 feet or greater above a lower level must be evaluated for fall risks and requirements. • A fall protection plan must be developed with H&S for all work at heights. • Fall protection equipment should be inspected daily before use. Tag out and remove any defective, worn, or damaged equipment. • For personal fall arrest systems, consult with H&S on an appropriate site-specific attachment point. Vehicles are not an appropriate attachment point.

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
2. Construction Monitoring Observations	Ladders - Portable	Physical Injury	• Inspect the ladder before use. Be sure workers are trained in use of ladder. Be aware of fall potential. • Ladders should only be used on stable surfaces and protected from accidental displacement or it shall be tied, blocked, held or otherwise secured to prevent slipping. • Use two workers as much as possible when work is being done with ladders. • Isolate the work area by using cones, barricades, warning tapes etc. if the work is in a walkway or high traffic area. • Non-self supporting ladders shall be used at an angle such that the horizontal distance from the top is 1/4th of the working length of the ladder. • Do not step on the last step. Keep the ladder at an appropriate angle and be sure it is secured and on even, stable ground. • When used to access an upper level, ladders should extend at least 3 feet above the landing surface. If extension is not possible, the ladder must be secured to a rigid support that will not deflect, and a grappling device, such as a grabrail.

7.0 TASK-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

Standard PPE (edit as applicable)	• Hard Hat • Safety Vest • Cut Resistant Gloves • Safety Glasses • Ear Plugs • Safety-Toed Boots					
PPE Type:	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.

HALEY ALDRICH	**6.0 JOB HAZARD ANALYSIS**
	Job/Operation Title: Decontamination

Location of decontamination areas, including showers and changing rooms:
Car, trailer, and/or near ingress/egress points

Location of where contaminated materials can be disposed:
Drums stored near trailer

DECONTAMINATION SUPPLIES

All decontamination should be conducted at the project site in designated zones or as dictated by Client requirements. Decontamination should not be carried out 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: Click here to enter text.

STANDARD SMALL EQUIPMENT DECONTAMINATION

Process	Mitigations
Pretreatment of heavily contaminated equipment may be conducted as necessary: • Remove gross contamination using a brush or wiping with a paper towel. • Soak in a solution of Alconox and water (if possible). • Wipe off excess contamination with a paper towel. Standard decontamination procedure: • Wash using a solution of Alconox and water. • Rinse with potable water. • Rinse with methanol (or equivalent). • Rinse with distilled/deionized water. Inspect the equipment for any remaining contamination and repeat as necessary	

STANDARD PERSONAL DECONTAMINATION PROCEDURES	
Process	**Mitigations**
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 another 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 (PM) and Regional Safety Manager (RSM) 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. • Rinse boots and gloves of gross contamination. • Scrub boots and gloves clean. • Rinse boots and gloves. • Remove outer boots (if applicable). • Remove outer gloves (if applicable). • Remove and wipe clean hard hat. • Remove Tyvek coverall (if applicable). • Remove respirator, wipe clean and store (if applicable). • Remove inner gloves (if outer gloves were used).	

7.0 TASK-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT			
Standard PPE (unless otherwise indicated)	• Hard Hat • Safety Vest • Cut Resistant Gloves • Safety Glasses • Ear Plugs • Safety-Toed Boots		
PPE Type:	Nitrile - Chemical	Choose item or enter text.	Choose item or enter text.

HALEY ALDRICH	6.0 JOB HAZARD ANALYSIS
	Job/Operation Title: Driving

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
1. Pre-Trip Assessment	Inclement Weather	Vehicle Incident, Inadequate Equipment	• Verify weather conditions are safe for travel and any additional equipment is available (raincoat, umbrella, etc.).
	Route Conditions, Road Closure, Construction	Vehicle Accidents, Traffic	• Review current road conditions for hazards, warnings, and requirements prior to the start of all travel.
2. Perform Vehicle Inspection & 360 Walkaround	Cargo	Injury, Damaged Equipment	• All loads and potential "projectiles" must be secured prior to starting travel.
	Damaged VehicleChoose hazard or type hazard not listed.	Serious Injury or Fatality (SIF)	• Check for damage including flat tires, broken lights, cracked windows, dented panels and bumpers. • Check for wear and tear including unusual wear patterns, cracked wipers, insufficient tread on tires. • Verify any loose equipment or supplies are secured. Ensure that no items are left behind (drinks, supplies, equipment, cones, or personal items). • Ensure windshield and window glass is clean. • Check behind vehicle for obstructions (wildlife, pets, public, children, debris, plastic, tools, toys, etc.). • Check under vehicle engine for evidence of fluid leaks. • Check and adjust seat, mirrors, head lights, turn signals, washer/wipers, defroster, gas level, and warning lights. • Be aware of blind spots. • Ensure all seat belts are in good condition and fastened.

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
3. Drive To Destination	Collision with Other Vehicles, Pedestrians, or Objects	Serious Injury or Fatality (SIF)	• Check mirrors when slowing or stopping vehicle. • Scan mirrors and road frequently for hazards while driving (other vehicles, pedestrians, cyclists, objects in the road). • Maintain adequate spacing between your vehicle and the vehicle in front of you. Rule of thumb is the 3-second rule: – **Step 1:** Locate a fixed point ahead of you. – **Step 2:** When the vehicle in front of you passes the fixed point, count to three (one-1000, two-1000, three-1000). – **Step 3:** If you pass the fixed point before counting to 3, then you are following too closely and need to increase the distance. • Double your following distance during poor road conditions.
	Distracted Driving	Serious Injury or Fatality (SIF)	• Do not use cellular phones or other electronic devices when driving. • Plan all necessary use of electronics prior to starting a drive (setting up GPS, music, turning off notifications).
4. Parking	Collision	Injury, Damaged Vehicles	• When possible and it is safe to do so, park vehicles so that you can move forward out of the parking space. • As feasible, opt to park away from other cars or in low traffic areas. • Engage parking brake.

7.0 TASK-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

PPE Type:	Sunglasses Recommended

HALEY ALDRICH	6.0 JOB HAZARD ANALYSIS
	Job/Operation Title: Perimeter Air Monitoring

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
1. Set Up and Calibrate Perimeter Air Monitoring Stations	Manual Lifting	Muscle Strains/Sprains	• Keep load in close to the body; keep hips and shoulders aligned (no twisting); lift with leg, not back muscles; maintain stability (keep a balanced position) • Use two people for lifts greater than 50 pounds. • Reduce travel distance when there is a need to carry/lift materials and make use of utility carts/dollies.
	Hand Tools	Pinch/Puncture/Cut Points	• Inspect all tools prior to use and tag out or discard defective tools. • Avoid placing hands in pinch points. • Wear protective palm and cut resistant work gloves (American National Standards Institute [ANSI] A2 min.).
	Compressed Gases	Pressurized Release/Fire	• **Complete the Compressed Gas Safety Checklist in OP1048 prior to using or transporting the cylinder.** • Handle compressed gases with care. Ensure canisters of compressed gas are stored upright and secured from falling or being knocked over. • Keep the cylinder clear of all electrical circuits, flame, and sparks. Consult Safety Data Sheet (SDS) for storage and handling procedures. Store away from extreme temperatures, excessive moisture, corrosive chemicals or fumes, or near combustibles. • Use compressed gas only with an appropriately fitting regulator. • Protect cylinders from striking against each other or other surfaces. Never drag, slide, or roll a cylinder. • Do not use the valve cover to lift the cylinders. • Tag out empty containers and continue to handle with care.
	Chemical Exposure	Illness from Inhalation Irritation to Skin/Eyes	• Ensure to follow the project specific air monitoring plans. • Air monitoring should be conducted at your breathing zone during all activities of concern. • Safety glasses with side shields, and nitrile gloves shall be worn. • Face shields will be worn if splash hazards are likely. • Consult SDS for chemical specific first aid measures and exposure controls.

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
2. Conduct Routine Monitoring Checks	Heavy Equipment	Struck By/Line of Fire	• Always maintain awareness of traffic flow and swing radius of large equipment. • Ensure to get visible/verbal confirmation from operators and spotters before approaching or crossing in path of heavy equipment (e.g., nod, hands-off-controls signal). • Make use of remote air monitoring tools to conduct routine checks. • If a sample must be taken in an active work area due to elevated readings, request work be paused with on-site construction management to ensure safe access into the work zone.
	Elevated Dusts or VOCs	Worker and/or Community Chemical Exposure	• If elevated air monitoring readings are observed on the photoionization detectors (PIDs) or DustTrak, personnel will notify the on-Site Site Safety Officer (SSO) or Construction Manager to implement vapor or dust suppression as applicable. • **If real-time samples need to be collected, consult respiratory protection requirements** for the project and worker air monitoring action levels/responses prior to collecting a sample.
3. Elevated Readings	Security	Negative Public Interaction, Property Damage	• Ensure that the Site is secure when closing down the Site for the day. Utilize the buddy system as needed. • Secure any outdoor equipment with chains and locks or store in a secure, locked area.

7.0 TASK-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

Standard PPE (edit as applicable)	• Hard Hat • Safety Vest • Cut Resistant Gloves • Safety Glasses • Ear Plugs • Safety-Toed Boots					
PPE Type:	Choose item or enter text.	Choose item or enter text.	Nitrile - Chemical	Choose item or enter text.	Consult H&S if levels are elevated	Choose item or enter text.

HALEY ALDRICH	6.0 JOB HAZARD ANALYSIS		
	Job/Operation Title: Sample Processing		
Task/Step	**Hazard/Energy Source**	**Risk/Impact**	**Recommended Safe Job Procedures**
1. Set up Sampling Area and Work Zone **2. Inspect Sampling Equipment**	Slips, Trips, Falls	Physical Injury	• Establish an exclusion zone for sampling activities. • Keep materials organized and out of walkways. Equipment should be stored unless in use. • Work areas should be clear of trash and other debris. • Place excess sample media in a container or drum away from foot traffic. • If using visqueen and/or berms for secondary containment, ensure that plastic is laid to avoid bunching and/or slipping. • Highlight berms and other potential trip hazards. Exercise caution when walking over visqueen.
	Ergonomics	Muscle Strains/Sprains	• Consider the ergonomics of your sampling set up. • Avoid working in awkward postures; when possible, try to work in a neutral position (shoulders down and relaxed, arms close to sides, elbows bent, wrists and hands straight). • Use knee pads if kneeling for extended periods of time. • Take adequate breaks when working in positions that require bending, reaching, carrying, or working in one position.
	Hand Tools	Pinch/Puncture/Cut Points	• Inspect all tools prior to use and tag out or discard defective tools. • Avoid placing hands in pinch points.
3. Collect Samples	Chemical/Sample Media Exposure	Illness from Inhalation	• Ensure to follow the project specific air monitoring plans in the Personal Air Monitoring JHA. • Air monitoring should be conducted at the breathing zone during all activities where chemical exposure is possible.
		Irritation to Skin/Eyes	• A minimum of safety glasses and nitrile gloves shall be worn. Alternate personal protective equipment (PPE) should be evaluated based on the Chemicals of Concern identified. • Face shields will be worn if splash hazards are likely. • Consult Safety Data Sheet (SDS) for chemical specific first aid measures and exposure controls.

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
3. Collect Samples	Sharp Objects	Hand Injury	• Ensure to wear cut-resistant gloves and/or thick nitrile gloves when collecting samples that may have sharp objects (e.g., rocks, metal or glass debris, shells etc.)
	Contact with Preservation Solution	Irritation to Skin/Eyes	• Safety glasses and nitrile gloves shall be worn while handling acid preserved bottles. Avoid contact with skin, eyes, and clothes. • Maintain the emergency eyewash station/bottles within reach of sample preservation activities in the event that employee's eyes come into contact with preservation solution. • If preservation solution is splashed onto skin or in eyes, immediately flush the area in accordance with SDS first aid measures.
4. Loading Sample Containers/ Coolers	Glass Containers	Physical Injury	• Package sample containers with protective bubble wrap etc. to prevent breakage. • If a container is broken, ensure to don appropriate gloves (e.g. nitrile gloves layered over cut-resistant gloves) before cleaning up.
	Manual Lifting	Muscle Strains/Sprains	• Keep load in close to the body; keep hips and shoulders aligned (no twisting); maintain stability (keep a balanced position) and use two people for lifts greater than 50 pounds. • Reduce travel distance when there is a need to carry/lift materials and make use of utility carts/dollies.

7.0 TASK-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

Standard PPE (edit as applicable)	• Hard Hat • Safety Vest • Cut Resistant Gloves • Safety Glasses • Ear Plugs • Safety-Toed Boots				
PPE Type:	Safety Glasses	Nitrile - Chemical	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.

6.0 JOB HAZARD ANALYSIS

Job/Operation Title: Property Survey/Site Walk

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
1. Scan Work Area to Identify Hazards **2. Conduct Site Walk/Inspection**	Slips, Trips, Falls	Physical Injury	• Survey area for uneven surfaces and other tripping hazards; communicate potential trip hazards. • Avoid, to the extent feasible, areas with slippery surfaces or standing water. • Do not take photographs or talk on the phone while walking.
	Struck-By	Physical Injury	• Always maintain awareness of traffic. • Utilize crosswalks, designated paths and ensure to follow applicable pedestrian traffic laws. • Abide by all local traffic laws when working on the shoulder with appropriate permits and signage. • Position vehicle to protect workers from oncoming traffic in the event of an accident.
4. If Survey/Site Walk is on a Construction Site	Heavy Equipment	Struck By/Line of Fire	• Always maintain awareness of traffic flow and swing radius of large equipment. • Ensure to get visible/verbal confirmation from operators and spotters before approaching or crossing in path of heavy equipment (e.g., nod, hands-off-controls signal).
	Noise	Hearing Loss	• Personnel will wear ear plugs or muffs (NRR 33) within 25 feet of any operating equipment and implement a system of hand signals understood by all.
	Simultaneous Operations	Serious Injury or Fatality (SIF)	• Identify and understand the hazards associated with potential simultaneous operations on site. • Integrate site communication protocols and communicate to all project staff. • Integrate site emergency response protocols, where appropriate, and communicate to all project staff.

7.0 TASK-SPECIFIC HAZARD CONTROL MEASURES

Standard PPE (edit as applicable)	• Hard Hat • Safety Vest • Cut Resistant Gloves • Safety Glasses • Ear Plugs • Safety-Toed Boots	
PPE Type:	Choose item or enter text.	Choose item or enter text.

6.0 JOB HAZARD ANALYSIS

Job/Operation Title: Well Abandonment Oversight

<table>
<tr><th>Task/Step</th><th>Hazard/Energy Source</th><th>Risk/Impact</th><th>Recommended Safe Job Procedures</th></tr>
<tr><td>1. Verify abandonment locations

Verify Dig Safe number(s) are valid prior to any ground disturbance and utility/site owners have marked utilities before the start of any ground disturbance task.</td><td>Underground Utilities

Overhead Utilities</td><td>Utility Strike/Injury</td><td>• Ensure utility clearance is conducted in accordance with procedures outlined in OP1020 Working Near Utilities.
• Visually check area to validate overhead clearance, utility mark outs, and for visual indicators of utilities.
• The below buffer zones prescribed comply with Occupational Safety and Health Administration (OSHA) 1923.1408(h) Power Line Safety.
<table>
<tr><th>Voltage (Nominal, kV, alternating current)</th><th>Required Minimal Radial Clearance Distance (feet)</th></tr>
<tr><td>Up to 50</td><td>10</td></tr>
<tr><td>Over 50 to 200</td><td>15</td></tr>
<tr><td>Over 200 to 350</td><td>20</td></tr>
<tr><td>Over 350 to 500</td><td>25</td></tr>
<tr><td>Over 500 to 750</td><td>35</td></tr>
<tr><td>Over 750 to 1,000</td><td>45</td></tr>
<tr><td>Over 1,000</td><td>Established by utility owner operator or registered PE qualified with respect to electrical power</td></tr>
</table></td></tr>
<tr><td>2. Inspect Drill Rig/Vac Truck</td><td>Heavy Equipment</td><td>Damaged Equipment/Vehicles</td><td>• Ensure a drill rig inspection is completed prior to use.
• Inspect rig for signs of wear, damage, or other defects.
• Ensure emergency shut-off switches are functional and ready for use.</td></tr>
<tr><td rowspan="2">3. Position and Setup Equipment</td><td>Drilling Equipment</td><td>Struck By</td><td>• Keep body parts clear of rig while it is in operation.
• Inspect drill rods prior to and while equipment is operating, remove damaged equipment from use.
• Individuals who are not involved in the work activity should remain clear of the work zone.</td></tr>
<tr><td>Overhead Hazards</td><td>Tip Over/Loss of Control of Equipment/ Electric Shock</td><td>• Ensure adequate clearance from drill rig mast and potential overhead utilities, trees, and architectural features, etc.
• Discuss plans to move rig prior to movement and scan proposed path for potential hazards.
• Ensure a spotter is monitoring during movement of the drill rig and mast. Stop work and adjust boring location as needed to avoid overhead hazards.</td></tr>
</table>

Task/Step	Hazard/Energy Source	Risk/Impact	Recommended Safe Job Procedures
4. Over-Drill Well or Pump Pressurized Grout into Well	Noise	Hearing Loss	• Personnel will wear ear plugs or muffs (NRR 33) within 25 feet of any operating equipment and implement a system of hand signals understood by all.
	Energized / Rotating Equipment	Electric Shock/ Fire/Physical Injury	• Ensure type ABC, fully charged fire extinguisher is within 25 feet of work area. • Stay away and keep hands clear from moving parts and wear fitted clothing to reduce likelihood of being caught in rotating equipment. • If necessary to work around moving parts, driller is to disengage and stop moving part while keeping hands off controls until work is completed. • Stay upwind and a minimum of 15 feet away from augers when they are being pulled out.
	Chemical Exposure	Illness from Inhalation Irritation to Skin/Eyes	• Chemical hazards may be present in the subsurface. • Air monitoring should be conducted in the breathing zone during ground disturbance activities. • Consult Safety Data Sheet (SDS) for chemical specific first aid measures and exposure controls.
	Open Boreholes	Physical Injury	• Ensure open boreholes are appropriately backfilled and or covered before leaving the site. • Mark open boreholes with a cone or other visible marker to prevent trips and/or ankle injuries.
	Chemical Exposure – Concrete/Grout	Illness from Inhalation Irritation to Skin/Eyes	• Avoid breathing in any dusts produced during concrete/grout mixing and placement. • P100 or N-95 respirators shall be donned for protection during grout mixing for those performing the activity. Stay upwind and maintain a distance of 15 feet if not performing grout mixing activities. • Safety glasses with side shields, and nitrile gloves shall be worn. • Face shields will be worn if splash hazards are likely. • For skin or eyes contact with concrete or grout, immediately wash area per the SDS first aid measures.

7.0 TASK-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT					
Standard PPE (edit as applicable)	• Hard Hat • Safety Vest • Cut Resistant Gloves • Safety Glasses • Ear Plugs • Safety-Toed Boots				
PPE Type:	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.	Choose item or enter text.

SITE HAZARD SHEET

BIOLOGICAL	
Bacteria	• Wear appropriate personal protective equipment (PPE), such as gloves, eye protection (goggles or face shields), and disposable clothing, when working with potentially contaminated materials or in areas where bacterial exposure is possible. • Wash your hands and any exposed skin with soap and water immediately or as soon as feasible after contact with potentially infectious materials or contaminated surfaces. • Disinfect potentially contaminated surfaces to reduce potential for bacteria to spread.
Droppings (human and animal)	• Do not touch droppings with unprotected hands. • Avoid disturbing the droppings and generating dust. • Staff member work practices and dust control measures that eliminate or reduce dust generation during removal of manure from a building will also reduce risks of infection and development of disease. • Use an industrial vacuum cleaner with a high-efficiency (HEPA) filter to bag contaminated material.
Insects (biting and stinging)	**Bees, Wasps, and Hornets** • Bees generally fly in straight lines between flower and hive, hence collisions with unsuspecting individuals occur. • If a single bee approaches, STAY STILL, do not try to swat the insect as this may cause it to react. • If it lands, gently try to blow it off the skin. • If a swarm of bees approach, run for shelter. Bees release a chemical when they sting, which may attract other bees to sting. • If stung, try to look for the stinger and carefully remove it by flicking it or scratching it out of the skin from the stinger sack. • Stings to the head and neck are more dangerous. • When stung, immediately apply ice or cold compresses to the sting site.

BIOLOGICAL	
Insects (biting and stinging) *(continued)*	**Bees, Wasps, and Hornets** *(continued)* • Life threatening reactions are more likely to occur in people who are already known to be very allergic to bee venom, older people with pre-existing heart and chest complaints, or with multiple stings. • Wasps and bees are drawn to flower fragrances and clothing with bright colors (white is safest), perfumes, fruit juices and eating fruit outdoors, hair tonics, suntan lotions, and floral odors. • Hornets are drawn to food and sources of moisture. • Carefully shake out any clothing left on the ground. • Cover open containers and any food outdoors. • Individuals who are prone to severe reactions to bee stings should notify the Site Safety Officer (SSO) and carry their prescribed medication(s) with them for self-administration. • Emergency medical treatment should be sought immediately for individuals who are allergic to bee stings or other individuals who exhibit severe reactions described above. **Mosquitoes** • Take appropriate precautions to minimize the potential transmission of viruses carried by mosquitoes. • Use of PPE techniques is essential to prevent 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. • Treat bites by cleaning the affected area with warm soapy water. • Place an ice pack on the affected area to reduce swelling. • Take or apply an antihistamine to reduce itchiness. • Avoid scratching the bite to reduce risk of infection.

SITE HAZARD SHEET

BIOLOGICAL	
Insects (biting and stinging) *(continued)*	**Ticks** • Wear light-colored clothing so ticks stand out and long-sleeved shirts and long pants to reduce skin exposure. • Tuck your shirt into your pants and tuck your pants into your socks to close gaps. • Use repellent containing 20-30% DEET (N, N-diethyl-m-toluamide) on exposed skin and clothing. • Avoid hands, eyes, and mouth and wash off repellent when back indoors. • Treat clothing with or purchase clothing with products containing 0.5% permethrin. • Conduct frequent tick checks on clothing and skin. Have others check your back, scalp, and behind your ears and check gear for "hitchhikers." • As soon as you return indoors, take a bath or shower and do a full-body inspection using a mirror. • Wash field clothes and tumble dry on high to kill any ticks that may be hidden. • If working in an area of significant tick habitat, PPE may need to be upgraded to a Tyvek suit. • Implementation of controls is crucial to minimize or eliminate the possibility of a tick bite. • If a staff member has been bitten contact Corporate H&S and Work Care at 888-449-7787 to initiate the Tick Management Protocol. Once bitten, it takes approximately 48 hours to transmit Lyme Disease. • For removal, a fine-tipped tweezer is recommended for tick removal tool and should be in the first-aid kit. • Follow these steps: – Pull upward with steady, even pressure. – Do not twist or jerk the tick; this can cause mouth parts to break off and remain in the skin. – If this happens, remove the parts with tweezers. – If unable to remove easily with tweezers, leave them alone and let the skin heal. – After removing the tick, thoroughly clean the bite area and hands with rubbing alcohol, iodine scrub, or soap & water. – Dispose of live ticks by submersal in alcohol, placing it in a sealed bag/container, wrap it tightly in tape, or flush it down the toilet. – Never crush ticks with your fingers. – Do not attempt to use nail polish remover, petroleum jelly, lotion, or heat to try to get the tick to exit skin. – Swift removal is key.

SITE HAZARD SHEET

BIOLOGICAL	
Insects (biting and stinging) *(continued)*	**Venomous spiders** • Inspect or shake out any clothing, shoes, towels, or equipment before use. • Wear protective clothing such as a long-sleeved shirt and long pants, hat, gloves, and boots when handling stacked or undisturbed piles of materials. • Minimize the empty spaces between stacked materials. • Remove and reduce debris and rubble from around the outdoor work areas. • Trim or eliminate tall grasses from outdoor work areas. • Store apparel and outdoor equipment in tightly closed bags. • Keep tetanus boosters up to date (every 10 years). • Spider bites can become infected with tetanus spores. • Additional information in the case of bites can be obtained from the Poison Center (1-800-222-1222).
Mammals (large and small)	**Large mammals** • Avoid contact with animals whenever possible. • If an animal displays aggressive behavior and charges, do not run or turn your back. • When confronted by a large mammal it is important not to run or exhibit any behavior that may be construed as a challenge (e.g., looking the animal in the eyes, showing your teeth, etc.). • Stand still and place your work bag between you and the animal and then begin to move slowly away from the animal, while not turning your back. **Small mammals** • 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.

SITE HAZARD SHEET

CHEMICAL	
Chemicals	• Chemical hazards must be identified and addressed on a project-by-project basis. • Include Safety Data Sheets (SDS) for all applicable chemicals. • Project-specific air monitoring plans shall be developed and described in the project-specific JHA. • Additionally, other routes of exposure to chemical hazards (e.g., absorption, injection, ingestion) and associated controls must be addressed in a Job Hazard Analysis (JHA). • All project-specific or task-specific JHAs are to be modified when new chemical hazards are identified.
Dusts	**Dust control** • Minimize the escape of dust from process equipment or ventilation systems; • Use dust collection systems and filters; • Utilize surfaces that minimize dust accumulation and facilitate cleaning; • Provide access to all hidden areas to permit inspection; • Inspect for dust residues in open and hidden areas, at regular intervals; • Clean dust residues at regular intervals; • Use cleaning methods that do not generate dust clouds, if ignition sources are present; • Only use vacuum cleaners approved for dust collection; • Locate relief valves away from dust hazard areas; and • Develop and implement a hazardous dust inspection, testing, housekeeping, and control program (preferably in writing with established frequency and methods).

SITE HAZARD SHEET

CHEMICAL	
Dusts *(continued)*	**Silica dust** • Use of wet methods must be utilized to minimize dust production and ensure enough water is supplied. • Water-integrated delivery system that supplies water to cutting surface will be a requirement for stationary mason saws, hand-held power saws, walk behind saws, drivable saws, rig mounted core saw/drills, jackhammers, and hand-held grinders. • All water must be collected for sampling and disposal off-site. • All drain inlets will need to be identified and secured with plastic sheeting and absorbent snakes or sandbags and will need to be identified by the use of a cone or delineator. • Personnel must ensure drain valve is safely secured and washed soils will be shoveled from the unit and will be transported into appropriate labeled drums. • Evaluation must be completed to determine whether dusk mask/respirator is required to prevent inhalation of particles (based on equipment used – see below). • The slurry from utilizing the wet methods must be removed before it dries to prevent the dried material from generating dust that can spread to other areas of the Site.

SITE HAZARD SHEET

GRAVITY	
Uneven work surfaces, slips, trips, falls	• Keep site and walking pathways clear of obstacles and debris. • Keep work surfaces dry where possible. • Wear appropriate footwear for the conditions. Add traction devices (ice cleats, 'Yaktrax', etc.) to footwear as needed. • Take your time, stay alert, and be aware of the conditions. • Carry lightly: Avoid carrying heavy loads that could affect your balance. • Reduce your walking speed to allow for better balance and reaction time. • In mixed vegetation, rubble or debris, or walking over snow/ice use a walking stick/staff to 'investigate the ground' of your path. Or, lightly tap the ground with your foot to assess its stability.
Work overhead (e.g., lifting, dropped objects, loading, unloading)	• Always approach heavy equipment with an awareness of the swing radius and traffic routes of each piece of equipment and never go beneath a hoisted load. • Install barriers, shields, or screens around unsafe areas. • Identify and maintain safe walking areas. • Address overhead work concerns and avoid unsafe zones. • Keep a safe distance between you and any suspended loads, heavy equipment, or other line of fire hazards. • Never stand under a suspended load. • Avoid areas where there is potential for dropped objects. • Remain aware of stored energy, and where equipment or objects may fall when energy is released.

SITE HAZARD SHEET

PRESSURE	
Compressed gases	Compressed gases pose both physical and chemical hazards, depending on the type of gas. These gases can range from inert and non-reactive to highly toxic, flammable, or explosive. Due to the high pressure inside cylinders, any physical damage or exposure to high temperatures can result in serious incidents. • All compressed gas cylinders must be: – Clearly labeled with the name of their contents in accordance with the Occupational Safety and Health Administration (OSHA) and other applicable regulations. – Accompanied by a Safety Data Sheet (SDS), which must be obtained and maintained for each type of gas. • Always store, transport, and use cylinders upright with the valve facing up. Secure them using appropriate supports such as racks, straps, chains, or stands to prevent tipping or falling. • Protect cylinder valves with standard caps when not in use—this applies to both full and empty cylinders. • Never force a cap or regulator; caps should be hand-tightened only. • Avoid exposing cylinders to excessive moisture, corrosive chemicals, or fumes. • Do not store cylinders near combustible materials or in areas subject to extreme temperatures. • Never transfer gases from one cylinder to another (except for dry ice or cryogenic materials). Do not attempt to refill compressed gas cylinders. • Before use, slowly "crack" the valve to clear dust or debris—ensure the opening is pointed away from people. Take extra precautions with toxic or flammable gases. • Do not stand in front of the regulator gauge when opening the valve. • Always use the correct pressure regulator for specific gas. Never operate a cylinder without a regulator. • Before opening the cylinder, ensure the regulator's adjusting screw is released. Never allow gas to enter the regulator suddenly. • If a leak occurs between the cylinder and regulator, close the valve before attempting to tighten the union nut. • Never strike an electric arc on a cylinder. • Do not use damaged, corroded, or leaking cylinders. Remove them from service immediately and contact the supplier for a return or replacement.

SITE HAZARD SHEET

PRESSURE	
Line of fire (hydraulics, etc.)	• Prior to work on hydraulic or pneumatic systems, the energy source shall be turned off and existing pressure drained. • Install barriers, shields, or screens around unsafe areas. • Identify and maintain safe walking areas. • Injection hoses operating under pressure may release stored energy if connections fail or hoses otherwise become dislodged. • Oversight personnel may be sprayed with injection chemicals and/or be injured by violent hose movements. • Staff members shall maintain a safe distance from connection points during injection activities and wear safety glasses. • Should the need arise to stand closer to connection points, a face shield should be worn over safety glasses. • Contractors should be using whip checks to secure hoses that may become loose or dislodged.

SITE HAZARD SHEET

TEMPERATURE	
Cold stress	• Make sure workers are aware of cold stress symptoms, consequences, and prevention methods. • Dress appropriately for wet/cold weather. • Dress in layers and wear waterproof clothing as needed and proper cold weather personal protective equipment (PPE). • Stay inside, as practicable, and use a buddy system to monitor cold stress effects. • Have a warm area or vehicle available for breaks from the heat. • Schedule work at warmer times of day or during milder weather times, if possible. • If staff members feel the effect of weather stress, seek a warm location and drink warm non-caffeinated beverages.
Heat stress	• Make sure workers are aware of heat stress symptoms, consequences, and prevention methods. • Drink plenty of hydrating fluids (i.e., water). Recommended to drink 1 quart of water per hour. • Use cooling devices, as needed. • Acclimatize workers before performing work in extreme heat. • Have a shaded area or vehicle available for breaks from the heat. • Use a buddy system to monitor heat stress effects. • Schedule work at cooler times of day or during milder weather times, if possible. • Monitor the Heat Index and follow work/rest schedules using the Occupational Safety and Health Administration (OSHA) National Institute for Occupational Safety and Health (NIOSH) Heat Safety Tool mobile app and consult Health and Safety. • If the Heat Index rises above 80F, implement the Heat Injury/Illness Prevention Plan and attach it to the daily tailgate form.

TEMPERATURE

Extreme weather (high winds, hurricanes, lightning, snowstorms, tornados, tsunami)

High winds

Work Activity	Wind Speed Stop Work Action Levels	
	Sustained[1]	Instantaneous
General Site Work	25 mph	40 mph or greater
High Risk Activities		
Working at Heights	15 mph	25 mph or greater
Critical Lifting Operations	15 mph	25 mph or greater
Lifting Operations	25 mph	35 mph or greater
Over Water Work	25 mph	35 mph or greater
Heavy Equipment with Elevated Masts	25 mph	35 mph or greater

- The table above summarizes the stop work action levels for general site work and various high-risk project activities with respect to wind speed.
  - It should be noted that when using specific heavy equipment that the manufacturer's recommended wind speed for cease of operations (if defined) supersedes the wind speed action levels stated above if the manufacturer's guidelines are more restrictive.
  - Task specific Job Hazard Analysis (JHAs) must reflect manufacturer's specific guidelines, or if exact make and model of equipment is not known during initial JHA development, they will be updated in the field to reflect requirements.

Hurricanes

- Pay attention to emergency information and alerts.
- If you live in a mandatory evacuation zone and local officials tell you to evacuate, do so immediately.
- Determine how best to protect yourself from high winds and flooding.
- Take refuge in a designated storm shelter or an interior room for high winds.
- Go to the highest level of the building if you are trapped by flooding. Do not climb into a closed attic. You may become trapped by rising flood water.
- Do not walk, swim or drive through flood waters. Turn Around. Don't Drown! Just 6 inches of fast-moving water can knock you down, and 1 foot of moving water can sweep your vehicle away.

TEMPERATURE	
Extreme weather (high winds, hurricanes, lightning, snowstorms, tornados, tsunami) *(continued)*	**Lightning storms** • If lightning is observed to be within 6 miles of the project, suspend operations, depending on the speed of storm approach. • You can use “Spark” by WeatherBug, or another recognized lightning warning app to track lightning. • National Severe Storms Laboratory (NSSL) recommends the "Flash to Bang" method. Simply count the seconds from the time the lightning is sighted to when the clap of thunder is heard. • Divide the number by 5 to obtain how far away in miles the lightning is occurring. – For example, if the lightning flash is seen and then 15 seconds later the bang of thunder is heard, the lightning is 3 miles away. It is important site personnel monitor not only how far away the lightning is but also how fast it is approaching. • The NSSL recommends by the time the Flash to Bang count reaches 30 seconds, all individuals should have left the site and reached a safe structure, such as a building or job trailer. • If caught in the open by an electrical storm, immediately seek shelter in a vehicle on land. • If a vehicle is inaccessible: move to a topographically low area away from tall objects and conductors (e.g., trees, transformers, fences, pipelines, power lines, metal sheds) and wait for the storm to leave the area. • If you feel your hair stand on end (an indicator lightning is about to strike), drop to your knees and bend forward, putting your hands on your knees. Do not lie flat on the ground (be wary of seeking shelter in washes, ravines, or gullies during heavy downpours because of the risk of flash floods). • In the event of extreme weather conditions which may pose a health and/or safety risk to workers, field activities will cease until the Site Safety Officer (SSO) determines conditions are safe to resume operations. • Wait at least 30 minutes after the last lightning strike within 6 miles before resuming work. **Snowstorms** • Assess the weather before traveling and ensure emergency supplies are packed in the vehicle. • Provide sufficient time for travel delays due to snow/ice covered roads or accidents. • Inform someone of your travel plans and expected time of arrival. • Wear layered clothing, including jackets, hats, and mittens, or keep these items in the vehicle. • If you get stuck inside your vehicle: – Stay inside the vehicle. – Run the heater periodically but be cautious of carbon monoxide poisoning.

TEMPERATURE	
Extreme weather (high winds, hurricanes, lightning, snowstorms, tornados, tsunami) *(continued)*	**Tornadoes** • Watch areas where tornadoes could become present. • Review and discuss your emergency plans, communication/sirens in case of emergency and review shelter locations. • If site is prone to tornadoes, monitor weather reports during work shifts. • Act quickly if a warning is issued or you suspect a tornado is approaching. • If a tornado has been sighted or indicated by weather radar, imminent danger to life and property exists. • Go to shelter locations listed in Safety Plan. Go immediately underground to a basement, storm cellar or an interior room (closet, hallway or bathroom). • If caught outdoors when a tornado is threatening, seek shelter in a basement or a sturdy building. If one is not within walking distance, try to drive to the nearest shelter. • If flying debris is encountered while in a vehicle, there are two options: – Stay in the vehicle with the seat belt on, keep your head below the windows, and cover it with your hands or a blanket, or – If there is an area that is noticeably lower than the roadway, lie in that area and cover your head with your hands. **Tsunami** • If you are under a tsunami warning: – Know evacuation routes (often are marked by a wave with an arrow in the direction of higher ground) and follow them to higher ground. – Contact your project manager when it is safe to do so to inform them that you have evacuated. – Leave immediately if you are told to do so. Evacuation routes often are marked by a wave with an arrow in the direction of higher ground. – If you are in the water, then grab onto something that floats, such as a raft or tree trunk. – If you are in a boat, face the direction of the waves and head out to sea. If you are in a harbor, go inland.

TEMPERATURE	
Fire	**Brush fires** Fires are a concern due to the large amount of vegetative material. Dry weather and strong winds contribute to the threat of fires. The following precautions should be taken during these periods: • Prior to field activity, personnel should review all available weather information for warnings of increased fire potential. The National Weather Service (http://www.SPC.NOAA.GOV/products/fire_WX) is recommended for this information. • For extended work activities in the wetlands, a minimum of two evacuation routes should be established and cleared. The evacuation routes must be identified to field personnel working in the wetlands. • A fire extinguisher will be carried into the wetlands. • One field team member must return to the entry point to check the surroundings for signs of brushfire (smoke, etc.) and changing wind conditions on intervals not exceeding 20 minutes. • Navigation tools, such as a map and compass, and two separate means of communication (cell phones, two-way radios, etc.) will be required safety equipment and must be immediately accessible to all members of each field team during all activities. • Work involving the use of a potential ignition source (e.g. generators, halogen lighting) will not be performed. • No smoking is allowed in wetland areas. • All activities will be suspended until positive confirmation can be obtained that the fire has been completely controlled and extinguished. • In the event that warning signs of brushfire are noticed by any field team member (fire sighting, smoke smell or sight, warning from elsewhere on site), all work will be suspended, and field teams will evacuate the site immediately. After evacuation, the priority will be achieving confirmation of evacuation from all field personnel. Emergency services will be contacted as per the HASP. **Fire – Small** • Use fire extinguisher if safe and qualified to do so. • Notify PM, Site Safety Officer, contact 911. **Fire – Large** • Evacuate immediately. • Notify PM, Site Safety Officer, contact 911.

TEMPERATURE

Wildfire and air quality

- Monitor and assess the air quality index (AQI) for particulate matter at 2.5 microns (PM 2.5) utilizing AirNow.
- Utilize engineering or administrative controls to limit staff member exposure to an AQI level of 150 or lower if possible.
- Review our Wildfire Smoke and Air Quality program materials.
- Ensure all staff members have completed Air Quality Training.

AQI for PM 2.5	Response Action
0 to 50	Normal working conditions. Monitor PM 2.5 conditions and forecasts.
51 to 100	Normal working conditions. Sensitive groups should begin to monitor physical condition. Notify staff of air quality conditions. Ensure only trained staff members are working in the field.
101 to 150	NIOSH approved N95 respirators will be available in all offices for staff members that have completed the voluntary use form. Engineering controls and administrative controls will be implemented. Sensitive groups should continue to monitor conditions.
151 to 200	NIOSH approved N95 respirators will remain available in all offices for staff members that have completed the voluntary use form. Monitor physical conditions throughout the day and remain aware of immediate health impacts of smoke inhalation. PMs should begin discussions about rescheduling work. Recommended that outdoor staff take frequent breaks in areas where filtered AQI is less than 101.
201 to 250	Respirators will remain available for all staff if voluntary use form is completed. All outdoor staff are required to take frequent breaks in areas where filtered AQI is less than 101. Sensitive persons are not to work outdoors in these conditions.
251+	All outdoor projects will be stopped in the impacted areas until the AQI has dropped below 251. Outdoor project work will be rescheduled.

ATTACHMENT E
Project Site Forms

Date printed: 1/22/2026 at 5:37 PM

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

Subsurface Clearance Field Checklist

PROJECT INFORMATION

Site Name:		Project Manager:	
Location:		Client Leader/LSRP:	
Client Name:		Scope of Work:	
Project Number:		Date of SSC Event:	

PROJECT BASICS (Completed prior to the start of field activities)

Site Contact Person Identified? Circle one: Yes No			
Contact Person/Company Name/Phone Number:			
Subcontractor & On-Site Representatives:			
Have the subsurface activities been explained to the subcontractor? Circle one: Yes No			
Public utility mark-out completed? Circle one: Yes No			
Public Mark-out/called in by Company/Representative:		Date:	
Ticket Number:		Utilities Notified and Response received:	

PRE-CLEARANCE (Completed prior to breaking ground or determining final locations)

Private Utility Mark-out completed? Circle one: Yes No		Date:	
Work area and each intrusive location scanned for all utilities? Circle one: Yes No			
Private Mark-out completed by Subcontractor & Representative:			
Depth of accuracy (feet):		Limitations:	
Type of equipment used:			

Utility Identified & Marked-out	Depth (ft)	Yes	No	Utility Identified & Marked-out	Depth (ft)	Yes	No
Electricity (Red)				Sewer (Green)			
Gas (Yellow)				Telephone Data (Orange)			
Water (Blue)				Fuel/Oil			
Reclaimed H_2O/Irrigation (Purple)				Proposed excavation (white)			

SCOPE OF WORK

Scope of Work provided to subcontractors? Circle one: Yes No					
Number of intrusive locations:		Targeted depth (feet):		Diameter of Borehole (inches):	
Proposed intrusive locations within 10 feet of marked and/or known utility? Circle one: Yes No					
Final locations confirmed at least 10 feet away from all utilities? Circle one: Yes No					

FIELD OBSERVATIONS

Other Utilities & Visual Clues Observed	Yes	No	Other Utilities & Visual Clues Observed	Yes	No
Natural gas meters			Fire suppression		
Water meters			Fire hydrants		
Cable markers			Fire sprinkler lines		
Sewer drains/cleanouts			Sprinkler/irrigation systems		
Overhead lines (give 15' x 15' of clearance)			Utility poles with conduit leading to the ground		
Pipeline and pipeline markers			Utility boxes		
Underground storage tank (UST)			Manholes		
UST fill ports and vent pipes			Pavement scarring		
Lights			Remote buildings with no visible utilities		
Signage			Other (specify):		
Steam lines			Other (specify):		

Any mitigations taken if points cannot be obtained or site type was not listed:_____

_____

Mitigations taken by whom: _____

Subsurface Clearance Field Checklist

Utility Point System: Gain points to protect against utility strike

Site Description	Minimum Points Needed
Combination of 2 or more Site Types	5
Commercial/Office Park	5
Downtown/Urban Development	5
Manufacturing/Active	5
Manufacturing/Non-Active	5
Mine	5
Rail	5
Residential	5
Roadway (right-of-way, highway, and secondary routes)	5
Roadway (right-of-way, rural route)	5
Universities/Government Campus/Airports	5
Abandoned/Non-Active/Vacant	3
Remote (field, woods, undisturbed)	2
Work over water	2
Site Type Not Listed Above	Consult with the PM, Utility Specialist, and Project Team
Cannot Gain Minimum Points	Perform hand clearing/soft dig/vacuum excavation

1 Point Value (2 Maximum from this Category)
Facility/contact supplied information (GIS figure with photo overlay; extensive client records and drawings)
The utilities have been marked using GPS or surveyed (with minimum accuracy of 0.1 foot)
A review of the work scope with a knowledgeable site contact (client contact, site manager, maintenance manager or other site personnel) about the site's history and utility locations/conditions (with a utility site drawing). **A knowledgeable site contact is someone who has regular responsibilities for managing site infrastructure, construction activities, and/or retaining site drawings/figures.**
A visual inspection of the site to verify that the utilities match the drawings and figures (completed after the State One Call Subsurface Clearance Checklist)
Confirmation of the low density of subsurface utilities (based on site maps, previous private utility locates)
Shallow boring advancement (<2 feet below ground surface (bgs) with non-mechanical drilling techniques)

2 Point Values
As-built drawings (plot plans, as-builts, pipeline or facilities maps, and/or lease drawings), reviewed and verified by client for updated changes
Confirmation that utilities cut off at street and align with drawings and figures
Drawing/figure (measured to scale, shows site utilities as visually verified during site walk); includes any new or repaired lines that match site (e.g., pavement scarring); depth and diameter of utilities; and recent (includes any new construction activity)
Survey data and figures produced by Haley & Aldrich and/or Haley & Aldrich site utility experience with additional site inspection
Site drawing and figures from prior private utility locate created by Haley & Aldrich (drawing must include GPS coordinates and utilities are to scale)
GPR/EM Cable location by private utility locate directly above proposed ground disturbance/borehole location

3 Point Values	3 Point Values (Open Excavations Only)
Hand Clearing/Soft Dig/Vacuum Excavation to 5 feet bgs using the following soft dig clearance methods listed from least invasive to most: • Probing • Hand Digging • Hand Auguring • Vacuum Extraction • Air/Water Knife with Vacuum Extraction	Hand Clearing/Soft Dig/Vacuum Excavation using the following soft dig clearance methods to confirm location of known utilities prior to using mechanical excavation: • Probing • Hand Digging • Vacuum Extraction

Health & Safety Tailgate Meeting Form

Project:	Project No.:
Location:	Project Manager:
Subcontractor(s):	Date:
Site Safety & Health Officer (SSHO):	SSHO Contact Info:

Emergency Procedures

If an emergency occurs, follow procedure outlined in the HASP and contact numbers below. If non-life-threatening injury occurs, contact PM to report the incident. Seek first-aid treatment from the Occupational Health Center, as outlined in the HASP.

Emergency Dispatch phone number if other than 911:	
Local Hospital:	Local Hospital Phone #:
Evacuation/Muster Point:	Alt Evacuation/Muster Point:

Simultaneous Operations (SIMOPS)

SIMOPS or Multi-Crew Activity	☐ Yes	☐ No	If yes, describe SIMOPS:	
Has SIMOPS been communicated to all workforce?	☐ Yes	☐ No		
SIMOPS PIC:			**Phone Number:**	

Task Identification

Task	Responsible Company	Task Supervisor

Required Permits/Forms (*check all that apply*)

☐None	☐Lifting Plan	☐Other:
☐Confined Space Entry Permit	☐Hot Work Permit	☐Other:
☐Lock-out / Tag-out (LOTO)	☐Ground Disturbance Permit	☐Other:
☐Excavation Permit	☐Other:	☐Other:

Discussion of Work Hazards *(check all that apply)*

☐Chemical	☐Hazardous materials (lead, asbestos, etc.)	☐Radiological
☐Confined space	☐Hosting and rigging	☐Stored energy LOTO
☐Congested work area	☐Hot work	☐Traffic control
☐Elevated work	☐Material handling	☐Weather and/or temp extremes
☐Ergonomics	☐Noise pollution	☐Waste generation
☐Emergency egress	☐Oxygen deficiency	☐Other:

Required PPE *(check all that apply)*

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hearing Protection	Safety Eyewear	Hard Hat	Safety Toed Shoes	Leather or Palm Protective	Safety Vest	Protective Clothing	Respiratory Protection	PFD	Face Shield	Fall Protection

All information and content in this form is for information purposes only and is not medical advice, diagnosis, or treatment. Printed copies are not document controlled.

HALEY ALDRICH

Tailgate Topic / Hazard Discussion

Item	Discussion

Management of Change (MoC)

Does the work activity require a MoC? If yes, has it been authorized by applicable management? ☐No ☐Yes
Has the safety information been updated to incorporate any change in product, equipment, material or process? This information should include how to investigate accidents, audit compliance with safety procedures, and plan for emergency responses. ☐No ☐Yes
Have the procedures for a MoC been reviewed and evaluated? ☐No ☐Yes
Have all affected staff been informed and trained on the new equipment, process, or other changes? Health and safety hazards must be emphasized including processes/procedures in an emergency. The training must occur before any staff is allowed to operate the equipment or perform the job relating to the changes. ☐No ☐Yes
Have written procedures been put into place for the next time there is a change in safety management? ☐No ☐Yes

Best Practice(s) Observed? ☐ Yes ☐ No If yes, describe:	**H&S Observations/ Near Misses/ Incidents Reported?** ☐ Yes ☐ No If yes, describe:
Safe Work Interventions? ☐ Yes ☐ No If yes, describe:	**Have additional hazards and risk controls been identified for future work?** ☐ Yes ☐ No If yes, update appropriate job hazard analysis (JHA).

Site Safety & Health Officer Acknowledgement

At the conclusion of the day, I certify that the work site has been inspected and is being left in a safe and clean condition and any incidents have been properly reported.

Signature Date

All information and content in this form is for information purposes only and is not medical advice, diagnosis, or treatment. Printed copies are not document controlled.

HALEY ALDRICH

Worker Acknowledgement

By signing here, you are stating the following:

1. You understand the hazards and risk control actions associated with each task you are about to perform.
2. You understand the permit to work requirements pertinent to the work you are about to perform (if applicable).
3. You are aware that no tasks or work that is not risk-assessed is to be performed.
4. You also are aware of your obligation to implement 'Safe Work'.
5. You arrived and departed fit for duty.
6. You are physically and mentally fit for duty.
7. You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
8. You are aware of your responsibility to bring any illness, injury (regardless of where or when it occurred), or fatigue issue you may have to the attention of the SSHO.
9. You signed out uninjured unless you have otherwise informed the SSHO.

Name (print)	Company	Initials & Sign In/Out Time		COVID-19 Self-Declaration
		In & Fit	Out & Fit	On File

Visitor Log (*Site Visitors not involved in the work activities*)

Name (print)	Company	Initials & Sign In/Out Time		COVID-19 Self Declaration
		In & Fit	Out & Fit	On File

All information and content in this form is for information purposes only and is not medical advice, diagnosis, or treatment. Printed copies are not document controlled.

APPENDIX D
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). Use of this form is not a substitute for reading the applicable Technical Guidance document.

SECTION 1 – SITE BACKGROUND

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 would pass a size 80 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:

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

Revised August 2014

APPENDIX E
Pre-Design Investigation Scope of Work

HALEY ALDRICH

www.haleyaldrich.com

PRE-DESIGN INVESTIGATION WORK PLAN
FORMER NEW CITY LINK AUTO REPAIR SITE
547 CONEY ISLAND AVENUE & 50 HINCKLEY PLACE
BROOKLYN, NEW YORK
NYSDEC BCP SITE NO. C224407

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

for
545 Coney Island LLC
Brooklyn, New York

File No. 0204391
February 2026

Certification

I, Suzanne M. Bell, certify that I am currently a New York State (NYS)-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 DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

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

NYS Professional Engineer No. 106301	February 20, 2026	
	Date	Signature

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.

Table of Contents

		Page
Certification		**i**
List of Figures		**ii**
1.	**Site Information and Purpose**	**1**
2.	**Pre-Design Investigation**	**2**
2.1	UTILITY MARKOUT	2
2.2	SOIL SAMPLING	2
2.3	INVESTIGATION-DERIVED WASTE	4
3.	**Quality Assurance and Quality Control**	**5**
4.	**Data Use**	**6**
4.1	DATA SUBMITTAL	6
4.2	DATA VALIDATION	6
5.	**Health and Safety**	**7**
5.1	CONSTRUCTION HEALTH AND SAFETY PLAN	7
5.2	COMMUNITY AIR MONITORING PLAN	7
6.	**Proposed PDI and Reporting Schedule**	**8**
7.	**Green Remediation Principles and Best Management Practices**	**9**
7.1	BEST PRACTICES AND TECHNIQUES	9
7.2	REPORTING	10
7.3	CLIMATE RESILIENCY EVALUATION	10
7.4	ENVIRONMENTAL FOOTPRINT ANALYSIS	10

List of Figures

Figure No.	Title
1	Project Locus
2	Site Map
3	PDI Sample Location Map

1. Site Information and Purpose

On behalf of 545 Coney Island LLC, H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) has prepared this Pre-Design Investigation (PDI) Work Plan (PDIWP) for the Former New City Link Auto Repair Site, Brownfield Cleanup Program (BCP) Site C224407, located at 547 Coney Island Avenue and 50 Hinckley Place (the "Site", see Figure 1) in the Prospect Park South neighborhood of the Brooklyn, New York.

545 Coney Island LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on August 27, 2024, with 545 Coney Island LLC (the "Volunteer"), to investigate and remediate the Site. The Site is approximately 19,090 square feet (sq ft) (0.44 acres) and is bound by Hinckley Place followed by a mixed-use multi-story commercial and residential building to the north; Beverley Road followed by mixed-use commercial and residential buildings to the south; Coney Island Avenue followed by a "Shell" gasoline service station to the southwest; a "KFC" restaurant to the west; Public School 889 to the northwest; and one- and two-family residential homes to the east.

The Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination on the Site as determined from data gathered during the Limited Phase II Environmental Site Investigation (ESI) performed by Haley & Aldrich of New York in December 2021, the Remedial Investigation (RI) performed by Haley & Aldrich of New York between February and April 2024 (2024 RI), and the Supplemental Remedial Investigation (SRI) performed by Haley & Aldrich of New York between December 2024 and January 2025. The RI and SRI activities included installation of soil borings, permanent monitoring wells to various depths between 45 and 65 feet (ft) below ground surface (bgs), and soil vapor probes.

Results of the RI and SRI found that contaminants of concern at the Site are primarily metals, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) with impacts to soil and groundwater. VOCs, specifically petroleum-related VOCs (benzene, toluene, ethylbenzene, xylenes [BTEX]) and chlorinated VOCs (CVOCs), are present in the vapor phase at the Site and are likely the result of historical Site use.

This PDIWP is being submitted in response to a request from the NYSDEC to obtain supplemental data that will support a more effective evaluation of the proposed *in-situ* chemical oxidation (ISCO) remedy for groundwater and saturated soil. The scope of this investigation includes collecting samples from 40 to 65 ft bgs to delineate the vertical extent of the ISCO injections and finalize the remedial design. This PDIWP was prepared in accordance with the regulations and guidance applicable to the BCP, including, without limitation, NYSDEC Division of Environmental Remediation (DER)-10, which is entitled "Technical Guidance for Site Investigation and Remediation" dated May 2010 (DER-10) and DER-31 Green Remediation (DER-31).

2. Pre-Design Investigation

This section describes the field activities to be conducted during the PDI and provides the sampling scope, objectives, methods, anticipated number of samples, and sample locations. A summary of the sampling and analysis plan is provided in Table 1, and the sampling locations are shown in Figure 3.

2.1 UTILITY MARKOUT

Field personnel will mobilize to the Site to stake (with flagging or paint) the proposed soil sample locations. Once the sample locations are marked, Dig Safely New York will be contacted to mark underground utilities. All boring locations will be precleared by hand prior to advancing and boring rods. Once the utilities are marked, field equipment and personnel will be mobilized to the Site.

2.2 SOIL SAMPLING

Additional on-Site soil samples will be collected at varying intervals within the proposed smear zone(s) to delineate the vertical extent of the treatment area and confirm the depth of the ISCO injection points in Lot 1. The sampling and analysis plan is summarized in Table 1 below. Up to six soil borings will be installed to approximately 65 ft bgs by a track-mounted direct-push drill rig (Geoprobe®), operated by a licensed operator. Soil samples will be collected from acetate liners using a stainless-steel trowel or sampling spoon. Samples will be placed in laboratory-provided clean bottle ware.

Soils will be logged continuously by a geologist or engineer using the Unified Soil Classification System. The presence of staining, odors, and photoionization detector (PID) response will be noted. Samples will be collected using laboratory-provided clean bottle ware. VOC grab samples will be collected using Terra Cores. Sampling methods are described in the Field Sampling Plan (FSP) provided as Appendix B of the approved Remedial Investigation Report (RIR). A Quality Assurance Project Plan (QAPP) is provided as Appendix J of the RAWP. Laboratory data will be reported in Analytical Services Protocol (ASP) Category B deliverable format.

Soil samples representative of Site conditions will be collected at up to six locations as shown on Figure 3. Sample intervals have been proposed based on observations from the soil boring logs developed during the RI and SRI and submitted in the RIR. Borings PDI-1 through PDI-6 will be sampled from the 48- to 50-ft interval, 53- to 55-ft interval, 58- to 60-ft interval, and the 63- to 65-ft interval. This is to characterize and delineate the vertical extent of the proposed treatment area and confirm the depth of the ISCO injection points.

Samples will be analyzed for:

- Target Compound List (TCL) VOCs using U.S. Environmental Protection Agency (EPA) Method 8260B;
- Soil Oxygen Demand (SOD) using American Society for Testing and Materials (ASTM) Method D2487; and
- Porosity.

Table 1 – Sampling and Analysis Plan		
Boring Number	**Sample Depth**	**TCL VOCs (8260B)**
SOIL		
PDI-1	48-50’	X
	53-55’	X
	58-60’	X
	63-65’	X
PDI-2	48-50’	X
	53-55’	X
	58-60’	X
	63-65’	X
PDI-3	48-50’	X
	53-55’	X
	58-60’	X
	63-65’	X
PDI-4	48-50’	X
	53-55’	X
	58-60’	X
	63-65’	X
PDI-5	48-50’	X
	53-55’	X
	58-60’	X
	63-65’	X
PDI-6	48-50’	X
	53-55’	X
	58-60’	X
	63-65’	X

Notes:

Quality assurance/quality control (QA/QC) samples include:
Matrix spike/matrix spike duplicate (MS/MSD) - 1 for every 20 samples
SOD will be collected from at least two discrete sample locations
Porosity will be collected from at least one discrete sample location
Duplicate - one for every 20 samples
Trip Blanks - one per cooler of samples to be analyzed for VOCs
Field Blanks - one for every 20 samples

2.3 INVESTIGATION-DERIVED WASTE

Following sample collection, boreholes will be backfilled with soil cuttings and an upper bentonite plug. Boreholes will be restored to grade with the surrounding area. If soil is identified as grossly contaminated, it will be separated and placed into a sealed and labeled New York State Department of Transportation (NYSDOT)-approved 55-gallon drum pending characterization and off-Site disposal.

3. Quality Assurance and Quality Control

QA/QC procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix or by laboratory techniques that may have introduced systematic or random errors to the analytical process.

QA/QC procedures are defined in the QAPP included in Appendix J of the RAWP.

4. Data Use

4.1 DATA SUBMITTAL

Analytical data will be supplied in ASP Category B Data Packages. If more stringent than those suggested by the EPA, the laboratory's in-house QA/QC limits will be utilized.

4.2 DATA VALIDATION

Data packages will be sent to a qualified data validation specialist for evaluation of the accuracy and precision of the analytical results. A Data Usability Summary Report (DUSR) will be created to confirm the compliance of methods with the protocols described in the NYSDEC ASP. The DUSR will summarize and confirm usability of the data for project-related decisions. Data validation will be completed in accordance with the DUSR guidelines from NYSDEC DER. The DUSR will be included with the submittal of a Pre-Design Investigation Report (PDIR).

5. Health and Safety

5.1 CONSTRUCTION HEALTH AND SAFETY PLAN

A Site-specific Construction Health and Safety Plan (CHASP) has been prepared in accordance with NYSDEC and New York State Department of Health (NYSDOH) guidelines and is provided as Appendix C of the approved RAWP.

5.2 COMMUNITY AIR MONITORING PLAN

The proposed PDI work will be completed outdoors at the Site. Where intrusive drilling operations are planned, community air monitoring will be implemented to protect the downwind receptors. A Haley & Aldrich of New York representative will continually monitor the breathing air in the vicinity of the immediate work area using a PID to measure total VOCs in air at concentrations as low as 1 part per million (ppm). The air in the work zone will also be monitored for visible dust generation.

If VOC measurements above 5 ppm are sustained for 15 minutes or visible dust generation is observed, the intrusive work will be temporarily halted, and a more rigorous monitoring of VOCs and dust using recordable meters will be implemented in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP).

6. Proposed PDI and Reporting Schedule

During implementation of this PDIWP, daily reports will be provided to the NYSDEC, which summarize daily activities and provide the CAMP monitoring data. Following completion of the work, a summary of the PDI will be provided to NYSDEC as an amendment to the RAWP to support implementation of the proposed remedial action. The report will include:

- Summary of the activities;
- Figure showing sampling locations;
- Tables summarizing laboratory analytical results;
- Laboratory analytical data reports;
- Field sampling data sheets;
- Findings regarding the nature and extent of contamination at the Site;
- Qualitative exposure assessment of any contamination from an on-Site source that has migrated off Site; and
- Conclusions and recommendations.

Following approval of this work plan by NYSDEC, the PDI work is estimated to be completed in one week, including drilling mobilization, drilling, soil sampling, and waste disposal.

7. Green Remediation Principles and Best Management Practices

The work completed as part of this work plan will comply with all NYSDEC guidance documents, including DER-31: Green Remediation (NYSDEC, 2011). To ensure compliance with DER-31, the work will be completed using the best practices and techniques described below. Specific reporting methods relative to DER-31 are further described below.

7.1 BEST PRACTICES AND TECHNIQUES

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 addition, the techniques identified below will be implemented at sites unless a site-specific evaluation demonstrates impracticability or favors an alternative green approach:

Practice/Technique	Potential Benefits[1]	Applicable to this Work Plan
Use renewable energy where possible or purchase Renewable Energy Credits	Reduce/supplement purchased energy use	
Use of remediation technologies with an intermittent energy supply (i.e., energy use during peak energy generation only)	Reduce energy use	X
Incorporate green building design	Reduce future use impacts	
Reuse existing buildings and infrastructure to reduce waste	Reduce waste and material use	
Reuse and recycle construction and demolition debris and other materials (i.e., grind waste wood and other organics for on-site use)	Reduce waste and material use	
Design cover systems to be usable (i.e., habitat or recreation)	Reduce construction impacts of future development	
Reduce vehicle idling	Reduce air emissions and fuel use	X
Use of Low-Sulfur Diesel Fuel (LSDF) or alternate fuels (i.e., biodiesel or E85) when possible	Reduce air emissions	
Sequence work to minimize double-handling of materials	Reduce construction impacts	X
Use energy-efficient systems and office equipment in the job trailer	Reduce energy use	X

[1]*Potential benefits listed are not comprehensive and will vary depending upon the site and implementation of the practice or technique.*

In order to comply with the requirements of DER-31, the following actions will be taken:

1. All vehicles and fuel-consuming equipment on the Site will be shut off if not in use for more than three minutes;

2. Work will be sequenced, to the extent practicable, to allow the direct loading of waste containers for off-site disposal;
3. Work will be 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 will be utilized.

7.2 REPORTING

All green and sustainable practices and techniques employed will be discussed in the forthcoming Final Engineering Report (FER).

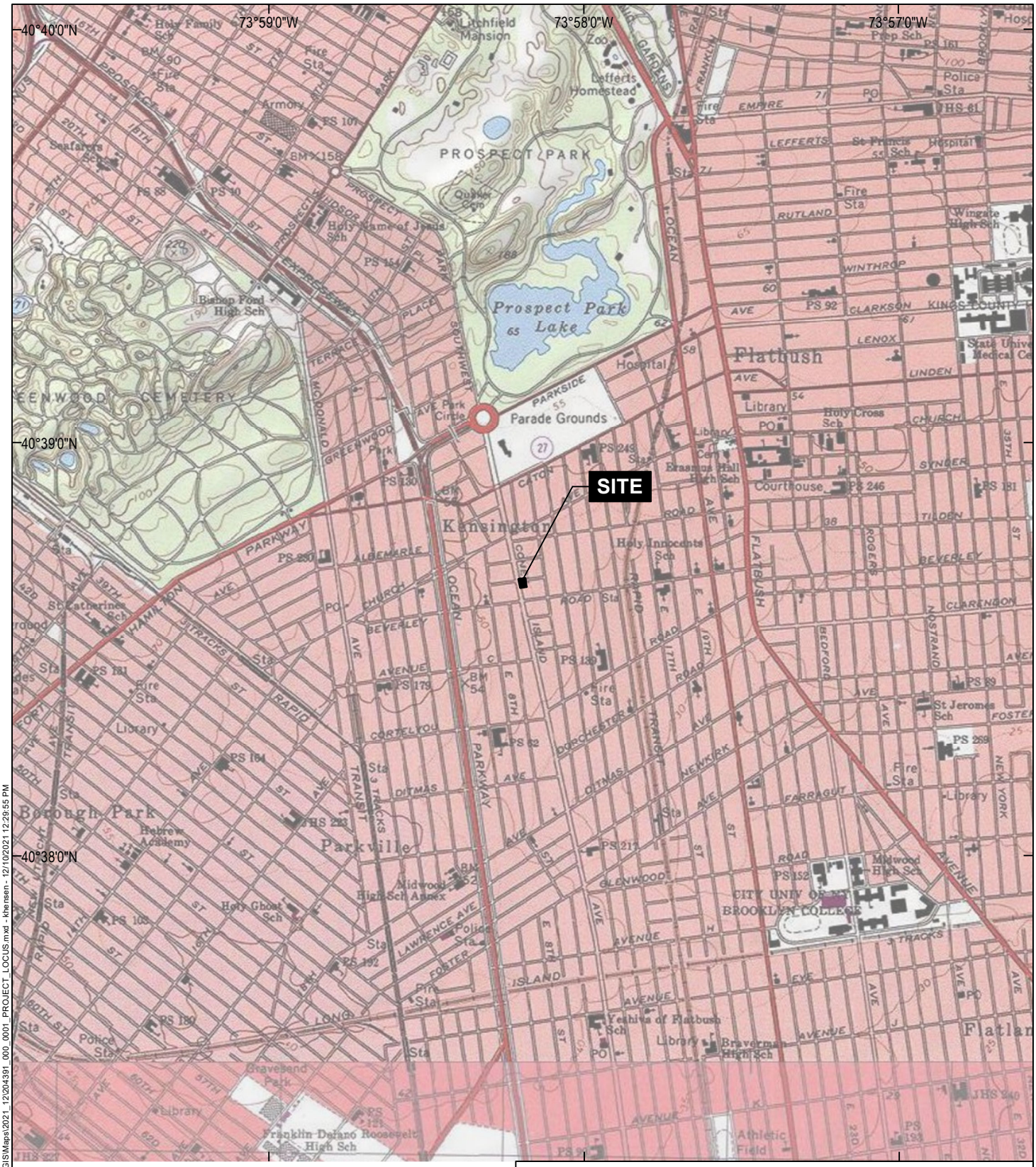
7.3 CLIMATE RESILIENCY EVALUATION

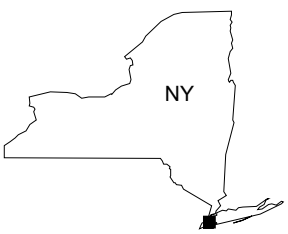
The Site is not located within a 100-year flood zone. The development plan is still under design but will incorporate consideration for resiliency to climate change, including the design of a cover system that will mimic, rather than alter, the current setting in the vicinity of the Site and will provide pathways for surface runoff and resiliency against future flooding events. A Climate Screening Checklist will be provided in the FER 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 the identified potential vulnerabilities.

7.4 ENVIRONMENTAL FOOTPRINT ANALYSIS

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed using a NYSDEC-accepted environmental footprint analysis tool (i.e., SEFA, SiteWiseTM, etc.) The environmental footprint analysis will be included in the FER.

FIGURES





MAP SOURCE: USGS
SITE COORDINATES: 40°38'39"N, 73°58'10"W

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
JULY 2025

FIGURE 1

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2021_12\204391_000_0001_PROJECT_LOCUS.mxd - khensen - 12/10/2021 12:29:55 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

SITE PLAN

JULY 2025

FIGURE 2

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

LEGEND

- BLOCK 5114 SITE BOUNDARY
- PARCEL BOUNDARY
- PROPOSED GROUNDWATER TREATMENT AREA
- APPROXIMATE INJECTION POINT LOCATION WITH 20 FOOT RADIUS OF INFLUENCE
- SOIL BORING, SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI)
- PROPOSED SOIL BORING, PRE-DESIGN INVESTIGATION (PDI)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 11 OCTOBER 2024

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

547 CONEY ISLAND AVENUE AND 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

PDI SAMPLE LOCATION MAP

OCTOBER 2025

FIGURE 3

GIS: \\haleyaldrich.com\share\CF\Projects\0204391\GIS\Maps\2025_02_RIR\204391_000_0002_SITE_PLAN.mxd - khensen - 2/24/2025 3:25:33 PM

APPENDIX F
Ap-PH Product Specification Sheets

Product Sheet

KLOZUR® SP

THE FIELD PROVEN AND VERSATILE ISCO SOLUTION TO ADDRESS SOIL & GROUNDWATER CONTAMINATION

KLOZUR® SP is the oxidant of choice for in situ chemical oxidation (ISCO), because of its proven ability to treat a wide range of contaminants including chlorinated solvents, petroleum and PAHs. Based upon an environmental grade of sodium persulfate (SP), KLOZUR® SP is ideal for contaminated source zones and hot spots that require rapid treatment. When properly activated, KLOZUR® SP provides an unmatched combination of oxidative power, versatility, and control that can be delivered both safely and cost effectively. Successful field applications of KLOZUR® activated persulfate have been performed globally. These applications demonstrate the ability of KLOZUR® activated persulfate to treat diverse organic contaminants of concern including: chlorinated ethenes (TCE, PCE, DCE and vinyl chloride), chlorinated ethanes (TCA and DCA), chlorinated methanes (carbon tetrachloride and methylene chloride), BTEX, MTBE, polyaromatic hydrocarbons (PAHs), petroleum hydrocarbons (TPHs, GRO, DRO), 1,4-dioxane and pesticides.

KEY BENEFITS

When used with Evonik's patented activation methods, KLOZUR® SP produces the powerful oxidative ($SO_4^{-}\bullet$, $OH\bullet$) and reductive ($O_2^{-}\bullet$) radicals creating a multi-radical attack for the rapid destruction of recalcitrant compounds.

$S_2O_8^{-2}$ + Activator → $SO_4^{-}\bullet$, $OH\bullet$, $O_2^{-}\bullet$

Multiple activation options and methods of delivery provide for a flexible and custom solution based on site conditions. With a solubility limit of up to 40 wt%, KLOZUR® SP can be applied as a fully soluble solution. KLOZUR® SP is a stable oxidant given its high oxidation potential, with a typical active lifetime in the subsurface of weeks to months, providing an extended radius of influence. KLOZUR® SP is safe to handle with Evonik's recommended use guidelines and does not generate heat or gas.

EXAMPLES OF CONTAMINANTS OF CONCERN
CHLORINATED SOLVENTS PCE, TCE, DCE, VC, TCA, DCA, methylene chloride, carbon tetrachloride, chlorobenzene
PETROLEUM TPH, BTEX, DRO, GRO
PAHs creosote, MGP residuals 1,4-dioxane, MTBE, TBA, energetics, chlorinated pesticides

THE SOUND SCIENCE OF KLOZUR® ACTIVATED PERSULFATE

KLOZUR® activated persulfate has a long history of documented success having been used at thousands of sites to remediate contaminants of concern around the world. The field application of KLOZUR® activated persulfate has been scientifically validated in hundreds of independent peer-reviewed journal articles and conference presentations.

APPLICATION METHODS

- Direct push injection
- Fixed well injection
- Soil blending

For more information and detailed case studies, please visit our website.

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Evonik Operations GmbH
Smart Materials
Active Oxygens Business Line
Soil & Groundwater Remediation

remediation@evonik.com
www.evonik.com/remediation

EVONIK
Leading Beyond Chemistry

CONTAMINANTS TREATED

Use this guide by locating the contaminant of concern sorted by contaminant type. The technologies recommended for treatment of each contaminant are located to the right.

✓ Recommended, lab or field data available demonstrating success
■ Recommended with site specific lab study

	CHEMICAL OXIDATION KLOZUR® PERSULFATE	CHEMICAL REDUCTION EHC® REAGENT, EHC® PLUS, DARAMEND® REAGENT	ENHANCED ANAEROBIC BIOREMEDIATION EHC® LIQUID, ELS® MICROEMULSION	METALS TREATMENT METAFIX® REAGENTS, EHC® METALS, DARAMEND® METALS	AEROBIC BIOREMEDIATION TERRAMEND® REAGENT	 PERMEOX® ULTRA	BIOGEOCHEMICAL GEOFORM® REAGENTS
CHLORINATED SOLVENTS							
Tetrachloroethene (PCE)	✓	✓	✓	✓			✓
Trichloroethene (TCE)	✓	✓	✓	✓			✓
Dichloroethene (cis and trans DCE)	✓	✓	✓	✓			✓
Trichloroethane (TCA)	✓	✓	✓	✓			✓
Dichloroethane (DCA)	✓	✓	✓	✓			✓
Carbon tetrachloride	✓	✓	✓	✓			✓
Chloroethane	✓	✓	✓	✓			✓
Chloroform	✓	✓	✓	✓			✓
Chloromethane	✓	✓	✓	✓			✓
Chlorotoluene	✓	✓	✓	✓			✓
Methylene chloride	✓	✓	✓	✓			✓
Vinyl chloride	✓	✓	✓	✓		✓	✓
Dichloropropane	✓	✓	✓	✓			✓
Dichloropropene	✓	✓	✓	✓			✓
Hexachlorobutadiene	✓	✓	✓	✓			✓
Tetrachloroethane	✓	✓	✓	✓			✓
Trichloropropane	✓	✓	■	✓			✓
BTEX							
Benzene	✓				✓	✓	
Toluene	✓				✓	✓	
Ethylbenzene	✓				✓	✓	
Xylenes	✓				✓	✓	

CONTAMINANTS TREATED

✓ Recommended, lab or field data available demonstrating success
■ Recommended with site specific lab study

	CHEMICAL OXIDATION KLOZUR® PERSULFATE	CHEMICAL REDUCTION EHC® REAGENT, EHC® PLUS, DARAMEND® REAGENT	ENHANCED ANAEROBIC BIOREMEDIATION EHC® LIQUID, ELS® MICROEMULSION	METALS TREATMENT METAFIX® REAGENTS, EHC® METALS, DARAMEND® METALS	AEROBIC BIOREMEDIATION TERRAMEND® REAGENT	AEROBIC BIOREMEDIATION PERMEOX® ULTRA	BIOGEOCHEMICAL GEOFORM® REAGENTS
PAHs							
Acenaphthene	✓				✓		
Acenaphthylene	✓				✓		
Anthracene	✓				✓		
Benzo(a)anthracene	✓				✓		
Benzo(a)pyrene	✓				✓		
Benzo(b)fluoranthene	✓				✓		
Benzo(ghi)perylene	✓				✓		
Chrysene	✓				✓		
Dibenzo(ah)anthracene	✓				✓		
Fluorene	✓				✓		
Naphthalene	✓				✓	✓	
Phenathrene	✓				✓		
Pyrene	✓				✓		
OXYGENATES							
Methyl tert-butyl ether (MTBE)	✓					✓	
Tert-butyl alcohol (TBA)	✓					✓	
PETROLEUM HYDROCARBONS							
GRO (gasoline range organics)	✓				✓	✓	
DRO (diesel range organics)	✓				✓	✓	
ORO (oil range organics > C20 alkanes)	✓				✓		
Creosote (coal tar)	✓				✓		
PHENOLS							
Phenol	✓				✓		
4-chloro-3-methyl phenol	✓				✓		
2-chlorophenol	✓		■		✓		
2,4-dichlorophenol	✓		■		✓		
2,4-dinitrophenol	✓		■		✓		
4-nitrophenol	✓		■		✓		
Pentachlorophenol	✓	✓	■	✓	✓		✓

CONTAMINANTS TREATED

✓ Recommended, lab or field data available demonstrating success
■ Recommended with site specific lab study

	CHEMICAL OXIDATION KLOZUR® PERSULFATE	CHEMICAL REDUCTION EHC® REAGENT, EHC® PLUS, DARAMEND® REAGENT	ENHANCED ANAEROBIC BIOREMEDIATION EHC® LIQUID, ELS® MICROEMULSION	METALS TREATMENT METAFIX® REAGENTS, EHC® METALS, DARAMEND® METALS	AEROBIC BIOREMEDIATION TERRAMEND® REAGENT	 PERMEOX® ULTRA	BIOGEOCHEMICAL GEOFORM® REAGENTS
CHLOROBENZENES							
Chlorobenzene	✓	✓	■	✓	✓	✓	■
Dichlorobenzene	✓	✓	✓	✓			■
Trichlorobenzene	✓	✓	✓	✓			■
FLUORINATED COMPOUNDS							
Dichlorodifluoromethane	✓	✓	✓	✓			■
Trichlorofluouromethane	✓	✓	✓	✓			■
Trichlorotrifluoroethane	✓	✓	✓	✓			■
PFCA/PFOA	✓						
PESTICIDES & HERBICIDES							
Chlordane	✓	✓	✓	✓			■
Heptachlor Epoxide	✓	✓		✓			■
Lindane (hexachlorocyclohexane)	✓	✓	✓	✓	✓		■
DDT, DDD, DDE	✓	✓	✓	✓			■
Toxaphene	✓	✓	✓	✓			■
Dieldrin	✓	✓	✓	✓			■
2,4-D	✓	✓	✓	✓	✓		■
2,4,5-T	✓	✓	✓	✓	✓		■
Endrin	✓	✓	✓	✓			■
Kepone	■	✓		✓			■
ENERGETICS							
TNT	✓	✓	✓	✓			■
DNT	✓	✓	✓	✓			■
Nitroglycerine	✓	✓	✓	✓			■
HMX	✓	✓	✓	✓			■
RDX	✓	✓	✓	✓			■
Perchlorate		✓	✓	✓			■

CONTAMINANTS TREATED

✓ Recommended, lab or field data available demonstrating success
■ Recommended with site specific lab study

	CHEMICAL OXIDATION KLOZUR® PERSULFATE	CHEMICAL REDUCTION EHC® REAGENT, EHC® PLUS, DARAMEND® REAGENT	ENHANCED ANAEROBIC BIOREMEDIATION EHC® LIQUID, ELS® MICROEMULSION	METALS TREATMENT METAFIX® REAGENTS, EHC® METALS, DARAMEND® METALS	AEROBIC BIOREMEDIATION TERRAMEND® REAGENT	AEROBIC BIOREMEDIATION PERMEOX® ULTRA	BIOGEOCHEMICAL GEOFORM® REAGENTS
MISCELLANEOUS							
Acetone	✓				■	■	
4-methyl-2-pentanone	✓						
1,4-dioxane	✓						
Polychlorinated biphenyls (PCBs)	✓	■		■			
Nitrate		✓	✓	✓	✓		✓
Bis(2-ethyhexyl)phthalate	✓				✓		
Nitrobenzene	✓						
Propylbenzene	✓				■	■	
4-iso-propyltoluene	✓						
Styrene	✓						
Trimethylbenzene	✓				■	■	
n-butylbenzene	✓						
Carbon Disulfide (CS_2)	✓						
Dioxins / Furans	■						
HEAVY METALS							
Antimony				✓			
Arsenic	✓			✓			■
Barium				✓			
Cadmium				✓			✓
Chromium		✓	✓	✓			✓
Cobalt				✓			✓
Copper				✓			✓
Lead				✓			✓
Mercury				✓			
Nickel				✓			✓
Selenium				✓			■
Vanadium				✓			
Zinc				✓			✓

EVONIK
Leading Beyond Chemistry

Safe Handling, Use, and Storage of Klozur® Persulfate

BACKGROUND

Klozur® sodium persulfate is a stable, highly soluble, crystalline material, which upon activation is capable of oxidizing a broad range of recalcitrant compounds. When properly handled and stored, Klozur persulfate does not present a serious health hazard. However, as with all oxidizing chemicals, Klozur persulfate requires careful attention to all aspects of handling and use. This bulletin covers the basic safe handling, use and storage practices for Klozur persulfate. For more information, please refer to the Safety Data Sheet (SDS), which is available from PeroxyChem.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye protection – wear chemical goggles or a face shield whenever splashing, spraying or eye contact is possible

Respiratory – use dust respirator approved by NIOSH/MSA whenever exposure may exceed the established standard listed in the MSDS.

Hands – wear chemically compatible (neoprene) gloves

Clothing – wear chemically compatible protective clothing with long sleeves and full-length pants when contact is possible.

Footwear – wear safety shoes with chemical resistant soles (neoprene)

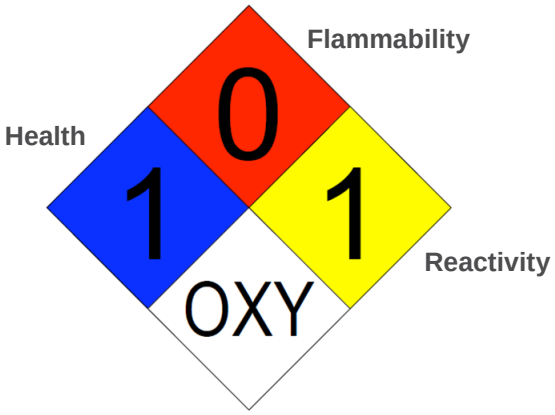
FIRST AID

Section Eye Contact – flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Skin Contact – wash with plenty of soap and water. If irritation occurs and persists, obtain medical attention. Wash clothing before reuse.

Inhalation – get fresh air. If breathing difficulty or discomfort occurs, call a physician.

Ingestion – drink one to two glasses of water. Do not induce vomiting. Call a physician immediately.



DISPOSAL

Klozur persulfate crystals should never be discarded in trash bins. Contact with moisture, contaminants, and / or reducing agents can initiate a chemical reaction or persulfate decomposition. Persulfate crystals that become waste material are classified as hazardous waste, because they are oxidizers. Persulfate that is spilled on the floor, or otherwise contaminated, is best dissolved in copious amounts of water. Do not return spilled persulfate back to the original container, as it may contain trace contaminants. Spent packaging materials may be termed a “non-classified” waste, which allows for disposal with regular waste.

An acceptable disposal method for spent Klozur persulfate solutions is to dilute with large quantities of water and dispose via a treatment system. Any disposal method must be in full accordance with all local, state and federal agencies. Neutralization of Klozur persulfate solutions may be performed, but must be done slowly with mild alkali (example: bicarbonate) with ample heat sink or cooling to prevent rapid temperature increases and gas release.

MATERIALS COMPATABILITY

304 And 316 stainless steel are recommended for mixing, conveyance and storage equipment (tanks, pipes, etc.) Other compatible materials include: polyvinyl chloride, polyethylene, Poly(methyl methacrylate), Teflon®, chemical stoneware and glass.

Metals other than 304 and 316 stainless steel may cause persulfate decomposition, and in turn may be corroded by the persulfate. This is particularly true of Monel, copper, brass, aluminum, and iron. The pH of Klozur persulfate solutions will decrease over time, and may drop below a pH of 2.

STORAGE

Klozur persulfate should be kept in a cool, dry storage area. If stored in bulk, NFPA 400 guidelines should be followed.

Do not store or process Klozur persulfate solutions in sealed or closed containers or vessels. Normal solution decomposition will release oxygen gas, which may over pressurize a sealed container and cause rupture.

DECOMPOSITION HAZARD OF KLOZUR PERSULFATE CRYSTALS

Overheating or contamination of persulfate can lead to a self-accelerating decomposition. Persulfate decomposes to form solid sulfate salts and emit noxious fumes of SOx. Oxygen and heat released from persulfate decomposition may induce combustion in flammable materials. The only way to halt a decomposition event is to apply large quantities of water. One gallon of water per pound of decomposing material is recommended. Do not use less than a quart of water per pound of material, as this may intensify the decomposition.

Observe the following precautions to prevent decomposition:

Do not expose Klozur persulfate or their containers to moisture. Moisture reduces the decomposition onset temperature.

Do not store Klozur persulfate near incompatible materials: reducing agents, acids, bases, ammoniacal solutions, or alkaline cleaners.

Do not store near point sources of heat (steam pipes, electrical appliances, heating vents, gas flames radiant heaters, etc). Do no store in ambient temperatures above 113 ºF or 45 ºC.

Do not return spilled or unused portions to the original container.

Do not establish direct contact with hydrocarbons.

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Alkaline Activated Klozur® Persulfate

Alkaline activated Klozur® persulfate, U.S Patent No.: 7,576,254 and its foreign counterparts, is a widely used technology capable of remediating most common organic contaminants of concern. Alkaline activated persulfate forms oxidative radical species, reductants, and nucleophiles (Furman et al, 2010). This multi-radical attack allows the treatment of chlorinated ethenes (TCE, PCE, DCE, and vinyl chloride), 1,4-dioxane, MTBE, TBA, petroleum hydrocarbons (BTEX, and PAHs), pesticides, as well as more recalcitrant compounds including chlorinated methanes, such as carbon tetrachloride, and chlorinated ethanes, such as 1,1,1-trichloroethane. For a complete list, please contact your PeroxyChem technical representative or consult www.peroxychem.com/remediation.

ALKALI REAGENT SELECTION

Common reagents used to create alkaline conditions for activation of Klozur persulfate include:

- **25 Percent Sodium Hydroxide, 25% NaOH, *liquid***
  The use of 25 percent sodium hydroxide (NaOH) is recommended for safety and handling considerations as 25 percent NaOH releases less heat upon dilution and remains in solution at lower temperatures than more concentrated forms of NaOH. For more information please consult PeroxyChem's Technical Bulletin on Crystal Formation in Solutions of Klozur Persulfate and Klozur Caustic or contact your local PeroxyChem technical representative.
- **Calcium Hydroxide, $Ca(OH)_2$, *solid***
  Calcium hydroxide [$Ca(OH)_2$] is commonly referred to as slaked lime, hydrated lime, or caustic lime. Calcium hydroxide is recommended over calcium oxide (CaO) in most circumstances as calcium hydroxide releases significantly less heat (less exothermic) than calcium oxide upon hydration. Both lime products can generate the alkaline conditions to activate Klozur persulfate when dosed appropriately.
- **Calcium Oxide, CaO, *solid***
  Calcium oxide (CaO) is also commonly referred to as quicklime. Calcium oxide releases significant heat (exothermic) once hydrated as the calcium oxide consumes water to form calcium hydroxide [$Ca(OH)_2$] in a process referred to as "slaking." Even when mixed directly with hydrated soil, it can release sufficient heat energy to create heat activated conditions for persulfate. Health, safety and handling of the expected evolution of heat should be considered when using calcium oxide to activate persulfate.
- **Portland Cement, *solid***
  Portland cement contains a significant amount of calcium oxide with the other major components including silicon dioxide, aluminum oxides and gypsum. Portland cement has been applied with Klozur persulfate to improve the geotechnical characteristics of the soil post mixing. At higher dosage rates, Portland cement can provide a combined remedy that both reduces contaminant mass (via *In Situ* Chemical Oxidation, ISCO) and contaminant flux (via *In Situ* Stabilization, ISS) from a single application. As with calcium hydroxide above, it is recommended the potential heat evolution of the system be considered prior to field application.

Due to a number of health and safety concerns, the following alkali reagents are **NOT RECOMMENDED** for use with Klozur persulfate:

- High purity Sodium Hydroxide flakes, granules or powder, *solid* **Not Recommended**
  Solid forms of sodium hydroxide release significant heat (highly exothermic) upon hydration. In certain circumstances, sufficient heat may be liberated that it can boil the solution, generate steam eruptions, and damage to equipment.
- Sodium Hydroxide, >25% NaOH, *liquid* **Not Recommended**
  Sodium Hydroxide is sold commercially in a variety of concentrations. To minimize potential risk, PeroxyChem recommends NaOH solutions of no more than 25% by weight be used to activate Klozur persulfate. More concentrated forms of NaOH (50 % or greater solutions and solid form NaOH) may generate increasingly exothermic reactions upon dilution and any NaOH solution greater than 30% can solidify above the freezing point of water.
- Carbonate based lime products, *solid* **Not Recommended**
  Different types of lime exist that are not based on calcium hydroxide or calcium oxide but are instead based on carbonates or contain a significant amount of carbonates. These forms of lime, such as Agricultural lime, should not be used to create alkaline activated conditions as the carbonates can interfere with the oxidative treatment process.

There are several factors to using a lime reagent (calcium hydroxide or calcium oxide) that should be considered including:

Purity	Commercially available lime products typically include impurities. For example, high purity commercial lime products might have greater than 95 percent of the desired lime product (calcium hydroxide or calcium oxide) while other commercially available lime products could have significantly lower percentages of the desired lime product. These impurities have the potential to introduce an unexpected compound into the subsurface, such as carbonates (see below), and necessitate adjusting the total mass of product required to supply the intended amount of calcium hydroxide or calcium oxide.
Carbonates	Carbonates are common impurities in solid lime products, which have the ability to react with, or scavenge, certain oxidative radicals which could negatively impact the efficacy of the persulfate. Trace levels of carbonates are not expected to be a significant issue, however products containing significant carbonates should either be avoided or bench tested to assess their treatment efficacy.
Calcium sulfate	Residual calcium from the lime will react with residual sulfate from persulfate to form gypsum. This reaction can significantly reduce the amount of soluble sulfate in the system and it has been used to increase soil strength.

DETERMINING THE AMOUNT OF ACTIVATOR NEEDED

Alkaline activation typically requires system conditions of at least pH 10.5 be maintained throughout active treatment with the Klozur persulfate. Klozur CR is formulated with PermeOx Ultra in sufficient quantities to create alkaline conditions in typical conditions. Klozur SP (sodium persulfate) and Klozur KP (potassium persulfate) require the addition of an alkaline material.

The demand for alkalinity arises from two sources:

1) Natural demand from soil and groundwater, and
2) The neutralization of acid generated during reactions with persulfate.

Total Alkaline Demand =
(1) natural demand from soil and groundwater + (2) neutralization of generated acid

Natural Demand for Alkalinity

The amount of the 25% NaOH needed to raise soil and groundwater to pH 10.5 is best determined experimentally. PeroxyChem recommends a base buffer capacity (BBC) test be conducted to determine this amount. This test is conducted using aqueous NaOH with the results reported as grams 25 percent NaOH per Kg soil. These values can be converted to calcium hydroxide or calcium oxide instead of 25 percent NaOH using conversion factors, estimated below:

- 0.23 g calcium hydroxide per g of 25 percent NaOH
- 0.175 g calcium oxide per g 25 percent NaOH

Please contact PeroxyChem for further information or to inquire about the BBC test offered by our laboratory.

Alkalinity to Neutralize Generated Acid

PeroxyChem recommends adding sufficient alkalinity to account for the decomposition of all of the Klozur persulfate so that the persulfate system stays sufficiently alkaline until all of the Klozur persulfate is consumed. As persulfate reacts, it typically forms 2 moles of acid for every mole of persulfate that decomposes. The demand for the amount of an alkali reagent required to neutralize the acid generated during persulfate decomposition is presented in Table 1.

Alkali Reagents	Formula	Molecular Weight	Molar Ratio	Alkali Mass per Klozur SP Mass (lb per lb or Kg per Kg)	Alkali Mass per Klozur KP Mass (lb per lb or Kg per Kg)
25% Sodium Hydroxide[1]	NaOH	40	2	1.34	1.18
Calcium Hydroxide[2]	$Ca(OH)_2$	74.1	1	0.31	0.27
Calcium Oxide[2]	CaO	56.1	1	0.24	0.21
Notes: 1 - Assumes mass of 25 percent sodium hydroxide **solution**.					
2 - Assumes 100 percent solid product. Does not include hydration or impurities.					

Table 1. Dosage factors for Alkali Reagents; does not include base buffering capacity

Portland cement, pozzolans, bentonite, or other materials can be used in differing amounts to help control post soil mixing soil characteristics including in sufficient quantities to solidify the soil resulting in a combined ISCO and ISS remedy. The amount of Portland cement needed to solidify the soils may be different than the amount needed to activate the persulfate. The quantities of Portland cement required to activate persulfate and result in the desired soil characteristic should each be assessed and, typically, the greater mass used. It is also recommended that soil stability tests be run on site soils including the Klozur persulfate.

The following examples demonstrate how to estimate the amount of alkali needed at a site to create alkaline activated conditions.

Example 1:

100,000 lbs of Klozur SP is going to be applied to a site with a base buffering capacity of 5 g 25% NaOH/Kg soil. There are 8,000,000 Kg soil within the target interval of 30 ft bgs to 40 ft bgs at the site. The use of liquid activator, 25 percent NaOH, has been selected.

Calculations:

- Part 1 – BBC. The amount due to base buffer capacity of the soil can be determined by multiplying 5 g 25% NaOH per Kg soil by 8,000,000 Kg soil. This is equal to 40 million grams of 25 percent NaOH solution, or 88,105 lbs.
- Part 2 – Persulfate Neutralization. The amount of 25% NaOH needed to offset the acid generated from persulfate decomposition would be 1.34 lbs of 25% NaOH times the 100,000 lbs of Klozur SP which equals 134,000 lbs of 25% NaOH solution.
- The final amount of 25% NaOH required at the site would be the addition of the two, or 88,105 + 134,000 = 222,105 lbs of 25% NaOH.

Example 2:

25,000 Kgs of Klozur KP is going to be applied to a site with a base buffering capacity of 3 g 25% NaOH/Kg soil. There are 3,000,000 Kg soil within the target area at the site. As the target interval is 1 m bgs to 4 m bgs and 98% pure hydrated lime (calcium hydroxide) has been selected as the activator.

Calculations:

- Part 1 – BBC. The amount due to base buffer capacity of the soil can be determined by multiplying 3 g 25% NaOH per Kg soil by 3,000,000 Kg soil times the conversion factor of 0.23. This is equal to 2.07 million grams of hydrated lime, or 2,070 Kgs.
- Part 2 – Persulfate Neutralization. The amount of hydrated lime needed to offset the acid generated from persulfate decomposition would be 25,000 Kgs of Klozur KP times 0.27 Kgs of hydrated lime per Kg Klozur KP divided by 0.98 (purity) which equals 6,887 Kgs of hydrated lime.
- The final amount of calcium hydroxide (hydrated lime) required at the site would be a combination of the two, or 2,070 + 6,887 = 8,957 Kgs of hydrated lime.

Example 3:

It has been decided to apply the combined remedy of activated Klozur SP and ISS to treat a large brownfield site. It has been estimated that the site needs a minimum of 400,000 lbs of Klozur SP and has a base buffering capacity of 2 g 25% NaOH/Kg soil. There are an estimated 26,000,000 lbs of soil within the target area at the site. To stabilize the soils, Portland cement has been selected as the activator. The Portland Cement to be used was identified as being 63 percent

calcium oxide and it was determined that 8 percent Portland Cement (w/w with the soil mass only) sufficiently stabilized the soils.

Calculations:

- Part 1 – BBC. The amount due to base buffer capacity of the soil can be determined by multiplying 2 g 25% NaOH per Kg soil by 26,000,000 lbs soil, dividing by 2.204 lbs/Kg and 0.175 conversion from 25% NaOH to CaO. This is equal to 4.1 million grams of calcium oxide, or 9,100 lbs of calcium oxide.
- Part 2 – Persulfate Neutralization. The amount of hydrated lime needed to offset the acid generated from persulfate decomposition would be 0.24 lbs of hydrated lime times the 400,000 lbs of Klozur SP which equals 96,000 lbs of calcium oxide.
- The final amount of 100% pure calcium oxide (quicklime) required at the site for ISCO would be a combination of the two, or 9,100 + 96,000 = 105,100 lbs of calcium oxide. As the Portland Cement is specified as having 63 percent calcium oxide, this would be equivalent to 105,100/0.63 = 166,825 lbs of Portland Cement required to activate Klozur SP.
- The final step would be to compare the amount of Portland cement needed for alkaline activation against the amount that was determined best to stabilize soils. The amount of Portland cement needed in this example to stabilize the soils was 8 percent of the original soil mass. The total mass at the site would be 8 percent of 26,000,000 lbs of soil or 2,080,000 lbs of Portland cement. In this case the amount of Portland cement needed to stabilize the soils exceeded the amount needed to activate persulfate and should be used in the design.

SAFETY AND HANDLING

As the combination of an alkali reagent with persulfate can initiate a reaction, **PeroxyChem recommends Klozur products and alkaline products be stored separately. Even after being batched, PeroxyChem recommends that the Klozur persulfate and alkaline solutions be stored in separate chemically compatible tanks.** Contact between the alkali material and persulfate prior to injection should be limited to prevent the initiation of the reaction. This is typically accomplished by mixing the reagents inline prior to injection or injecting the reagents separately in a serial manner that creates sufficiently alkaline conditions to activate the persulfate.

Alkaline activated Klozur persulfate has been applied safely and effectively at numerous sites. However, as with any chemical, proper procedures and equipment are recommended in its use. When working with Klozur persulfate, ensure to have adequate ventilation and use the appropriate personal protective equipment, including safety glasses, suitable protective clothing, boots (steel toed), chemical resistant gloves, hard hat, and hearing protection (when direct push is used). For dust, splash, mist, or spray exposures wear a filtering dust mask and chemical protective goggles. A face shield can also be used in addition to goggles.

Please consult the appropriate Safety Data Sheets (SDS) for guidelines regarding proper handling procedures. The SDS's for Klozur persulfate products can be found at: http://www.peroxychem.com/remediation. Additional safety equipment may be required for mechanical and site operations.

Please contact PeroxyChem for additional guidance.

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APPENDIX G
Citizen Participation Plan

Brownfield Cleanup Program - Citizen Participation Plan Template Instructions

Note: This template is to be used to prepare the site Citizen Participation (CP) Plan. The CP Plan template was designed for the typical scenario of a site that would be investigated and remediated under the BCP.

The draft site CP Plan must be reviewed and approved by NYSDEC. The NYSDEC project manager determines when a draft site CP Plan is final, regardless of who prepares draft versions of the document. The site CP Plan may be revised during the implementation of the brownfield site's remedial program. This determination will be made by the NYSDEC project manager, in consultation with the assigned NYSDEC Citizen Participation Specialist and other NYSDEC staff as appropriate.

Preparation:

- Unless directed otherwise, the Applicant will submit to NYSDEC for review and approval the site CP Plan within 20 days after the effective date of the site's Brownfield Cleanup Agreement.

- Insert or delete information within brackets as appropriate, then delete the brackets and any accompanying instructions, including each "Instruction to preparer:". Unless instructed otherwise, remove **bolding** from text that is inserted or contained within brackets.

- Assume the reader does not have specialized technical and environmental knowledge. **Insert plain, understandable language into the template.** Avoid jargon and acronyms. Don't "cut and paste" from technical reports -- they are not written for a general audience. Explain/define any technical terms that must be used. For example, don't assume the reader knows what a "non-aqueous phase liquid (NAPL)" is, or what "air sparging" means. An NYSDEC Citizen Participation Specialist, in consultation with the NYSDEC project manager, may revise or identify portions of the draft that require revision before it can be approved.

- Do not delete or alter "boilerplate" language unless the activity referenced (e.g. investigation, cleanup) does not apply to the BCP site and project.

- When the site CP Plan has been drafted, address page breaks, heading locations and other formatting issues as needed.

- When final edits have been made to the draft site CP Plan, insert or edit page numbers in the Contents page. Recheck page breaks, heading locations and other formatting issues. Be sure to format and print the site CP Plan double-sided.

Distribution:

- The NYSDEC project manager will notify the Applicant when to distribute the approved site CP Plan to the site's document repository(ies). Alternately, NYSDEC may distribute the site CP Plan to the repository(ies).

- **External distribution:** The site CP Plan can be distributed to the site's document repository(ies) in paper form and/or electronic form (such as on disc). Be sure the repository(ies) have the means to provide the public with electronic access to the site CP Plan if this format is selected.

  Additional distribution may be considered if the BCP site or its remedial program is comprehensive and/or there is significant public interest. One option is to post the site CP Plan electronically on the DER public web site. Another option is to distribute the site CP Plan to a subset of the site contact list that includes community leaders and others as appropriate. Such distribution should be done electronically through email, if possible.

  The method(s) and extent of external distribution is determined by the NYSDEC project manager, following consultation with others as appropriate.

- **Internal distribution:** NYSDEC and NYSDOH staff always should receive electronic copies of the site CP Plan, whether NYSDEC staff are managing the distribution or the distribution is being managed by the Applicant or a contractor. Hard copies should not be distributed internally. NYSDEC staff should provide the Applicant or contractor with appropriate NYSDEC and NYSDOH email addresses when the Applicant or contractor is managing the distribution.

- Place electronic copy of the site CP Plan in the appropriate folder of DecDocs.

An Applicant preparing a draft BCP CP Plan should direct related questions and requests for additional information to the NYSDEC project manager.

NEW YORK STATE | Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
Former New City Link Auto Repair Site
547 Coney Island Avenue & 50 Hinckley Place
September 2024

BCP Site No. C224407
547 Coney Island Avenue & 50 Hinckley Place
Brooklyn, New York, 11218

Contents

Section **Page Number**

1. What is New York's Brownfield Cleanup Program? 3

2. Citizen Participation Activities..... 3

3. Major Issues of Public Concern..... 9

4. Site Information..... 9

5. Investigation and Cleanup Process 11

Appendix A - Project Contacts and Locations of Reports and Information 14

Appendix B - Site Contact List..... 16

Appendix C - Site Location Map..... 23

Appendix D - Brownfield Cleanup Program Process 24

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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: **545 Coney Island LLC**
Site Name: **Former New City Link Auto Repair Site**
Site Address: **547 Coney Island Avenue & 50 Hinckley Place, Brooklyn, NY 11205**
Site County: **Kings County**
Site Number: **C224407**

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 of the Remedial Investigation (RI) performed at the Site in February through April 2024, the primary contaminants of concern at the Site are metals, polychlorinated biphenyls (PCBs), and pesticides in soil, volatile organic compounds (VOCs) including petroleum-related VOCs in groundwater, and chlorinated and petroleum-related VOCs in soil vapor. Issues of concern would be in regard to the nearby local residents and property owners.

The Site is located on Coney Island Avenue in an urban area identified as the Prospect Park South neighborhood of Brooklyn, NY. There are two sensitive receptors located within a 500-ft radius of the Site including Public School 889 and Middle School 890 (21 Hinckley Place, Brooklyn, New York) and Uprising Stars Family Daycare (222 East 9th Street, Brooklyn, New York), listed as a daycare. The area surrounding the Site has been used primarily for auto-related facilities, and commercial and residential buildings.

The Site is located in a Potential Environmental Justice Area. There is a sizable Pakistani and Indian population nearby. Future fact sheets will be translated into Urdu and Hindi.

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 policies.

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/block-group/New-York/Kings-County/152200-1/Race-and-Ethnicity

In addition, there may be other concerns regarding odor, noise and truck-related traffic.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The Site is located at 547 Coney Island Avenue & 50 Hinckley Place in an urban area characterized by multi-story commercial and residential buildings. The Site, identified as Block 5114, Lots 1, 3, and 29 on the New York City tax map in a R6-A and C2-4 zoning area, is approximately 19,090 square feet (sq ft) and currently improved with a vacant one-story garage with a partial cellar level (Lot 1), a vacant two-story warehouse (Lot 3), and a one-story commercial-use building operating as a 7-Eleven convenience store and associated parking lot to the south (Lot 29).

Section	Block	Lot	Official Address	Acreage
3	5114	1, 3, and 29	547 Coney Island Avenue & 50 Hinckley Place	0.45

The Site is located in the Prospect Park South neighborhood of Brooklyn, NY. Adjacent properties include:

Direction	Adjoining Property	Surrounding Properties
North	Hinckley Place followed by mixed-use multi-story commercial and residential buildings	Commercial/residential buildings
South	Beverley Road followed by mixed-use multi-story commercial and residential buildings	Commercial/residential buildings
East	One-and two-family residential homes	One-and two-family residential homes
West	Coney Island Avenue followed by a “Shell” gasoline service station to the west and southwest, and a “KFC” restaurant, Public School 889, and one- and two-family homes	Commercial/residential buildings

History of Site Use, Investigation, and Cleanup

Lots 1 and 3 Site History:
The Site was initially developed with a two-story residential dwelling in the eastern region of the Site (Lots 1 and 3) along Hinckley Place as early as 1905. Sometime between 1905 and 1929, a filling station was constructed in the western region of Lot 1

along Coney Island Avenue and included a one-story storefront, a one-story auto-related development, and three gasoline tanks in the northwest corner of the Site. In addition to the continued operation as a gasoline filling station, by 1935 the auto repair facility in the southern region of Lot 1 expanded to include auto laundry, auto greasing, battery service, and tire repairs. In the early 1960s, the existing one-story building on Lot 1 was constructed, and a Certificate of Occupancy dated 20 February 1962 indicated New York Fire Department (NYFD) approval for gasoline tank installation on 15 February 1962. The Site remained relatively unchanged until the late 1970s. Between 1977 and 1978, the former residential dwelling was razed, and a two-story warehouse was constructed in Lot 3 and utilized for auto parts storage and repair. The gasoline tanks were no longer indicated on Sanborn Fire Insurance Maps after 1977, and parking in the northwest corner was depicted in its place. The Site remained relatively unchanged post-1979 through the present and was most recently operating as a construction and plumbing goods supplier warehouse with associated parking, and an auto body and auto repair shop. The northern part of the auto repair shop was also used for auto painting. Lots 1 and 3 are currently vacant.

Lot 29 Site History:
According to Sanborn Fire Insurance Maps, Lot 29 was developed with three storefronts along Coney Island Avenue by 1905. By 1929, a two-story dwelling was constructed on the eastern half of the lot. By 1950, the storefronts were demolished. According to a 1966 Certificate of Occupancy the Site was operating as dry cleaning and clothes pressing establishment utilizing perchloroethene solvent. Sanborn maps indicate that the dry cleaner continued operating through the late 1970s. A parking lot was present to the south of the dry cleaner. By the late 1970s, the dry cleaner appeared to no longer be in operation and the dwelling was no longer present. The property remained relatively unchanged through the present and is currently operating as a 7-Eleven convenience store and associated parking lot.

A Limited Phase II Environmental Site Investigation (ESI) Report was completed on 16 January 2022 by Haley & Aldrich of New York, and a Remedial Investigation was completed by Haley & Aldrich of New York in February through April 2024. Based on the results of the previous investigations, the primary contaminants of concern for the Site are metals, PCBs, and pesticides in soil, VOCs including petroleum-related VOCs in groundwater, and chlorinated and petroleum-related VOCs in soil vapor. A draft Remedial Investigation Report (RIR) 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 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 to remediate the Site using remedial measures designed to protect human health and the environment, and then redevelop the Site for mixed-use (residential and commercial) purposes.

To achieve this goal, the Applicant will conduct cleanup activities at the site with oversight provided by NYSDEC. The 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 full site investigation before it entered into the BCP. The Applicant has submitted an investigation report for the full site investigation. NYSDEC will determine if the investigation goals and requirements of the BCP have been met or if additional work is needed before a remedy can be selected.

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 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 Final Engineering Report (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.

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):

Yildiz Palumbo
NYSDEC (Region 2) Project Manager
Division of Environmental Remediation
47-40 21st Street
Long Island City, NY, 11101
Phone: (718) 482-4891
Email: yildiz.palumbo@dec.ny.gov

Thomas V. Panzone
Division of Communications, 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):

Christine Vooris
NYSDOH Project Manager
Bureau of Environmental Exposure Investigation
Empire State Plaza
Corning Tower Room 1787
Albany, NY 12237
Phone: 518-402-7860
Email: beei@health.ny.gov

Locations of Reports and Information

DECInfo Locator: https://www.dec.ny.gov/data/DecDocs/C224407/

The facilities identified below are being used to provide the public with convenient access to important project documents:

Brooklyn Community Board 14
810 East 16th Street
Brooklyn, NY 11230
Attn: Karl-Henry Cesar, *Chairperson*
District Manager - Shawn Alyse Campbell
Housing and Land Use Committee
Gregory Alvarez, Co-Chairperson
Jo Ann Brown, Co-Chairperson
Email: info@cb14brooklyn.com
Phone: 718-859-6357
Hours: Monday – Friday, 9 AM – 5 PM

Brooklyn Public Library – Cortelyou Branch
1305 Cortelyou Road at Argyle Road
Brooklyn, NY 11226
Attn: Chered Spann, *Supervising Librarian*
Email: cspann@bklynlibrary.org
Phone: 718-693-7763

Days of week	**Open hours**
Thursday	10 AM - 8 PM
Friday	10 AM - 6 PM
Saturday	10 AM - 5 PM
Sunday	Closed
Monday	10 AM - 6 PM
Tuesday	1 PM - 8 PM
Wednesday	10 AM - 6 PM

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 Room 517
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

Public Water Supplier
Rohit Aggarwala
Commissioner, NYC Dept. of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

Shaminder Chawla, Acting Director
NYC Office of Environmental Remediation
100 Gold Street - 2nd Floor
New York, NY 10038

Hon. Antonio 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

U.S. House of Representatives
Hon. Yvette Clarke
Brooklyn Office
222 Lenox Road, Suites 1 & 2
Brooklyn, NY 11226

NYC Councilmember
Hon. Rita Joseph
930 Flatbush Avenue
Brooklyn, NY 11226

NYS Senator
Hon. Kevin S. Parker
3021 Tilden Ave., 1st Floor & Basement
Brooklyn, NY 11226

NYS Assemblymember
Hon. Robert C. Carroll
416 Seventh Avenue
Brooklyn, NY 11215

Hon. Nancy T. Sunshine
Kings County Clerk Office
360 Adams Street
Room 189
Brooklyn, NY 11201

NYC Department of Health & Mental Hygiene
Ashwin Vasan, MD, PhD – Commissioner
42-09 28th Street
Long Island City, NY 11101

Owners, Residents, Occupants:

50 Hinckley Place

Owner	Contact Name	Phone	Mailing Address	Email
V.D. Vilst, Inc.	Michael J. Feiger	718-218-7000	250 Skillman Street, 6th Fl, Brooklyn, NY 11205	mfeiger@scfso.com

547 Coney Island Avenue:

Owner	Contact Name	Phone	Mailing Address	Email
Jenium LLC	Samuel Katz	718-726-5289	3915 14th Avenue, 2nd Floor, Brooklyn, New York 11218	sk@samkatzlaw.com

Operator	Contact Name	Phone	Mailing Address	Email
7-Eleven (Lot 29)	Not Available	718-462-0605	547 Coney Island Avenue, Brooklyn, New York 11218	Not Available

Adjacent Properties:

Owner/Entity Name	Contact Name	Site Use	Property Address	Owner Mailing Address
Sharyn C Burnett	Sharyn C Burnett	One- & Two-Family Buildings	52 Hinckley Place, Brooklyn, NY 11218	1 Prospect Park, Brooklyn, NY 11215
Seyed Mohsen Ghanefar	Seyed Mohsen Ghanefar	Multi-Family Walk-Up Buildings	1011 Beverley Road, Brooklyn, NY 11218	1011 Beverley Road, Brooklyn NY 11218
Metro NY Dealer Stations LLC	Not Available	Transportation & Utility	546 Coney Island Avenue, Brooklyn, NY 11218	235 Mamaroneck Avenue, Lower Level, White Plains, NY 10605
Remica Property Group Corp	Not Available	Commercial & Office Buildings	534 Coney Island Avenue, Brooklyn, NY 11218	3333 New Hyde Park Road, Suite 201, New Hyde Park, NY 11042
PS 889 - NYC School Construction Authority	Not Available	Public facilities & Institutions	14 Turner Place, Brooklyn, NY 11218	30-30 Thomson Ave, Queens, NY 11101
Coney Island Avenue Organization LLC	Not Available	Mixed Residential and Commercial Buildings	527 Coney Island Avenue, Brooklyn, NY 11218	527 Coney Island Avenue, Brooklyn NY 11218
Double A Property Associates – Turner LLC	Not Available	Multi-Family Elevator Building	60 Turner Place, Brooklyn, NY 11218	C/O Adi Management Inc., 172-90 Highland Avenue, Jamaica, NY 11432
Zubaida Choudry	Zubaida Choudry	Mixed Residential and Commercial Buildings	563 Coney Island Avenue, Brooklyn, NY 11218	111 Clarkson Avenue, Brooklyn, NY 11226
1004 Beverly Road LLC	Not Available	Mixed Residential and Commercial Buildings	1004 Beverley Road, Brooklyn, NY 11218	Not available
Sigalit Sharabi	Sigalit Sharabi	Multi-family Walk-up Buildings	1006 Beverley Road, Brooklyn, NY 11218	473 Marlborough Avenue, Brooklyn, NY 11206
Zain Realty LLC	Not Available	Mixed Residential and Commercial Buildings	1010 Beverley Road. Brooklyn, NY 11218	675 Coney Island Avenue, Brooklyn, NY 11218
1012 Beverly LLC	Not Available	Mixed Residential and Commercial Buildings	1012 Beverley Road, Brooklyn, NY 11218	246 Rugby Road, Brooklyn, NY 11226

Local News and Media:

New York Daily News
PO Box 7180
New York, NY 10008

New York Post
1211 Avenue of the Americas
New York, NY 10036

Spectrum NY 1 News
75 Ninth Avenue
New York, NY 10011

Courier-Life Publications
1 Metrotech Center #10T
Brooklyn, NY 11201

Brooklyn Daily Eagle
195 Montague Street, Suite 1414
Brooklyn, NY 11201

The Brooklyn Papers
1 Metrotech Center
Brooklyn, NY 11201

The South Asian Times
95 Broadway, Suite #2, Town Center Building
Hicksville, NY 11801, USA

The Indian Panorama
P.O. Box 190067,
South Richmond Hill, NY 11419

Bangla Patrika USA
36-50, 38th St. 2nd Floor
Long Island City, NY 11101

School or Day Care Located Proximal to the Site:

The following schools or day care facilities are located within ½-mile radius to the Site:

PS 889 School
President/Executive Director/Principal
https://www.ps889.org/contact
21 Hinckley Place,
Brooklyn, NY 11218
Tel: 929-397-9171

MS 890
President/Executive Director/Principal
21 Hinckley Place,
Brooklyn, NY 11218
929-397-9200

Cortelyou Early Childhood Center-Main
President/Executive Director/Principal
https://mycecc.com/

1110 Cortelyou Rd,
Brooklyn, NY 11218
718-282-6077

Honeydew Drop Kiddy Loft
President/Executive Director/Principal
https://www.honeydewdrop.com/honeydew-kiddyloft
1113 Church Ave 2nd Floor,
Brooklyn, NY 11218
877-614-6639

Honeydew on Cortelyou
President/Executive Director/Principal
1035 Cortelyou Rd,
Brooklyn, NY 11218
877-614-6639

Smart Kids R Us
President/Executive Director/Principal
https://www.parkslopeparents.com/reviews/smart-kids-r-us
29 Kermit Pl,
Brooklyn, NY 11218
718-438-3013

Tiny Acorns Preschool
President/Executive Director/Principal
https://www.tinyacornspreschool.com/contact-8
1015 Church Ave,
Brooklyn, NY 11218

A.M.A. Family Daycare
President/Executive Director/Principal
https://www.parkslopeparents.com/reviews/a-m-a-family-daycare
350 E 9th St,
Brooklyn, NY 11218
347-248-7368

Purpose Driven Learning Academy
President/Executive Director/Principal
https://www.parkslopeparents.com/reviews/purpose-driven-learning-academy
339 Stratford Rd,
Brooklyn NY 11218
347-295-1755

Gifted and Talented Early Developers (G.A.T.E.D Academy)
President/Executive Director/Principal
https://www.parkslopeparents.com/reviews/g-a-t-e-d-academy
1621 Church Ave,
Brooklyn, NY 11226
718-693-3699

Uprising Stars Family WeeCare
President/Executive Director/Principal
222 E 9th Street,
Brooklyn, NY 11218
347-797-0311

Yeshiva Shaare Torah
President/Executive Director/Principal
222 Ocean Pkwy,
Brooklyn, NY 11218
718-437-6120
https://www.trulia.com/schools/NY-brooklyn-yeshivat_shaare_torah_girls_elementary_school-5700055465

P.S. 130 The Parkside
President/Executive Director/Principal
713 Caton Ave,
Brooklyn, NY 11218
https://insideschools.org/school/15K130
718-686-1940

MS 839 School
President/Executive Director/Principal
713 Caton Avenue, Room 420
Brooklyn, NY 11218
718-686-2730
https://ms839.org/

P.S. 139 Alexine A. Fenty School
President/Executive Director/Principal
330 Rugby Rd,
Brooklyn, NY 11226
https://www.ps139.org/
718-282-5254

Aim High Children's Services
President/Executive Director/Principal
83 Marlborough Rd,

Brooklyn, NY 11226
718-853-1750

Brooklyn College Academy – K 555
President/Executive Director/Principal
350 Coney Island Ave,
Brooklyn, NY 11218
718-853-6184
https://www.myschools.nyc/en/schools/high-school/22K555/

PS 245 Magnet School of Arts & Sciences
President/Executive Director/Principal
https://www.ps245k.org/
249 East 17th Street,
Brooklyn NY 11226
718-284-2330

Pre-Preschool with Polly WeeCare
President/Executive Director/Principal
81 Ocean Parkway #2-b,
Brooklyn, NY 11218
https://www.parkslopeparents.com/reviews/pre-preschool-with-polly
347-956-4205

J.H.S. 062 Ditmas
President/Executive Director/Principal
700 Cortelyou Road,
Brooklyn, NY 11218
https://insideschools.org/school/20K062
718-941-5450

P.S. 230 The Doris L. Cohen School (Lower School):
President/Executive Director/Principal
425 McDonald Avenue
Brooklyn, NY 11218
http://www.ps230.org/
LS: 718-330-9212

Community, Civic, Religious and Other Environmental Organizations:

Johari Jenkins-Taylor – Director - Brooklyn Regional & Community Affairs
Consolidated Edison Corporate Affairs
30 Flatbush Avenue
Brooklyn, NY 11217

70th Police Precinct Council
NYPD
Ed Powell - President
154 Lawrence Avenue
Brooklyn, NY, 11230

Engine 281/Ladder 147
FDNY
1210 Cortelyou Road
Brooklyn, NY 11218

Brooklyn Chamber of Commerce
Randy Peers – President & CEO
rpeers@brooklynchamber.com
https://www.brooklynchamber.com/
253 36th, Building 3, 4th Floor
Brooklyn, NY 11232
718-875-1000

Brooklyn Queens Land Trust
Domica Roberts – Program Manager
https://bqlt.org/
30 Third Avenue Room 842
Brooklyn, NY 11217
info@bqlt.org

Church Avenue Business Improvement District
https://churchavenue.org/
Laura Evers Collins – Executive Director
495 Flatbush Ave., Suite C30
Brooklyn, NY 11225
InfoChurchFlatbush@gmail.com
929-722-6340

Dorchester Senior Citizen's Center
1419 Dorchester Rd,
Brooklyn, NY 11226

Prospect Park Alliance
Morgan Monaco, President and Park Administrator
https://www.prospectpark.org/
95 Prospect Park West
Brooklyn, NY 11215
718-965-8951
info@prospectpark.org

All Souls Bethlehem Church
566 E 7th Street
Brooklyn, NY 11218

Al-Mahdi Foundation
779 Coney Island Ave
Brooklyn, NY 11218

B'ShERT — Beth Shalom v'Emeth Reform Temple
83 Marlborough Road
Brooklyn, NY 11226

Brooklyn Islamic Center
722 Church Ave
Brooklyn, NY 11218

Calvary Cathedral of Praise
45 E 8th St
Brooklyn, NY 11218

Christ Apostolic Church
Kensington & Parkville,
622 Cortelyou Rd
Brooklyn, NY 11218

Christian Community Alliance
272 East 19th Street
Brooklyn, NY 11226

Flatbush & Shaare Torah Jewish Center
327 E 5th St
Brooklyn, NY 11218

Gorsky Kavkazi Jewish Center & Synagogue - Ohr HaMizrach
347 Ocean Pkwy
Brooklyn, NY 11218

Holy Innocents RC Church
279 East 17th Street
Brooklyn, NY 11226

Unity East Church
1901 Beverly Road
Brooklyn, NY 11226

JAMIAH DARUS SUNNAH AMERICA, (Islamic School & Masjid)
913 Cortelyou Rd
Brooklyn, NY 11218

Masjid Al-Tawheed
1013 Church Ave
Brooklyn, NY 11218

Masjid-E-Baitul Karim
380 E 18th St
Brooklyn, NY 11226

Masjid Imam Abu Hanifa- Light of Hope Inc. (Islamic Center of Imam Abu Hanifa)
423 Ocean Pkwy Ground floor
Brooklyn, NY 11218

Masjid Umm-ul-Qura
632 Coney Island Ave
Brooklyn, NY 11218

Brooklyn Gospel Assembly
1209 Church Ave,
Brooklyn, NY 11218

Beverly Presbyterian Church
254 E 8th St #2467,
Brooklyn, NY 11218

Iglesia De Los Santos Inocentes
279 E 17th St,
Brooklyn, NY 11226

Islamic Center
1325 Albemarle Rd,
Brooklyn, NY 11226

Faizan-E-Madinah (Brooklyn)
715 Coney Island Ave,
Brooklyn, NY 11218

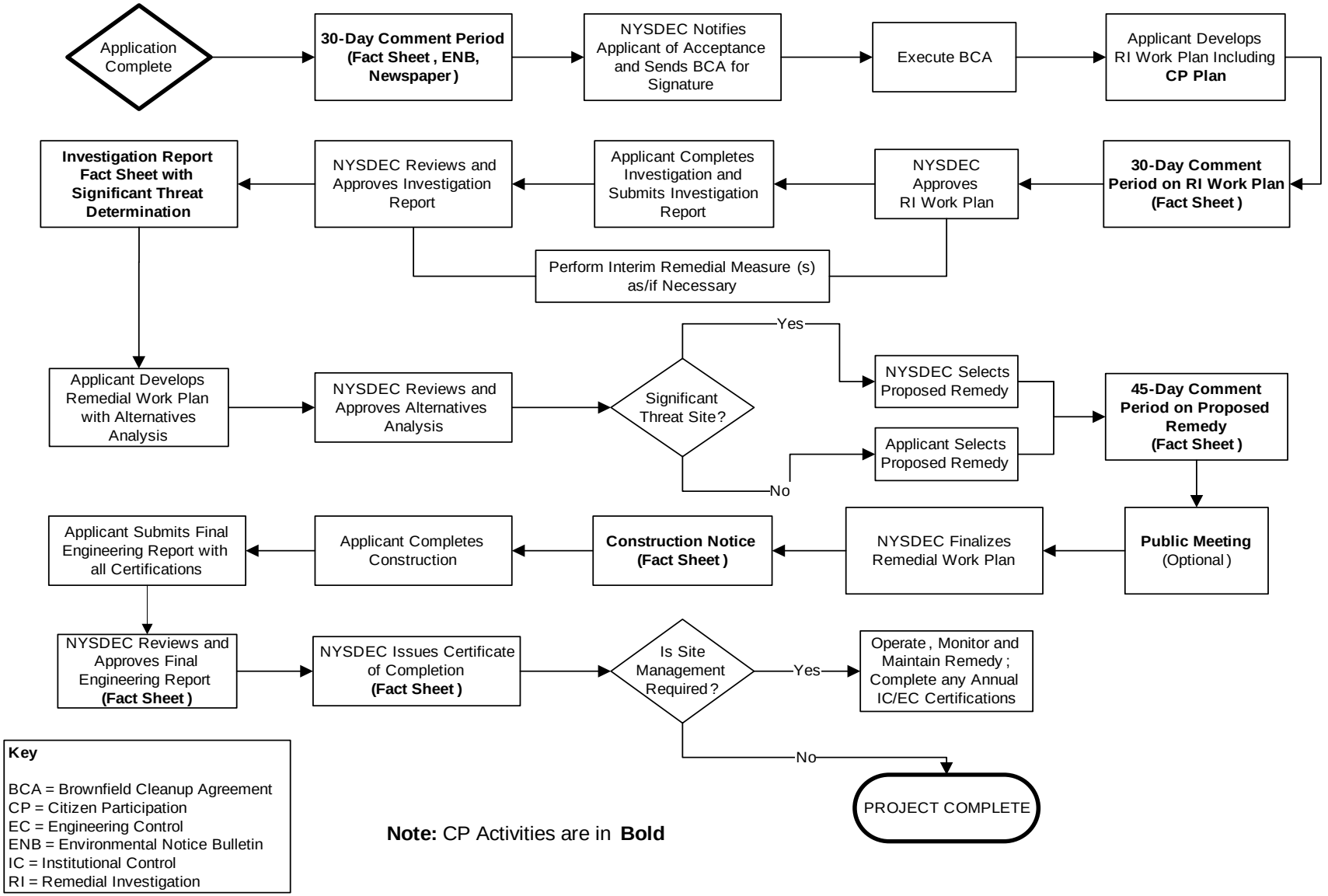
Islamic Dawah Center Inc
630 Coney Island Ave,
Brooklyn, NY 11218

Аллохга кайт
421 Ocean Pkwy,
Brooklyn, NY 11218

Young Israel of Kensington
305 Church Ave,
Brooklyn, NY 11218

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 <u>From</u> 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 <u>to</u> 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 New City Link Auto Repair Site

Site Number: C224407

Site Address and County: 547 Coney Island Avenue & 50 Hinckley Place, Brooklyn, NY 11218

Remedial Party(ies): 545 Coney Island 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.**
1. Based on analytical results of the Remedial Investigation (RI) performed at the Site in April 2024, the primary contaminants of concern at the Site are volatile organic compounds (VOCs) including tetrachloroethylene and petroleum-related VOCs (BTEX), pesticides, and metals. Issues of concern would be in regard to the nearby local residents and property owners. During ground intrusive activities, the community will be protected from contamination migration using air monitoring protocols and management of investigation derived waste.

How were these issues and/or information needs identified?
These issues were identified through the previous subsurface investigation 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 has to do with former Site operations

How were these information needs identified?
This information need was identified through review of the results of the previous subsurface investigation

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 IRM is Fall 2024. The Site is privately owned and will be vacated. All remedial actions will be in accordance with applicable regulations and contingent on NYSDEC and NYSDOH approvals of aforementioned work plans. 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:
N/A

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
N/A

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 a Potential Environmental Justice Area. There is a sizable Pakistani and Indian population nearby. Future fact sheets will be translated into Urdu and Hindi.

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:**

☒ **Media:** Click here to enter text.

☒ **Business/Commercial Interests:** 545 Coney Island LLC

☐ **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):** Bedford Stuyvesant Restoration Corporation, Erasmus Neighborhood Federation, Brooklyn Chamber of Commerce

☐ **Recreational Group(s):** Click here to enter text.

☐ **Other(s):** Click here to enter text.

Prepared/Updated By: Sarh Commisso **Date:** 24 September 2024

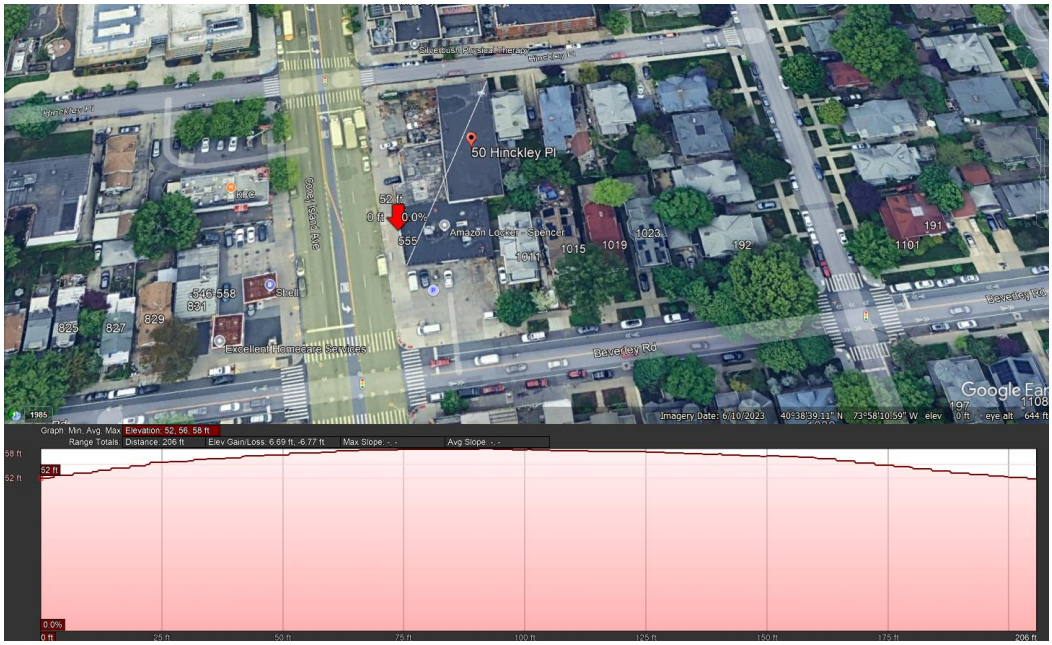
Reviewed/Approved By: Suzanne Bell, P.E. **Date:** 24 September 2024

APPENDIX H
Environmental Footprint Analysis and Climate Screening Checklist

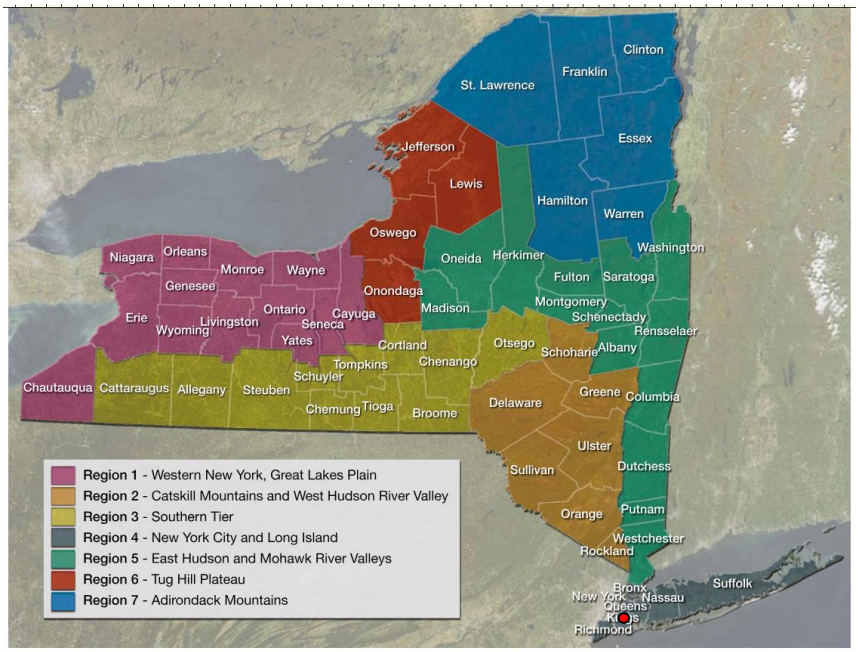
Climate Screening Checklist

Background Information

- Project Manager: Zachary P. Simmel
- Site Name: 547 Coney Island Avenue and 50 Hinckley Place (the "Site")
- Site Number: C224407
- Site Location: 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, New York
- Site Elevation (average above sea level): Approximately 56 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

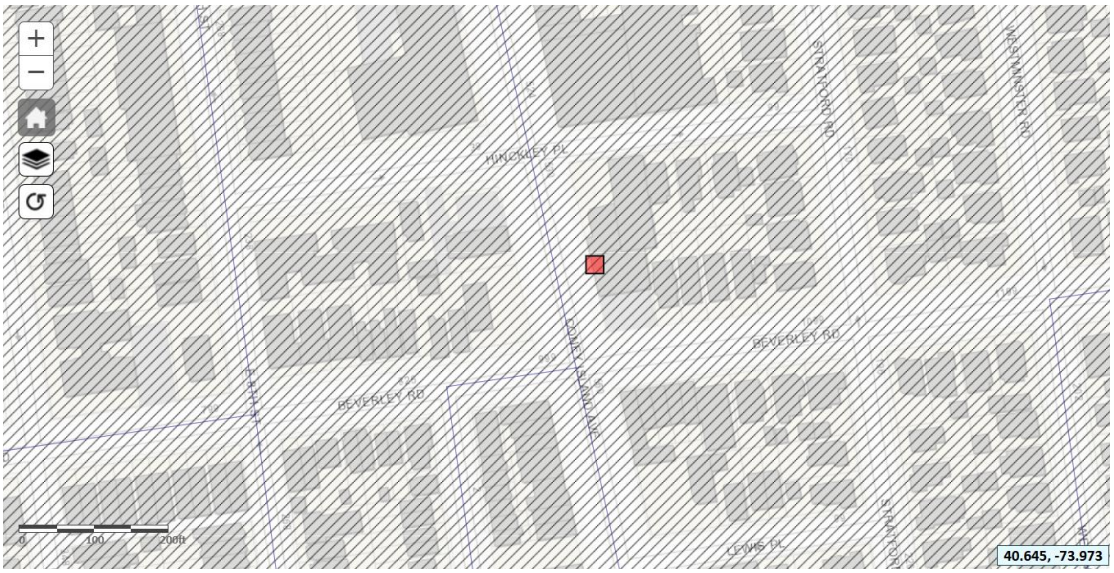


- Remedial Stage/Site Classification: Remediation
- Contamination - Media Impacted/ Contaminants of Concern: Soil - metals, volatile organic compounds (VOCs; specifically petroleum-related VOCs), semi-volatile organic compounds (SVOCs; including polycyclic aromatic hydrocarbons [PAHs]), pesticides, perfluorooctanesulfonic acid (PFOS) and polychlorinated biphenyls (PCBs); groundwater – total/dissolved metals, VOCs (specifically chlorinated volatile organic compounds [CVOCs] and petroleum related VOCs), SVOCs (including PAHs), and PFOS/perfluorooctanoic acid (PFOA); soil vapor – VOCs (including CVOCs and petroleum-related benzene, toluene, ethylbenzene, and xylenes [BTEX]).
- Proposed/Current Remedy: Track 2 remedy – remedy will consist of excavation, stockpiling, off-Site transport, and disposal of contaminated historical fill material and contaminated soil to 15 feet below ground surface (ft bgs) sitewide, and removal of underground storage tanks (USTs) and/or associated appurtenances, if encountered, and decommissioning and off-Site disposal. This remedy will also include the installation of a composite cover system, an active sub-slab depressurization system (SSDS) to mitigate the potential for soil vapor intrusion into the proposed building, and the implementation of in-situ chemical oxidation (ISCO) injections to reduce, to the extent practicable, elevated levels of petroleum-based VOC concentrations in the groundwater.
- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years? The predicted timeframe of the active remedy is approximately four to five months. Quarterly groundwater monitoring in accordance with Division of Environmental Remediation (DER)-10 for a minimum of one year following active remediation will take place to evaluate the effectiveness of groundwater ISCO treatment and to determine if additional treatment is required. Engineering controls (ECs) that may be in place for 10+ years under the Track 2 remedy include an active SSDS and Site-wide cover 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 New York State Department of Environmental Conservation (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 [IC]) 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.) 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. Surrounding properties include commercial and residential buildings. There are two sensitive receptors that are within a 500-ft radius of the Site: Public School (P.S.) 889 and Middle School (M.S.) 890 (listed as a school and middle school, respectively) and Uprising Stars Family WeeCare (listed as a daycare).

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfolocator: DECinfo Locator (ny.gov))?

Yes X 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** (Resilience Analysis and Planning Tool (RAPT)/arcgis.com[3]	**Potential to Impact Remedy** (Y/N)	**Is remedy/site already resilient?** (Y/N)[4]
Precipitation	Y	None	N/A	N/A
Temperature[2] (Extreme Heat or Cold Weather Impacts)	Y	None	N/A	N/A
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 rainfall, feet of sea level rise, etc.

[4] If 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):

Conduct severe weather storm inspections during the active remedy. Inspect dewatering systems prior to anticipated storm events that could result in a power outage and after storm events.

Potential Data Sources (not an exhaustive list)- from Superfund Climate Resilience: Vulnerability Assessment | US EPA

NYSERDA ClimAID report- Responding Climate Change in New York State (ClimAID) - NYSERDA

FEMA- National Flood Hazard Layer | FEMA.gov

NOAA- National Storm Surge Risk Maps - Version 3 (noaa.gov)

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

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

- 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

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

U.S. Federal Government Climate Resilience Toolkit: The Climate Explorer

U.S. Army Corps of Engineers Climate Preparedness and Resilience

U.S. Geological Survey Coastal Change Hazards Portal

U.S. Geological Survey Landslide Hazards Program

U.S. Geological Survey National Ground-water Monitoring Network Data Portal

U.S. Geological Survey National Climate Change Viewer

U.S. Geological Survey National Water Dashboard

U.S. Geological Survey StreamStats

NYS Department of State- Assess | Department of State (ny.gov)

NYSERDA NY Costal Floodplain Mapper- Home Page (ny.gov)

NYSDEC Coastal Erosion Hazards- Coastal Areas Regulated By The CEHA Permit Program - NYDEC

NYSDOH Heat Index- health.ny.gov/environmental/weather/vulnerability_index/county_maps.htm

Track 2 Remedy

H & A OF NEW YORK ENGINEERING
AND GEOLOGY, LLP
213 W. 35th Street
7th Floor
New York, NY 10001
646.277.5685

February 20, 2026
File No. 0204391

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

Attention: Yildiz Palumbo

Subject: Green Site Remediation
Former New City Link Auto Repair Site
NYSDEC Site C224407
547 Coney Island Avenue and 50 Hinckley Place
Brooklyn, New York 11218

H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) presents the following environmental footprint analysis[1] in accordance with EPA 542-R-12-002 for the preferred Track 2 Remedy of the above-referenced site at 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, New York 11218 (Site).

FORMER NEW CITY LINK AUTO REPAIR SITE REMEDY – TRACK 2 CLEANUP

The primary remedial tasks consist of the following:

- Excavation
- Endpoint Sampling
- Groundwater Treatment
- SSDS Installation
- SVE System Installation

The preferred remedy will result in estimated totals of:

- 5200.34 Metric Million British Thermal Unit (MMBtus) of energy used;
- 411.97 tons of total greenhouse gas emissions (CO2e [includes consideration of carbon dioxide, methane, and nitrous oxide emissions]);
- 12498.48 pounds (lbs) of nitrogen oxides (NOx) + sulfur oxides (SOx) + particulate matter (PM) emissions; and
- 52.91 lbs of hazardous air pollutant (HAP) emissions.

[1] *Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019.*

Energy

- 1,666.33 MMBtus used for on-Site activities, such as excavation,
- 0.36 MMBtus used for grid electricity generation,
- 581.05 MMBtus used for transportation of personnel, remedy materials, and waste disposal, and
- 2,967.59 MMBtus used for off-Site activities.

Greenhouse Gas Emissions (CO2e)

- 266,575.63 tons of CO2e are estimated to be produced from on-Site activities, such as excavation,
- 58.93 tons of CO2e are estimated to be produced from grid electricity generation,
- 94,027.58 tons of CO2e are estimated to be produced from transportation of personnel, remedy materials, and waste disposal, and
- 464,948.73 tons are estimated to be produced from off-Site activities.

Water Usage

- 24,530 gallons of water are estimated to be used to wash down trucks and tires on an imported gravel truck wash pad, for grout production for monitoring well installation, and for groundwater remediation injections.

Roughly a third of the energy use and of CO2e generation will originate from on-Site activities for the Track 2 Remedy. Overall, the footprint of the Site Remedy is dominated by off-Site activities, which include landfill use and diesel fuel production. Off-Site energy use comprises 56.90 percent of all energy use and off-Site greenhouse gas emissions comprises 56.32 of all emissions for the Track 2 Remedy.

The preferred Track 2 remedy will save an estimated 9,677 MMBtus, 763.03 tons of CO2e, 24,157.1 lbs of NOx, SOx, and PM emissions, and 88.5 lbs of HAP emissions compared to the Alternative III - Track 1 remedy.

Sincerely yours,
H & A OF NEW YORK ENGINEERING AND GEOLOGY, LLP

Zachary P. Simmel
Project Manager

Suzanne M. Bell, P.E.
Senior Associate

James M. Bellew
Principal

HALEY ALDRICH

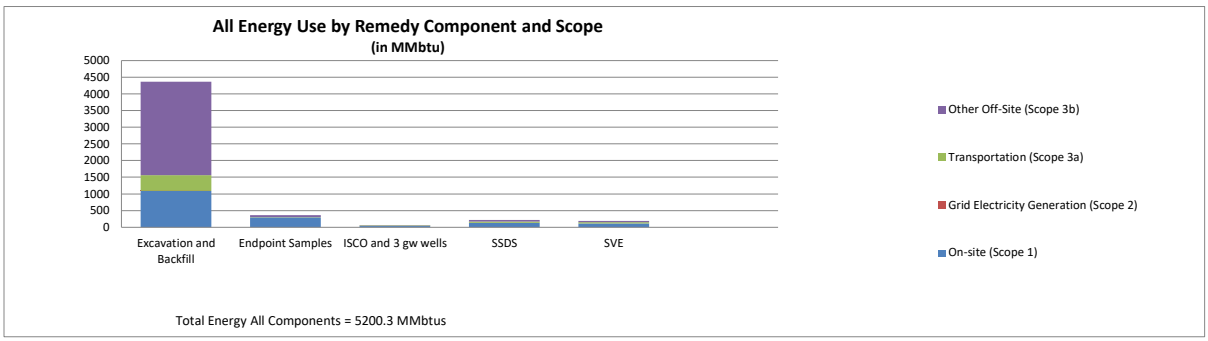
Environmental Footprint Summary

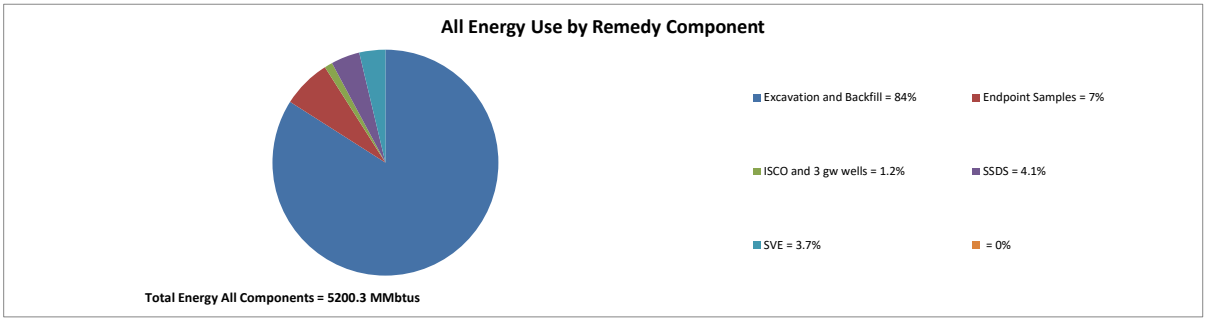
Core Element	Metric		Unit of Measure	Footprint						
				Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS	SVE		Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	774.5	0.0	0.5	297.6	297.6	0.0	1,370.2
	M&W-2	% of refined materials from recycled or reused material	%	0.0%		0.0%	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	16,307.5	0.0	0.0	0.0	0.0	0.0	16,307.5
	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%
Water (used on-site)	W-1	Public water use	MG	0.0165	0.0000	0.0	0.0	0.0	0.0	0.0245
	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	4,368.6	363.5	59.9	214.9	193.4	0.0	5,200.3
	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	0.052	0.000	0.000	0.000	0.000	0.000	0.1
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	861.3	236.9	45.2	103.9	88.9	0.0	1,336.2
	A-2	On-site HAP emissions	Pounds	0.3	0.1	0.0	0.0	0.0	0.0	0.5
	A-3	Total NOx, SOx, and PM emissions	Pounds	11,649.2	418.6	66.1	190.9	173.8	0.0	12,498.5
	A-3A	Total NOx emissions	Pounds	3,710.0	271.8	58.1	164.8	150.1	0.0	4,354.8
	A-3B	Total SOx emissions	Pounds	1,314.0	109.2	2.8	12.7	11.9	0.0	1,450.6
	A-3C	Total PM emissions	Pounds	6,625.2	37.6	5.2	13.3	11.8	0.0	6,693.1
	A-4	Total HAP emissions	Pounds	35.8	13.3	0.6	1.7	1.5	0.0	52.9
	A-5	Total greenhouse gas emissions	Tons CO2e*	346.4	29.0	4.9	16.7	15.0	0.0	412.0
Land & Ecosystems	Qualitative Description									

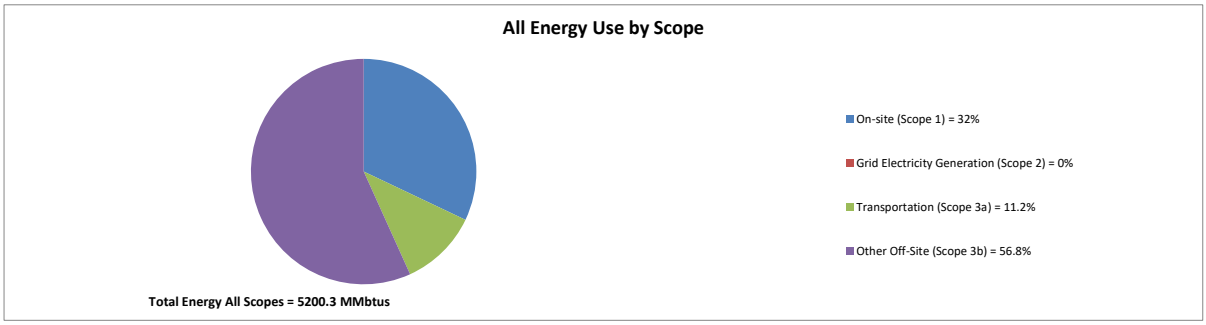
** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions 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:


All Energy Use by Remedy Component and Scope
(in MMbtu)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Excavation and Backfill
Endpoint Samples
ISCO and 3 gw wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 5200.3 MMbtus


All Energy Use by Remedy Component
Excavation and Backfill = 84%
Endpoint Samples = 7%
ISCO and 3 gw wells = 1.2%
SSDS = 4.1%
SVE = 3.7%
= 0%
Total Energy All Components = 5200.3 MMbtus


All Energy Use by Scope
On-site (Scope 1) = 32%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 11.2%
Other Off-Site (Scope 3b) = 56.8%
Total Energy All Scopes = 5200.3 MMbtus

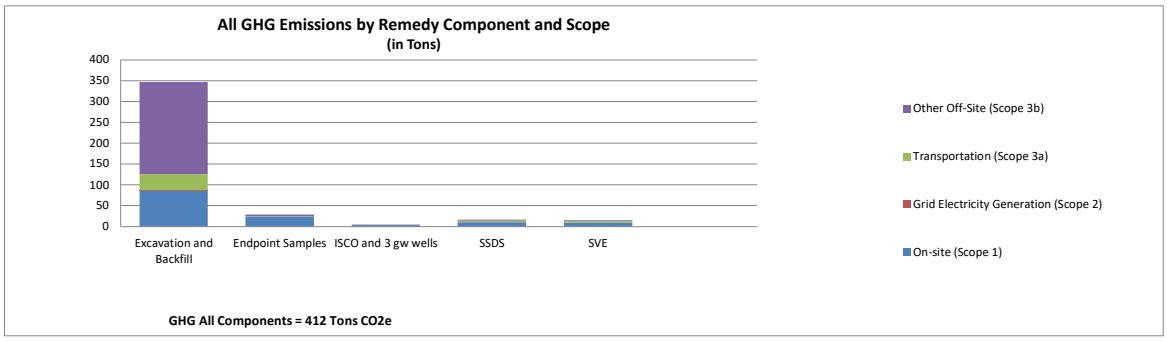
Total Energy
MMbtus

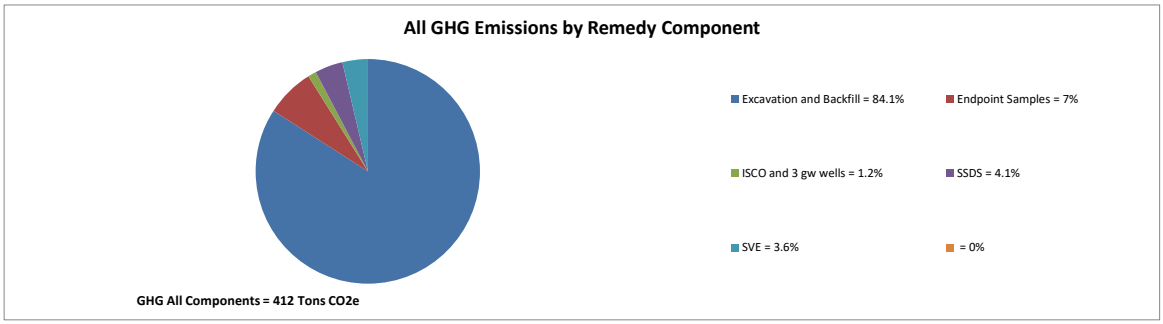
	Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS		SVE		Total
On-site (Scope 1)	1,087.3	299.0	36.7	131.1	112.2	0.0	1,666.3	
Grid Electricity Generation (Scope 2)	0.4	0.0	0.0	0.0	0.0	0.0	0.4	
Transportation (Scope 3a)	471.5	8.3	16.5	42.5	42.3	0.0	581.1	
Other Off-Site (Scope 3b)	2,809.5	56.3	6.6	41.3	38.9	0.0	2,952.6	
Total	4,368.6	363.5	59.9	214.9	193.4	0.0	5,200.3	

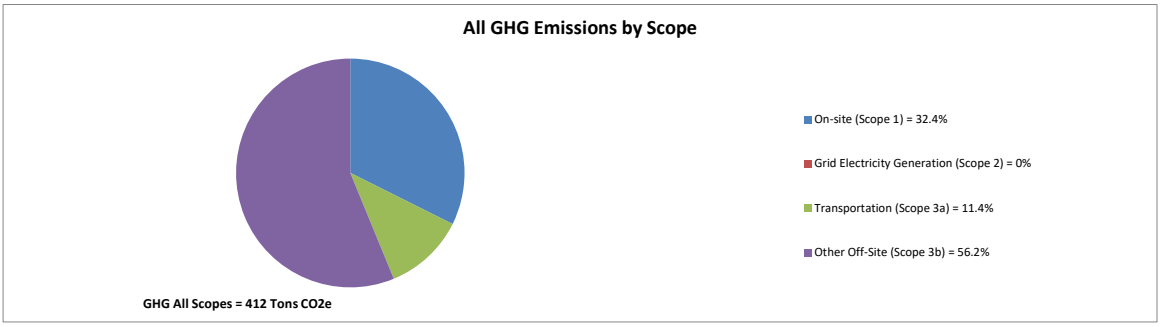
Excavation and Backfill = 84%
Endpoint Samples = 7%
ISCO and 3 gw wells = 1.2%
SSDS = 4.1%
SVE = 3.7%
= 0%

On-site (Scope 1) = 32%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 11.2%
Other Off-Site (Scope 3b) = 56.8%

Total Energy All Components = 5200.3 MMbtus
Total Energy All Scopes = 5200.3 MMbtus


All GHG Emissions by Remedy Component and Scope
(in Tons)
400
350
300
250
200
150
100
50
0
Excavation and Backfill
Endpoint Samples
ISCO and 3 gw wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 412 Tons CO2e


All GHG Emissions by Remedy Component
Excavation and Backfill = 84.1%
Endpoint Samples = 7%
ISCO and 3 gw wells = 1.2%
SSDS = 4.1%
SVE = 3.6%
= 0%
GHG All Components = 412 Tons CO2e

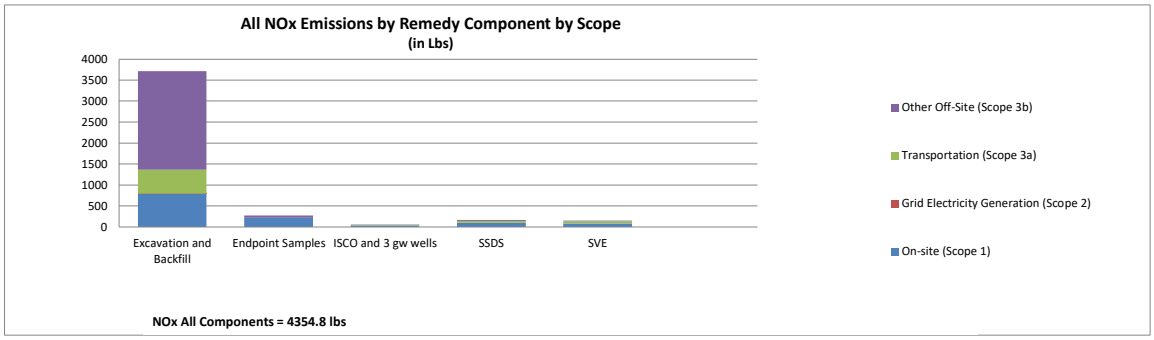

All GHG Emissions by Scope
On-site (Scope 1) = 32.4%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 11.4%
Other Off-Site (Scope 3b) = 56.2%
GHG All Scopes = 412 Tons CO2e

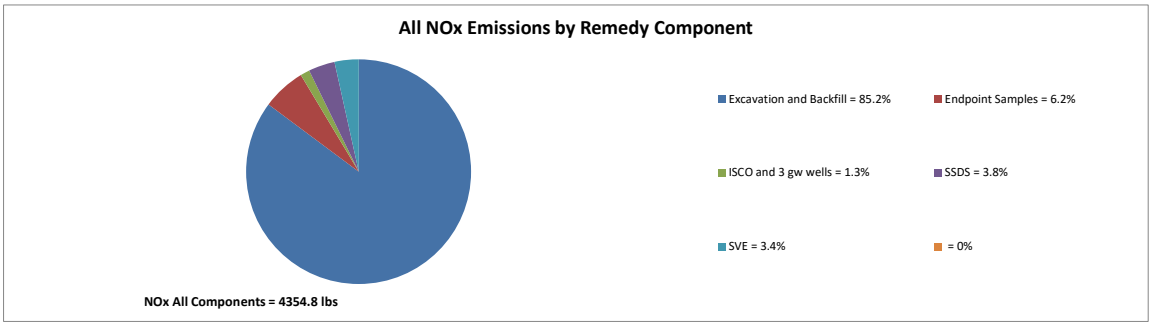
GHG Tons CO2e	Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS		SVE		Total
On-site (Scope 1)	87.0	23.9	2.9	10.5	9.0	0.0	133.3	
Grid Electricity Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Transportation (Scope 3a)	38.2	0.7	1.3	3.4	3.4	0.0	47.0	
Other Off-Site (Scope 3b)	221.3	4.4	0.6	2.8	2.6	0.0	231.6	
Total	346.4	29.0	4.9	16.7	15.0	0.0	412.0	

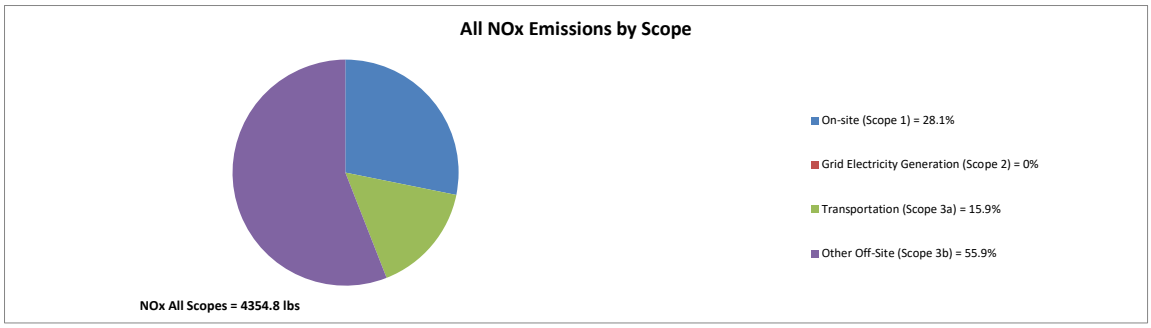
Excavation and Backfill = 84.1%
Endpoint Samples = 7%
ISCO and 3 gw wells = 1.2%
SSDS = 4.1%
SVE = 3.6%
= 0%

GHG All Components = 412 Tons CO2e
GHG All Scopes = 412 Tons CO2e

On-site (Scope 1) = 32.4%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 11.4%
Other Off-Site (Scope 3b) = 56.2%


All NOx Emissions by Remedy Component by Scope
(in Lbs)
4000
3500
3000
2500
2000
1500
1000
500
0
Excavation and Backfill
Endpoint Samples
ISCO and 3 gw wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 4354.8 lbs


All NOx Emissions by Remedy Component
Excavation and Backfill = 85.2%
Endpoint Samples = 6.2%
ISCO and 3 gw wells = 1.3%
SSDS = 3.8%
SVE = 3.4%
= 0%
NOx All Components = 4354.8 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 28.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 15.9%
Other Off-Site (Scope 3b) = 55.9%
NOx All Scopes = 4354.8 lbs

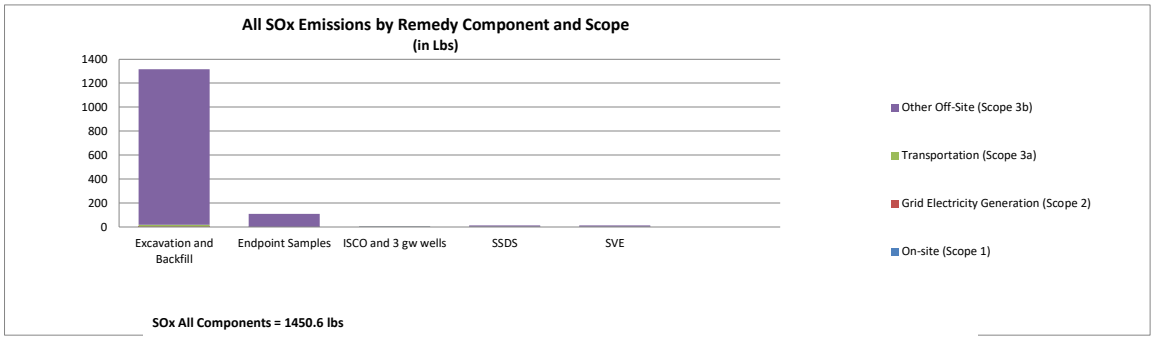
NOx
lbs

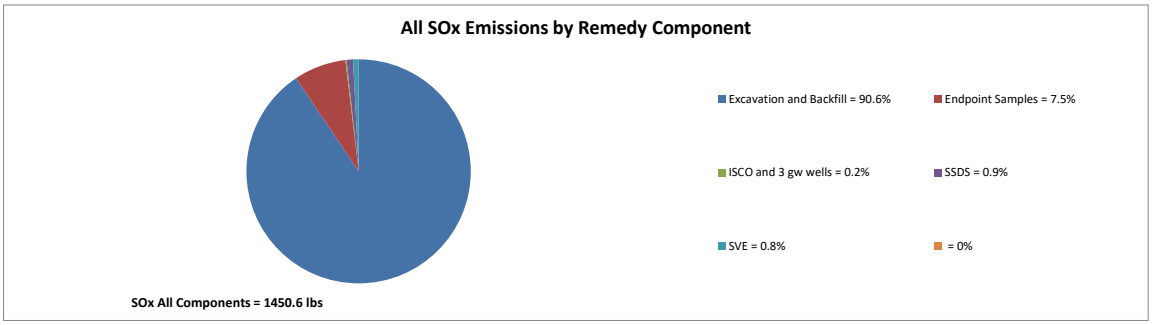
	Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS		SVE		Total
On-site (Scope 1)	789.9	217.2	41.4	95.3	81.5	0.0	1,225.3	
Grid Electricity Generation (Scope 2)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	
Transportation (Scope 3a)	573.1	2.2	14.7	51.7	51.4	0.0	693.0	
Other Off-Site (Scope 3b)	2,346.9	52.4	2.0	17.9	17.2	0.0	2,436.3	
Total	3,710.0	271.8	58.1	164.8	150.1	0.0	4,354.8	

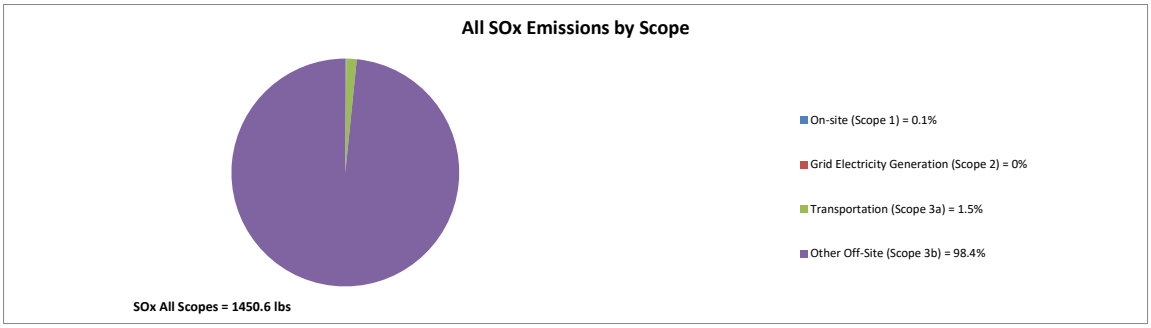
Excavation and Backfill = 85.2%
Endpoint Samples = 6.2%
ISCO and 3 gw wells = 1.3%
SSDS = 3.8%
SVE = 3.4%
= 0%

NOx All Components = 4354.8 lbs
NOx All Scopes = 4354.8 lbs

On-site (Scope 1) = 28.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 15.9%
Other Off-Site (Scope 3b) = 55.9%


All SOx Emissions by Remedy Component and Scope
(in Lbs)
1400
1200
1000
800
600
400
200
0
Excavation and Backfill
Endpoint Samples
ISCO and 3 gw wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 1450.6 lbs


All SOx Emissions by Remedy Component
Excavation and Backfill = 90.6%
Endpoint Samples = 7.5%
ISCO and 3 gw wells = 0.2%
SSDS = 0.9%
SVE = 0.8%
= 0%
SOx All Components = 1450.6 lbs

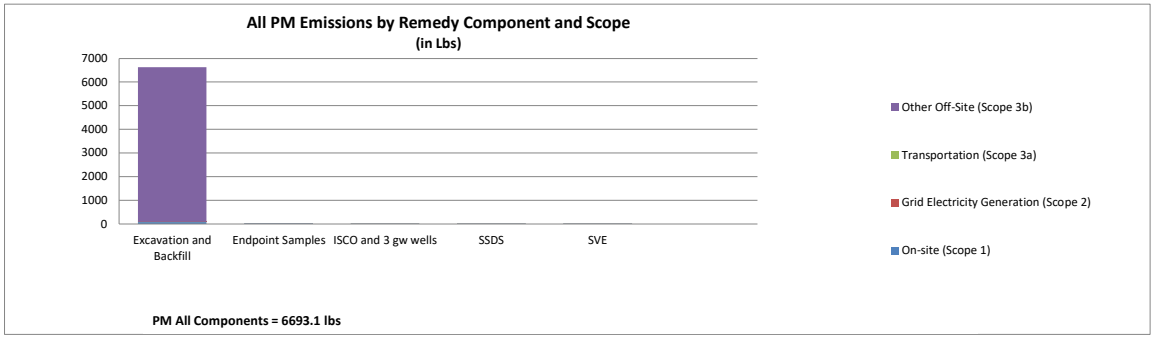

All SOx Emissions by Scope
On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.5%
Other Off-Site (Scope 3b) = 98.4%
SOx All Scopes = 1450.6 lbs

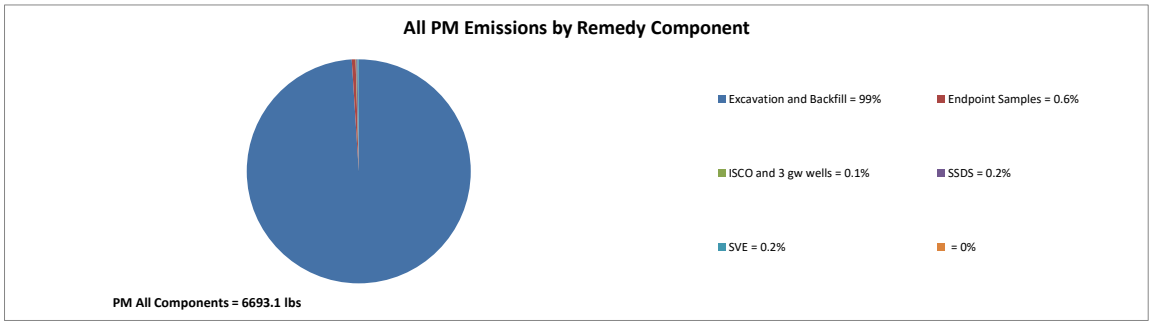
SOx lbs	Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS	SVE		Total
On-site (Scope 1)	1.0	0.3	0.0	0.1	0.1	0.0	1.6
Grid Electricity Generation (Scope 2)	0.2	0.0	0.0	0.0	0.0	0.0	0.2
Transportation (Scope 3a)	18.2	0.0	0.4	1.6	1.6	0.0	21.9
Other Off-Site (Scope 3b)	1,294.5	108.9	2.4	11.0	10.1	0.0	1,427.0
Total	1,314.0	109.2	2.8	12.7	11.9	0.0	1,450.6

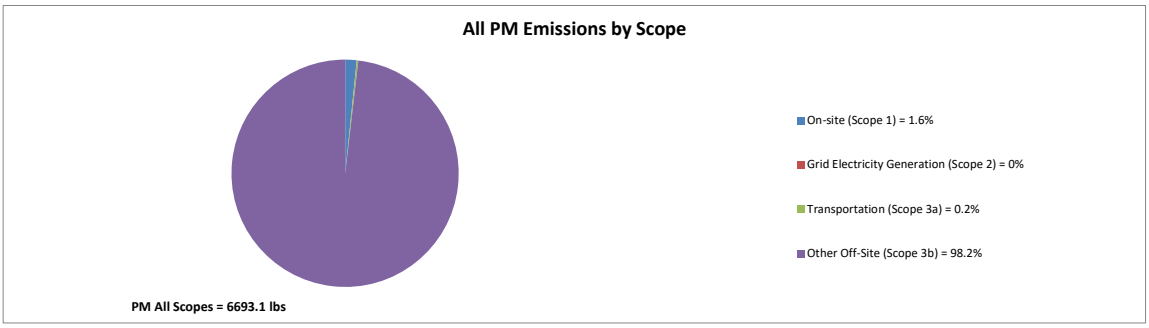
Excavation and Backfill = 90.6%
Endpoint Samples = 7.5%
ISCO and 3 gw wells = 0.2%
SSDS = 0.9%
SVE = 0.8%
= 0%

On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.5%
Other Off-Site (Scope 3b) = 98.4%

SOx All Components = 1450.6 lbs
SOx All Scopes = 1450.6 lbs


All PM Emissions by Remedy Component and Scope
(in Lbs)
7000
6000
5000
4000
3000
2000
1000
0
Excavation and Backfill
Endpoint Samples
ISCO and 3 gw wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 6693.1 lbs


All PM Emissions by Remedy Component
Excavation and Backfill = 99%
Endpoint Samples = 0.6%
ISCO and 3 gw wells = 0.1%
SSDS = 0.2%
SVE = 0.2%
= 0%
PM All Components = 6693.1 lbs


All PM Emissions by Scope
On-site (Scope 1) = 1.6%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.2%
Other Off-Site (Scope 3b) = 98.2%
PM All Scopes = 6693.1 lbs

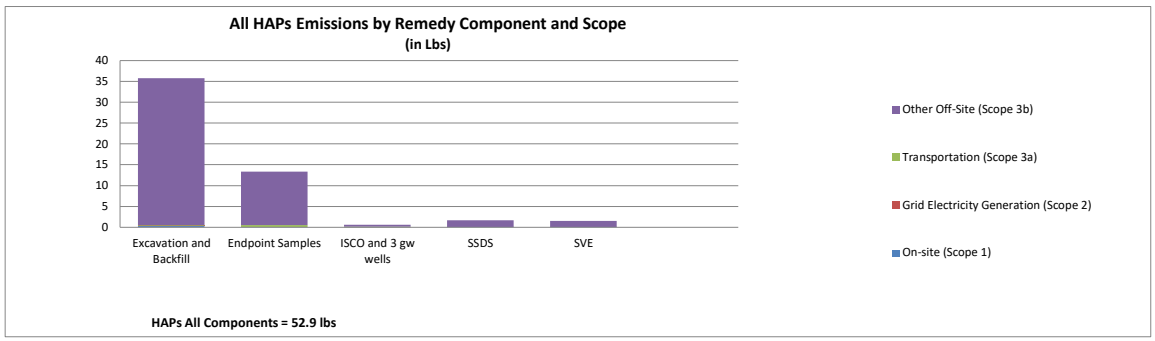
PM
lbs

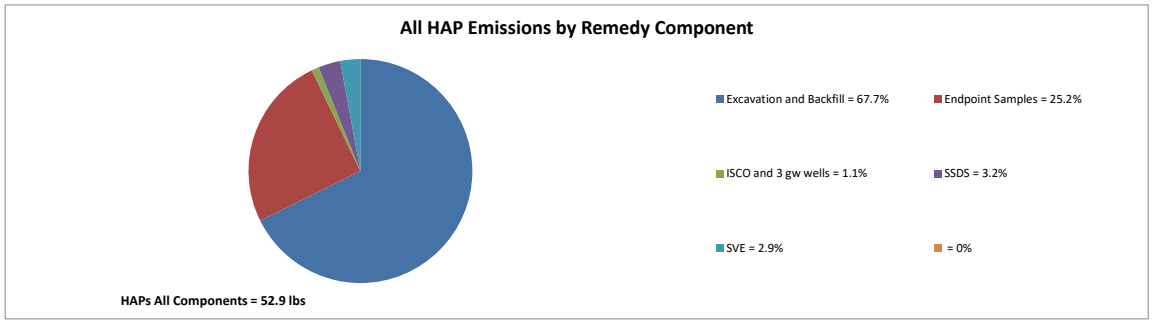
	Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS	SVE		Total
On-site (Scope 1)	70.4	19.4	3.8	8.5	7.3	0.0	109.3
Grid Electricity Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation (Scope 3a)	11.5	0.2	0.6	1.0	1.0	0.0	14.4
Other Off-Site (Scope 3b)	6,543.3	18.0	0.8	3.8	3.5	0.0	6,569.3
Total	6,625.2	37.6	5.2	13.3	11.8	0.0	6,693.1

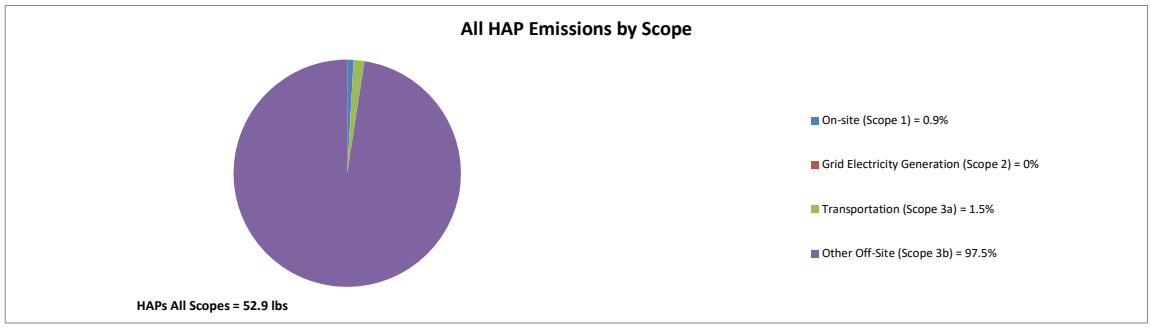
Excavation and Backfill = 99%
Endpoint Samples = 0.6%
ISCO and 3 gw wells = 0.1%
SSDS = 0.2%
SVE = 0.2%
= 0%

On-site (Scope 1) = 1.6%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.2%
Other Off-Site (Scope 3b) = 98.2%

PM All Components = 6693.1 lbs
PM All Scopes = 6693.1 lbs


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
40
35
30
25
20
15
10
5
0
Excavation and Backfill
Endpoint Samples
ISCO and 3 gw wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 52.9 lbs


All HAP Emissions by Remedy Component
Excavation and Backfill = 67.7%
Endpoint Samples = 25.2%
ISCO and 3 gw wells = 1.1%
SSDS = 3.2%
SVE = 2.9%
= 0%
HAPs All Components = 52.9 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.9%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.5%
Other Off-Site (Scope 3b) = 97.5%
HAPs All Scopes = 52.9 lbs

HAPs
lbs

	Excavation and Backfill	Endpoint Samples	ISCO and 3 gw wells	SSDS	SVE		Total
On-site (Scope 1)	0.3	0.1	0.0	0.0	0.0	0.0	0.5
Grid Electricity Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation (Scope 3a)	0.2	0.4	0.1	0.0	0.0	0.0	0.8
Other Off-Site (Scope 3b)	35.3	12.8	0.4	1.6	1.5	0.0	51.6
Total	35.8	13.3	0.6	1.7	1.5	0.0	52.9

Excavation and Backfill = 67.7%
Endpoint Samples = 25.2%
ISCO and 3 gw wells = 1.1%
SSDS = 3.2%
SVE = 2.9%
= 0%

HAPs All Components = 52.9 lbs
HAPs All Scopes = 52.9 lbs

On-site (Scope 1) = 0.9%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 1.5%
Other Off-Site (Scope 3b) = 97.5%

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
On-Site																						
On-site Renewable Energy																						
Renewable electricity generated on-site	MWh							0	0	0	0	0				0	0	0	0	0	0	0
Landfill gas combusted on-site for energy use	ccf CH_4							0	0	0	0	0				0	0	0	0	0	0	0
On-site biodiesel use	gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site biodiesel use - Other	gal							0	0	0	0	0				0	0	0	0	0	0	0
User-defined on-site renewable energy use #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
On-Site Conventional Energy																						
Grid electricity	MWh							0.052416	0	0	0	0				0.052416	0	0	0	0	0	0.052416
On-site diesel use - Other	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site diesel use <75 hp	Gal							0	0	264.22018	0	0				0	0	264.22018	0	0	0	264.22018
On-site diesel use 75<hp<750	Gal							7821.0989	2150.8022	0	943.51648	807.03297				7821.0989	2150.8022	0	943.51648	807.03297	0	11722.451
On-site diesel use >750 hp	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site gasoline use - Other	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site gasoline use <25 hp	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site gasoline use >25 hp	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site natural gas use	ccf							0	0	0	0	0				0	0	0	0	0	0	0
On-site compressed natural gas use - Other	ccf							0	0	0	0	0				0	0	0	0	0	0	0
On-site compressed natural gas use	ccf							0	0	0	0	0				0	0	0	0	0	0	0
On-site liquified petroleum gas use - Other	gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site liquified petroleum gas use	gal							0	0	0	0	0				0	0	0	0	0	0	0
Other forms of on-site conventional energy use #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Other On-site Emissions																						
On-site HAP process emissions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
On-site GHG emissions	Lbs CO2e							0	0	0	0	0				0	0	0	0	0	0	0
On-site carbon storage	Lbs CO2e							0	0	0	0	0				0	0	0	0	0	0	0
GHG avoided by flaring on-site landfill methane	ccf CH4							0	0	0	0	0				0	0	0	0	0	0	0
Other on-site NOx emissions or reductions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
Other on-site SOx emissions or reductions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
Other on-site PM emissions or reductions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
Electricity Generation																						
Grid electricity	MWh							0.052416	0	0	0	0				0.052416	0	0	0	0	0	0.052416
Voluntary purchase of renewable electricity	MWh							0	0	0	0	0				0	0	0	0	0	0	0
Voluntary purchase of RECs	MWh							0	0	0	0	0				0	0	0	0	0	0	0
Transportation																						
Transportation Fuel Use Breakdown																						
Biodiesel use - Personnel Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Personnel Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Equipment Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Equipment Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Material Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Material Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Waste Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Waste Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Personnel Transport - other vehicles	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Personnel Transport - car	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Personnel Transport - passenger truck	gal							0	0	46.4	0	0				0	0	46.4	0	0	0	46.4
Diesel use - Personnel Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Equipment Transport	gal							2.6	2.6	11.7	2.6	1.3				2.6	2.6	11.7	2.6	1.3	0	20.8
Diesel use - Equipment Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Material Transport	gal							258.333	0	58.333	300.833	300.833				258.333	0	58.333	300.833	300.833	0	918.332
Diesel use - Material Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Waste Transport	gal							3105.6	0	0	0	0				3105.6	0	0	0	0	0	3105.6
Diesel use - Waste Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Personnel Transport - other vehicles	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Personnel Transport - car	gal							28.4	63.7	2.6	2.6	2.6				28.4	63.7	2.6	2.6	2.6	0	99.9
Gasoline use - Personnel Transport - passenger truck	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Personnel Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Equipment Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Equipment Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Natural Gas use - Personnel Transport	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Natural Gas use - Personnel Transport - User Defined	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Natural Gas use - Equipment Transport	ccf							0	0	0	0	0				0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Conventional Energy																						
Transportation diesel use	gal							3366.533	2.6	116.433	303.433	302.133				3366.533	2.6	116.433	303.433	302.133	0	4091.132
Transportation gasoline use	gal							28.4	63.7	2.6	2.6	2.6				28.4	63.7	2.6	2.6	2.6	0	99.9
Transportation natural gas use	ccf							0	0	0	0	0				0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD							10	10	10	10	10				10	10	10	10	10	0	50
User-defined conventional energy transportation #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal							0	0	0	0	0				0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb							0	0	0	0	0				0	0	0	0	0	0	0
Asphalt, mastic	lb							0	0	0	0	0				0	0	0	0	0	0	0
Asphalt, paving-grade	lb							0	0	0	0	0				0	0	0	0	0	0	0
Ethanol, Corn, 95%	lb							0	0	0	0	0				0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb							0	0	0	0	0				0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb							0	0	0	0	0				0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb							0	0	0	0	0				0	0	0	0	0	0	0
Gravel/sand/clay	lb							0	0	0	0	0				0	0	0	0	0	0	0
HDPE	lb							0	0	0	0	0				0	0	0	0	0	0	0
Photovoltaic system (installed)	W							0	0	0	0	0				0	0	0	0	0	0	0
PVC	lb							0	0	0	200	200				0	0	0	200	200	0	400
Portland cement, US average	lb							1191683	0	0	0	0										
Ready-mixed concrete, 20 MPa	ft3							0	0	0	0	0				0	0	0	0	0	0	0
Round Gravel	lb							357336	0	0	595000	595000				357336	0	0	595000	595000	0	1547336
Sand	lb							0	0	0	0	0				0	0	0	0	0	0	0
Stainless Steel	lb							0	0	0	0	0				0	0	0	0	0	0	0
Steel	lb							0	0	0	0	0				0	0	0	0	0	0	0
Other refined construction materials	lb							0	0	0	0	0				0	0	0	0	0	0	0
Other unrefined construction materials	lb							0	0	0	0	0				0	0	0	0	0	0	0
Treatment Materials & Chemicals																						
Cheese Whey	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Emulsified vegetable oil	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Granular activated carbon, primary	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Iron (II) Sulfate	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Molasses	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Potassium Permanganate	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs							0	0	1000	0	0				0	0	1000	0	0	0	1000
Material Type																						
Total Virgin Refined Materials	tons							774.5095	0	0.5	297.6	297.6				774.5095	0	0.5	297.6	297.6	0	1370.2095
Total Recycled Refined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Reused Refined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Refined Material	tons							774.5095	0	0.5	297.6	297.6				774.5095	0	0.5	297.6	297.6	0	1370.2095
Total Virgin Unrefined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Recycled Unrefined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Unrefined Material	tons							0	0	0	0	0				0	0	0	0	0	0	0
Fuel Processing																						
Biodiesel produced	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel produced	gal							11187.632	2153.4022	380.65318	1246.9495	1109.166				11187.632	2153.4022	380.65318	1246.9495	1109.166	0	16077.803
Gasoline produced	gal							28.4	63.7	2.6	2.6	2.6				28.4	63.7	2.6	2.6	2.6	0	99.9
Compressed natural gas produced	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Liquified petroleum gas produced	gal							0	0	0	0	0				0	0	0	0	0	0	0
Natural gas produced	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000							16.53	0	8	0	0				16.53	0	8	0	0	0	24.53
Extracted Groundwater	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Surface Water	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Reclaimed Water	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
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Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Waste/Recycle Handling																						
Hazardous waste incineration	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons							16307.5	0	0	0	0				16307.5	0	0	0	0	0	16307.5
Off-site hazardous waste landfill	tons							0	0	0	0	0				0	0	0	0	0	0	0
Recycled/Reused On-Site	tons							0	0	0	0	0				0	0	0	0	0	0	0
Recycled/Reused Off-Site	tons							0	0	0	0	0				0	0	0	0	0	0	0
Solid Waste Totals																						
Total Non-Hazardous Waste	tons							16307.5	0	0	0	0				16307.5	0	0	0	0	0	16307.5
Total Hazardous Waste	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Recycled/Reused	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Waste (all types)	tons							16307.5	0	0	0	0				16307.5	0	0	0	0	0	16307.5
Lab Services																						
Off-site Laboratory Analysis - Other	sample							0	90	0	0	0				0	90	0	0	0	0	90
Off-site Laboratory Analysis - Metals	sample							0	30	0	0	0				0	30	0	0	0	0	30
Off-site Laboratory Analysis - Mercury	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Inorganic Anions	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample							0	30	0	0	0				0	30	0	0	0	0	30
Off-site Laboratory Analysis - VOCs	sample							0	30	0	0	0				0	30	0	0	0	0	30
Off-site Laboratory Analysis - SVOCs	sample							0	30	0	0	0				0	30	0	0	0	0	30
Resource Extraction for Electricity																						
Coal extraction and processing	MWh							0.0159869	0	0	0	0				0.0159869	0	0	0	0	0	0.0159869
Natural gas extraction and processing	MWh							0.017769	0	0	0	0				0.017769	0	0	0	0	0	0.017769
Nuclear fuel extraction and processing	MWh							0.0103784	0	0	0	0				0.0103784	0	0	0	0	0	0.0103784
Oil extraction and processing	MWh							0.0003669	0	0	0	0				0.0003669	0	0	0	0	0	0.0003669
Other fuel extraction and processing	MWh							5.242E-05	0	0	0	0				5.242E-05	0	0	0	0	0	5.242E-05
Electricity Transmission																						
Transmission and distribution losses	MWh							0.052416	0	0	0	0				0.052416	0	0	0	0	0	0.052416

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
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Other																						
User-defined material #1	ton							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #4	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #5	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #6	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #7	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #8	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #9	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #10	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #11	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #12	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #13	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #14	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #15	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #16	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #17	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #18	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #19	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #20	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined Waste Destinations																						
User-defined recycled/reused on-site #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0

Track 4 Remedy

H & A OF NEW YORK ENGINEERING
AND GEOLOGY, LLP
213 W. 35th Street
7th Floor
New York, NY 10001
646.277.5685

February 20, 2026
File No. 0204391

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

Attention: Yildiz Palumbo

Subject: Green Site Remediation
Former New City Link Auto Repair Site
NYSDEC Site C224407
547 Coney Island Avenue and 50 Hinckley Place
Brooklyn, New York 11218

H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) presents the following environmental footprint analysis[1] in accordance with EPA 542-R-12-002 for the preferred Track 4 Remedy of the above-referenced site at 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, New York 11218 (Site).

FORMER NEW CITY LINK AUTO REPAIR SITE REMEDY – TRACK 4 CLEANUP

The primary remedial tasks consist of the following:

- Excavation
- Endpoint Sampling
- Groundwater Treatment
- SSDS Installation
- SVE System Installation

The preferred remedy will result in estimated totals of:

- 1324.22 Metric Million British Thermal Unit (MMBtus) of energy used;
- 104.25 tons of total greenhouse gas emissions (CO2e [includes consideration of carbon dioxide, methane, and nitrous oxide emissions]);
- 2513.68 pounds (lbs) of nitrogen oxides (NOx) + sulfur oxides (SOx) + particulate matter (PM) emissions; and
- 20.45 lbs of hazardous air pollutant (HAP) emissions.

[1] *Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019.*

Energy

- 519.03 MMBtus used for on-Site activities, such as excavation,
- 3.55 MMBtus used for grid electricity generation,
- 253.86 MMBtus used for transportation of personnel, remedy materials, and waste disposal, and
- 562.79 MMBtus used for off-Site activities.

Greenhouse Gas Emissions (CO_2e)

- 82,756.17 tons of CO_2e are estimated to be produced from on-Site activities, such as excavation,
- 200.77 tons of CO_2e are estimated to be produced from grid electricity generation,
- 41,067.29 tons of CO_2e are estimated to be produced from transportation of personnel, remedy materials, and waste disposal, and
- 86,131.95 tons are estimated to be produced from off-Site activities.

Water Usage

- 10,700 gallons of water are estimated to be used to wash down trucks and tires on an imported gravel truck wash pad, for grout production for monitoring well installation, and for groundwater remediation injections.

Roughly a third of the energy use and of CO_2e generation will originate from on-Site activities for the Track 4 Remedy. Overall, the footprint of the Site Remedy is dominated by off-Site activities, which include landfill use and diesel fuel production. Off-Site energy use comprises 42.02 percent of all energy use and off-Site greenhouse gas emissions comprises 40.98 percent of all emissions for the Track 4 Remedy.

Sincerely yours,
H & A OF NEW YORK ENGINEERING AND GEOLOGY, LLP

Zachary P. Simmel
Project Manager

Suzanne M. Bell, P.E.
Senior Associate

James M. Bellew
Principal

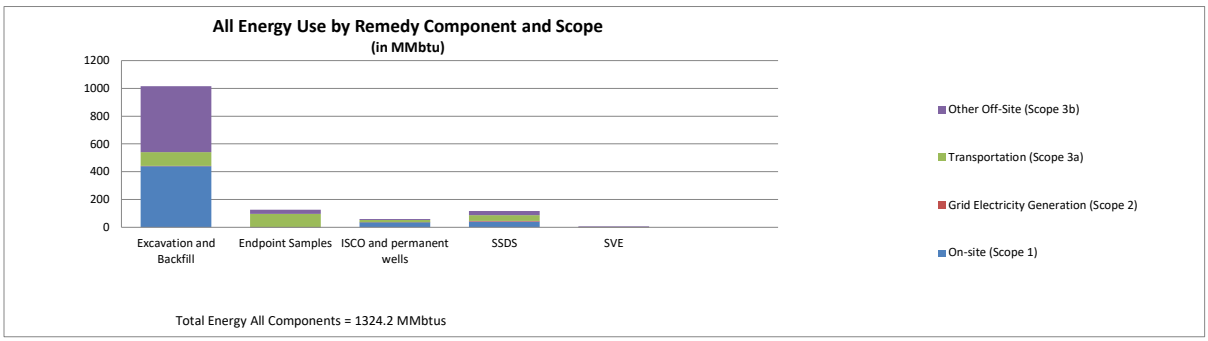
Environmental Footprint Summary

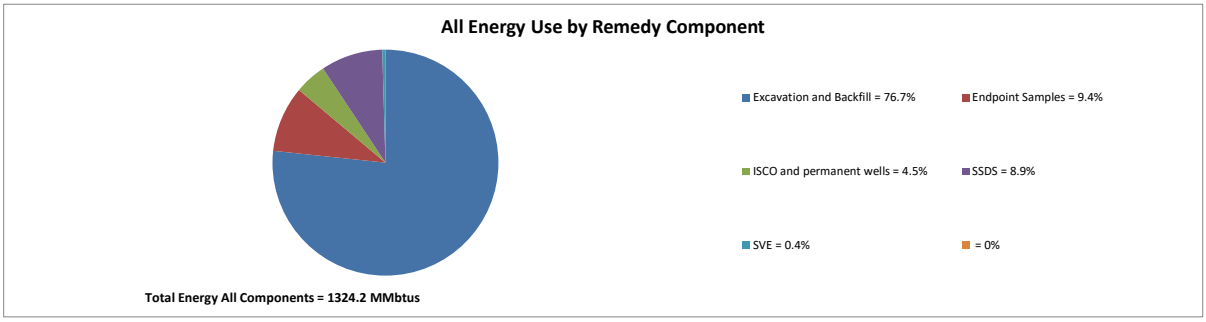
Core Element	Metric		Unit of Measure	Footprint						
				Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS	SVE		Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	774.5	0.0	0.5	297.6	0.1	0.0	1,072.7
	M&W-2	% of refined materials from recycled or reused material	%	0.0%		0.0%	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	2,500.0	0.0	0.0	0.0	0.0	0.0	2,500.0
	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%
Water (used on-site)	W-1	Public water use	MG	0.0027	0.0000	0.0	0.0	0.0	0.0	0.0107
	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	1,015.3	125.1	60.1	117.9	5.9	0.0	1,324.2
	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	0.026	0.021	0.009	0.447	0.009	0.000	0.5
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	349.1	0.0	45.2	31.7	0.0	0.0	426.0
	A-2	On-site HAP emissions	Pounds	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	A-3	Total NOx, SOx, and PM emissions	Pounds	2,071.7	261.8	66.2	112.3	1.7	0.0	2,513.7
	A-3A	Total NOx emissions	Pounds	815.5	150.0	58.1	96.0	1.0	0.0	1,120.7
	A-3B	Total SOx emissions	Pounds	217.6	95.2	2.9	9.9	0.6	0.0	326.2
	A-3C	Total PM emissions	Pounds	1,038.5	16.6	5.2	6.3	0.1	0.0	1,066.7
	A-4	Total HAP emissions	Pounds	8.1	10.7	0.6	1.0	0.1	0.0	20.5
	A-5	Total greenhouse gas emissions	Tons CO_2e*	80.8	9.7	4.9	8.5	0.2	0.0	104.3
Land & Ecosystems	Qualitative Description									

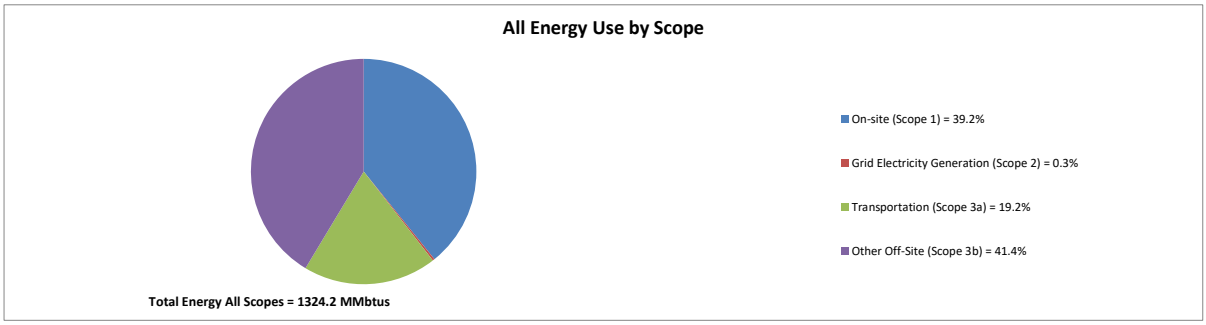
** Total greenhouse gases emissions (in CO_2e) include consideration of CO_2, CH_4, and N_2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO_2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or 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:


All Energy Use by Remedy Component and Scope
(in MMbtu)
1200
1000
800
600
400
200
0
Excavation and Backfill
Endpoint Samples
ISCO and permanent wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 1324.2 MMbtus


All Energy Use by Remedy Component
Excavation and Backfill = 76.7%
Endpoint Samples = 9.4%
ISCO and permanent wells = 4.5%
SSDS = 8.9%
SVE = 0.4%
= 0%
Total Energy All Components = 1324.2 MMbtus


All Energy Use by Scope
On-site (Scope 1) = 39.2%
Grid Electricity Generation (Scope 2) = 0.3%
Transportation (Scope 3a) = 19.2%
Other Off-Site (Scope 3b) = 41.4%
Total Energy All Scopes = 1324.2 MMbtus

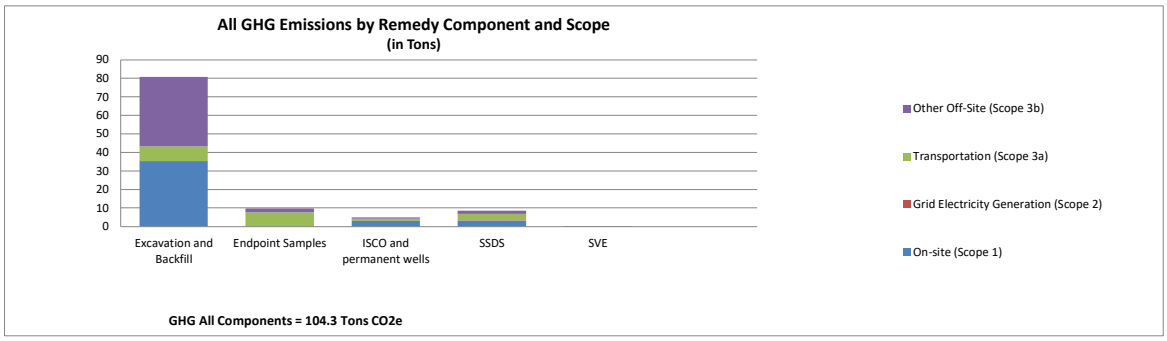
Total Energy
MMbtus

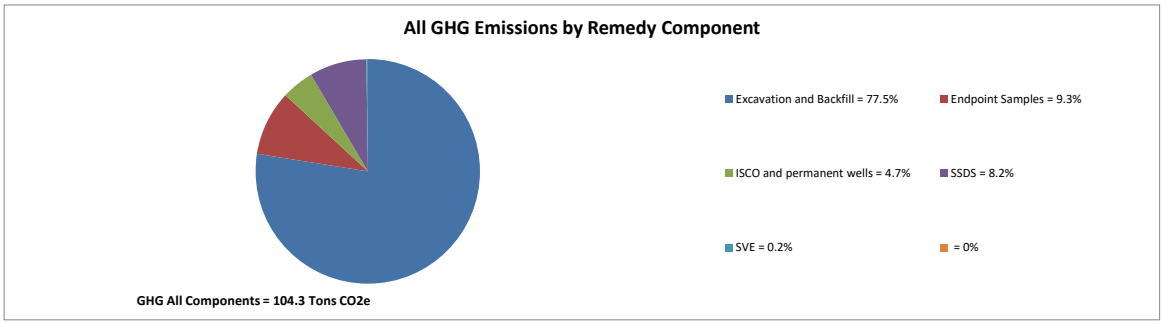
	Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS		SVE		Total
On-site (Scope 1)	440.7	0.1	36.8	41.5	0.0	0.0	519.0	
Grid Electricity Generation (Scope 2)	0.2	0.1	0.1	3.1	0.1	0.0	3.6	
Transportation (Scope 3a)	99.2	95.2	16.6	42.5	0.4	0.0	253.9	
Other Off-Site (Scope 3b)	475.3	29.7	6.7	30.8	5.4	0.0	547.8	
Total	1,015.3	125.1	60.1	117.9	5.9	0.0	1,324.2	

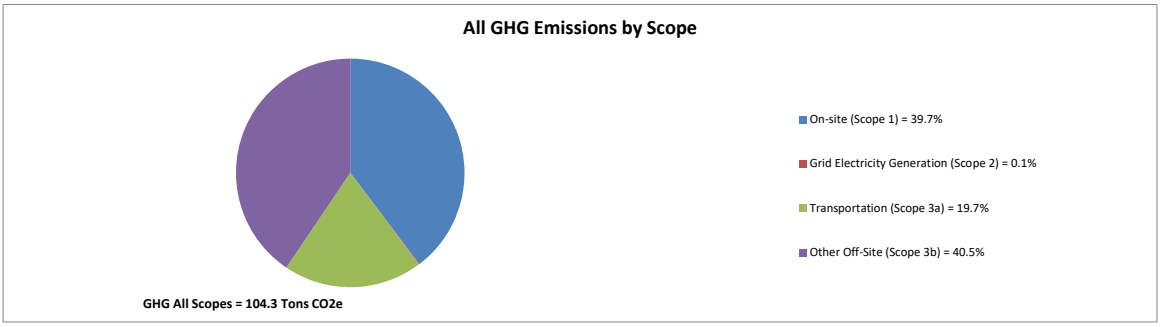
Excavation and Backfill = 76.7%
Endpoint Samples = 9.4%
ISCO and permanent wells = 4.5%
SSDS = 8.9%
SVE = 0.4%
= 0%

On-site (Scope 1) = 39.2%
Grid Electricity Generation (Scope 2) = 0.3%
Transportation (Scope 3a) = 19.2%
Other Off-Site (Scope 3b) = 41.4%

Total Energy All Components = 1324.2 MMbtus
Total Energy All Scopes = 1324.2 MMbtus


All GHG Emissions by Remedy Component and Scope
(in Tons)
90
80
70
60
50
40
30
20
10
0
Excavation and Backfill
Endpoint Samples
ISCO and permanent wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 104.3 Tons CO2e


All GHG Emissions by Remedy Component
Excavation and Backfill = 77.5%
Endpoint Samples = 9.3%
ISCO and permanent wells = 4.7%
SSDS = 8.2%
SVE = 0.2%
= 0%
GHG All Components = 104.3 Tons CO2e


All GHG Emissions by Scope
On-site (Scope 1) = 39.7%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 19.7%
Other Off-Site (Scope 3b) = 40.5%
GHG All Scopes = 104.3 Tons CO2e

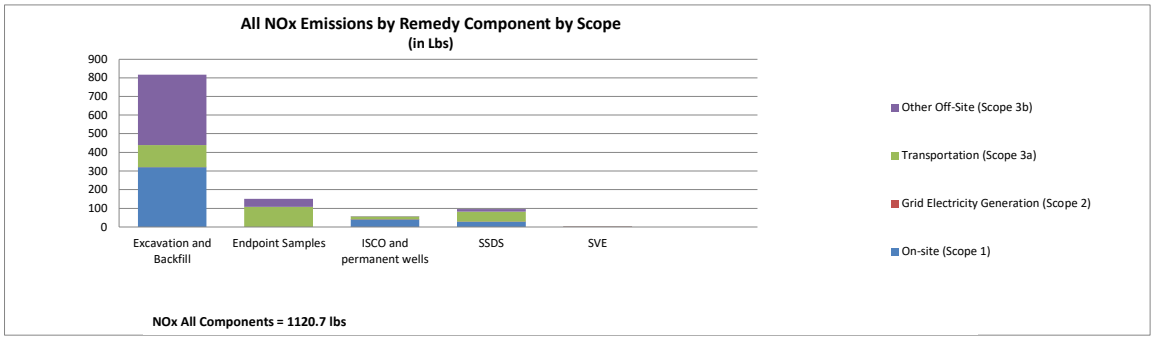
GHG
Tons CO2e

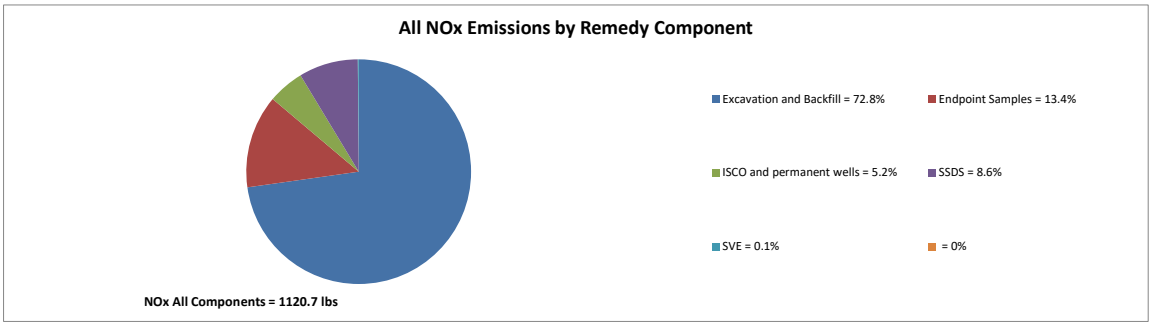
	Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS	SVE			Total
On-site (Scope 1)	35.2	0.0	2.9	3.2	0.0	0.0		41.4
Grid Electricity Generation (Scope 2)	0.0	0.0	0.0	0.1	0.0	0.0		0.1
Transportation (Scope 3a)	8.0	7.7	1.3	3.4	0.0	0.0		20.5
Other Off-Site (Scope 3b)	37.6	2.0	0.6	1.8	0.2	0.0		42.2
Total	80.8	9.7	4.9	8.5	0.2	0.0		104.3

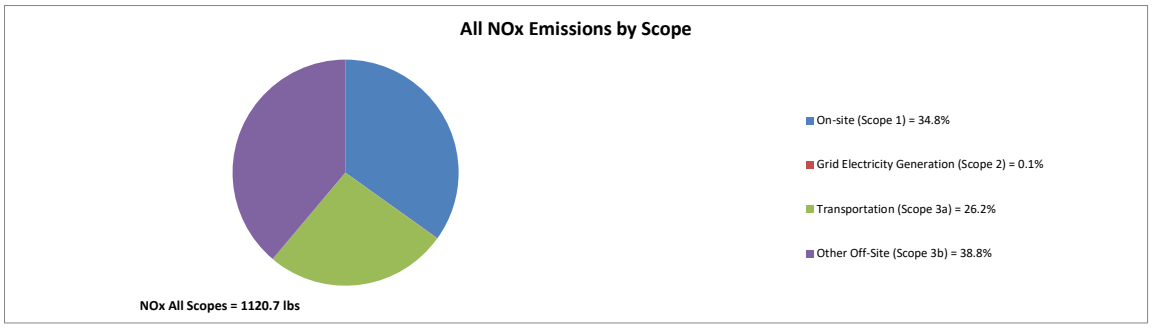
Excavation and Backfill = 77.5%
Endpoint Samples = 9.3%
ISCO and permanent wells = 4.7%
SSDS = 8.2%
SVE = 0.2%
= 0%

On-site (Scope 1) = 39.7%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 19.7%
Other Off-Site (Scope 3b) = 40.5%

GHG All Components = 104.3 Tons CO2e
GHG All Scopes = 104.3 Tons CO2e


All NOx Emissions by Remedy Component by Scope
(in Lbs)
900
800
700
600
500
400
300
200
100
0
Excavation and Backfill
Endpoint Samples
ISCO and permanent wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 1120.7 lbs


All NOx Emissions by Remedy Component
Excavation and Backfill = 72.8%
Endpoint Samples = 13.4%
ISCO and permanent wells = 5.2%
SSDS = 8.6%
SVE = 0.1%
= 0%
NOx All Components = 1120.7 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 34.8%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 26.2%
Other Off-Site (Scope 3b) = 38.8%
NOx All Scopes = 1120.7 lbs

NOx
lbs

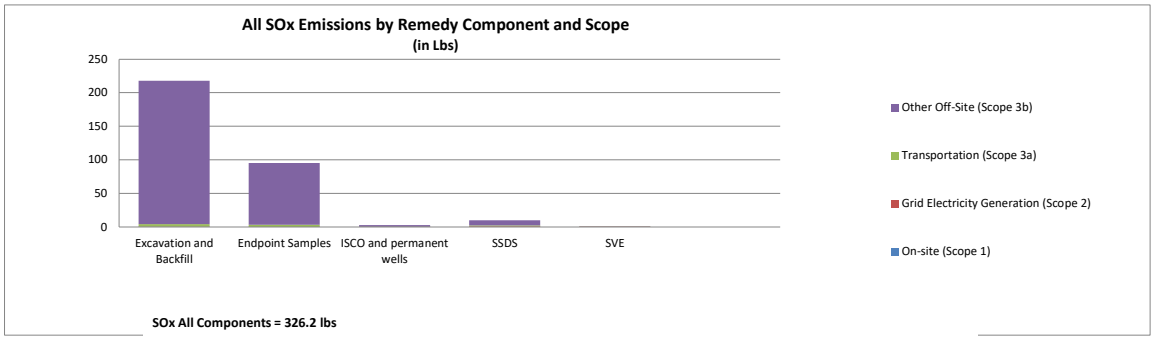
	Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS	SVE		Total
On-site (Scope 1)	320.1	0.0	41.4	29.0	0.0	0.0	390.5
Grid Electricity Generation (Scope 2)	0.1	0.0	0.0	0.7	0.0	0.0	0.8
Transportation (Scope 3a)	119.1	108.5	14.7	51.7	0.2	0.0	294.2
Other Off-Site (Scope 3b)	376.3	41.4	2.0	14.7	0.8	0.0	435.2
Total	815.5	150.0	58.1	96.0	1.0	0.0	1,120.7

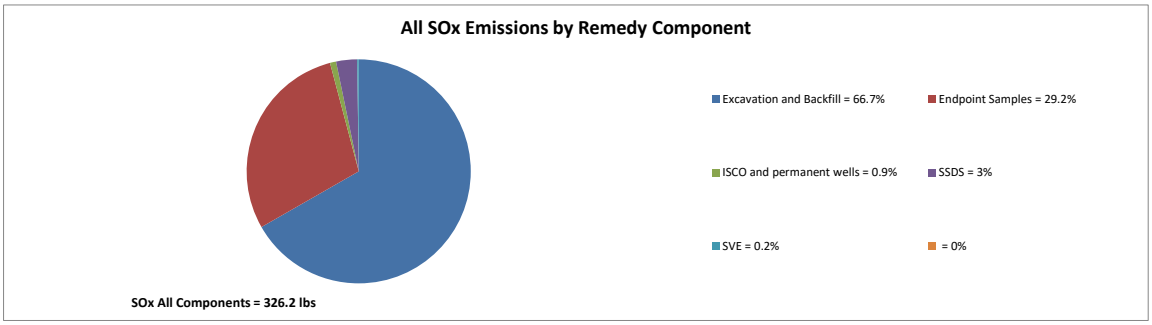
;

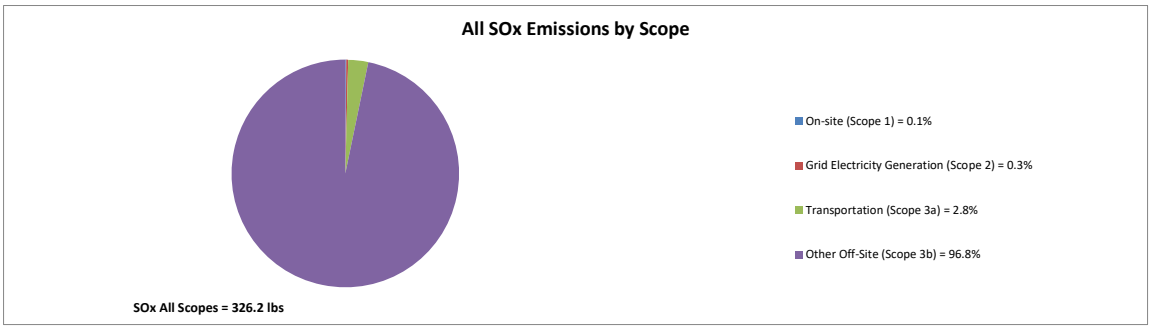
Excavation and Backfill = 72.8%
Endpoint Samples = 13.4%
ISCO and permanent wells = 5.2%
SSDS = 8.6%
SVE = 0.1%
= 0%

On-site (Scope 1) = 34.8%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 26.2%
Other Off-Site (Scope 3b) = 38.8%

NOx All Components = 1120.7 lbs
NOx All Scopes = 1120.7 lbs


All SOx Emissions by Remedy Component and Scope
(in Lbs)
250
200
150
100
50
0
Excavation and Backfill
Endpoint Samples
ISCO and permanent wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 326.2 lbs


All SOx Emissions by Remedy Component
Excavation and Backfill = 66.7%
Endpoint Samples = 29.2%
ISCO and permanent wells = 0.9%
SSDS = 3%
SVE = 0.2%
= 0%
SOx All Components = 326.2 lbs


All SOx Emissions by Scope
On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0.3%
Transportation (Scope 3a) = 2.8%
Other Off-Site (Scope 3b) = 96.8%
SOx All Scopes = 326.2 lbs

SOx
lbs

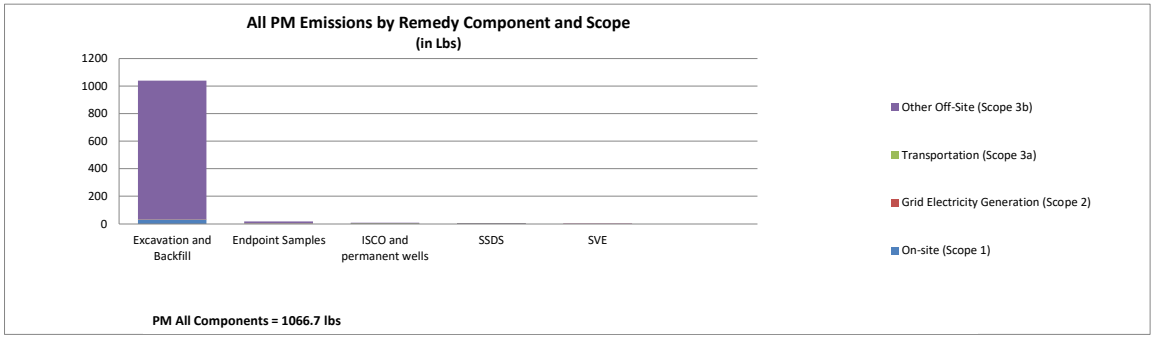
	Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS	SVE		Total
On-site (Scope 1)	0.4	0.0	0.0	0.0	0.0	0.0	0.5
Grid Electricity Generation (Scope 2)	0.1	0.0	0.0	0.7	0.0	0.0	0.8
Transportation (Scope 3a)	3.8	3.4	0.4	1.6	0.0	0.0	9.2
Other Off-Site (Scope 3b)	213.3	91.8	2.4	7.6	0.6	0.0	315.7
Total	217.6	95.2	2.9	9.9	0.6	0.0	326.2

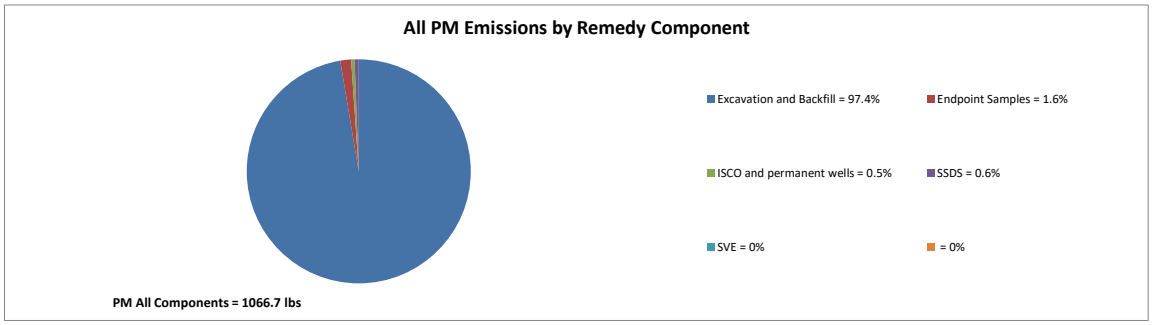
;

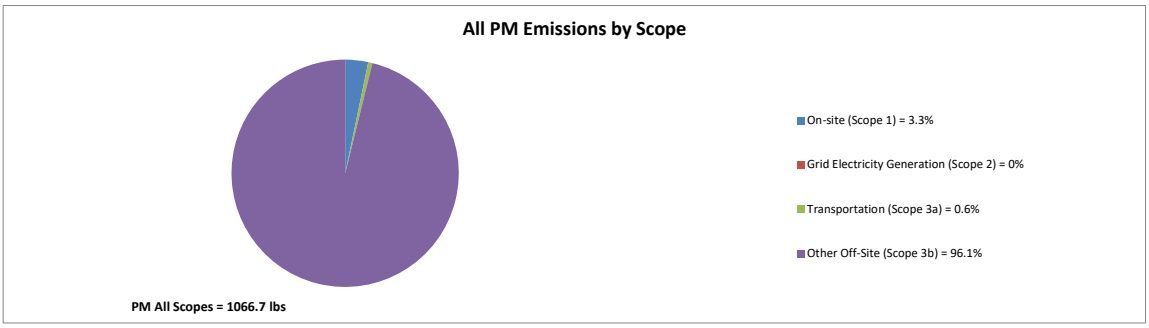
Excavation and Backfill = 66.7%
Endpoint Samples = 29.2%
ISCO and permanent wells = 0.9%
SSDS = 3%
SVE = 0.2%
= 0%

SOx All Components = 326.2 lbs
SOx All Scopes = 326.2 lbs

On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 0.3%
Transportation (Scope 3a) = 2.8%
Other Off-Site (Scope 3b) = 96.8%


All PM Emissions by Remedy Component and Scope
(in Lbs)
1200
1000
800
600
400
200
0
Excavation and Backfill
Endpoint Samples
ISCO and permanent wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 1066.7 lbs


All PM Emissions by Remedy Component
Excavation and Backfill = 97.4%
Endpoint Samples = 1.6%
ISCO and permanent wells = 0.5%
SSDS = 0.6%
SVE = 0%
= 0%
PM All Components = 1066.7 lbs


All PM Emissions by Scope
On-site (Scope 1) = 3.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.6%
Other Off-Site (Scope 3b) = 96.1%
PM All Scopes = 1066.7 lbs

PM
lbs

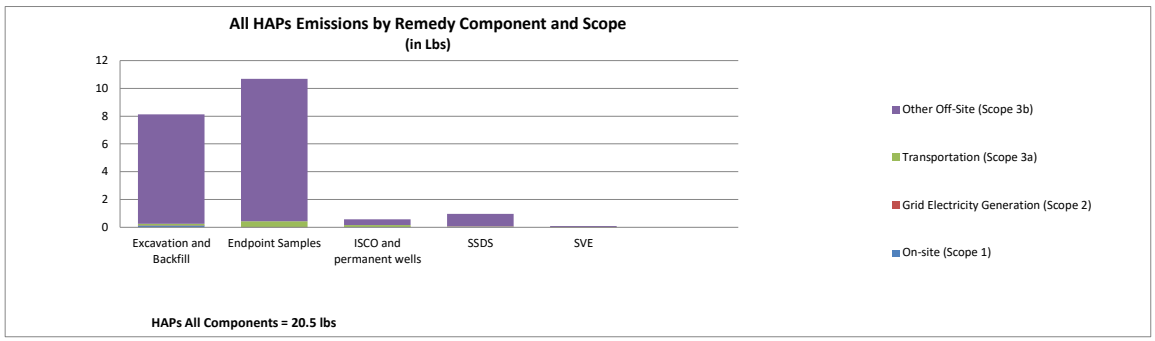
	Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS	SVE			Total
On-site (Scope 1)	28.5	0.0	3.8	2.6	0.0	0.0		34.9
Grid Electricity Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Transportation (Scope 3a)	2.4	2.3	0.6	1.0	0.0	0.0		6.4
Other Off-Site (Scope 3b)	1,007.6	14.3	0.8	2.6	0.1	0.0		1,025.4
Total	1,038.5	16.6	5.2	6.3	0.1	0.0		1,066.7

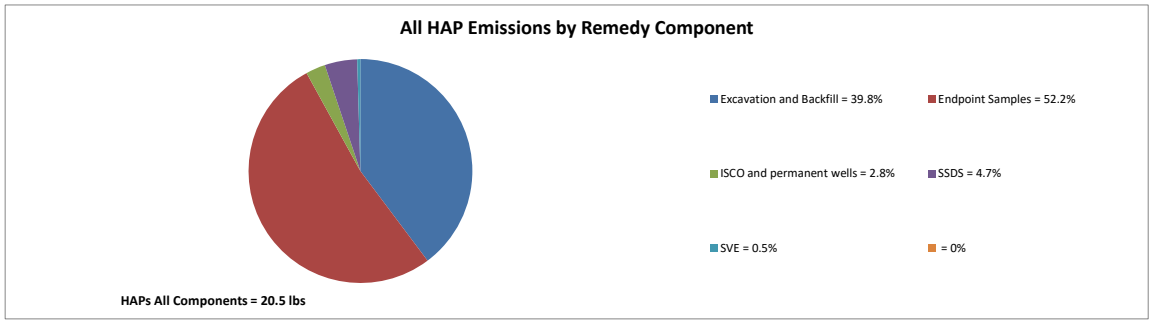
;

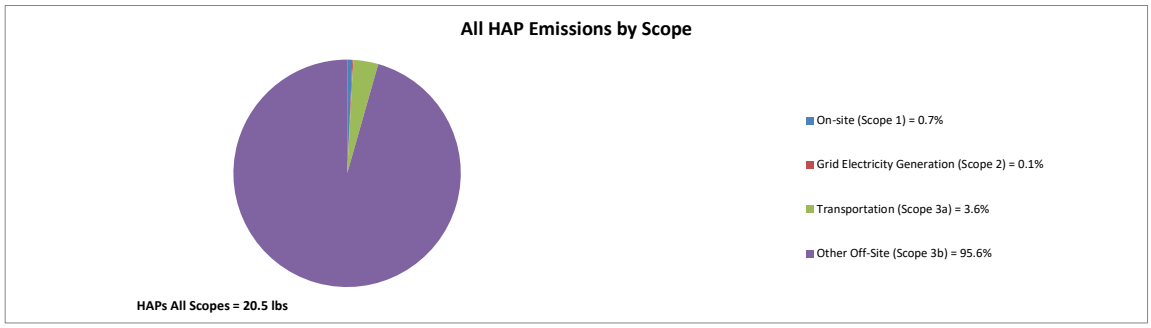
Excavation and Backfill = 97.4%
Endpoint Samples = 1.6%
ISCO and permanent wells = 0.5%
SSDS = 0.6%
SVE = 0%
= 0%

On-site (Scope 1) = 3.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.6%
Other Off-Site (Scope 3b) = 96.1%

PM All Components = 1066.7 lbs
PM All Scopes = 1066.7 lbs


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
12
10
8
6
4
2
0
Excavation and Backfill
Endpoint Samples
ISCO and permanent wells
SSDS
SVE
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 20.5 lbs


All HAP Emissions by Remedy Component
Excavation and Backfill = 39.8%
Endpoint Samples = 52.2%
ISCO and permanent wells = 2.8%
SSDS = 4.7%
SVE = 0.5%
= 0%
HAPs All Components = 20.5 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.7%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 3.6%
Other Off-Site (Scope 3b) = 95.6%
HAPs All Scopes = 20.5 lbs

HAPs
lbs

	Excavation and Backfill	Endpoint Samples	ISCO and permanent wells	SSDS	SVE		Total
On-site (Scope 1)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Grid Electricity Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation (Scope 3a)	0.1	0.4	0.1	0.0	0.0	0.0	0.7
Other Off-Site (Scope 3b)	7.9	10.3	0.4	0.9	0.1	0.0	19.5
Total	8.1	10.7	0.6	1.0	0.1	0.0	20.5

Excavation and Backfill = 39.8%
Endpoint Samples = 52.2%
ISCO and permanent wells = 2.8%
SSDS = 4.7%
SVE = 0.5%
= 0%

HAPs All Components = 20.5 lbs
HAPs All Scopes = 20.5 lbs

On-site (Scope 1) = 0.7%
Grid Electricity Generation (Scope 2) = 0.1%
Transportation (Scope 3a) = 3.6%
Other Off-Site (Scope 3b) = 95.6%

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
On-Site																						
On-site Renewable Energy																						
Renewable electricity generated on-site	MWh							0	0	0	0	0				0	0	0	0	0	0	0
Landfill gas combusted on-site for energy use	ccf CH_4							0	0	0	0	0				0	0	0	0	0	0	0
On-site biodiesel use	gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site biodiesel use - Other	gal							0	0	0	0	0				0	0	0	0	0	0	0
User-defined on-site renewable energy use #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
On-Site Conventional Energy																						
Grid electricity	MWh							0.026208	0.020592	0.00936	0.44736	0.00936				0.026208	0.020592	0.00936	0.44736	0.00936	0	0.51288
On-site diesel use - Other	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site diesel use <75 hp	Gal							0	0	264.22018	0	0				0	0	264.22018	0	0	0	264.22018
On-site diesel use 75<hp<750	Gal							3169.5824	0	0	287.6044	0				3169.5824	0	0	287.6044	0	0	3457.1868
On-site diesel use >750 hp	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site gasoline use - Other	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site gasoline use <25 hp	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site gasoline use >25 hp	Gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site natural gas use	ccf							0	0	0	0	0				0	0	0	0	0	0	0
On-site compressed natural gas use - Other	ccf							0	0	0	0	0				0	0	0	0	0	0	0
On-site compressed natural gas use	ccf							0	0	0	0	0				0	0	0	0	0	0	0
On-site liquified petroleum gas use - Other	gal							0	0	0	0	0				0	0	0	0	0	0	0
On-site liquified petroleum gas use	gal							0	0	0	0	0				0	0	0	0	0	0	0
Other forms of on-site conventional energy use #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Other On-site Emissions																						
On-site HAP process emissions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
On-site GHG emissions	Lbs CO2e							0	0	0	0	0				0	0	0	0	0	0	0
On-site carbon storage	Lbs CO2e							0	0	0	0	0				0	0	0	0	0	0	0
GHG avoided by flaring on-site landfill methane	ccf CH4							0	0	0	0	0				0	0	0	0	0	0	0
Other on-site NOx emissions or reductions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
Other on-site SOx emissions or reductions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
Other on-site PM emissions or reductions	Lbs							0	0	0	0	0				0	0	0	0	0	0	0
Electricity Generation																						
Grid electricity	MWh							0.026208	0.020592	0.00936	0.44736	0.00936				0.026208	0.020592	0.00936	0.44736	0.00936	0	0.51288
Voluntary purchase of renewable electricity	MWh							0	0	0	0	0				0	0	0	0	0	0	0
Voluntary purchase of RECs	MWh							0	0	0	0	0				0	0	0	0	0	0	0
Transportation																						
Transportation Fuel Use Breakdown																						
Biodiesel use - Personnel Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Personnel Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Equipment Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Equipment Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Material Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Material Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Waste Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Biodiesel use - Waste Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Personnel Transport - other vehicles	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Personnel Transport - car	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Personnel Transport - passenger truck	gal							0	0	46.4	0	0				0	0	46.4	0	0	0	46.4
Diesel use - Personnel Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Equipment Transport	gal							2.6	2.6	11.7	2.6	0				2.6	2.6	11.7	2.6	0	0	19.5
Diesel use - Equipment Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Material Transport	gal							258.333	617.499	58.333	300.833	0.833				258.333	617.499	58.333	300.833	0.833	0	1235.831
Diesel use - Material Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel use - Waste Transport	gal							436.7	8.4	0	0	0				436.7	8.4	0	0	0	0	445.1
Diesel use - Waste Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Personnel Transport - other vehicles	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Personnel Transport - car	gal							17.6	62.9	3.4	2.6	2.6				17.6	62.9	3.4	2.6	2.6	0	89.1
Gasoline use - Personnel Transport - passenger truck	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Personnel Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Equipment Transport	gal							0	0	0	0	0				0	0	0	0	0	0	0
Gasoline use - Equipment Transport - User Defined	gal							0	0	0	0	0				0	0	0	0	0	0	0
Natural Gas use - Personnel Transport	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Natural Gas use - Personnel Transport - User Defined	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Natural Gas use - Equipment Transport	ccf							0	0	0	0	0				0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Conventional Energy																						
Transportation diesel use	gal							697.633	628.499	116.433	303.433	0.833				697.633	628.499	116.433	303.433	0.833	0	1746.831
Transportation gasoline use	gal							17.6	62.9	3.4	2.6	2.6				17.6	62.9	3.4	2.6	2.6	0	89.1
Transportation natural gas use	ccf							0	0	0	0	0				0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD							10	10	10	10	10				10	10	10	10	10	0	50
User-defined conventional energy transportation #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal							0	0	0	0	0				0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb							0	0	0	0	0				0	0	0	0	0	0	0
Asphalt, mastic	lb							0	0	0	0	0				0	0	0	0	0	0	0
Asphalt, paving-grade	lb							0	0	0	0	0				0	0	0	0	0	0	0
Ethanol, Corn, 95%	lb							0	0	0	0	0				0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb							0	0	0	0	0				0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb							0	0	0	0	0				0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb							0	0	0	0	0				0	0	0	0	0	0	0
Gravel/sand/clay	lb							0	0	0	0	0				0	0	0	0	0	0	0
HDPE	lb							0	0	0	0	0				0	0	0	0	0	0	0
Photovoltaic system (installed)	W							0	0	0	0	0				0	0	0	0	0	0	0
PVC	lb							0	0	0	200	200				0	0	0	200	200	0	400
Portland cement, US average	lb							1191683	0	0	0	0										
Ready-mixed concrete, 20 MPa	ft3							0	0	0	0	0				0	0	0	0	0	0	0
Round Gravel	lb							357336	0	0	595000	0				357336	0	0	595000	0	0	952336
Sand	lb							0	0	0	0	0				0	0	0	0	0	0	0
Stainless Steel	lb							0	0	0	0	0				0	0	0	0	0	0	0
Steel	lb							0	0	0	0	0				0	0	0	0	0	0	0
Other refined construction materials	lb							0	0	0	0	0				0	0	0	0	0	0	0
Other unrefined construction materials	lb							0	0	0	0	0				0	0	0	0	0	0	0
Treatment Materials & Chemicals																						
Cheese Whey	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Emulsified vegetable oil	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Granular activated carbon, primary	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Iron (II) Sulfate	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Molasses	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Potassium Permanganate	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs							0	0	1000	0	0				0	0	1000	0	0	0	1000
Material Type																						
Total Virgin Refined Materials	tons							774.5095	0	0.5	297.6	0.1				774.5095	0	0.5	297.6	0.1	0	1072.7095
Total Recycled Refined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Reused Refined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Refined Material	tons							774.5095	0	0.5	297.6	0.1				774.5095	0	0.5	297.6	0.1	0	1072.7095
Total Virgin Unrefined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Recycled Unrefined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Unrefined Material	tons							0	0	0	0	0				0	0	0	0	0	0	0
Fuel Processing																						
Biodiesel produced	gal							0	0	0	0	0				0	0	0	0	0	0	0
Diesel produced	gal							3867.2154	628.499	380.65318	591.0374	0.833				3867.2154	628.499	380.65318	591.0374	0.833	0	5468.238
Gasoline produced	gal							17.6	62.9	3.4	2.6	2.6				17.6	62.9	3.4	2.6	2.6	0	89.1
Compressed natural gas produced	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Liquified petroleum gas produced	gal							0	0	0	0	0				0	0	0	0	0	0	0
Natural gas produced	ccf							0	0	0	0	0				0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000							2.7	0	8	0	0				2.7	0	8	0	0	0	10.7
Extracted Groundwater	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Surface Water	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Reclaimed Water	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
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Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Waste/Recycle Handling																						
Hazardous waste incineration	lbs							0	0	0	0	0				0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000							0	0	0	0	0				0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons							2500	0	0	0	0				2500	0	0	0	0	0	2500
Off-site hazardous waste landfill	tons							0	0	0	0	0				0	0	0	0	0	0	0
Recycled/Reused On-Site	tons							0	0	0	0	0				0	0	0	0	0	0	0
Recycled/Reused Off-Site	tons							0	0	0	0	0				0	0	0	0	0	0	0
Solid Waste Totals																						
Total Non-Hazardous Waste	tons							2500	0	0	0	0				2500	0	0	0	0	0	2500
Total Hazardous Waste	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Recycled/Reused	tons							0	0	0	0	0				0	0	0	0	0	0	0
Total Waste (all types)	tons							2500	0	0	0	0				2500	0	0	0	0	0	2500
Lab Services																						
Off-site Laboratory Analysis - Other	sample							0	78	0	0	0				0	78	0	0	0	0	78
Off-site Laboratory Analysis - Metals	sample							0	26	0	0	0				0	26	0	0	0	0	26
Off-site Laboratory Analysis - Mercury	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Inorganic Anions	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample							0	0	0	0	0				0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample							0	26	0	0	0				0	26	0	0	0	0	26
Off-site Laboratory Analysis - VOCs	sample							0	48	0	0	0				0	48	0	0	0	0	48
Off-site Laboratory Analysis - SVOCs	sample							0	26	0	0	0				0	26	0	0	0	0	26
Resource Extraction for Electricity																						
Coal extraction and processing	MWh							0.0079934	0.0012355	0.0005616	0.0268416	0.0005616				0.0079934	0.0012355	0.0005616	0.0268416	0.0005616	0	0.0371938
Natural gas extraction and processing	MWh							0.0088845	0.0020592	0.000936	0.044736	0.000936				0.0088845	0.0020592	0.000936	0.044736	0.000936	0	0.0575517
Nuclear fuel extraction and processing	MWh							0.0051892	0.0004118	0.0001872	0.0089472	0.0001872				0.0051892	0.0004118	0.0001872	0.0089472	0.0001872	0	0.0149226
Oil extraction and processing	MWh							0.0001835	0.0010296	0.000468	0.022368	0.000468				0.0001835	0.0010296	0.000468	0.022368	0.000468	0	0.0245171
Other fuel extraction and processing	MWh							2.621E-05	0	0	0	0				2.621E-05	0	0	0	0	0	2.621E-05
Electricity Transmission																						
Transmission and distribution losses	MWh							0.026208	0.020592	0.00936	0.44736	0.00936				0.026208	0.020592	0.00936	0.44736	0.00936	0	0.51288

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4	5				Remedy Component Subtotals						
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Other																						
User-defined material #1	ton							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #4	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #5	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #6	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #7	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #8	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #9	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #10	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #11	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #12	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #13	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #14	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #15	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #16	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #17	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #18	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #19	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined material #20	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined Waste Destinations																						
User-defined recycled/reused on-site #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD							0	0	0	0	0				0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD							0	0	0	0	0				0	0	0	0	0	0	0

Track 1 Remedy

H & A OF NEW YORK ENGINEERING
AND GEOLOGY, LLP
213 W. 35th Street
7th Floor
New York, NY 10001
646.277.5685

February 20, 2026
File No. 0204391

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

Attention: Yildiz Palumbo

Subject: Green Site Remediation
Former New City Link Auto Repair Site
NYSDEC Site C224407
547 Coney Island Avenue and 50 Hinckley Place
Brooklyn, New York 11218

H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York) presents the following environmental footprint analysis[1] in accordance with EPA 542-R-12-002 for the preferred Track 2 Remedy of the above-referenced site at 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, New York 11218 (Site).

FORMER NEW CITY LINK AUTO REPAIR SITE REMEDY – TRACK 1 CLEANUP

The primary remedial tasks consist of the following:

- Excavation
- Endpoint Sampling
- Groundwater Monitoring
- Soil Vapor Intrusion Evaluation

The preferred remedy will result in estimated totals of:

- 14877.46 Metric Million British Thermal Unit (MMBtus) of energy used;
- 1174.98 tons of total greenhouse gas emissions (CO2e [includes consideration of carbon dioxide, methane, and nitrous oxide emissions]);
- 36514.26 pounds (lbs) of nitrogen oxides (NOx) + sulfur oxides (SOx) + particulate matter (PM) emissions; and
- 141.37 lbs of hazardous air pollutant (HAP) emissions.

[1] *Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019.*

Energy

- 3,676.59 MMBtus used for on-Site activities, such as excavation,
- 178.33 MMBtus used for grid electricity generation,
- 2,548.56 MMBtus used for transportation of personnel, remedy materials, and waste disposal, and
- 8,473.97 MMBtus used for off-Site activities.

Greenhouse Gas Emissions (CO_2e)

- 574,199.65 tons of CO_2e are estimated to be produced from on-Site activities, such as excavation,
- 28,924.48 tons of CO_2e are estimated to be produced from grid electricity generation,
- 412,495.27 tons of CO_2e are estimated to be produced from transportation of personnel, remedy materials, and waste disposal, and
- 1,331,454.70 tons are estimated to be produced from off-Site activities.

Water Usage

- 47,650 gallons of water are estimated to be used to wash down trucks and tires on an imported gravel truck wash pad, for grout production for monitoring well installation, and for groundwater remediation injections.

Roughly a third of the energy use and of CO_2e generation will originate from on-Site activities for the Track 1 Remedy. Overall, the footprint of the Site Remedy is dominated by off-Site activities, which include landfill use and diesel fuel production. Off-Site energy use comprises 56.96 percent of all energy use and off-Site greenhouse gas emissions comprises 56.73 percent of all emissions for the Track 1 Remedy.

Sincerely yours,
H & A OF NEW YORK ENGINEERING AND GEOLOGY, LLP

Zachary P. Simmel
Project Manager

Suzanne M. Bell, P.E.
Senior Associate

James M. Bellew
Principal

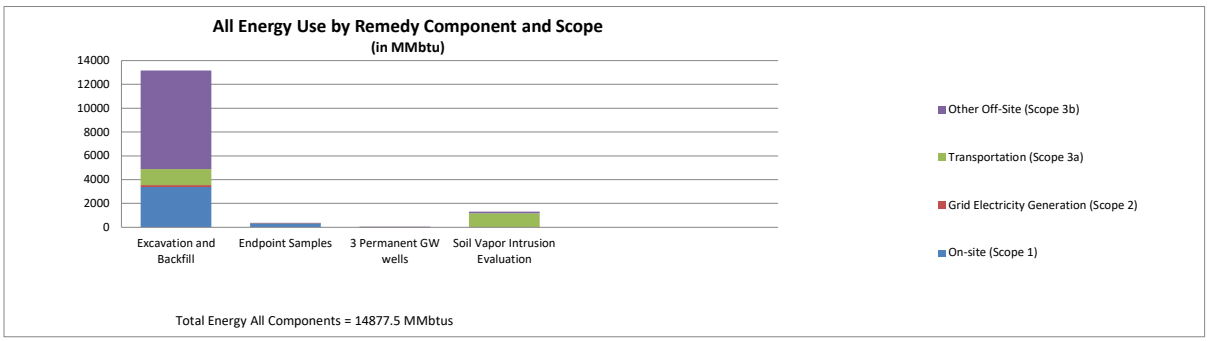
Environmental Footprint Summary

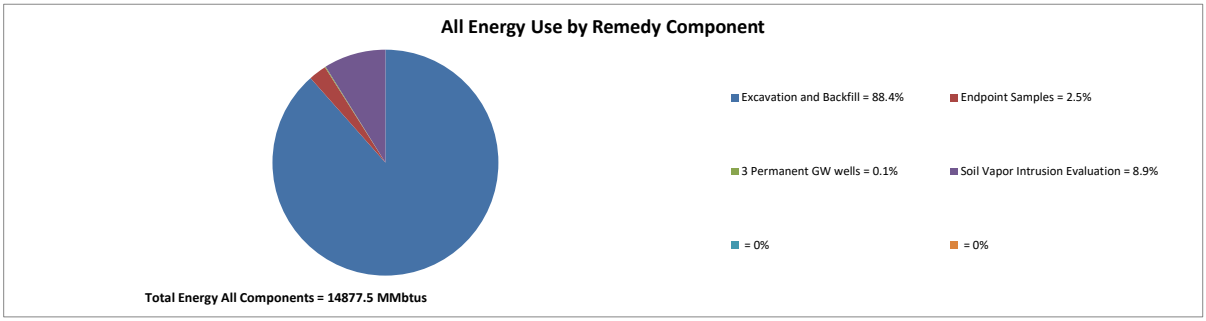
Core Element	Metric		Unit of Measure	Footprint						
				Excavation and Backfill	Endpoint Samples	3 Permanent GW wells	Soil Vapor Intrusion Evaluation			Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	297.5	0.0	0.0	0.0	0.0	0.0	297.5
	M&W-2	% of refined materials from recycled or reused 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	47,550.0	0.0	0.0	0.0	0.0	0.0	47,550.0
	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%
Water (used on-site)	W-1	Public water use	MG	0.0467	0.0000	0.0	0.0	0.0	0.0	0.0477
	W-2	Groundwater use	MG	0.5	0.0	0.0	0.0	0.0	0.0	0.5
	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	13,156.2	378.9	20.4	1,321.8	0.0	0.0	14,877.5
	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	25.722	0.010	0.005	0.000	0.000	0.000	25.7
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	2,597.7	245.6	0.0	0.0	0.0	0.0	2,843.4
	A-2	On-site HAP emissions	Pounds	0.9	0.1	0.0	0.0	0.0	0.0	1.0
	A-3	Total NOx, SOx, and PM emissions	Pounds	34,336.7	526.7	20.0	1,630.9	0.0	0.0	36,514.3
	A-3A	Total NOx emissions	Pounds	10,932.2	306.1	17.8	1,483.1	0.0	0.0	12,739.2
	A-3B	Total SOx emissions	Pounds	4,078.3	172.9	1.4	103.8	0.0	0.0	4,356.3
	A-3C	Total PM emissions	Pounds	19,326.2	47.7	0.8	44.0	0.0	0.0	19,418.7
	A-4	Total HAP emissions	Pounds	111.2	19.9	0.3	10.0	0.0	0.0	141.4
	A-5	Total greenhouse gas emissions	Tons CO2e*	1,035.2	30.0	1.6	108.1	0.0	0.0	1,175.0
Land & Ecosystems	Qualitative Description									

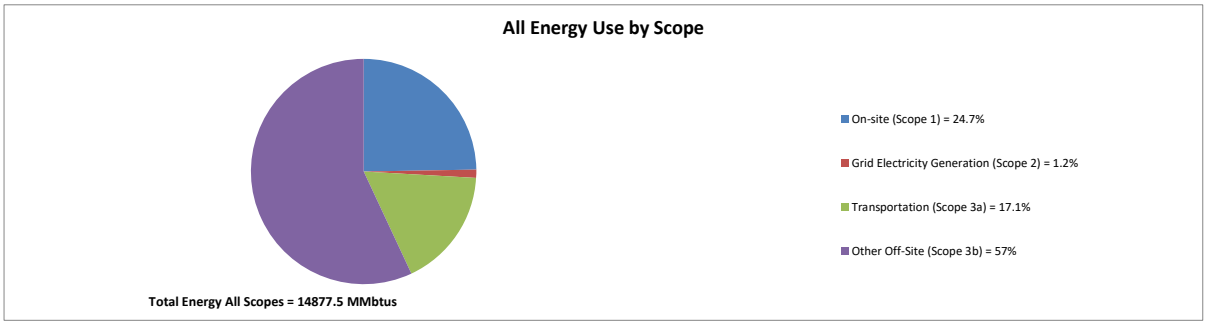
** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions 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:


All Energy Use by Remedy Component and Scope
(in MMbtu)
14000
12000
10000
8000
6000
4000
2000
0
Excavation and Backfill
Endpoint Samples
3 Permanent GW wells
Soil Vapor Intrusion Evaluation
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 14877.5 MMbtus


All Energy Use by Remedy Component
Excavation and Backfill = 88.4%
Endpoint Samples = 2.5%
3 Permanent GW wells = 0.1%
Soil Vapor Intrusion Evaluation = 8.9%
= 0%
= 0%
Total Energy All Components = 14877.5 MMbtus


All Energy Use by Scope
On-site (Scope 1) = 24.7%
Grid Electricity Generation (Scope 2) = 1.2%
Transportation (Scope 3a) = 17.1%
Other Off-Site (Scope 3b) = 57%
Total Energy All Scopes = 14877.5 MMbtus

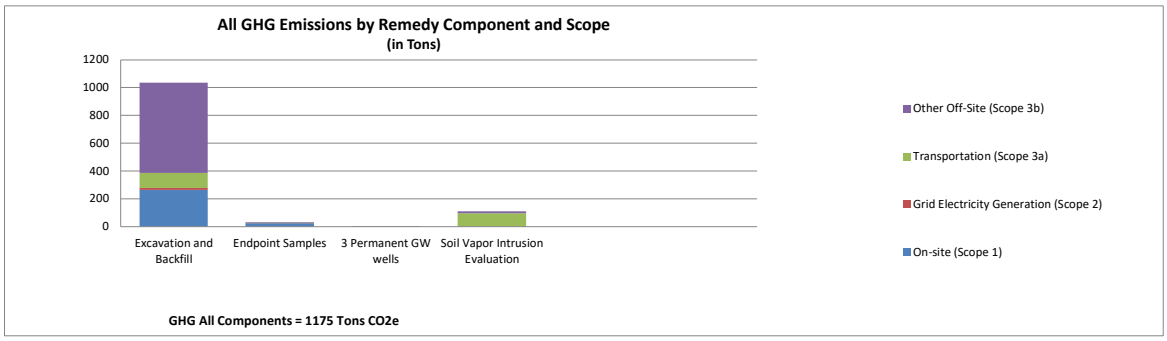
Total Energy
MMbtus

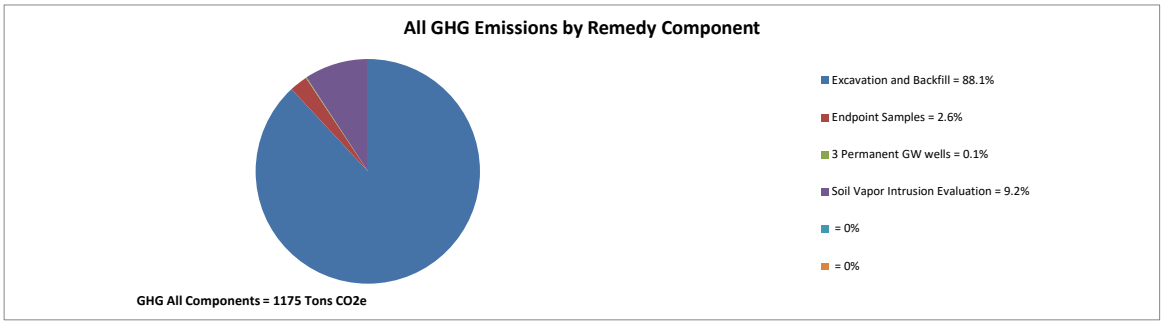
	Excavation and Backfill	Endpoint Samples	3 Permanent GW wells	Soil Vapor				Total
On-site (Scope 1)	3,366.5	310.1	0.0	0.0	0.0	0.0		3,676.6
Grid Electricity Generation (Scope 2)	178.2	0.1	0.0	0.0	0.0	0.0		178.3
Transportation (Scope 3a)	1,353.5	1.3	17.4	1,176.3	0.0	0.0		2,548.6
Other Off-Site (Scope 3b)	8,258.0	67.5	3.0	145.5	0.0	0.0		8,474.0
Total	13,156.2	378.9	20.4	1,321.8	0.0	0.0		14,877.5

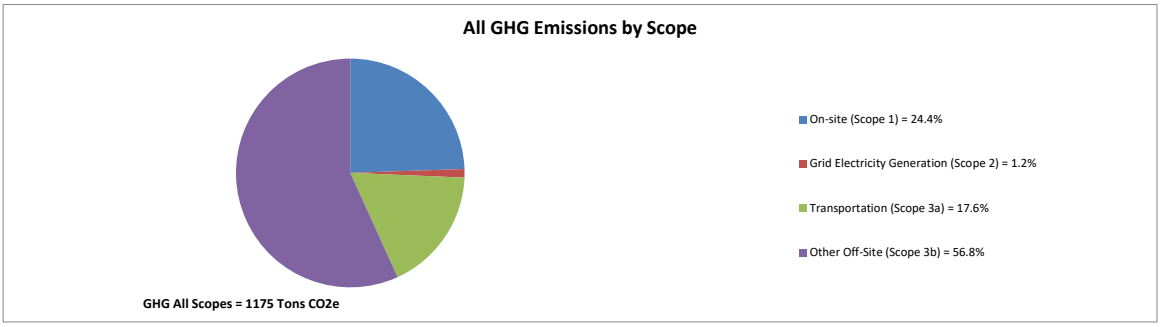
Excavation and Backfill = 88.4%
Endpoint Samples = 2.5%
3 Permanent GW wells = 0.1%
Soil Vapor Intrusion Evaluation = 8.9%
= 0%
= 0%

On-site (Scope 1) = 24.7%
Grid Electricity Generation (Scope 2) = 1.2%
Transportation (Scope 3a) = 17.1%
Other Off-Site (Scope 3b) = 57%

Total Energy All Components = 14877.5 MMbtus
Total Energy All Scopes = 14877.5 MMbtus


All GHG Emissions by Remedy Component and Scope
(in Tons)
1200
1000
800
600
400
200
0
Excavation and Backfill
Endpoint Samples
3 Permanent GW wells
Soil Vapor Intrusion Evaluation
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 1175 Tons CO2e


All GHG Emissions by Remedy Component
Excavation and Backfill = 88.1%
Endpoint Samples = 2.6%
3 Permanent GW wells = 0.1%
Soil Vapor Intrusion Evaluation = 9.2%
= 0%
= 0%
GHG All Components = 1175 Tons CO2e


All GHG Emissions by Scope
On-site (Scope 1) = 24.4%
Grid Electricity Generation (Scope 2) = 1.2%
Transportation (Scope 3a) = 17.6%
Other Off-Site (Scope 3b) = 56.8%
GHG All Scopes = 1175 Tons CO2e

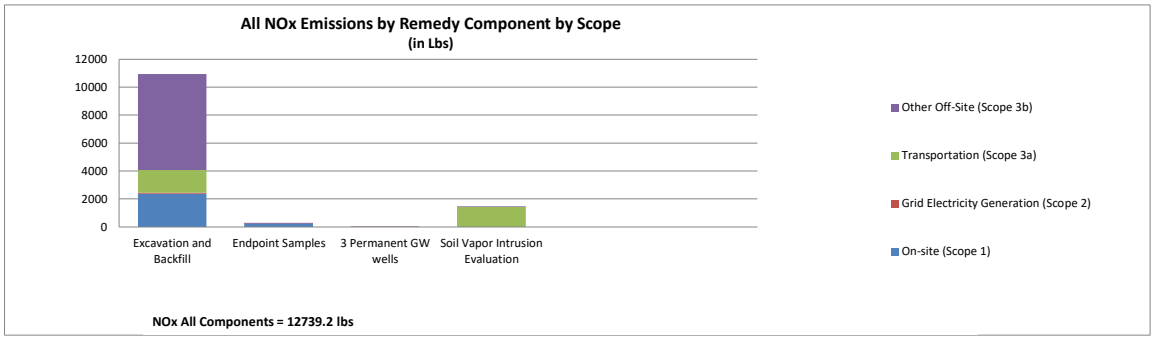
GHG
Tons CO2e

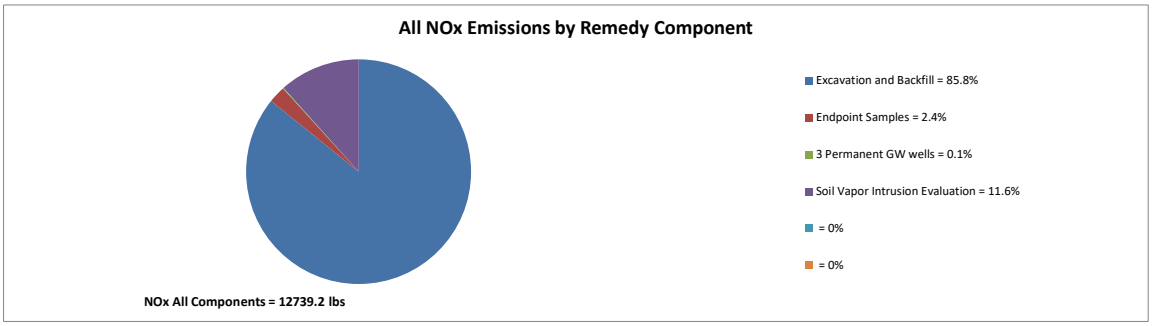
	Excavation and Backfill	Endpoint Samples	3 Permanent GW wells	Soil Vapor				Total
On-site (Scope 1)	262.3	24.8	0.0	0.0	0.0	0.0		287.1
Grid Electricity Generation (Scope 2)	14.5	0.0	0.0	0.0	0.0	0.0		14.5
Transportation (Scope 3a)	109.5	0.1	1.4	95.2	0.0	0.0		206.2
Other Off-Site (Scope 3b)	649.0	5.1	0.2	12.9	0.0	0.0		667.2
Total	1,035.2	30.0	1.6	108.1	0.0	0.0		1,175.0

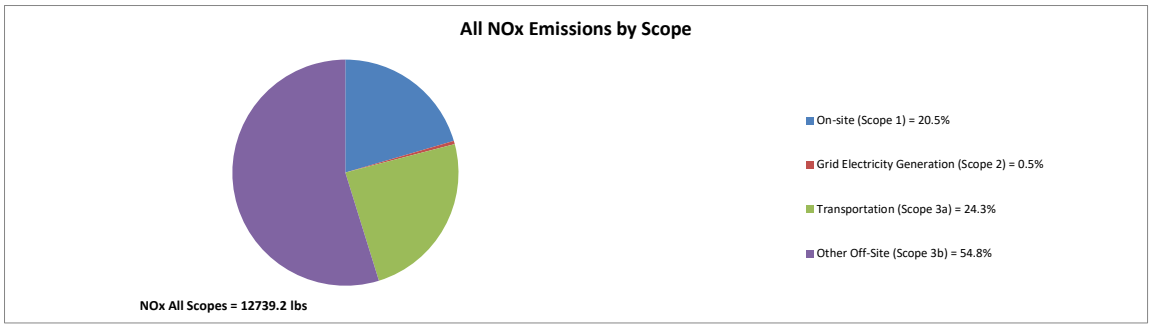
Excavation and Backfill = 88.1%
Endpoint Samples = 2.6%
3 Permanent GW wells = 0.1%
Soil Vapor Intrusion Evaluation = 9.2%
= 0%
= 0%

On-site (Scope 1) = 24.4%
Grid Electricity Generation (Scope 2) = 1.2%
Transportation (Scope 3a) = 17.6%
Other Off-Site (Scope 3b) = 56.8%

GHG All Components = 1175 Tons CO2e
GHG All Scopes = 1175 Tons CO2e


All NOx Emissions by Remedy Component by Scope
(in Lbs)
12000
10000
8000
6000
4000
2000
0
Excavation and Backfill
Endpoint Samples
3 Permanent GW wells
Soil Vapor Intrusion Evaluation
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 12739.2 lbs


All NOx Emissions by Remedy Component
Excavation and Backfill = 85.8%
Endpoint Samples = 2.4%
3 Permanent GW wells = 0.1%
Soil Vapor Intrusion Evaluation = 11.6%
= 0%
= 0%
NOx All Components = 12739.2 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 20.5%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 24.3%
Other Off-Site (Scope 3b) = 54.8%
NOx All Scopes = 12739.2 lbs

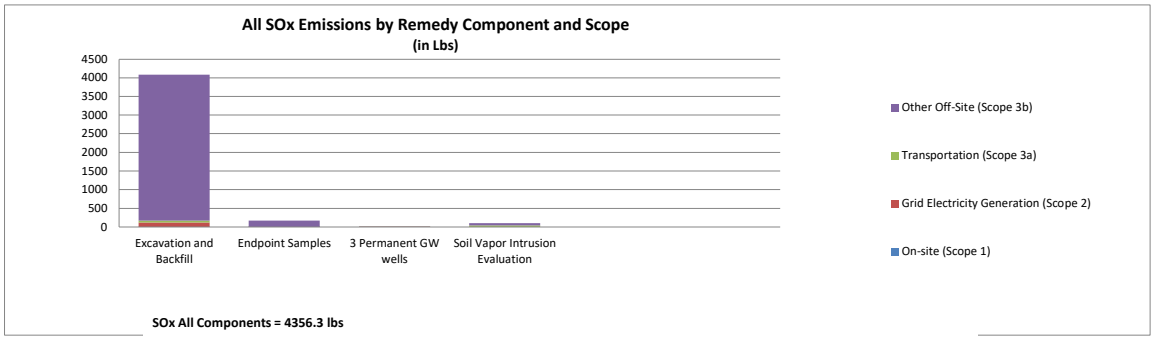
NOx
lbs

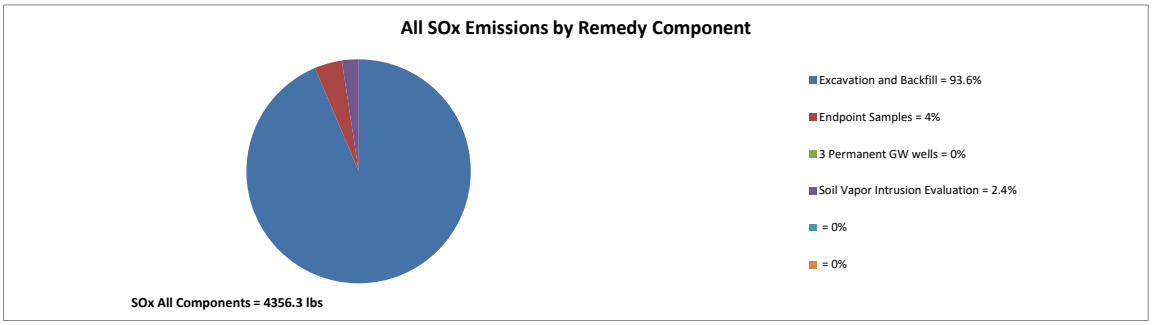
	Excavation and Backfill	Endpoint Samples	3 Permanent GW wells		Soil Vapor			Total
On-site (Scope 1)	2,382.4	225.3	0.0	0.0	0.0	0.0		2,607.7
Grid Electricity Generation (Scope 2)	57.7	0.0	0.0	0.0	0.0	0.0		57.7
Transportation (Scope 3a)	1,639.6	0.8	17.0	1,437.5	0.0	0.0		3,094.9
Other Off-Site (Scope 3b)	6,852.6	79.9	0.8	45.7	0.0	0.0		6,979.0
Total	10,932.2	306.1	17.8	1,483.1	0.0	0.0		12,739.2

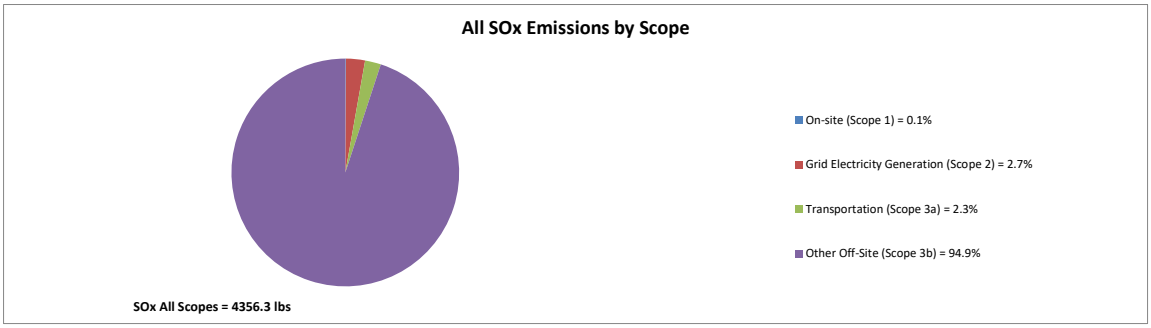
Excavation and Backfill = 85.8%
Endpoint Samples = 2.4%
3 Permanent GW wells = 0.1%
Soil Vapor Intrusion Evaluation = 11.6%
= 0%
= 0%

NOx All Components = 12739.2 lbs
NOx All Scopes = 12739.2 lbs

On-site (Scope 1) = 20.5%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 24.3%
Other Off-Site (Scope 3b) = 54.8%


All SOx Emissions by Remedy Component and Scope
(in Lbs)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Excavation and Backfill
Endpoint Samples
3 Permanent GW wells
Soil Vapor Intrusion Evaluation
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 4356.3 lbs


All SOx Emissions by Remedy Component
Excavation and Backfill = 93.6%
Endpoint Samples = 4%
3 Permanent GW wells = 0%
Soil Vapor Intrusion Evaluation = 2.4%
= 0%
= 0%
SOx All Components = 4356.3 lbs


All SOx Emissions by Scope
On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 2.7%
Transportation (Scope 3a) = 2.3%
Other Off-Site (Scope 3b) = 94.9%
SOx All Scopes = 4356.3 lbs

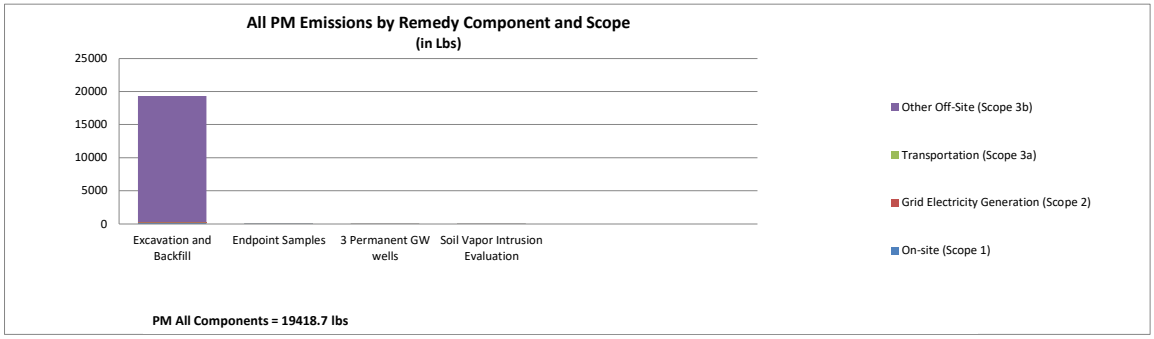
SOx
lbs

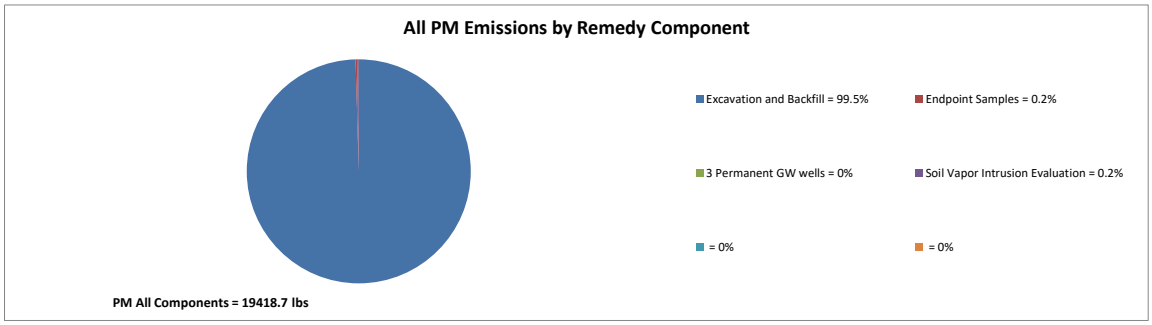
	Excavation and Backfill	Endpoint Samples	3 Permanent GW wells	Soil Vapor			Total
On-site (Scope 1)	3.1	0.3	0.0	0.0	0.0	0.0	3.4
Grid Electricity Generation (Scope 2)	118.5	0.0	0.0	0.0	0.0	0.0	118.5
Transportation (Scope 3a)	52.0	0.0	0.5	45.7	0.0	0.0	98.2
Other Off-Site (Scope 3b)	3,904.7	172.6	0.9	58.1	0.0	0.0	4,136.3
Total	4,078.3	172.9	1.4	103.8	0.0	0.0	4,356.3

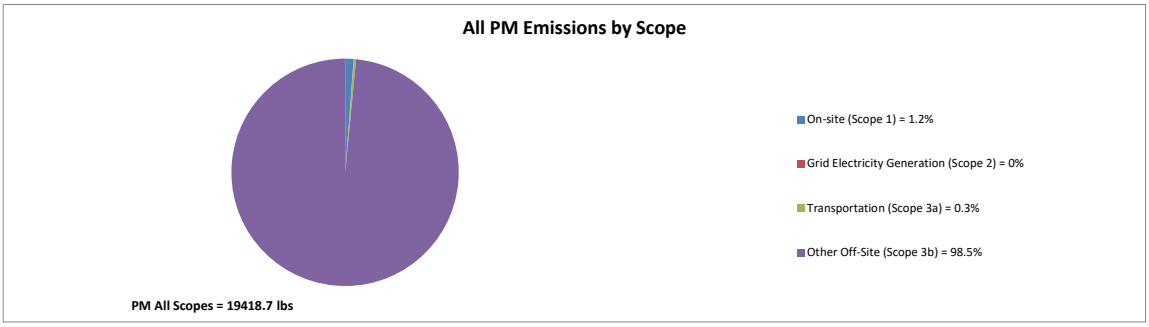
Excavation and Backfill = 93.6%
Endpoint Samples = 4%
3 Permanent GW wells = 0%
Soil Vapor Intrusion Evaluation = 2.4%
= 0%
= 0%

SOx All Components = 4356.3 lbs
SOx All Scopes = 4356.3 lbs

On-site (Scope 1) = 0.1%
Grid Electricity Generation (Scope 2) = 2.7%
Transportation (Scope 3a) = 2.3%
Other Off-Site (Scope 3b) = 94.9%


All PM Emissions by Remedy Component and Scope
(in Lbs)
25000
20000
15000
10000
5000
0
Excavation and Backfill
Endpoint Samples
3 Permanent GW wells
Soil Vapor Intrusion Evaluation
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 19418.7 lbs


All PM Emissions by Remedy Component
Excavation and Backfill = 99.5%
Endpoint Samples = 0.2%
3 Permanent GW wells = 0%
Soil Vapor Intrusion Evaluation = 0.2%
= 0%
= 0%
PM All Components = 19418.7 lbs


All PM Emissions by Scope
On-site (Scope 1) = 1.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.3%
Other Off-Site (Scope 3b) = 98.5%
PM All Scopes = 19418.7 lbs

PM
lbs

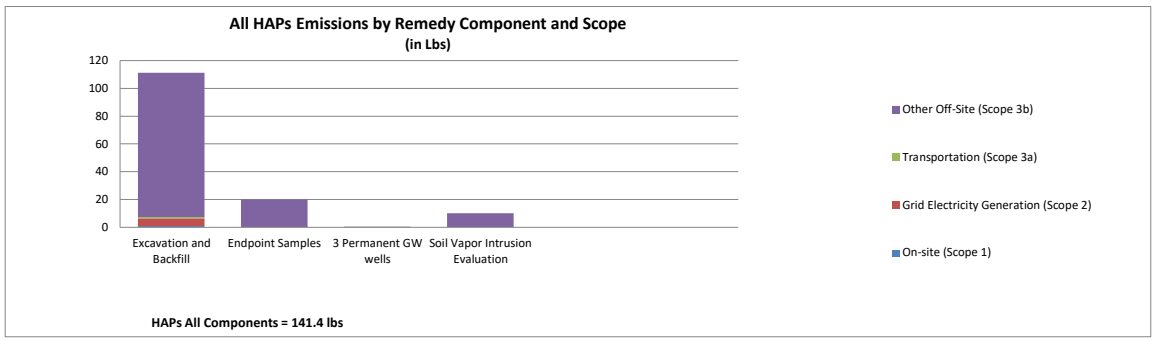
	Excavation and Backfill	Endpoint Samples	3 Permanent GW wells	Soil Vapor			Total
On-site (Scope 1)	212.3	20.1	0.0	0.0	0.0	0.0	232.4
Grid Electricity Generation (Scope 2)	1.5	0.0	0.0	0.0	0.0	0.0	1.5
Transportation (Scope 3a)	33.1	0.0	0.6	28.8	0.0	0.0	62.5
Other Off-Site (Scope 3b)	19,079.3	27.6	0.2	15.2	0.0	0.0	19,122.4
Total	19,326.2	47.7	0.8	44.0	0.0	0.0	19,418.7

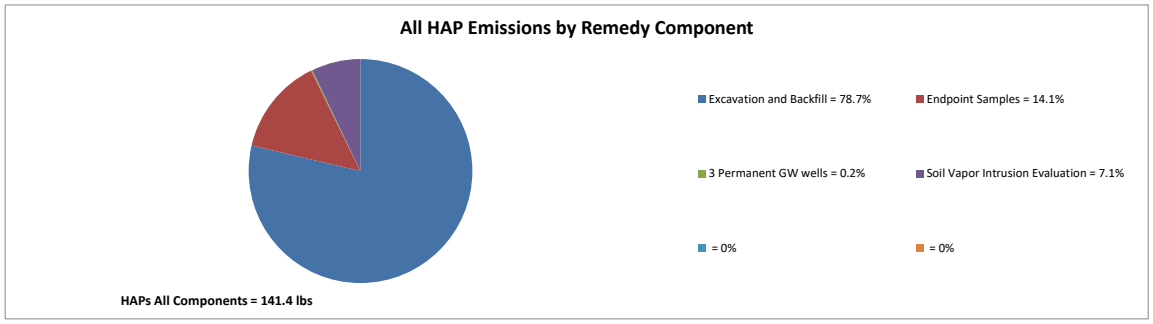
;

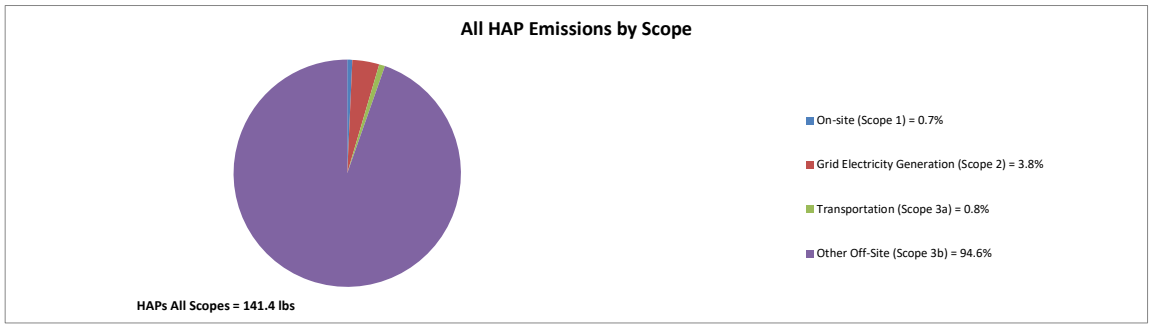
Excavation and Backfill = 99.5%
Endpoint Samples = 0.2%
3 Permanent GW wells = 0%
Soil Vapor Intrusion Evaluation = 0.2%
= 0%
= 0%

On-site (Scope 1) = 1.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.3%
Other Off-Site (Scope 3b) = 98.5%

PM All Components = 19418.7 lbs
PM All Scopes = 19418.7 lbs


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
120
100
80
60
40
20
0
Excavation and Backfill
Endpoint Samples
3 Permanent GW wells
Soil Vapor Intrusion Evaluation
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 141.4 lbs


All HAP Emissions by Remedy Component
Excavation and Backfill = 78.7%
Endpoint Samples = 14.1%
3 Permanent GW wells = 0.2%
Soil Vapor Intrusion Evaluation = 7.1%
= 0%
= 0%
HAPs All Components = 141.4 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.7%
Grid Electricity Generation (Scope 2) = 3.8%
Transportation (Scope 3a) = 0.8%
Other Off-Site (Scope 3b) = 94.6%
HAPs All Scopes = 141.4 lbs

HAPs
lbs

	Excavation and Backfill	Endpoint Samples	3 Permanent GW wells	Soil Vapor			Total
On-site (Scope 1)	0.9	0.1	0.0	0.0	0.0	0.0	1.0
Grid Electricity Generation (Scope 2)	5.4	0.0	0.0	0.0	0.0	0.0	5.4
Transportation (Scope 3a)	0.9	0.0	0.1	0.1	0.0	0.0	1.2
Other Off-Site (Scope 3b)	104.0	19.7	0.1	9.9	0.0	0.0	133.8
Total	111.2	19.9	0.3	10.0	0.0	0.0	141.4

Excavation and Backfill = 78.7%
Endpoint Samples = 14.1%
3 Permanent GW wells = 0.2%
Soil Vapor Intrusion Evaluation = 7.1%
= 0%
= 0%

HAPs All Components = 141.4 lbs
HAPs All Scopes = 141.4 lbs

On-site (Scope 1) = 0.7%
Grid Electricity Generation (Scope 2) = 3.8%
Transportation (Scope 3a) = 0.8%
Other Off-Site (Scope 3b) = 94.6%

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019
Former New City Link Auto Repair Site - RAWP - Track 1 Remedy - 547 Coney Island Avenue and 50 Hinckley Place

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4					Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
On-Site																						
On-site Renewable Energy																						
Renewable electricity generated on-site	MWh							0	0	0	0					0	0	0	0	0	0	0
Landfill gas combusted on-site for energy use	ccf CH_4							0	0	0	0					0	0	0	0	0	0	0
On-site biodiesel use	gal							0	0	0	0					0	0	0	0	0	0	0
On-site biodiesel use - Other	gal							0	0	0	0					0	0	0	0	0	0	0
User-defined on-site renewable energy use #1	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD							0	0	0	0					0	0	0	0	0	0	0
On-Site Conventional Energy																						
Grid electricity	MWh							25.722	0.01008	0.00468	0.00012					25.722	0.01008	0.00468	0.00012	0	0	25.73688
On-site diesel use - Other	Gal							0	0	0	0					0	0	0	0	0	0	0
On-site diesel use <75 hp	Gal							0	0	0	0					0	0	0	0	0	0	0
On-site diesel use 75<hp<750	Gal							23587.912	2230.4176	0	0					23587.912	2230.4176	0	0	0	0	25818.33
On-site diesel use >750 hp	Gal							0	0	0	0					0	0	0	0	0	0	0
On-site gasoline use - Other	Gal							0	0	0	0					0	0	0	0	0	0	0
On-site gasoline use <25 hp	Gal							0	0	0	0					0	0	0	0	0	0	0
On-site gasoline use >25 hp	Gal							0	0	0	0					0	0	0	0	0	0	0
On-site natural gas use	ccf							0	0	0	0					0	0	0	0	0	0	0
On-site compressed natural gas use - Other	ccf							0	0	0	0					0	0	0	0	0	0	0
On-site compressed natural gas use	ccf							0	0	0	0					0	0	0	0	0	0	0
On-site liquified petroleum gas use - Other	gal							0	0	0	0					0	0	0	0	0	0	0
On-site liquified petroleum gas use	gal							0	0	0	0					0	0	0	0	0	0	0
Other forms of on-site conventional energy use #1	TBD							0	0	0	0					0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD							0	0	0	0					0	0	0	0	0	0	0
Other On-site Emissions																						
On-site HAP process emissions	Lbs							0	0	0	0					0	0	0	0	0	0	0
On-site GHG emissions	Lbs CO2e							0	0	0	0					0	0	0	0	0	0	0
On-site carbon storage	Lbs CO2e							0	0	0	0					0	0	0	0	0	0	0
GHG avoided by flaring on-site landfill methane	ccf CH4							0	0	0	0					0	0	0	0	0	0	0
Other on-site NOx emissions or reductions	Lbs							0	0	0	0					0	0	0	0	0	0	0
Other on-site SOx emissions or reductions	Lbs							0	0	0	0					0	0	0	0	0	0	0
Other on-site PM emissions or reductions	Lbs							0	0	0	0					0	0	0	0	0	0	0
Electricity Generation																						
Grid electricity	MWh							25.722	0.01008	0.00468	0.00012					25.722	0.01008	0.00468	0.00012	0	0	25.73688
Voluntary purchase of renewable electricity	MWh							0	0	0	0					0	0	0	0	0	0	0
Voluntary purchase of RECs	MWh							0	0	0	0					0	0	0	0	0	0	0
Transportation																						
Transportation Fuel Use Breakdown																						
Biodiesel use - Personnel Transport	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Personnel Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Equipment Transport	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Equipment Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Material Transport	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Material Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Waste Transport	gal							0	0	0	0					0	0	0	0	0	0	0
Biodiesel use - Waste Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel use - Personnel Transport - other vehicles	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel use - Personnel Transport - car	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel use - Personnel Transport - passenger truck	gal							0	0	36.4	0					0	0	36.4	0	0	0	36.4
Diesel use - Personnel Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel use - Equipment Transport	gal							3.9	3.9	0	0					3.9	3.9	0	0	0	0	7.8
Diesel use - Equipment Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel use - Material Transport	gal							300	0	87.5	0					300	0	87.5	0	0	0	387.5
Diesel use - Material Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel use - Waste Transport	gal							9317.5	0	0	8454.2					9317.5	0	0	8454.2	0	0	17771.7
Diesel use - Waste Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Gasoline use - Personnel Transport - other vehicles	gal							0	0	0	0					0	0	0	0	0	0	0
Gasoline use - Personnel Transport - car	gal							77	6.4	1.6	9.6					77	6.4	1.6	9.6	0	0	94.6
Gasoline use - Personnel Transport - passenger truck	gal							52.9	0	0	0					52.9	0	0	0	0	0	52.9
Gasoline use - Personnel Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Gasoline use - Equipment Transport	gal							0	0	0	0					0	0	0	0	0	0	0
Gasoline use - Equipment Transport - User Defined	gal							0	0	0	0					0	0	0	0	0	0	0
Natural Gas use - Personnel Transport	ccf							0	0	0	0					0	0	0	0	0	0	0
Natural Gas use - Personnel Transport - User Defined	ccf							0	0	0	0					0	0	0	0	0	0	0
Natural Gas use - Equipment Transport	ccf							0	0	0	0					0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4					Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Conventional Energy																						
Transportation diesel use	gal							9621.4	3.9	123.9	8454.2					9621.4	3.9	123.9	8454.2	0	0	18203.4
Transportation gasoline use	gal							129.9	6.4	1.6	9.6					129.9	6.4	1.6	9.6	0	0	147.5
Transportation natural gas use	ccf							0	0	0	0					0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD							10	10	10	10					10	10	10	10	0	0	40
User-defined conventional energy transportation #2	TBD							0	0	0	0					0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal							0	0	0	0					0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD							0	0	0	0					0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb							0	0	0	0					0	0	0	0	0	0	0
Asphalt, mastic	lb							0	0	0	0					0	0	0	0	0	0	0
Asphalt, paving-grade	lb							0	0	0	0					0	0	0	0	0	0	0
Ethanol, Corn, 95%	lb							0	0	0	0					0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb							0	0	0	0					0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb							0	0	0	0					0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb							0	0	0	0					0	0	0	0	0	0	0
Gravel/sand/clay	lb							0	0	0	0					0	0	0	0	0	0	0
HDPE	lb							0	0	0	0					0	0	0	0	0	0	0
Photovoltaic system (installed)	W							0	0	0	0					0	0	0	0	0	0	0
PVC	lb							0	0	30	0					0	0	30	0	0	0	30
Portland cement, US average	lb							0	0	0	0											
Ready-mixed concrete, 20 MPa	ft3							0	0	0	0					0	0	0	0	0	0	0
Round Gravel	lb							595000	0	0	0					595000	0	0	0	0	0	595000
Sand	lb							0	0	36	0					0	0	36	0	0	0	36
Stainless Steel	lb							0	0	0	0					0	0	0	0	0	0	0
Steel	lb							0	0	0	0					0	0	0	0	0	0	0
Other refined construction materials	lb							0	0	0	0					0	0	0	0	0	0	0
Other unrefined construction materials	lb							0	0	0	0					0	0	0	0	0	0	0
Treatment Materials & Chemicals																						
Cheese Whey	lbs							0	0	0	0					0	0	0	0	0	0	0
Emulsified vegetable oil	lbs							0	0	0	0					0	0	0	0	0	0	0
Granular activated carbon, primary	lbs							0	0	0	0					0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs							0	0	0	0					0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs							0	0	0	0					0	0	0	0	0	0	0
Iron (II) Sulfate	lbs							0	0	0	0					0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs							0	0	0	0					0	0	0	0	0	0	0
Molasses	lbs							0	0	0	0					0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs							0	0	0	0					0	0	0	0	0	0	0
Potassium Permanganate	lbs							0	0	0	0					0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs							0	0	0	0					0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs							0	0	0	0					0	0	0	0	0	0	0
Material Type																						
Total Virgin Refined Materials	tons							297.5	0	0.033	0					297.5	0	0.033	0	0	0	297.533
Total Recycled Refined Materials	tons							0	0	0	0					0	0	0	0	0	0	0
Total Reused Refined Materials	tons							0	0	0	0					0	0	0	0	0	0	0
Total Refined Material	tons							297.5	0	0.033	0					297.5	0	0.033	0	0	0	297.533
Total Virgin Unrefined Materials	tons							0	0	0	0					0	0	0	0	0	0	0
Total Recycled Unrefined Materials	tons							0	0	0	0					0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons							0	0	0	0					0	0	0	0	0	0	0
Total Unrefined Material	tons							0	0	0	0					0	0	0	0	0	0	0
Fuel Processing																						
Biodiesel produced	gal							0	0	0	0					0	0	0	0	0	0	0
Diesel produced	gal							33209.312	2234.3176	123.9	8454.2					33209.312	2234.3176	123.9	8454.2	0	0	44021.73
Gasoline produced	gal							129.9	6.4	1.6	9.6					129.9	6.4	1.6	9.6	0	0	147.5
Compressed natural gas produced	ccf							0	0	0	0					0	0	0	0	0	0	0
Liquified petroleum gas produced	gal							0	0	0	0					0	0	0	0	0	0	0
Natural gas produced	ccf							0	0	0	0					0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000							46.65	0	1	0					46.65	0	1	0	0	0	47.65
Extracted Groundwater	gal x 1000							500	0	0	0					500	0	0	0	0	0	500
Surface Water	gal x 1000							0	0	0	0					0	0	0	0	0	0	0
Reclaimed Water	gal x 1000							0	0	0	0					0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000							0	0	0	0					0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000							0	0	0	0					0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000							0	0	0	0					0	0	0	0	0	0	0

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4					Remedy Component Subtotals						
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Waste/Recycle Handling																						
Hazardous waste incineration	lbs							0	0	0	0					0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000							0	0	0	0					0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons							47550	0	0	0					47550	0	0	0	0	0	47550
Off-site hazardous waste landfill	tons							0	0	0	0					0	0	0	0	0	0	0
Recycled/Reused On-Site	tons							0	0	0	0					0	0	0	0	0	0	0
Recycled/Reused Off-Site	tons							0	0	0	0					0	0	0	0	0	0	0
Solid Waste Totals																						
Total Non-Hazardous Waste	tons							47550	0	0	0					47550	0	0	0	0	0	47550
Total Hazardous Waste	tons							0	0	0	0					0	0	0	0	0	0	0
Total Recycled/Reused	tons							0	0	0	0					0	0	0	0	0	0	0
Total Waste (all types)	tons							47550	0	0	0					47550	0	0	0	0	0	47550
Lab Services																						
Off-site Laboratory Analysis - Other	sample							0	150	0	0					0	150	0	0	0	0	150
Off-site Laboratory Analysis - Metals	sample							0	50	0	0					0	50	0	0	0	0	50
Off-site Laboratory Analysis - Mercury	sample							0	0	0	0					0	0	0	0	0	0	0
Off-site Laboratory Analysis - Inorganic Anions	sample							0	0	0	0					0	0	0	0	0	0	0
Off-site Laboratory Analysis - Alkalinity	sample							0	0	0	0					0	0	0	0	0	0	0
Off-site Laboratory Analysis - Perchlorate	sample							0	0	0	0					0	0	0	0	0	0	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample							0	0	0	0					0	0	0	0	0	0	0
Off-site Laboratory Analysis - Sulfate	sample							0	0	0	0					0	0	0	0	0	0	0
Off-site Laboratory Analysis - PCBs	sample							0	50	0	0					0	50	0	0	0	0	50
Off-site Laboratory Analysis - VOCs	sample							0	50	0	10					0	50	0	10	0	0	60
Off-site Laboratory Analysis - SVOCs	sample							0	50	0	10					0	50	0	10	0	0	60
Resource Extraction for Electricity																						
Coal extraction and processing	MWh							7.84521	0.0006048	0.0002808	0.0000072					7.84521	0.0006048	0.0002808	0.0000072	0	0	7.8461028
Natural gas extraction and processing	MWh							8.719758	0.001008	0.000468	0.000012					8.719758	0.001008	0.000468	0.000012	0	0	8.721246
Nuclear fuel extraction and processing	MWh							5.092956	0.0002016	0.0000936	0.0000024					5.092956	0.0002016	0.0000936	0.0000024	0	0	5.0932536
Oil extraction and processing	MWh							0.180054	0.000504	0.000234	0.000006					0.180054	0.000504	0.000234	0.000006	0	0	0.180798
Other fuel extraction and processing	MWh							0.025722	0	0	0					0.025722	0	0	0	0	0	0.025722
Electricity Transmission																						
Transmission and distribution losses	MWh							25.722	0.01008	0.00468	0.00012					25.722	0.01008	0.00468	0.00012	0	0	25.73688

Input Summary

Remedy Component Number →			2	3	4	5	6	1	2	3	4					Remedy Component Subtotals						
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Item		Input Template	Input Template (2)	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Other																						
User-defined material #1	ton							0	0	0	0					0	0	0	0	0	0	0
User-defined material #2	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #3	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #4	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #5	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #6	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #7	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #8	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #9	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #10	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #11	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #12	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #13	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #14	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #15	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #16	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #17	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #18	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #19	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined material #20	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined Waste Destinations																						
User-defined recycled/reused on-site #1	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined recycled/reused on-site #2	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined non-hazardous waste destination #1	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD							0	0	0	0					0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD							0	0	0	0					0	0	0	0	0	0	0

APPENDIX I
Project Personnel Resumes

SUZANNE BELL, PE

Senior Project Manager

EDUCATION

B.S., Biosystems Engineering, University of Arizona

PROFESSIONAL REGISTRATIONS

AZ: Environmental Engineer (Reg. No. 61995)
NY: Professional Engineer (Reg No. 106301)

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste and Operations Emergency Response Training (29 CFR 1910.120 and 40 CFR 265.16)
8-Hour HAZWOPER Refresher Course

Suzanne is a senior project manager with over 14 years of experience in the environmental consulting industry. She has worked on soil and groundwater environmental investigations, remediation projects, and prepared reports for private, industrial, and government clients. Her technical experience includes remediation systems; soil and groundwater feasibility studies; Phase I site investigations; environmental file review and historical research; stormwater assessments and SWPPP preparation; reclamation planning for the sand and gravel mining industry; air permitting; and data interpretation.

RELEVANT PROJECT EXPERIENCE

Waterfront Property Management, 89-91 Gerry Street and 93 Gerry Street, Brooklyn, New York. Suzanne served as project manager for execution of Remedial Action Work Plans at the former Just4Wheels Site and Just4Wheels Site 2 under the New York State Brownfield Cleanup Program (NYSBCP). Responsible for remedial oversight of excavation and removal of non-hazardous and hazardous soil, endpoint sample collection, air monitoring, dewatering system installation support, communication with soil brokerage firm and environmental laboratory, preparation of Daily Field Reports (DFRs and the Final Engineering Report (FER).

Multiple Clients, Remedial Investigation Work Plans and BCP Applications, New York City, New York. As project manager and engineer, Suzanne has prepared NYSBCP Applications and Remedial Investigation Work Plans for the New York State Department of Environmental Conservation (NYSDEC) for sites within the New York City boroughs.

Excavation Oversight and CAMP Monitoring, Various Sites, New York City, New York. Suzanne has served as project manager for projects under the New York City Office of Environmental Remediation (NYCOER) program and NYSBCP. Her responsibilities included managing excavation oversight, air monitoring, and logging trucks for off-site disposal.

Aerospace Manufacturing Facility, Feasibility Study and Remedial Action Plan, Chula Vista, CA. Suzanne co-authored feasibility studies for soil and ground water impacted by chlorinated solvents, metals, and PCBs. She screened ex-situ and in-situ remedial alternatives for effectiveness, implementability, and protectiveness of human health. She also assessed alternative cleanup levels for technical and economic feasibility of achieving background concentrations in accordance with State Water Resources Control Board Resolution 92-49. Additionally, she evaluated groundwater remedial alternatives, including bioremediation, monitored natural attenuation (MNA), pump and treat, chemical oxidation, chemical reduction, and engineered and institutional controls. Lastly, she prepared engineering cost estimates and conceptual designs. Assisted with the preparation of remedial action plans: a bioremediation remedy and MNA program for groundwater, and excavation of contaminated soil.

Aerospace Manufacturing Facility, Groundwater Remediation and Bioremediation Pilot Test, Riverside, CA. Suzanne assisted with data analysis and reporting for the bioremediation pilot test study for groundwater impacted by chlorinated solvents, hexavalent chromium, and 1,4-dioxane. She evaluated site data for trends indicative of MNA using statistical analysis.

Goodyear Tire & Rubber Company, Phoenix Goodyear Airport South Superfund Site, Goodyear, Arizona. Suzanne prepared reports and performed data analysis related to the groundwater monitoring program and operation and maintenance of groundwater treatment systems. Currently, two groundwater extraction and remediation systems are capable of treating more than 1MGD of groundwater contaminated with trichloroethylene. The upper groundwater zone is treated with an air stripper, while the lower zone is treated with granulated activated carbon. Treated groundwater is reinjected into their respective zones.

Soil and Groundwater Remediation Systems, Arizona. Suzanne **p**erformed operation, maintenance, and sampling activities for two soil vapor extraction systems to remove tetrachloroethylene from subsurface soils at two different dry-cleaning facilities. She prepared soil vapor extraction GAC system test reports in accordance with Maricopa County Air Quality Department Permits.

ASTM Phase I Environmental Site Assessments, Arizona. Suzanne assisted with ASTM Phase I ESAs at various industrial facilities in central and southern Arizona. She evaluated site conditions and regulatory implications as they related to the owner's or potential buyer's property development plans.

Phoenix-Goodyear Airport-North Superfund Site, Focused Feasibility Study, Goodyear, Arizona. Suzanne was a member of team that prepared a source area remediation focused feasibility study report. She evaluated several technologies and alternatives to treat groundwater contaminated with trichloroethylene (TCE) and perchlorate. She analyzed remedial alternatives, including in-well air stripping, a hydraulic barrier, nano- and macro-scale zero-valent iron, anaerobic reductive dechlorination, in-situ chemical oxidation (permanganate), and electrical resistive heating. She prepared cost estimates, conceptual designs, remediation technology summaries, and sustainability evaluation of the alternatives.

Enhanced In-Situ Bioremediation (EISB) and Chemical Reduction Using a Nanoscale, Zero-Valent Metallic Alloy to Treat Co-disposed Chloroethanes and Chloroethenes in Groundwater, Manufacturing Facility, Canton, MA. Suzanne performed data analysis and prepared status reports on effectiveness of EISB in treating chlorinated solvents in shallow groundwater. She reported on the performance monitoring results for the permeable reactive barrier in deep zone groundwater.

Hayden Facilities RI/FS, ASARCO LLC, Hayden, Arizona. Suzanne served as Quality Assurance Officer for the air monitoring program at a copper smelting facility. She developed site-specific data validation procedures according EPA guidelines for several analytical methods.

Market Evaluation for Nanoscale Zero-Valent Iron, Stamford, Connecticut. Suzanne used EPA CERCLIS Public Access Database and select State databases to estimate the market size for potential use of nanoscale zero-valent iron (nZVI) as a remediation technology. She compiled competing vendor information and quotes to estimate the average cost of similar products. She utilized the U.S. Patent and Trademark Office database to analyze competing technologies.

AZPDES and NPDES Permits, Arizona. Suzanne prepared Arizona Pollutant Discharge Elimination System (AZPDES) and National Pollutant Discharge Elimination System (NPDES) permit renewal applications for a copper mining facility in Southern Arizona, which included updates to the facility's Storm Water Pollution Prevention Plan (SWPPP) and QA Manual.

Spill Prevention, Control and Countermeasure Plans, Aggregate Mining Facilities, Arizona. Suzanne assisted with a Spill Prevention, Control and Countermeasure Plans (SPCC) for aggregate mining facilities in Arizona. She performed site visit, evaluated fuel and oil tanks and secondary containment areas, assisted with calculations to verify compliance, and prepared report.

Copper Mining Facility, Miami, Arizona. Suzanne assisted with Toxic Release Inventory (TRI) and Toxic Substances Control Act (TSCA) reporting, both submitted to the EPA.

Storm Water Pollution Prevention Plan, Franciscan Friars of California, Gila County, Arizona. Suzanne updated the SWPPP for construction activities related to the closure of a historic Gibson copper mine, authorized under the Arizona Pollutant Discharge Elimination System "General Permit for Discharge from Construction Activities to Waters of the United States." The Former Gibson Mine is a small, historic copper mine, located approximately 7 miles southwest of Miami, Arizona, in Gila County. Construction activities covered under the updated SWPPP consisted of the excavation, hauling, and removal of approximately 80,000 tons of soil cover from the Mineral Creek side of the site to mine-scarred areas on the Pinto Creek side of the site. Also included was final grading of the site, which consisted of re-contouring and re-defining any portion of the drainages that were on site; and revegetation.

Stormwater Pollution Prevention Plans, Vulcan Materials Company, Western Division, Arizona. Suzanne prepared SWPPP for 11 aggregate mining facilities in Arizona. Performed site visits, analyzed stormwater flows, prepared reports, and completed Notices of Intent for the Arizona Department of Environmental Quality under a Multi-Sector General Permit.

Uranium Enrichment Facility, Lea County, New Mexico. Suzanne prepared quarterly and annual groundwater monitoring reports, semi-annual radioactive effluent release reports, and radiological environmental monitoring program reports in accordance with New Mexico Environment Department regulations and the Nuclear Regulatory Commission. Performed quarterly data validation on a variety of matrices and analytical methods. She prepared site-specific environmental monitoring procedures, which included field sampling techniques; data collection, management and validation; and an air modeling software package.

Rocket Testing and Research Facility, Western U.S. Suzanne analyzed and evaluated groundwater quality data, prepared reports, and managed data for this Resource Conservation and Recovery Act (RCRA) site. Assisted with management of sampling, analysis, and reporting of constituents of concern for fractured sandstone bedrock aquifer impacted by chlorinated solvents and emergent chemicals 1,4-dioxane, perchlorate, and n-nitrosodimethylamine (NDMA). Performed data validation of water quality data according to U.S. EPA National Functional Guidelines. Queried data from client environmental data management system and prepared summary tables, concentration plots, and water level hydrographs using Microsoft Excel programs. She prepared a quarterly analytical schedule using an Access database application, updated the site-specific Health & Safety Plan, and participated in lean training, which reduced cost of groundwater monitoring tasks by 25 percent.

Federal Superfund Site, Eastern Massachusetts. Suzanne performed data validation and quality assurance/quality control of soil and groundwater data according to U.S. EPA National Functional Guidelines. She performed third-party database updates.

Great Western Bank, Cortaro Ranch Property, Marana, Arizona. For site characterization of undeveloped land, Suzanne performed surficial soil sampling, analytical laboratory coordination, data analysis, and report preparation.

Twin Buttes Properties, Inc., Southern Arizona. Suzanne assisted with report and analytical table preparation for the characterization and analysis of current and historical hydrologic conditions at an inactive mine site near Sahuarita, Arizona in support of regulatory compliance.

Skyworks Solutions, Inc. Site, Newbury Park, California. Suzanne assisted with report and analytical table preparation for a subsurface investigation characterizing the lateral and vertical extent of soil and groundwater impacts from known releases of TCE, 1,4-dioxane and other organic compounds.

PUBLICATIONS

"Mixed Redox Catalytic Destruction of Chlorinated Solvents in Soils and Groundwater," with S. Gao, E. Rupp, M. Willinger, T. Foley, B. Barbaris, A.E., Saez, R.G. Arnold and E. Betterton. In Environmental Challenges In The Pacific Basin, 2008; Annals of the New York Academy of Sciences, Vol. 1140, pp 435-445. PMID: 18991945

INVITED LECTURER OR SPEAKER

"Catalytic Destruction of Perchloroethylene," with E. Betterton, R. Arnold and Eduardo Saez, Presenter - NASA Space Grant Student Symposium, Phoenix, Arizona. April 2007.

JAMES BELLEW

Principal

EDUCATION

M.S., Environmental Geology, Queens College
B.S., Geology, Pre-Law, Environmental Science, Binghamton University

PROFESSIONAL SOCIETIES

American Council of Engineering Companies, Member, 2017
Urban Land Institute, Member, 2016
Business Council of New York, Member, 2018

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)
30-Hour OSHA Construction Safety and Heath
8-hour OSHA Site Supervisor Certification
OSHA Confined Space Entry Training Certification
Erosion and Sediment Control, New York, No. 006925
USDOT/IATA Training on the Shipping and/or Transportation of Hazardous Materials

James has a hands-on approach to every project. He believes that being present and putting himself into his clients' shoes is the best way to understand their needs. As a Principal, James's expertise includes due diligence, environmental risk development, building surveys, remedial investigations, remedial design, and technical oversight. Mr. Bellew has completed over 50 NYCOER E-Designation Sites and NYSDEC Brownfield Cleanup Program Sites which include preparation of all reports through to the certificate of completion and a certificate of occupancy.

Clients appreciate James' strategies from the inception of a project through closure under various regulatory programs nationwide. That comprehensive approach is what James loves the most about his job. He enjoys taking on complex projects and finding rational, cost-effective, remedial solutions.

RELEVANT PROJECT EXPERIENCE

Development, EPA Site RCRA-02-2009-7306, NYSDEC Site 243016, Former Port Mobil Terminal, Staten Island, New York. Principal responsible for the preparation of the feasibility study, preparation of the Interim Remedial Reports, completion of the Interim Remedial Measures, completion of the remedial investigation stages, continued execution of the Monitoring and Natural Attenuation Program, preparation of the Remedial Action Work Plan/Remedial Designs, and RCRA Closure procedures for the Port Mobil Terminal Site under an Environmental Protection Agency and New York State DEC Consent Order. The Site has a footprint of 240-Acres SF with a planned development for commercial/industrial uses.

Government, NYCDDC Shirley Chisholm Recreational Center, Brooklyn, New York. Principal for the project released by the New York City Department of Design and Construction, on behalf of the NYC Parks Department, for the design and construction of a new recreational center located at 3002 Foster Avenue in Brooklyn New York. Scope of services included execution of a Phase II Environmental Site Assessment, soil characterization, remedial oversight, geotechnical percolation testing and closure with the NYC Department of Environmental Protection.

Development's, New York State Superfund Site 224136, Former NuHart Plastics Site, New York State Superfund Site (NuHart West) and NYSDEC Brownfield Program Site C224287 (NuHart East), Brooklyn, New York. Principal for the preparation of the feasibility study, offsite investigation reports, RCRA (Resource Conservation and Recovery Act) Closure Work Plan, execution of the RCRA Closure, preparation of the Brownfield Cleanup Application (NuHart East), 100% Remedial Design, preparation of all BCP related work plans (NuHart East), coordination to vest the Site for 421-, Final Engineering Reports, RCRA Closure Reports, Site Management Plan, Remedial Memorandum and all community

outreach programs for a former plasticizer facility with on- and off-site pollutant concerns. Responsible for all remedial cost and alternative analysis with the client to bring the Site to a certificate of completion. NuHart is a high-profile Site that requires coordination with the New York State Department of Environmental Conservation (NYSDEC), the New York City Office of Environmental Remediation (NYCOER), local regulatory agencies, community stakeholders and local elected officials. Remediation included shipping off a majority of the Site soil for thermal desorption under a nonhazardous contained in determination for thermal treatment, erection of a negative pressure enclosure in OU-1, groundwater extraction and treatment, underground storage tank (UST) removal, ex-situ chemical soil mixing of Zero Valent Iron (OU-1), In Situ Injection of Zero Valent Iron (OU-2), containment walls (OU-1 and OU-2), In Situ Soil Stabilization and Solidification, and automated LNAPL recovery (OU-2). The NuHart East Site has completed the remediation and received the Certificate of Completion from the NYSDEC in 2023 and the NuHart West Site is receiving its Certificate of Completion in 2025 with an anticipated transition from a Class 2 to a Class 4 Inactive Hazardous waste Site.

Development, NYSDEC Site C224345, 101 Fleet Place, Brooklyn, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former bus depot Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 20,000 SF with a planned development of a 21-story mixed use building with approximately 292 units which include affordable housing. This Site received a NYSDEC Certificate of Completion in 2024.

Development, NYSDEC Site C231150 644 East 14th Street, New York, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design and Final Engineering Report for the 644 East 14th Street Site under the New York State Brownfield Cleanup program. The Site has a footprint of 10,000 SF with a planned development of a 24-story mixed use building with approximately 196 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2024.

Development, NYSDEC Site C224338 Former Garone Bros Auto Site, 352-362 Shepherd, Brooklyn, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former Garone Bros Auto Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 10,000 SF with a planned development of a 7-story mixed use building with approximately 56 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2024.

Development's, NYSDEC Sites C224369, C224348, Speedway Portfolio, Multiple Boroughs, New York. Principal responsible for the expedited due diligence during acquisition of 5 former Speedway Sites of Phase I ESA's and Limited Phase II ESI's, preparation of the Brownfield Cleanup Program Applications, Remedial Investigation Work Plans, Interim Remedial Measure Work Plans, Air/Noise Remedial Action Work Plans (NYCOER), remedial investigations, remedial action designs (BCP and OER), Final Engineering Reports and Site Management Plans. Five of the Sites including 808-834 Metropolitan (C224368), 210 Greenpoint Avenue (C224348) 1885 Atlantic (C224347), 2864 Atlantic (C224349) and 401 West 207th (C231151), were accepted into the NYSDEC Brownfield Cleanup program. The remedial actions for the Sites included a variety of approaches which consisting of in situ chemical treatment for groundwater, soil vapor extraction, excavation and dewatering removal and treatment. All of the Sites received a certificate of completion from the NYSDEC in 2023 and 2024.

Development, NYSDEC Site C203127, 138 Bruckner Boulevard, Bronx, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, coordination to vest the Site for 421-a, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former Zaro's Bakery Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 50,000 SF with a planned

development of a 12-story mixed use building with approximately 447 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2023.

Development, NYSDEC Site C203156 Former Mill Sanitary Wiping Cloth Site, 40 Bruckner Boulevard, Bronx, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former Mill Sanitary Wiping Cloth Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 45,000 SF with a planned development of a 12-story mixed use building with approximately 480 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2023.

Development, NYSDEC Site C203121, 310 Grand Concourse, Bronx, New York. Principal responsible for environmental and construction management services required to successfully navigate this two-building redevelopment project through the NYSDEC Brownfield Cleanup Program (BCP) and NYCOER E-Designation Program (Air/Noise). Project included site investigation, design, and remediation for 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, underground storage tank (UST) removal, design, and installation an ex-situ chemical in situ soil stabilization process for elevated levels of metals.

Development, NYSDEC Site C224299, 297 Wallabout Street, Brooklyn New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, and remedial action design (BCP and OER), Final Engineering Report and Site Management Plan for the 297 Wallabout Street Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air). Successfully delineated the onsite tetrachloroethene (PCE) plume in soil and groundwater. The Site is currently in the remedial implementation phase. Remediation included excavation of approximately 5,000 cubic yards of soil, groundwater extraction and treatment, underground storage tank (UST) removal, design, and installation an ex-situ chemical oxidation process for chlorinated solvents and monitoring and natural attenuation. The Site received a certificate of completion from the NYSDEC in 2024.

Development, NYSDEC Site C224239, Former Techtronics Site (8 Walworth Street), Brooklyn, New York. Principal for the remedial investigation, remedial action design and remedial action implementation for the former Techtronics Site under the New York State Brownfield Cleanup program as a Participant where trichloroethene (TCE) and tetrachloroethene (PCE) were encountered in soil and groundwater. James successfully delineated the vertical and lateral extents of the plumes which were identified as an upgradient, on-site. For this Site we have designed source removal to 20'bgs, Zero Valent Iron (ZVI) Reactive Barrier Wall, in situ ZVI injections sitewide and a vertical vapor mitigation system. The Site is currently in the remedial implementation phase.

Development, New York City OER Site - 346 Grand Concourse, Bronx, New York. Principal for the proposed 9-story, 60 key commercial building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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) and the Final Installation Report for the Certificate of Occupancy.

Development, New York City OER Site - 3294 Atlantic Avenue, Brooklyn, New York. Principal for the proposed 12-story, 80 key commercial building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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) and the Final Installation Report for the Certificate of Occupancy.

Development, New York City OER Site - 590-594 Myrtle Avenue, Brooklyn, New York. Principal for the proposed 6-story, 12-unit residential building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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) and the Final Installation Report for the Certificate of Occupancy.

Development, New York City OER Site - 3530 Webster Avenue, Bronx, New York. Principal for the proposed 8-story, 75 key commercial building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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). The project is currently in the construction phase of the NYCOER program.

Development, Former BP Station, Elmhurst Queens, New York. Principal for the preparation of a full environmental impact statement with respect to a mixed-use development proposed in Elmhurst Queens for submission to the NYC Department of City Planning to rezone the project. The work included a full impact assessment of the proposed construction with respect to the neighborhood, evaluation of green/open spaces for the community and environmental site investigation and remediation services.

Development, NYSDEC Site C224204, Former Delta Metals Site, Brooklyn, New York. Senior Project manager for the remedial investigation and remedial action design for the former Delta Metal Products Company. Project is under the New York State Brownfield Cleanup program as a Participant where TCE and tetrachloroethene (PCE) were encountered in soil and groundwater. James successfully delineated the vertical and lateral extents of the plumes which were identified as an upgradient, on-site and downgradient plume. Investigation results triggered the NYSDEC to utilize its call-out contract to perform a plume track down for the immediate area and identify additional Potentially Responsible Parties. The design for an Air Sparge Soil Vapor Extraction system has been accepted and the project is currently under construction.

Manufacturing-Industrial, Hess Amerada, Bogota and Edgewater, New Jersey. Senior Project Manager and technical Lead for the construction management services for the demolition of two waterfront terminals on the Hackensack and Hudson rivers. Services included demolition design, submittal review, site execution and coordination of activities related to asbestos abatement, demolition of buildings, thirty holding tanks, piping structures, containment structures and storm water structures.

Manufacturing-Industrial, PQ Corporation, Northeastern United States. Senior Project Manager responsible for the design and implementation of a three phased program for handling polychlorinated biphenyl (PCB) containing materials on approximately 100 tank structures at large, active industrial sites, which included coating removal, encapsulation, demolition, and Toxic Substances Control Act (TSCA) remediation. He was responsible for development of the overall program, specifications, drawings, bid packages, construction oversight and project administration until closure. The program also included design and oversight of a new façade and roof upgrades completed concurrently to client operations.

Development, NYSDEC Site C224194, Former Cascade Laundry, Brooklyn, New York. Senior Project Manager responsible for environmental and construction management services required to successfully navigate a seven-building redevelopment project through the NYSDEC Brownfield Cleanup Program (BCP) and NYCOER E-Designation Program (Air/Noise). Project included site investigation, design, and remediation for development of seven buildings within a 2-acre site in Brooklyn, New York. Remediation included excavation of approximately 40,000 cubic yards of soil, groundwater extraction and treatment, underground storage tank (UST) removal, design, and installation of a sub slab depressurization system (SSDS) and ex situ chemical oxidation of groundwater impacted by petroleum.

Development, New York City OER Site - 520-534 West 29th Street, New York, New York. James was responsible for environmental site investigation and remediation activities required to successfully navigate the project through the

NYCOER's E-Designation and Voluntary Cleanup Programs. 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). The project is currently in the construction phase of the NYCOER program.

Development, New York State Brownfield Site, BJ's Wholesale, Brooklyn, New York. Senior Project Manager for the remedial execution within the NYSDEC BCP and NYCOER E-Designation programs at an 8-acre peninsula in Gravesend Bay being redeveloped by BJ's Wholesale Club (BJ's) into a "big-box" warehouse and parking garage, and a publicly accessible, waterfront open space. He implemented a comprehensive community air monitoring plan (CAMP), managed the design and installation of a passive sub slab depressurization system, and oversaw handling and off-site disposal of impacted material generated by BJ's (the Lessee for the subject site) during their foundation construction activities.

Development, New York State Brownfield Site, Coney Island, Brooklyn, New York. Senior Project Manager responsible for the environmental design during the rehabilitation and expansion of a 1970s-era mixed-use complex, which covers an area equivalent to three city blocks. He facilitated the BCP applications for two adjacent parcels within the complex impacted by historic dry-cleaning uses. Site investigations performed had documented the presence of PCE in soil gas and was delineated over three separate structural slabs in commercial and residential space utilizing a mobile laboratory. He designed and installed two sub-slab depressurization systems and prepared Remedial Investigation Work Plan which outlined work required to delineate the vertical and horizontal extent of the impacted soils, soil vapor and groundwater at both BCP sites. The system was designed with below slab suction pits, remote sensing vacuum monitoring points, and a variable frequency drive blower tied into the monitoring points for optimization and power savings.

Development, New York City OER Site - Memorial Sloan Kettering Cancer Center (MSKCC), New York, New York. Project Manager for environmental remediation for this MSKCC development project. James was solely responsible for subsurface investigation and remediation activities, large, manufactured gas plant (MGP) gas holder removal (from former Con Edison Operations), UST removal, daily status updates to the NYCOER, implementation of the CAMP and the management, handling, characterization, and off-site disposal of MGP impacted soil and dewatering fluids.

New York State Spill Remediation, Metropolitan Transportation Agency Bridges and Tunnels, New York, New York. Project Manager responsible for execution of a remedial action scope which included UST removal, excavation of 600 cubic yards of petroleum impacted soil, design and installation of a groundwater extraction and treatment system and post remediation samples. He implemented the In Situ Chemical Oxidation program for the injection of 54,000 gallons of 8 percent solution Fenton's Reagent and the O&M (Operation & Maintenance) of the petroleum spill with respect to Fenton's performance and the plume migration.

Various Public Schools, New York City School Construction Authority, New York, New York. Project Manager responsible for environmental remediation proposed several school developments sites, including PS 312, P.S. 281, and PS 27K. Assisted in the design and implementation of the remediation programs for the sites for petroleum spills, PCB TSCA contamination and hazardous lead hot spots.

Development, i.Park Edgewater, Edgewater, New Jersey. Project Manager responsible for the design and environmental remediation on-site. Implemented the construction plan for remediation of arsenic, pitch- and PCB-impacted soil for excavation and off-site disposal of 20,000 tons. He managed the air monitoring system on-site which consisted of four permanent stations set upwind and downwind on-site for volatile organic compounds (VOCs) and particulate migration off-site. Also, James performed redesigns throughout the project to keep within the current schedule and budget.

Development, New York State Brownfield, Queens West, Long Island City, New York. Project Manager responsible for oversight of the Environmental Remediation on-site. James implemented the construction plan for remediation of 20,000 cubic yards of LNAPL on the Site; he assisted in design and oversight of the In Situ Chemical Oxidation mixing on-site. The project was eventually developed into three large towers and a new school.

Manufactured Gas Plant, National Grid, Rockaway, New York. James aided in the design and implementation of the soil characterization plan for MGP impacted sands. After delineation of the contamination plume, drafted work plans and site layout of the negative pressure tent. He performed and trained the on-site staff on the use of personal air monitoring equipment and aided with design considerations on the installation of a waterloo barrier to be advanced to minus 80 feet below grade surface. James also helped with the design and permitting for the groundwater treatment system installed on-site.

Manufactured Gas Plant, Con Edison, New York, New York. Environmental engineer for responsible party for all environmental issues associated with this job, including transportation and disposal of 8,000 tons of MGP contaminated soil from former Con Edison operations. James scheduled weekly work for all civil and environmental tasks on the job. He was responsible for the design and installation of the dewatering treatment system with a daily discharge of 25,000 gallons per day of MGP -impacted water.

New York State Superfund Project, NYSDEC, Hicksville, New York. James performed O&M and reporting on the Site's Potassium Permanganate Injection system, which was on a timed system; maintained the system, troubleshooting problems and ensuring that the proper ratios were being injected. He performed the fieldwork for analysis and drafted interim reports for the project manager.

Retail Petroleum, New York State Spills Program, Hess Amerada, Various Locations, New York. Environmental Engineer responsible for the design and installation of groundwater and soil vapor remedial systems at over 30 retail petroleum stations for Hess. Responsible for ensuring that the remedial systems were operating properly and performing repairs as necessary during operation. He performed groundwater and soil vapor monitoring and drafted O&M reports for the NYSDEC. Plume size ranged from within the retail station property with monitoring off-site impacts in local neighborhoods greater than a 3-mile radius.

Retail Petroleum, New York State Spills Program, British Petroleum (BP), Various Locations, New York. Environmental Engineer responsible for the design and installation of groundwater and soil vapor remedial systems at over 10 retail petroleum stations for BP. He was responsible for ensuring that the remedial systems were operating properly and performing repairs necessary during operation. He performed groundwater and soil vapor monitoring and drafted O&M reports for the NYSDEC. Plume size ranged from within the retail station property with monitoring off-site impacts in local neighborhoods greater than a 2-mile radius.

Development, 524 West 19th Street, New York, NY (Metal Shutter Homes). Project Engineer responsible party for all environmental and civil issues associated with this job, including transportation and disposal of 5,000 tons of MGP contaminated soil from former Con Edison operations. James scheduled weekly work for all civil and environmental tasks on the job. He successfully redesigned the grout cutoff wall connections to the installed steel sheeting with a secant wall installed off-site. He provided technical guidance for drilling 4-foot diameter exploratory casings for subsurface anomalies. Additionally, James was responsible for the design and installation of the dewatering treatment system with a daily discharge of 25,000 gallons per day of MGP impacted water.

EPA Superfund Site, Newtown Creek Superfund, Brooklyn, New York. Environmental Engineer who aided in the design of the pump and treat system installed at Peerless Importers. He also aided in the design and installation of the harbor boom set up. Operated and Maintained groundwater/LNAPL extraction systems on-site and performed monthly site gauging as part of the O&M plan.

EMILY BUTLER

Project Manager, Geologist

EDUCATION

B.A., Geology, Geography, Colgate University

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)
30-Hour OSHA Construction Safety Training
10-Hour OSHA Construction Safety Training
LIRR Contractor Safety and Security Training
Amtrak Contractor Training
Metro-North Railroad Contractor Training, 2022
NYC DOB Site Safety Training, 2020-2025
First Aid/CPR/AED Certified

Emily is a geologist and project manager with 10 years of experience working in the environmental services and petroleum industries. She brings experience designing, implementing, and managing multiple large remediation, due diligence, and redevelopment projects across regulatory programs (e.g., New York State Brownfield Cleanup Program, New York City Office of Environmental Remediation Voluntary Cleanup Program, and New York State Superfund Program) with budgets ranging from $20k to $5M. Emily has led and coordinated project teams consisting of subcontractors, vendors, and junior staff. She has successfully negotiated with regulatory agencies and prepared technical reports to ensure compliance and progress of remediation efforts. In addition, she has managed investigations and remediations of complex contaminants, including petroleum, chlorinated solvents, and per-and polyfluoroalkyl substances (PFAS).

RELEVANT PROJECT EXPERIENCE

Lendlease, The Riverie, Brownfield Cleanup Program site, Brooklyn, New York. Emily was the project manager for a large redevelopment project located on the waterfront in the Greenpoint neighborhood of Brooklyn, New York. The 2.6-acre site is being redeveloped into a mixed-use development, including a residential tower with 800 residential units, retail space, and a shoreline esplanade with New York City Ferry terminal access. Project management responsibilities included management of field staff overseeing the remedial action, waste management and tracking, budget management, management of subcontractors and vendors, and communication with the client, the New York State Department of Environmental Conservation (NYSDEC), and site contractors. Emily negotiated with NYSDEC to maximize soil reuse, and developed and implemented a complex remedial design program and community air monitoring program. The remedy for the site included design of a sub-slab depressurization system (SSDS) to mitigate vapors beneath the future building, as well as negotiation with NYSDEC and the New York City Office of Environmental Remediation (NYCOER) to ensure 421a schedule requirements were achieved. This project will achieve the highest green and sustainable standards, and includes a massive, closed-loop geothermal system to provide heating and cooling. Once complete, this all-electric project will be the largest geothermal project in New York State to use a geothermal exchange system. Components of this system include, in part, a well field of over 320 vertical geothermal wells drilled to a depth of approximately 500 feet below land surface.

Confidential client, 85-89 Jane Street, New York, New York. Emily was the project manager of a NYCOER site redevelopment in lower Manhattan, New York, of a former garage and auto repair operation and a manufacturing facility on two adjacent lots into a multistory single-family residence. The site contains an E-designation and as such is going through the NYCOER Voluntary Cleanup Program (VCP). Project management responsibilities included

management of field staff, waste management and tracking, budget management, management of laboratory subcontractors and vendors, and routine communication with NYCOER, client, and site contractors.

Cinemagic, NYSDEC BCP site, Long Island City, New York. Emily served as the project manager for a brownfield redevelopment in Long Island City for a former warehouse building/printing press under the NYSDEC Brownfield Cleanup Program (BCP). The redevelopment includes an interim remedial measure (IRM) installation of a retrofit SSDS for the building. The redevelopment will include sound stages for a movie studio.

Goodman, NYSDEC BCP site, Long Island City, New York. Emily was the project manager for a brownfield redevelopment of a former retail gasoline station and automobile dealership/service center under the NYSDEC BCP. The redevelopment includes two adjacent BCP sites that will be redeveloped into one industrial/commercial distribution warehouse. There is contamination of soil, groundwater, and soil vapor on the site related to its former use as a gasoline filling station and service center.

Amtrak, Sunnyside Yard, New York State Superfund site, Long Island City, New York. Emily served as project manager for multiple projects to support remediation activities at the Amtrak Sunnyside Yard State Superfund Site. Responsibilities included characterization of subsurface conditions, including polychlorinated biphenyls (PCB) and polycyclic aromatic hydrocarbons (PAH) soil and groundwater contamination. Emily oversaw the implementation of remediation activities, including soil excavation and off-site disposal.

F&T Group, Tangram Plaza, NYCOER cleanup site, Flushing, New York. Emily was the field manager for a remedial investigation and waste characterization program at a former mall. She was responsible for soil trucking and manifesting for proper disposal of over 300,000 cubic yards of soil to multiple off-site disposal facilities, including several sites enrolled into the NYCOER Clean Soil Bank. Daily excavation oversight included coordination with the general contractor, groundwater dewatering oversight, Community Air Monitoring Program implementation, inspection of vapor barrier and waterproofing installation, and daily reporting of site activity. Project management duties consisted of staff management, daily reporting to the NYCOER project manager, and communication with both the client and contractor.

Pfizer, NYSDEC Spills Program site, Brooklyn, New York. Emily was the field manager for a site in the NYSDEC Spills Program. This project included an in situ chemical oxidation injection program utilizing RegenOx™ oxidant compound, which was injected into 28 injection points throughout the site. Responsibilities included monitoring groundwater from influence from injections; subcontractor oversight; and providing health and safety oversight.

Forest City, Atlantic Terminal/Pacific Park Redevelopment Project, Brooklyn, New York. Emily served as field manager for a large redevelopment project including four buildings with E-designations. The project encompasses 22 acres including the Barclays Center. Project included oversight of in situ waste characterization sampling, excavation, and proper disposal of soil. Emily provided oversight of pre-demolition asbestos and hazardous materials surveys. She also provided environmental support for demolition and relocation of an active 9-acre 100-year-old railyard. Emily was responsible for oversight of remediation work at several NYSDEC spill sites within the project footprint, including underground storage tank (UST) removal and soil excavation.

Gotham Organization, NYSDEC BCP site, Queens, New York. Emily was the field manager for remediation of two parcels, as part of the NYSDEC BCP. This project included due diligence environmental assessment and investigation, development of NYSDEC-approved Remedial Investigation Work Plan and Remedial Action Work Plan, and remediation during construction of two mixed-use, affordable housing developments.

ExxonMobil, LNAPL evaluation, multiple sites, New York. Emily was the field manager for site-wide light nonaqueous phase liquid (LNAPL) transmissivity evaluation at multiple sites in New York including former refinery and petroleum storage terminal sites. Field investigation methods included baildown and manual skimming tests.

Triangle Equities, The Crossings at Brick Church Station, mixed-use development, East Orange, New Jersey. Emily served as field manager for the remedial investigation of a redevelopment site that contained seven former and one operating dry cleaner, three former fueling stations, and a former automotive repair shop. Responsibilities included oversight of New Jersey-specific monitoring well installation and collection of soil and groundwater samples for suspected contamination of chlorinated solvents.

Powerhouse Arts, former MGP site, **Brooklyn, New York.** Emily was the field manager responsible for the field implementation of a soil characterization work plan and a chlorinated solvent delineation work plan for a former manufactured gas plant (MGP) site. The operation of the MGP led to contamination of subsurface soil and groundwater by coal tar, a byproduct of the gas manufacturing process, and as a result, the NYSDEC issued a Record of Decision specifying the required remedy for the site. The remedy will include soil excavation and off-site thermal treatment, a sheet pile barrier wall, a vapor barrier, and basement ventilation system. A comprehensive air monitoring program was conducted during the fieldwork due to the concerns over coal tar residue emissions and odors on the surrounding community.

ExxonMobil, former petroleum refinery, Brooklyn, New York. Emily was a field staff member addressing the largest subsurface free-product plume in North America at a former petroleum refinery and terminal. Responsibilities included construction oversight of subcontractors, implementation of site-specific health and safety plan, construction management of infrastructure upgrades, soil investigation and sampling programs, installation of groundwater monitoring wells, classification of soil lithology, and collection and screening of soil, groundwater, and soil vapor samples.

Columbia Falls Aluminum Company, EPA Superfund site, Columbia Falls, Montana. Emily was the field manager for a 1,300-acre former aluminum smelter site under the federal Superfund program. Fieldwork included groundwater, surface water, and sediment sampling.

Multiple clients, oilfield services analyst, Gulf of Mexico. Emily was an oilfield services analyst in offshore well-site units on exploration drilling rigs for multiple clients in the Gulf of Mexico. She was responsible for collecting, processing, and analyzing geological samples and using various laboratory techniques to evaluate complex data for signs of oil or gas. Additionally, she operated, maintained, and monitored a real-time computer-based acquisition system that recorded drilling parameters as the first line of defense for the safety and efficiency of drilling operations.

BRIAN A. FERGUSON

Senior Engineer | Health & Safety Manager

EDUCATION

MS, Geotechnical Engineering, Tufts University, Medford, Massachusetts
BS, Civil Engineering, State University of New York - Environmental, Science, and Forestry, Syracuse, New York
AS, Applied Science and Technology (Nuclear Engineering), Thomas A. Edison State College, Trenton, New Jersey

CERTIFICATIONS

BCSP Certified Safety Professional (#CSP-45145)
BCSP Associate Safety Professional (#ASP-31270)

PROFESSIONAL SOCIETIES

Associate Safety Professional – 2019
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
24-Hour Asbestos Inspector
Asbestos Inspector License (June 2018 and renewed Annually)

ENGINEERING EXPERIENCE

Brian has over 23 years of experience serving as a project engineer on a variety of real estate development projects. His project experience has included monitoring field investigations, performing construction oversight, performing due diligence, engineering analyses, performing geotechnical analyses, developing geotechnical recommendations, and preparing geotechnical reports, and project specifications.

As a project engineer, in addition to providing engineering design support, Brian has managed and participated in many 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 and rock anchors, 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

Fenway Center. Project engineer for the construction of laboratory space constructed over the Massachusetts Turnpike, two residential towers, and the Fenway Area consisting of 8 to 14 stories and multiple levels below grade. Construction responsibilities included coordination of construction monitoring, observing Support of Excavation (SOE) and footing installation, coordination of installation of Slurry Walls, assisting with project management, reviewing

weekly field construction reports, reviewing, and responding to geotechnical design submittals, and attending project meetings.

Massachusetts Institute of Technology, The Schwarzman College of Computing Project. Project Engineer for a new approximately eight stories above ground and one story below ground building and contains approximately 189,000 gross square feet (gsf) of mixed-use space for: offices, research laboratory, academic, event, collaboration, meetings, café, convening, and associated services. Responsibilities included coordination of construction monitoring, observing SOE, micropile, and Caisson Installation, assisting with project management, reviewing weekly field construction reports, reviewing, and responding to geotechnical design submittals, and attending project meetings. Brian also was the main point of contact for construction-related issues with the project owner and contractors.

Massachusetts Institute of Technology, Graduate Housing Project. Project Engineer for construction of two new five- to eight- story residential buildings with a total gross floor space of approximately 261,000 square feet (sq ft). Responsibilities included coordination of construction monitoring, observing SOE, micropile, and Caisson Installation, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals, and attending project meetings. Brian was the main point of contact for construction-related issues with the project owner and contractors and conducted Health & Safety Audits of Haley & Aldrich personnel during construction.

Edwards Vacuum Project. Project Engineer for a new single-level 101,000-sq ft building with a mezzanine located in the south portion of the proposed building. Responsibilities included developing subsurface exploration program coordination, writing the Geotech Report, and coordinating field staff to observe construction activities, including mass excavation of approximately 100,000 cubic yards of soil, installation of spread footing, and construction dewatering. Brian assisted with project management, reviewing weekly field construction reports, reviewing, and responding to geotechnical design submittals, and attending project meetings. Brian was the main point of contact for construction-related issues with the project owner and contractors and conducted Health & Safety Audits of Haley & Aldrich personnel during construction.

St. Elizabeth's Hospital – 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 and subcontractors, assisting with project management, reviewing subcontractors invoices, reviewing and summarizing subsurface data, and writing data reports.

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 ensures the work we do for our clients is done safely – knowing this reduces costs, improves service quality and site conditions, and ultimately protects our clients' reputations. In addition to building the Haley & Aldrich Health & Safety (H&S) culture, Brian is hands-on with clients to help improve their and their partners' safety cultures.

He has extensive expertise in the Occupational Safety and Health Administration (OSHA) general industry, process safety management, and construction safety programs. He is an active member of the Alliance of Hazardous Materials Professionals and the New England chapter of the Academy of Certified Hazardous Materials Managers.

Brian knows an organization's success is predicated on empowering its people to safely work within the complex, living processes in which they operate. He is a student of human factors in the workplace, of the phenomena of human error and drift into failure, and of the safety applications of Lean techniques.

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.

SARAH COMMISSO, GIT

Senior Geologist

EDUCATION

B.S., Geological Sciences with a minor in Chemistry, State University of New York-Binghamton

PROFESSIONAL REGISTRATIONS

2021/ NY: Geologist in Training (GIT) Certification

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)
8-Hour OSHA HAZWOPER Refresher Training
10-Hour OSHA Construction Safety Training
8-Hour DOT Hazmat Employee & RCRA Hazardous Waste Generator Training

Sarah is a geologist with over four years of experience in Phase I Environmental Site Assessments (ESAs), Phase II Environmental Site Investigations, site characterization, and contaminated site remediation, primarily in the New York City area. She also has experience in Resource Conservation and Recovery Act (RCRA) hazardous waste site closure.

RELEVANT PROJECT EXPERIENCE

Environmental Experience

Madison Realty Capital, New York State Superfund Site, Former NuHart Plastics Site, New York State Superfund Site (NuHart West) and Brownfield Cleanup Program (BCP) Site (NuHart East), Brooklyn, New York. Sarah was the senior geologist responsible for implementation of RCRA Closure of the NuHart East and NuHart West Site including disposal of hazardous U-List waste and completion of the RCRA Closure Report, preparation of the 100% Remedial Design (NuHart West) including on- and off-site remedial components, execution of the remedial action, and preparation of closure documentation. Remedial action at the NuHart West Site included excavation and in situ solidification (ISS) of phthalate-impacted soil under a negative pressure enclosure, removal of twelve underground storage tanks (USTs), off-site zero-valent iron (ZVI) injections to treat groundwater impacted with chlorinated solvents, and installation of an off-site light nonaqueous phase liquid (LNAPL) recovery system. Sarah was responsible for preparation of Contained-in Requests for all above- and below-grade material requiring off-site disposal including all soils to be disposed as non-hazardous waste at a thermal treatment facility. Sarah was also responsible for preparation of all Brownfield Cleanup Program (BCP) related work plans (NuHart East), coordination to vest the site for 421-a, and preparation of the Final Engineering Report (NuHart East) leading to achievement of a Certificate of Completion in 2023. She was involved in coordination of all community outreach programs for the former plasticizer facility with on- and off-site pollutant concerns. NuHart is a high-profile site that requires coordination with the New York State Department of Environmental Conservation (NYSDEC), the New York City Office of Environmental Remediation (NYCOER), local regulatory agencies, community stakeholders, and local elected officials.

125 3rd Street Gowanus BCP Site, Brooklyn, New York. As senior geologist, Sarah was responsible for coordinating implementation of the Remedial Action including excavation and disposal of hazardous lead-impacted soil, installation of an active sub-slab depressurization system (SSDS), and injections to treat arsenic-impacted groundwater. She was responsible for the preparation of the Final Engineering Report and Site Management Plan for which the site received a Certificate of Completion in December 2024. The site has a footprint of 20,300 square feet with a completed development of a 13-story mixed-use commercial and residential building that includes affordable housing.

TA Realty, Due Diligence Portfolios. As assistant project manager, Sarah is responsible for due diligence during property acquisitions of commercial, residential, industrial, or vacant properties across the United Stated. She is responsible for reviewing Phase I ESAs and Preliminary Assessment Reports (PARs) for acquisition of 30 commercial-

use properties in New Jersey, which included multiple properties in the New Jersey Site Remediation Program with Industrial Site Recovery Act (ISRA) subject or applicable tenants. She assists in advising TA Realty on potential environmental risks during acquisition as well as obligations for site management long term.

Northpoint Development, Former Port Mobil Terminal, Staten Island, New York. Sarah serves as assistant project manager and is responsible for assisting in coordination of an Interim Remedial Measure including excavation and treatment of grossly impacted soil at the 240-acre waterfront former petroleum bulk storage terminal under an Administrative Order of Consent. She is assisting in preparation of the Alternatives Analysis/Remedial Action Work Plan for the site-wide remedy. Port Mobil is a high-profile site that requires coordination with the NYSDEC and U.S. Environmental Protection Agency (EPA).

Former NRG Energy Norwalk Harbor Generating Station Facility due diligence, South Norwalk, Connecticut. Sarah served as the senior geologist responsible for conducting a Phase I ESA for potential redevelopment of an approximately 140-acre former coal-fired power plant, which was later converted to fuel oil for combustion. Sarah conducted site reconnaissance of the now-inactive power plant facility and reviewed historical site documentation to identify recognized environmental conditions and areas of concern.

828 Metropolitan Avenue, BCP site, Brooklyn, New York. Sarah served as the senior geologist responsible for coordinating implementation of the Remedial Action for this former Speedway gasoline service station enrolled in the BCP. She was responsible for the preparation of the Final Engineering Report for which the site received a Certificate of Completion in 2024. The site has a footprint of 20,300 square feet with a completed development of a nine-story mixed-use commercial and residential building that includes affordable housing.

JCS Realty, 180 East 125th Street, New York, New York. Sarah was the assistant project manager and was responsible for the due diligence during acquisition, preparation of the BCP Application, remedial investigation, and remedial action design (BCP and OER) for the 180 East 125th Street Development Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The site has a footprint of 42,000 square feet with a planned development of a 15-story mixed use building to include affordable housing.

Madison Realty Capital, River North, Staten Island, New York. Sarah was the senior geologist responsible for coordinating field staff and subcontractors for the execution of the remedial investigation at this approximately 2-acre site enrolled in the NYSDEC Brownfield Cleanup Program. The remedial investigation involved the installation of approximately 50 soil borings, 20 soil vapor points, including soil borings extending to bedrock, and bedrock well installation. Sarah was responsible for preparation of the Remedial Investigation Report and coordination for waste characterization of soil and bedrock sitewide.

Madison Realty Capital, 644 East 14th Street, New York, New York. Sarah is the lead drafter of the Remedial Investigation Work Plan and the Remedial Investigation Report for the 644 East 14th Site, which is enrolled in the NYSDEC Brownfield Cleanup Program. Sarah coordinated field staff and subcontractors for the execution of the Remedial Investigation Work Plan, which included installation of soil borings, groundwater monitoring wells, and soil vapor points, and sampling of each.

The Jay Group, Speedway Portfolio, Multiple Boroughs, New York. As staff geologist, Sarah was responsible for the expedited due diligence during acquisition of five former Speedway Sites of Phase I ESAs and Limited Phase II ESIs, preparation of the BCP Applications, Remedial Investigation Work Plans, Interim Remedial Measure Work Plans and Air/Noise Remedial Action Work Plans (NYCOER). Four of the sites were accepted into the NYSDEC BCP with one currently pursuing the program pending the acquisition. Remedial Investigations for compliance with the BCP have been completed and the Remedial Investigation Reports are being drafted.

JCS Realty, 40 Bruckner Boulevard, Bronx, New York. As staff geologist, Sarah was responsible for the due diligence during acquisition, preparation of the BCP Application, Change of Use Documents, BCA Amendments, remedial

investigation, and remedial action design (BCP and Office of Environmental Remediation [OER]) for the former Mill Sanitary Wiping Cloth Site under the New York State BCP and NYCOER E-Designation Programs (Air/Noise). The site has a footprint of 45,000 square feet with a planned development of a 12-story mixed-use building with approximately 480 units, which include affordable housing.

Toldos Yehuda, Former Techtronics Site (8 Walworth Street), Brooklyn, New York. Sarah served as staff geologist for the remedial investigation, remedial action design and remedial action implementation for the former Techtronics Site under the NYSBCP as a participant where trichloroethene (TCE) and tetrachloroethene (PCE) were encountered in soil and groundwater. She successfully delineated the vertical and lateral extents of the plumes, which were identified as an upgradient, on site. For this site we have designed source removal to 20 feet below ground surface, zero valent iron (ZVI) reactive barrier wall, in situ ZVI injections sitewide, and a vertical vapor mitigation system. The site is currently in the remedial implementation phase.

Waterfront Management of NY, 590-594 Myrtle Avenue, Brooklyn, New York. As lead field geologist, Sarah was responsible for the oversight of the excavation and remediation of the property under the NYCOER. During remediation, Sarah observed and documented the excavation and proper disposal of on-site soil required for the installation of foundation elements. In addition, she oversaw the proper cleaning and removal of three underground storage tanks encountered during sitewide excavation. After excavation was complete, she inspected the installation of a sub-slab vapor barrier and conducted the community air monitoring program during the course of remedial action.

Oxford Property Group, Naval Yard Phase I Portfolio. Sarah conducted two of five Phase I ESAs for Oxford Property Group in the Philadelphia Naval Yard part of due diligence for potential acquisition of the properties. Each property was approximately 8 acres in size developed with active life sciences facilities. Sarah conducted site reconnaissance of the properties and reviewed historical site documentation to identify recognized environmental conditions at each site.

Target, Multiple Locations in New York and New Jersey. Sarah conducted Phase I ESAs as part of due diligence for potential acquisition of properties by Target in Jersey City, and performed oversight of upgrades and construction at various Target stores in Brooklyn, Queens, Long Island, and Jersey City, including methane monitoring, air monitoring, collection of endpoint soil samples, and groundwater sampling. Sarah performed all oversight work in accordance with the Site-specific Soil Materials Management Plan.

BCP Applications and Remedial Investigation Work Plans for NYSDEC. Sarah has completed writing several BCP Applications for various clients in New York State. In writing the applications, Sarah reviews previous subsurface investigations of the site, and historical information to help get underutilized and abandoned contaminated properties into the BCP to be remediated and redeveloped under NYSDEC. After completing the application, she prepares a Remedial Investigation Work Plan to strategically investigate site contamination so proper Remedial Action can take place.

Excavation Oversight and CAMP Monitoring, Various Sites, Bronx and Brooklyn, New York. Sarah served as field geologist for several projects under the NYCOER program and NYSBCP. Her responsibilities included performing excavation oversight, air monitoring, vapor barrier installation oversight, and logging trucks for off-site disposal.

Multiple Clients, Phase I ESAs and Due Diligence, Multiple Locations in New York, New Jersey, Pennsylvania and Massachusetts. Sarah conducted Phase I ESAs for buyers on a variety of properties including commercial, industrial, and residential sites in New York, New Jersey, Pennsylvania, and Massachusetts. She has experience conducting site reconnaissance and reviewing historical site documentation to identify recognized environmental conditions at the sites.

Multiple Clients, Phase II, Multiple Locations, New York. As field geologist, Sarah conducted Phase II ESAs on a variety of different sites. She assisted with the development of sampling plans primarily based off previous environmental investigations and due diligence. Primary responsibilities for Phase II investigations included oversight of the installation of test borings and/or test pits, the installation of groundwater monitoring wells, and soil vapor points.

Geotechnical Engineering Experience

Smithsonian Institution Revitalization of the Historic Core, Washington, D.C. Sarah supported a team providing geotechnical engineering services for the renovation of several Smithsonian Institution buildings adjacent to the National Mall. Sarah was responsible for the oversight of geotechnical borings using hollow stem augur and mud rotary techniques as well as rock coring operations. Sarah classified soil samples using the Unified Soil Classification System, analyzed bedrock samples, and analyzed the geology of the Washington D.C area.

Parcel B Development, Washington, D.C. Sarah was the lead field Geologist for the geotechnical investigation for the development of the Parcel B Site adjacent to the D.C. United Stadium in Washington D.C. Sarah was responsible for the oversight of geotechnical borings using hollow stem augur and mud rotary techniques. She observed and coordinated Pressure meter testing of several borings and observed the installation of several groundwater monitoring wells to investigate impacted groundwater on the property. Additionally, based on her soil classifications in the field, she drafted boring logs and analyzed subsurface conditions at the site.

APPENDIX J
Quality Assurance Project Plan

HALEY ALDRICH

www.haleyaldrich.com

REPORT ON

QUALITY ASSURANCE PROJECT PLAN
FORMER NEW CITY LINK AUTO REPAIR SITE
547 CONEY ISLAND AVENUE & 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

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

for
545 Coney Island LLC
Brooklyn, New York

File No. 0209815
February 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 of the Remedial Action Work Plan for the Former New City Link Auto Repair Site in Brooklyn, New York (Site).

Protocols for sample collection, sample handling and storage, chain of custody (COC) procedures, and laboratory and field analyses are described herein or specifically referenced to related project documents.

Table of Contents

Page

Executive Summary i
List of Tables v
List of Attachments v

1. Project Description 1

1.1 INTRODUCTION 1
1.1.1 Project Objectives 1
1.2 SITE DESCRIPTION AND SITE HISTORY 1
1.3 PROJECT OBJECTIVES AND INTENDED DATA USE 1
1.3.1 Target Parameter List 1
1.4 SAMPLING LOCATIONS 2

2. Project Organization and Responsibilities 3

2.1 PROJECT TEAM 3
2.2 MANAGEMENT RESPONSIBILITIES 3
2.3 QUALITY ASSURANCE (QA) RESPONSIBILITIES 3
2.3.1 Quality Assurance Officer 3
2.3.2 Data Validation Staff 4
2.4 LABORATORY RESPONSIBILITIES 4
2.4.1 Laboratory Project Manager 4
2.4.2 Laboratory QA Officer 4
2.4.3 Laboratory Sample Custodian 4
2.4.4 Laboratory Technical Personnel 5
2.5 FIELD RESPONSIBILITIES 5
2.5.1 Field Coordinator 5
2.5.2 Field Team Personnel 5

3. Sampling Procedures 6

3.1 SAMPLE CONTAINERS 6
3.2 SAMPLE LABELING 6
3.3 FIELD QC SAMPLE COLLECTION 6
3.3.1 Field Duplicate Sample Collection 6
3.4 GENERAL DECONTAMINATION PROCEDURES 6

4. Custody Procedures 8

4.1 FIELD CUSTODY PROCEDURES 8
4.1.1 Field Procedures 9
4.1.2 Transfer of Custody and Shipment Procedures 9
4.2 LABORATORY COC PROCEDURES 10
4.3 STORAGE OF SAMPLES 10

Table of Contents

		Page
4.4	FINAL PROJECT FILES CUSTODY PROCEDURES	10
5.	**Calibration Procedures and Frequency**	**12**
5.1	FIELD INSTRUMENT CALIBRATION PROCEDURES	12
5.2	LABORATORY INSTRUMENT CALIBRATION PROCEDURES	12
6.	**Analytical Procedures**	**13**
6.1	FIELD ANALYTICAL PROCEDURES	13
6.2	LABORATORY ANALYTICAL PROCEDURES	13
6.2.1	List of Project Target Compounds and Laboratory Detection Limits	13
6.2.2	List of Method Specific Quality Control Criteria	13
7.	**Internal Quality Control Checks**	**14**
7.1	FIELD QUALITY CONTROL	14
7.1.1	Field Blanks	14
7.1.2	Trip Blanks	14
7.1.3	Equipment Blanks	14
7.2	LABORATORY PROCEDURES	14
7.2.1	Field Duplicate Samples	15
7.2.2	Matrix Spike Samples	15
7.2.3	Laboratory Control Sample Analyses	15
7.2.4	Surrogate Compound Recoveries	16
7.2.5	Laboratory Method Blank Analyses	16
8.	**Data Quality Objectives**	**17**
8.1	PRECISION	17
8.1.1	Definition	17
8.1.2	Field Precision Sample Objectives	17
8.1.3	Laboratory Precision Sample Objectives	17
8.2	ACCURACY	18
8.2.1	Definition	18
8.2.2	Field Accuracy Objectives	18
8.3	LABORATORY ACCURACY OBJECTIVES	18
8.4	REPRESENTATIVENESS	19
8.4.1	Definition	19
8.4.2	Measures to Ensure Representativeness of Field Data	19
8.5	COMPLETENESS	19
8.5.1	Definition	19
8.5.2	Field Completeness Objectives	19
8.5.3	Laboratory Completeness Objectives	19
8.6	COMPARABILITY	20
8.6.1	Definition	20

Table of Contents

Page

8.6.2 Measures to Ensure Comparability of Laboratory Data 20
8.7 LEVEL OF QUALITY CONTROL EFFORT 20

9. Data Reduction, Validation, and Reporting 21

9.1 DATA REDUCTION 21
9.1.1 Field Data Reduction Procedures 21
9.1.2 Laboratory Data Reduction Procedures 21
9.1.3 Quality Control Data 21
9.2 DATA VALIDATION 21
9.3 DATA REPORTING 22

10. Performance and System Audits 23

10.1 FIELD PERFORMANCE AND SYSTEM AUDITS 23
10.1.1 Internal Field Audit Responsibilities 23
10.1.2 External Field Audit Responsibilities 23
10.2 LABORATORY PERFORMANCE AND SYSTEM AUDITS 23
10.2.1 Internal Laboratory Audit Responsibilities 23
10.2.2 External Laboratory Audit Responsibilities 24

11. Preventive Maintenance 25

11.1 FIELD INSTRUMENT PREVENTIVE MAINTENANCE 25
11.2 LABORATORY INSTRUMENT PREVENTIVE MAINTENANCE 25

12. Quality Assurance Reports and Corrective Actions 26

References 28

List of Tables

Table No.	Title
I	Summary of Analysis Method, Preservation Method, Holding Time, Sample Size Requirements, and Sample Containers
II	Laboratory and Field Quality Control Objectives

List of Attachments

Attachment	Title
A	Project Team Resumes

1. Project Description

This Quality Assurance Project Plan (QAPP) presents the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with the Remedial Action (RA) at the Former New City Link Auto Repair Site, Brooklyn, New York (Site). Protocols for sample collection, sample handling and storage, chain of custody (COC) procedures, and laboratory and field analyses are specifically described or referenced to related investigation documents.

This QAPP addresses the QA/QC elements in the U.S. Environmental Protection Agency (EPA) QAPP policy and other relevant guidance documents.

1.1 INTRODUCTION

The Site is approximately 0.44 acres (19,090 square feet [sq ft]), addressed at 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, New York, and identified as Block 1773, Lots 1, 3, and 29 on the New York City tax map. The Site is currently vacant and undeveloped.

This QAPP has been prepared on behalf of 545 Coney Island LLC. The QAPP is a component of the Remedial Action Work Plan (RAWP) that also includes field sampling procedures.

1.1.1 Project Objectives

The primary objective for data collection activities include:

- Document that a Track 2 cleanup was achieved in accordance with the RAWP.

Associated specific objectives for field and laboratory data collection are discussed in Section 1.4 of this plan.

1.2 SITE DESCRIPTION AND SITE HISTORY

The general Site description and Site history are provided in the RAWP and incorporated herein by reference.

1.3 PROJECT OBJECTIVES AND INTENDED DATA USE

1.3.1 Target Parameter List

The remedial program includes the sampling and analysis of environmental media for the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals, pesticides, and/or per- and polyfluoroalkyl substances (PFAS) constituents.

1.3.1.1 Laboratory Parameters

The laboratory parameters for soil include:

- Target Compound List (TCL) VOCs using EPA Method 8260;
- TCL SVOCs using EPA Method 8270;

- Total Analyte List (TAL) Metals using EPA Methods 6010/7471;
- TCL Pesticides using EPA Method 8081;
- PCBs using EPA Method 8082;
- PFAS using EPA Method 1633; and
- 1,4-dioxane using EPA Method 8270.

1.4 SAMPLING LOCATIONS

The RAWP provides confirmation sample locations. It is possible, however, that depending on the nature of encountered field conditions, sampling locations may change, or additional sampling locations may be added. The person responsible for making such decisions will be the QA Officer whose responsibilities are described in Section 2 of this QAPP. Any change in the sampling strategy will only be implemented after approval from the Project Manager.

2. Project Organization and Responsibilities

This section defines the roles and responsibilities of the individuals who will perform the RAWP monitoring activities. A New York State Department of Health (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	Yildiz Palumbo
NYSDOH Case Manager	Sarita Wagh
Qualified Environmental Professional (QEP)	James M. Bellew
Project Manager	Emily Butler
Haley & Aldrich of New York* Health and Safety Director	Brian Fitzpatrick, CHMM
Health and Safety Officer (HSO)	Brian Ferguson
QA Officer	Sarah A. Commisso, G.I.T.
Third-Party Validator	Katherine Miller

**H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York)*

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 QC and project oversight. The Project Manager's 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 the Site Construction Health and Safety Plan (CHASP).

2.3 QA RESPONSIBILITIES

The QA team will consist of a QA Officer and the Data Validation Staff. QA responsibilities are described as follows:

2.3.1 QA 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

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 Environmental Laboratory Accreditation Program (ELAP)-approved laboratory to be used will be Alpha Analytical Inc. (Alpha), 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 and adhering to the QAPP.

2.4.2 Laboratory QA Officer

The Laboratory QA Officer will have sole responsibility for the review and validation of the analytical laboratory data generated as part of the investigation. The Laboratory QA Officer will also define appropriate QA procedures, overview QA/QC documentation, and perform audits.

2.4.3 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 COC 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.

2.4.4 Laboratory Technical Personnel

The Laboratory Technical Personnel will have the primary responsibility for 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 (SOPs).

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 HSO to conduct operations in compliance with the project Health and 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 QA Officer and Project Manager, and 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 A of the Remedial Investigation Work Plan [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 A of the RIWP provides the SOPs for sampling required by the RAWP. Sampling will be conducted in general accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation (Division of Environmental 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 3 of the RAWP.

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 EPA's "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 during the sampling program will be maintained by the laboratory and will be available upon request. The appropriate sample containers, preservation method, maximum holding times, and shipping information for each target parameter and sampling task are provided in Table I.

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 A 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:

- Soil for VOC analysis will be removed from the sampling device as specified in the FSP provided as Appendix A of the RIWP.
- 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. 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 soil off equipment;
- Wash equipment with laboratory-grade detergent (i.e., Alconox or equivalent);
- Rinse with tap water;
- Rinse equipment with distilled water;
- Allow water to evaporate before reusing equipment; and
- Wrap equipment in aluminum foil when not being used.

4. Custody Procedures

Custody is one of several factors necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final project files. Final evidence files, including all originals of laboratory reports, are maintained under document control in a secure area.

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:

- The item is in actual possession of a person;
- The item is in the view of the person after being in actual possession of the person;
- The item was in actual possession and subsequently stored to prevent tampering; or
- The item is in a designated and identified secure area.

4.1 FIELD CUSTODY PROCEDURES

Field personnel will be required to keep written records of field activities on applicable pre-printed field forms, in a bound field notebook, or in an electronic format. The records provide the means of recording data collecting activities. Non-electronic records will be written legibly in ink and will contain pertinent field data and observations. Written entry errors or changes will be crossed out with a single line, dated, and initialed by the person making the correction. The records will be periodically reviewed by the Field Coordinator.

Each title page will include the field member's name, project name, project start date, project end date, and unique page number.

The beginning of each entry in the record 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 data quality can be affected by sample collection activities. If the integrity of collected samples is questionable, the data, regardless of its analytical quality, will also be questionable. 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 A of the RIWP for sample packaging procedures.
- Samples will be assigned a unique sample number and will be affixed to a sample label affixed to the sample container. Refer to the FSP in Appendix A 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 COC record will be completed at the time of sample collection and will accompany each shipment identifying the contents of the shipment. The COC record will accompany the 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.
- Soil and groundwater samples will also be transported in containers (coolers) packed with ice. Samples will be packaged for shipment and shipped to the appropriate laboratory for analysis. The samples will be packed to prevent breakage and movement during shipping. The number of coolers must be written on the COC. Samples in polyethylene containers will be placed upright directly in the sample cooler and limited to one layer of samples per cooler. Additional bubble wrap or packaging material will be added to fill the cooler. Shipping containers may be secured with strapping tape and/or custody tape for shipment to the laboratory.
- When samples are split with a regulatory agency and Site representatives, a separate COC will be prepared and marked to indicate with whom the samples are shared. The person relinquishing the samples to the regulatory agency or the Site 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 (and never longer than a one-day delay) 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 COC PROCEDURES

A full-time Sample Custodian will be assigned the responsibility of sample control. It will be the responsibility of the Sample Custodian to receive all incoming samples. Once received, the custodian will document that the custody tape on the coolers is unbroken, that each sample is received in good condition (i.e., unbroken, cooled, etc.), that the associated paperwork, such as COC forms, has been completed, and will sign the COC forms. In special cases, the custodian will document from appropriate sub-samples that the COC with proper preservation has been accomplished. The custodian will also document that 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 COC form, analyses by the laboratory's analysts will begin in accordance with the appropriate methodologies. Samples will be removed from secure storage with internal COC sign-out procedures followed.

4.3 STORAGE OF SAMPLES

Sample containers with volume remaining will be returned to secure and limited-access storage. Upon completion of all laboratory analyses for each sample submittal and generation of the laboratory report, samples will be stored by the Sample Custodian. The length of time that samples are held will be at least 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 of New York 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 the custody of the Project Director or their 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 COC 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 COC documents, both hard copy and electronic. 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 QA Officer regarding the disposition of the project-related files.

5. Calibration Procedures and Frequency

This section describes procedures for maintaining the accuracy of all the instruments and measurement equipment, which will be used for conducting field tests and laboratory analyses. These instruments and equipment will be calibrated prior to each use or according to a periodic schedule.

5.1 FIELD INSTRUMENT CALIBRATION PROCEDURES

Field instruments will be used for real-time sample measurement during the sampling of all media and for health and safety monitoring, as described in the CHASP. On-Site air monitoring for health and safety purposes may be accomplished using a vapor detection device, such as a photoionization detector (PID).

Field instruments will be calibrated prior to use and the calibration will be verified, after a minimum, at the beginning of the day and/or the middle of the day.

Satisfactory completion of the pre-operation inspection will be noted on the Field Sampling Record, along with results of each field measurement.

5.2 LABORATORY INSTRUMENT CALIBRATION PROCEDURES

Calibration procedures for a specific laboratory instrument will consist of initial calibration, initial calibration verification, and continuing calibration verification. The Laboratory SOPs present the specific calibration procedures for each method of analysis. The SOP for each analysis performed in the laboratory describes calibration procedures, their frequency, acceptance criteria, and the conditions that will require calibration. In all cases, the initial calibration will be verified using an independently prepared calibration verification solution.

The use of 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 (NIST, formerly National Bureau of Standards), the EPA Environmental Monitoring Support Laboratories (EMSL), or reliable Cooperative Research and Development Agreement (CRADA)-certified commercial sources.

All materials including standards or standard solutions will be dated upon receipt, and will be identified by material name, lot number, purity or concentration, supplier, receipt/preparation date, recipient/preparer’s name, expiration date, and all other pertinent information.

6. Analytical Procedures

Analytical procedures to be utilized for the analysis of environmental samples will be based on referenced EPA analytical protocols and/or project-specific SOPs.

6.1 FIELD ANALYTICAL PROCEDURES

Field analytical procedures include the measurement of pH, temperature, oxidation reduction potential (ORP), dissolved oxygen (DO), and specific conductivity during sampling of groundwater, and the qualitative measurement of VOCs during the collection of soil samples.

6.2 LABORATORY ANALYTICAL PROCEDURES

Laboratory analyses will be based on the EPA 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 Regulations, 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 QC 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

Field QC is monitored and enforced by equipment calibration checks, QC samples, a review of QA/QC concerns in the field, and any corrective action(s) required. Haley & Aldrich of New York personnel familiar with the field protocols will perform these tasks. Compliance QC checks will be implemented during the investigations.

Field sampling precision, accuracy, and overall data quality will be evaluated using trip blanks, field blanks, equipment rinsate blanks, and potentially field duplicates and Matrix Spike (MS)/Matrix Spike Duplicates (MSDs) as necessary that are outlined in Table II.

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 will be prepared by the project laboratory using ASTM International (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.

7.1.3 Equipment Blanks

Equipment blanks are prepared by pouring analyte-free water into, over, or pumping through the sampling device, collecting in a sample container, and transporting to the laboratory for analysis in the same manner as the environmental samples. Equipment blanks are used to assess the effectiveness of equipment decontamination procedures. One equipment blank sample per type of sampling equipment utilized may be collected at the initiation of each sampling event or when deemed necessary.

7.2 LABORATORY PROCEDURES

Procedures which contribute to maintenance of overall laboratory QA/QC 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 one 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 percent, air matrices will be 35 percent, and aqueous matrices will be 35 percent (or the absolute difference rule was satisfied if detects were less than five times the Reporting Limit [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

Five 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 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 (Upper Control Limit [UCL] or Lower Control Limit [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 of New York 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 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 Recoveries

For VOCs, surrogates will be added to each sample prior to analysis to establish purge and trap efficiency.

The recovery of surrogate compounds 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.

Method-specific QC limits are provided in the attached laboratory method SOPs. Surrogate compound 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 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 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 SOPs. 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 RAWP 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 one duplicate per 20 investigative samples. The RPD criteria for the project field duplicate samples will be +/- 100 percent for soil, +/- 35 percent for groundwater for parameters of analysis detected at concentrations greater than five times the laboratory RL, and +/- 35 percent for air for parameters of analysis detected at any concentration.

8.1.3 Laboratory Precision Sample Objectives

Laboratory precision will be assessed through the analysis of LCS and laboratory control duplicate samples (LCSD) and MS/MSD samples for groundwater and soil samples and the analysis of laboratory duplicate samples for air and soil vapor samples. Air and soil vapor laboratory duplicate sample analyses will be performed by analyzing the same Summa canister twice. The RPD criteria for the air/soil vapor laboratory duplicate samples will be +/- 35 percent for parameters of analysis detected at any concentration.

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 VOCs. 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 LCS and Site-specific 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 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 are determined by independent confirmation of compliance with method-specific and project-specific DQOs. 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 percent.

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. Corrective actions such as revised sample handling procedures will be implemented if problems are noted.

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 greater than 90 percent.

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 SRMs obtained from either EPA CRADA suppliers or the 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 to assess potential contamination introduced from utilized equipment. (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 VOCs. 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 VOCs.

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.

MS 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 VOCs only.)

9. Data Reduction, Validation, and Reporting

All data generated through field activities or by the laboratory operation shall 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. Only direct read instrumentation will be employed in the field. The pH, conductivity, temperature, turbidity, and PID readings collected in the field will be generated from direct read instruments following calibration per manufacturer's recommendations. 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. Later, when the results forms required for this study are being filled out, the Project Coordinator will review the forms to determine whether any transcription errors have been made by the field crew.

9.1.2 Laboratory Data Reduction Procedures

Laboratory data reduction procedures are provided by the appropriate chapter of EPA's "Test Methods for Evaluating Solid Waste," SW-846, Third Edition. Errors will be noted and 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, MS, and MSD) will be compared to the method acceptance criteria or laboratory acceptance criteria when no method criteria are available. Data determined to be acceptable will be entered into the laboratory information management system. Data summaries will be sent to the Laboratory QA Officer for review. If approved, data are logged into the project database format.

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 of New York 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 of New York QA Officer. Tier 1 data validation (the equivalent of EPA'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 Analytical Services Protocol (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 DUSR based on NYSDEC DER-10, Appendix 2B.

10. Performance and System Audits

A performance audit is an independently obtained 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 an 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
- COC reports.

Follow-up audits will be conducted to correct deficiencies and to verify that procedures are maintained throughout the investigation.

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 HASPs;
- 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, COC 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 NYSDEC, 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.

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 logbooks;
- 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 downtime. 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. Quality Assurance Reports and Corrective Actions

Critically important to the successful implementation of the QAPP 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
- QA/QC exception reports/corrective actions.

QA/QC corrective action reports will be prepared by the Haley & Aldrich of New York 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.

Program activities are properly assessed using a review and evaluation process of field QA/QC forms, nonconformance reports (NCR) and subsequent corrective actions, internal peer review, and laboratory oversight. This process ensures this QAPP is adhered to, the quality of the data is adequate, and corrective actions, when needed, are implemented effectively and in a timely manner.

Any project team member can initiate the field corrective action process by identifying a problem, acting to eliminate the problem, documenting the corrective action, monitoring the effectiveness of the corrective action, and verifying the problem has been eliminated. Some examples of corrective actions for field measurements may include the following:

- Repetition of a measurement to check for error;
- Checking all proper adjustments for ambient conditions such as temperature;
- Checking batteries;
- Checking calibrations;
- Recalibration;
- Replacing instruments or measurement devices;
- Stop work (if necessary);
- Revising information submitted on COC forms; and
- Amending of sampling procedures or Work Plans.

Technical staff and project personnel are responsible for reporting all technical or QA nonconformances or suspected deficiencies of any activity or issued document by reporting the situation to the Haley & Aldrich of New York QA Officer on an NCR. The Haley & Aldrich of New York Project Manager, in coordination with the Haley & Aldrich of New York QA Officer, is responsible for assessing the suspected difficulty and its impact on the data quality in consultation with the Haley & Aldrich of New York

Program Manager. A corrective action decision, if necessary, will be determined by the Haley & Aldrich of New York Project Manager and QA Officer and implemented by the PM. The Haley & Aldrich PM has the authority to initiate stop work orders, if necessary, and is responsible for initiating a corrective action for a nonconformance, which may include the following actions:

- Evaluating all reported nonconformances;
- Determining disposition or action to be taken;
- Maintaining a log of nonconformances; and
- Reviewing nonconformance reports and corrective actions taken.

References

1. New York State Department of Environmental Conservation, 1991. NYSDEC Analytical Services Protocol (ASP), Bureau of Environmental Investigation, 1991 with updates.

2. New York State Department of Environmental Conservation, 2010. Division of Environmental Remediation, Technical Guidance for Site Investigation and Remediation, DER-10. May.

3. New York State Department of Environmental Conservation, 2023. Division of Environmental Remediation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program. April.

4. United States Environmental Protection Agency, 1986. Test Methods for Evaluating Solid Waste, Office of Solid Waste, U.S. EPA, SW-846, November 1986, with updates.

5. 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.

6. United States Environmental Protection Agency, 1992. Specifications and Guidance for Contaminant-Free Sample Containers. OSWER Directive 9240.0-05A. April.

7. 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.

8. United States Environmental Protection Agency, 1999. EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations. EPA QA/R-5 Interim Final. November.

9. United States Environmental Protection Agency, 2014a. Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15, SOP NO. HW-31, Revision. 6. June.

10. United States Environmental Protection Agency, 2020a. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-542-R-20-006. November.

11. United States Environmental Protection Agency, 2020b. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-20-005. November.

TABLES

TABLE I
SUMMARY OF ANALYSIS METHOD, PRESERVATION METHOD, HOLDING TIME, SAMPLE SIZE REQUIREMENTS, AND SAMPLE CONTAINERS
FORMER NEW CITY LINK AUTO REPAIR SITE

Analysis/Method[3]	Sample Type	Preservation	Holding Time	Volume/Weight	Container[4]
Volatile Organic Compounds/8260	Soil	1 - 1 Vial MeOH/2 Vial Water, Cool, 4 ± 2 °C	14 days[1]	120 mL	3 - 40ml glass vials
Semivolatile Organic Compounds/8270	Soil	Cool, 4 ± 2 °C	14 days extraction / 40 days analysis	250 mL	1 - 8 oz Glass
Pesticides/8081	Soil	Cool, 4 ± 2 °C	14 days extraction / 40 days analysis	250 mL	1 - 4 oz Glass
Polychlorinated Biphenyls/8082	Soil	Cool, 4 ± 2 °C	14 days extraction / 40 days analysis	250 mL	1 - 4 oz Glass
TAL Metals/6010, 7471	Soil	Cool, 4 ± 2 °C	180 days	60 mL	1 - 4 oz Glass
PFAS/1633	Soil	Cool, 4 ± 2 °C	28 days extraction / 40 days analysis	To be determined by laboratory	1 - HDPE container
1,4-Dioxane/8270	Soil	Cool, 4 ± 2 °C	14 days extraction / 40 days analysis	250 mL	1 - 8 oz Glass

Notes:

1. *Terracores and encores must be frozen within 48 hours of collection*
2. *Refer to text for additional information.*
3. *Equivalent method can be used.*
4. *Volume may vary by laboratory and/or equivalent method.*

TABLE II
LABORATORY AND FIELD QUALITY CONTROL OBJECTIVES
FORMER NEW CITY LINK AUTO REPAIR SITE
547 CONEY ISLAND AVENUE 50 HINCKLEY PLACE
BROOKLYN, NEW YORK

Quality Control Sample/Process Assessed	Measurement Quality Indicator	Frequency	Acceptance Criteria	Corrective Action
LABORATORY QA/QC				
Method Blank	Accuracy and Representativeness	1 per analytical batch of 20 samples	No target analyte above one-tenth the amount in any sample	Reanalyze blank and samples. Qualify as necessary.
LCS or LCS/LCSD	Accuracy or Accuracy and Precision	1 per analytical batch of 20 samples	Method Specific Criteria per lab SOP or NYSDEC's Part 375 Remedial Programs	Re-prepare and reanalyze blank and samples. Qualify as necessary.
MS/MSD	Accuracy and Precision	1 per analytical batch of 20 samples	Method Specific Criteria per lab SOP or NYSDEC's Part 375 Remedial Programs	Qualify as necessary.
Laboratory Duplicate	Precision	1 per analytical batch of 20 samples	RPD <20% (or absolute difference <5x RL)	Qualify as necessary.
Surrogate	Accuracy	Each sample	Method Specific Criteria per lab SOP or NYSDEC's Part 375 Remedial Programs	Re-extract and reanalyze. Qualify as necessary.
FIELD QA/QC				
Trip Blank	Accuracy	1 per cooler when submitting samples for volatile analysis	No target analyte above one-tenth the amount in any sample	Qualify as necessary
Field Blank	Accuracy	As necessary	No target analyte above one-tenth the amount in any sample	Qualify as necessary
Equipment Rinse Blank	Accuracy	As necessary	No target analyte above one-tenth the amount in any sample	Qualify as necessary
Field Duplicate	Accuracy and Precision	1 in 20 project samples	RPD <35% for water (or absolute difference <5x RL) RPD <100% for solid (or absolute difference <5x RL) RPD <35% for air	Qualify as necessary

Notes:

% = percent
LCS/LCSD = Laboratory Control Sample/Laboratory Control Sample Duplicate
MDL = Method Detection Limit
ML = Method Minimum Level
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QA/QC = Quality Assurance/Quality Control
RL = Reporting Limit
RPD = Relative Percent Difference
** QA/QC only analyzed as relevant per method requirements*

ATTACHMENT A
Project Team Resumes

SUZANNE BELL, PE

Senior Project Manager

EDUCATION

B.S., Biosystems Engineering, University of Arizona

PROFESSIONAL REGISTRATIONS

AZ: Environmental Engineer (Reg. No. 61995)
NY: Professional Engineer (Reg No. 106301)

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste and Operations Emergency Response Training (29 CFR 1910.120 and 40 CFR 265.16)
8-Hour HAZWOPER Refresher Course

Suzanne is a senior project manager with over 14 years of experience in the environmental consulting industry. She has worked on soil and groundwater environmental investigations, remediation projects, and prepared reports for private, industrial, and government clients. Her technical experience includes remediation systems; soil and groundwater feasibility studies; Phase I site investigations; environmental file review and historical research; stormwater assessments and SWPPP preparation; reclamation planning for the sand and gravel mining industry; air permitting; and data interpretation.

RELEVANT PROJECT EXPERIENCE

Waterfront Property Management, 89-91 Gerry Street and 93 Gerry Street, Brooklyn, New York. Suzanne served as project manager for execution of Remedial Action Work Plans at the former Just4Wheels Site and Just4Wheels Site 2 under the New York State Brownfield Cleanup Program (NYSBCP). Responsible for remedial oversight of excavation and removal of non-hazardous and hazardous soil, endpoint sample collection, air monitoring, dewatering system installation support, communication with soil brokerage firm and environmental laboratory, preparation of Daily Field Reports (DFRs and the Final Engineering Report (FER).

Multiple Clients, Remedial Investigation Work Plans and BCP Applications, New York City, New York. As project manager and engineer, Suzanne has prepared NYSBCP Applications and Remedial Investigation Work Plans for the New York State Department of Environmental Conservation (NYSDEC) for sites within the New York City boroughs.

Excavation Oversight and CAMP Monitoring, Various Sites, New York City, New York. Suzanne has served as project manager for projects under the New York City Office of Environmental Remediation (NYCOER) program and NYSBCP. Her responsibilities included managing excavation oversight, air monitoring, and logging trucks for off-site disposal.

Aerospace Manufacturing Facility, Feasibility Study and Remedial Action Plan, Chula Vista, CA. Suzanne co-authored feasibility studies for soil and ground water impacted by chlorinated solvents, metals, and PCBs. She screened ex-situ and in-situ remedial alternatives for effectiveness, implementability, and protectiveness of human health. She also assessed alternative cleanup levels for technical and economic feasibility of achieving background concentrations in accordance with State Water Resources Control Board Resolution 92-49. Additionally, she evaluated groundwater remedial alternatives, including bioremediation, monitored natural attenuation (MNA), pump and treat, chemical oxidation, chemical reduction, and engineered and institutional controls. Lastly, she prepared engineering cost estimates and conceptual designs. Assisted with the preparation of remedial action plans: a bioremediation remedy and MNA program for groundwater, and excavation of contaminated soil.

Aerospace Manufacturing Facility, Groundwater Remediation and Bioremediation Pilot Test, Riverside, CA. Suzanne assisted with data analysis and reporting for the bioremediation pilot test study for groundwater impacted by chlorinated solvents, hexavalent chromium, and 1,4-dioxane. She evaluated site data for trends indicative of MNA using statistical analysis.

Goodyear Tire & Rubber Company, Phoenix Goodyear Airport South Superfund Site, Goodyear, Arizona. Suzanne prepared reports and performed data analysis related to the groundwater monitoring program and operation and maintenance of groundwater treatment systems. Currently, two groundwater extraction and remediation systems are capable of treating more than 1MGD of groundwater contaminated with trichloroethylene. The upper groundwater zone is treated with an air stripper, while the lower zone is treated with granulated activated carbon. Treated groundwater is reinjected into their respective zones.

Soil and Groundwater Remediation Systems, Arizona. Suzanne **p**erformed operation, maintenance, and sampling activities for two soil vapor extraction systems to remove tetrachloroethylene from subsurface soils at two different dry-cleaning facilities. She prepared soil vapor extraction GAC system test reports in accordance with Maricopa County Air Quality Department Permits.

ASTM Phase I Environmental Site Assessments, Arizona. Suzanne assisted with ASTM Phase I ESAs at various industrial facilities in central and southern Arizona. She evaluated site conditions and regulatory implications as they related to the owner's or potential buyer's property development plans.

Phoenix-Goodyear Airport-North Superfund Site, Focused Feasibility Study, Goodyear, Arizona. Suzanne was a member of team that prepared a source area remediation focused feasibility study report. She evaluated several technologies and alternatives to treat groundwater contaminated with trichloroethylene (TCE) and perchlorate. She analyzed remedial alternatives, including in-well air stripping, a hydraulic barrier, nano- and macro-scale zero-valent iron, anaerobic reductive dechlorination, in-situ chemical oxidation (permanganate), and electrical resistive heating. She prepared cost estimates, conceptual designs, remediation technology summaries, and sustainability evaluation of the alternatives.

Enhanced In-Situ Bioremediation (EISB) and Chemical Reduction Using a Nanoscale, Zero-Valent Metallic Alloy to Treat Co-disposed Chloroethanes and Chloroethenes in Groundwater, Manufacturing Facility, Canton, MA. Suzanne performed data analysis and prepared status reports on effectiveness of EISB in treating chlorinated solvents in shallow groundwater. She reported on the performance monitoring results for the permeable reactive barrier in deep zone groundwater.

Hayden Facilities RI/FS, ASARCO LLC, Hayden, Arizona. Suzanne served as Quality Assurance Officer for the air monitoring program at a copper smelting facility. She developed site-specific data validation procedures according EPA guidelines for several analytical methods.

Market Evaluation for Nanoscale Zero-Valent Iron, Stamford, Connecticut. Suzanne used EPA CERCLIS Public Access Database and select State databases to estimate the market size for potential use of nanoscale zero-valent iron (nZVI) as a remediation technology. She compiled competing vendor information and quotes to estimate the average cost of similar products. She utilized the U.S. Patent and Trademark Office database to analyze competing technologies.

AZPDES and NPDES Permits, Arizona. Suzanne prepared Arizona Pollutant Discharge Elimination System (AZPDES) and National Pollutant Discharge Elimination System (NPDES) permit renewal applications for a copper mining facility in Southern Arizona, which included updates to the facility's Storm Water Pollution Prevention Plan (SWPPP) and QA Manual.

Spill Prevention, Control and Countermeasure Plans, Aggregate Mining Facilities, Arizona. Suzanne assisted with a Spill Prevention, Control and Countermeasure Plans (SPCC) for aggregate mining facilities in Arizona. She performed site visit, evaluated fuel and oil tanks and secondary containment areas, assisted with calculations to verify compliance, and prepared report.

Copper Mining Facility, Miami, Arizona. Suzanne assisted with Toxic Release Inventory (TRI) and Toxic Substances Control Act (TSCA) reporting, both submitted to the EPA.

Storm Water Pollution Prevention Plan, Franciscan Friars of California, Gila County, Arizona. Suzanne updated the SWPPP for construction activities related to the closure of a historic Gibson copper mine, authorized under the Arizona Pollutant Discharge Elimination System "General Permit for Discharge from Construction Activities to Waters of the United States." The Former Gibson Mine is a small, historic copper mine, located approximately 7 miles southwest of Miami, Arizona, in Gila County. Construction activities covered under the updated SWPPP consisted of the excavation, hauling, and removal of approximately 80,000 tons of soil cover from the Mineral Creek side of the site to mine-scarred areas on the Pinto Creek side of the site. Also included was final grading of the site, which consisted of re-contouring and re-defining any portion of the drainages that were on site; and revegetation.

Stormwater Pollution Prevention Plans, Vulcan Materials Company, Western Division, Arizona. Suzanne prepared SWPPP for 11 aggregate mining facilities in Arizona. Performed site visits, analyzed stormwater flows, prepared reports, and completed Notices of Intent for the Arizona Department of Environmental Quality under a Multi-Sector General Permit.

Uranium Enrichment Facility, Lea County, New Mexico. Suzanne prepared quarterly and annual groundwater monitoring reports, semi-annual radioactive effluent release reports, and radiological environmental monitoring program reports in accordance with New Mexico Environment Department regulations and the Nuclear Regulatory Commission. Performed quarterly data validation on a variety of matrices and analytical methods. She prepared site-specific environmental monitoring procedures, which included field sampling techniques; data collection, management and validation; and an air modeling software package.

Rocket Testing and Research Facility, Western U.S. Suzanne analyzed and evaluated groundwater quality data, prepared reports, and managed data for this Resource Conservation and Recovery Act (RCRA) site. Assisted with management of sampling, analysis, and reporting of constituents of concern for fractured sandstone bedrock aquifer impacted by chlorinated solvents and emergent chemicals 1,4-dioxane, perchlorate, and n-nitrosodimethylamine (NDMA). Performed data validation of water quality data according to U.S. EPA National Functional Guidelines. Queried data from client environmental data management system and prepared summary tables, concentration plots, and water level hydrographs using Microsoft Excel programs. She prepared a quarterly analytical schedule using an Access database application, updated the site-specific Health & Safety Plan, and participated in lean training, which reduced cost of groundwater monitoring tasks by 25 percent.

Federal Superfund Site, Eastern Massachusetts. Suzanne performed data validation and quality assurance/quality control of soil and groundwater data according to U.S. EPA National Functional Guidelines. She performed third-party database updates.

Great Western Bank, Cortaro Ranch Property, Marana, Arizona. For site characterization of undeveloped land, Suzanne performed surficial soil sampling, analytical laboratory coordination, data analysis, and report preparation.

Twin Buttes Properties, Inc., Southern Arizona. Suzanne assisted with report and analytical table preparation for the characterization and analysis of current and historical hydrologic conditions at an inactive mine site near Sahuarita, Arizona in support of regulatory compliance.

Skyworks Solutions, Inc. Site, Newbury Park, California. Suzanne assisted with report and analytical table preparation for a subsurface investigation characterizing the lateral and vertical extent of soil and groundwater impacts from known releases of TCE, 1,4-dioxane and other organic compounds.

PUBLICATIONS

"Mixed Redox Catalytic Destruction of Chlorinated Solvents in Soils and Groundwater," with S. Gao, E. Rupp, M. Willinger, T. Foley, B. Barbaris, A.E., Saez, R.G. Arnold and E. Betterton. In Environmental Challenges In The Pacific Basin, 2008; Annals of the New York Academy of Sciences, Vol. 1140, pp 435-445. PMID: 18991945

INVITED LECTURER OR SPEAKER

"Catalytic Destruction of Perchloroethylene," with E. Betterton, R. Arnold and Eduardo Saez, Presenter - NASA Space Grant Student Symposium, Phoenix, Arizona. April 2007.

JAMES BELLEW

Principal

EDUCATION

M.S., Environmental Geology, Queens College
B.S., Geology, Pre-Law, Environmental Science, Binghamton University

PROFESSIONAL SOCIETIES

American Council of Engineering Companies, Member, 2017
Urban Land Institute, Member, 2016
Business Council of New York, Member, 2018

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)
30-Hour OSHA Construction Safety and Heath
8-hour OSHA Site Supervisor Certification
OSHA Confined Space Entry Training Certification
Erosion and Sediment Control, New York, No. 006925
USDOT/IATA Training on the Shipping and/or Transportation of Hazardous Materials

James has a hands-on approach to every project. He believes that being present and putting himself into his clients' shoes is the best way to understand their needs. As a Principal, James's expertise includes due diligence, environmental risk development, building surveys, remedial investigations, remedial design, and technical oversight. Mr. Bellew has completed over 50 NYCOER E-Designation Sites and NYSDEC Brownfield Cleanup Program Sites which include preparation of all reports through to the certificate of completion and a certificate of occupancy.

Clients appreciate James' strategies from the inception of a project through closure under various regulatory programs nationwide. That comprehensive approach is what James loves the most about his job. He enjoys taking on complex projects and finding rational, cost-effective, remedial solutions.

RELEVANT PROJECT EXPERIENCE

Development, EPA Site RCRA-02-2009-7306, NYSDEC Site 243016, Former Port Mobil Terminal, Staten Island, New York. Principal responsible for the preparation of the feasibility study, preparation of the Interim Remedial Reports, completion of the Interim Remedial Measures, completion of the remedial investigation stages, continued execution of the Monitoring and Natural Attenuation Program, preparation of the Remedial Action Work Plan/Remedial Designs, and RCRA Closure procedures for the Port Mobil Terminal Site under an Environmental Protection Agency and New York State DEC Consent Order. The Site has a footprint of 240-Acres SF with a planned development for commercial/industrial uses.

Government, NYCDDC Shirley Chisholm Recreational Center, Brooklyn, New York. Principal for the project released by the New York City Department of Design and Construction, on behalf of the NYC Parks Department, for the design and construction of a new recreational center located at 3002 Foster Avenue in Brooklyn New York. Scope of services included execution of a Phase II Environmental Site Assessment, soil characterization, remedial oversight, geotechnical percolation testing and closure with the NYC Department of Environmental Protection.

Development's, New York State Superfund Site 224136, Former NuHart Plastics Site, New York State Superfund Site (NuHart West) and NYSDEC Brownfield Program Site C224287 (NuHart East), Brooklyn, New York. Principal for the preparation of the feasibility study, offsite investigation reports, RCRA (Resource Conservation and Recovery Act) Closure Work Plan, execution of the RCRA Closure, preparation of the Brownfield Cleanup Application (NuHart East), 100% Remedial Design, preparation of all BCP related work plans (NuHart East), coordination to vest the Site for 421-, Final Engineering Reports, RCRA Closure Reports, Site Management Plan, Remedial Memorandum and all community

outreach programs for a former plasticizer facility with on- and off-site pollutant concerns. Responsible for all remedial cost and alternative analysis with the client to bring the Site to a certificate of completion. NuHart is a high-profile Site that requires coordination with the New York State Department of Environmental Conservation (NYSDEC), the New York City Office of Environmental Remediation (NYCOER), local regulatory agencies, community stakeholders and local elected officials. Remediation included shipping off a majority of the Site soil for thermal desorption under a nonhazardous contained in determination for thermal treatment, erection of a negative pressure enclosure in OU-1, groundwater extraction and treatment, underground storage tank (UST) removal, ex-situ chemical soil mixing of Zero Valent Iron (OU-1), In Situ Injection of Zero Valent Iron (OU-2), containment walls (OU-1 and OU-2), In Situ Soil Stabilization and Solidification, and automated LNAPL recovery (OU-2). The NuHart East Site has completed the remediation and received the Certificate of Completion from the NYSDEC in 2023 and the NuHart West Site is receiving its Certificate of Completion in 2025 with an anticipated transition from a Class 2 to a Class 4 Inactive Hazardous waste Site.

Development, NYSDEC Site C224345, 101 Fleet Place, Brooklyn, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former bus depot Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 20,000 SF with a planned development of a 21-story mixed use building with approximately 292 units which include affordable housing. This Site received a NYSDEC Certificate of Completion in 2024.

Development, NYSDEC Site C231150 644 East 14th Street, New York, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design and Final Engineering Report for the 644 East 14th Street Site under the New York State Brownfield Cleanup program. The Site has a footprint of 10,000 SF with a planned development of a 24-story mixed use building with approximately 196 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2024.

Development, NYSDEC Site C224338 Former Garone Bros Auto Site, 352-362 Shepherd, Brooklyn, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former Garone Bros Auto Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 10,000 SF with a planned development of a 7-story mixed use building with approximately 56 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2024.

Development's, NYSDEC Sites C224369, C224348, Speedway Portfolio, Multiple Boroughs, New York. Principal responsible for the expedited due diligence during acquisition of 5 former Speedway Sites of Phase I ESA's and Limited Phase II ESI's, preparation of the Brownfield Cleanup Program Applications, Remedial Investigation Work Plans, Interim Remedial Measure Work Plans, Air/Noise Remedial Action Work Plans (NYCOER), remedial investigations, remedial action designs (BCP and OER), Final Engineering Reports and Site Management Plans. Five of the Sites including 808-834 Metropolitan (C224368), 210 Greenpoint Avenue (C224348) 1885 Atlantic (C224347), 2864 Atlantic (C224349) and 401 West 207th (C231151), were accepted into the NYSDEC Brownfield Cleanup program. The remedial actions for the Sites included a variety of approaches which consisting of in situ chemical treatment for groundwater, soil vapor extraction, excavation and dewatering removal and treatment. All of the Sites received a certificate of completion from the NYSDEC in 2023 and 2024.

Development, NYSDEC Site C203127, 138 Bruckner Boulevard, Bronx, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, coordination to vest the Site for 421-a, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former Zaro's Bakery Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 50,000 SF with a planned

development of a 12-story mixed use building with approximately 447 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2023.

Development, NYSDEC Site C203156 Former Mill Sanitary Wiping Cloth Site, 40 Bruckner Boulevard, Bronx, New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, remedial action design (BCP and OER) and Final Engineering Report for the former Mill Sanitary Wiping Cloth Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The Site has a footprint of 45,000 SF with a planned development of a 12-story mixed use building with approximately 480 units which include affordable housing. The Site received a certificate of completion from the NYSDEC in 2023.

Development, NYSDEC Site C203121, 310 Grand Concourse, Bronx, New York. Principal responsible for environmental and construction management services required to successfully navigate this two-building redevelopment project through the NYSDEC Brownfield Cleanup Program (BCP) and NYCOER E-Designation Program (Air/Noise). Project included site investigation, design, and remediation for 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, underground storage tank (UST) removal, design, and installation an ex-situ chemical in situ soil stabilization process for elevated levels of metals.

Development, NYSDEC Site C224299, 297 Wallabout Street, Brooklyn New York. Principal responsible for the due diligence during acquisition, preparation of the Brownfield Cleanup Program Application, Change of Use Documents, BCA Amendments, remedial investigation, and remedial action design (BCP and OER), Final Engineering Report and Site Management Plan for the 297 Wallabout Street Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air). Successfully delineated the onsite tetrachloroethene (PCE) plume in soil and groundwater. The Site is currently in the remedial implementation phase. Remediation included excavation of approximately 5,000 cubic yards of soil, groundwater extraction and treatment, underground storage tank (UST) removal, design, and installation an ex-situ chemical oxidation process for chlorinated solvents and monitoring and natural attenuation. The Site received a certificate of completion from the NYSDEC in 2024.

Development, NYSDEC Site C224239, Former Techtronics Site (8 Walworth Street), Brooklyn, New York. Principal for the remedial investigation, remedial action design and remedial action implementation for the former Techtronics Site under the New York State Brownfield Cleanup program as a Participant where trichloroethene (TCE) and tetrachloroethene (PCE) were encountered in soil and groundwater. James successfully delineated the vertical and lateral extents of the plumes which were identified as an upgradient, on-site. For this Site we have designed source removal to 20'bgs, Zero Valent Iron (ZVI) Reactive Barrier Wall, in situ ZVI injections sitewide and a vertical vapor mitigation system. The Site is currently in the remedial implementation phase.

Development, New York City OER Site - 346 Grand Concourse, Bronx, New York. Principal for the proposed 9-story, 60 key commercial building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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) and the Final Installation Report for the Certificate of Occupancy.

Development, New York City OER Site - 3294 Atlantic Avenue, Brooklyn, New York. Principal for the proposed 12-story, 80 key commercial building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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) and the Final Installation Report for the Certificate of Occupancy.

Development, New York City OER Site - 590-594 Myrtle Avenue, Brooklyn, New York. Principal for the proposed 6-story, 12-unit residential building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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) and the Final Installation Report for the Certificate of Occupancy.

Development, New York City OER Site - 3530 Webster Avenue, Bronx, New York. Principal for the proposed 8-story, 75 key commercial building with one-level deep cellar. Design phase environmental services consist of guiding the Site through the New York City Office of Environmental of Remediation 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). The project is currently in the construction phase of the NYCOER program.

Development, Former BP Station, Elmhurst Queens, New York. Principal for the preparation of a full environmental impact statement with respect to a mixed-use development proposed in Elmhurst Queens for submission to the NYC Department of City Planning to rezone the project. The work included a full impact assessment of the proposed construction with respect to the neighborhood, evaluation of green/open spaces for the community and environmental site investigation and remediation services.

Development, NYSDEC Site C224204, Former Delta Metals Site, Brooklyn, New York. Senior Project manager for the remedial investigation and remedial action design for the former Delta Metal Products Company. Project is under the New York State Brownfield Cleanup program as a Participant where TCE and tetrachloroethene (PCE) were encountered in soil and groundwater. James successfully delineated the vertical and lateral extents of the plumes which were identified as an upgradient, on-site and downgradient plume. Investigation results triggered the NYSDEC to utilize its call-out contract to perform a plume track down for the immediate area and identify additional Potentially Responsible Parties. The design for an Air Sparge Soil Vapor Extraction system has been accepted and the project is currently under construction.

Manufacturing-Industrial, Hess Amerada, Bogota and Edgewater, New Jersey. Senior Project Manager and technical Lead for the construction management services for the demolition of two waterfront terminals on the Hackensack and Hudson rivers. Services included demolition design, submittal review, site execution and coordination of activities related to asbestos abatement, demolition of buildings, thirty holding tanks, piping structures, containment structures and storm water structures.

Manufacturing-Industrial, PQ Corporation, Northeastern United States. Senior Project Manager responsible for the design and implementation of a three phased program for handling polychlorinated biphenyl (PCB) containing materials on approximately 100 tank structures at large, active industrial sites, which included coating removal, encapsulation, demolition, and Toxic Substances Control Act (TSCA) remediation. He was responsible for development of the overall program, specifications, drawings, bid packages, construction oversight and project administration until closure. The program also included design and oversight of a new façade and roof upgrades completed concurrently to client operations.

Development, NYSDEC Site C224194, Former Cascade Laundry, Brooklyn, New York. Senior Project Manager responsible for environmental and construction management services required to successfully navigate a seven-building redevelopment project through the NYSDEC Brownfield Cleanup Program (BCP) and NYCOER E-Designation Program (Air/Noise). Project included site investigation, design, and remediation for development of seven buildings within a 2-acre site in Brooklyn, New York. Remediation included excavation of approximately 40,000 cubic yards of soil, groundwater extraction and treatment, underground storage tank (UST) removal, design, and installation of a sub slab depressurization system (SSDS) and ex situ chemical oxidation of groundwater impacted by petroleum.

Development, New York City OER Site - 520-534 West 29th Street, New York, New York. James was responsible for environmental site investigation and remediation activities required to successfully navigate the project through the

NYCOER's E-Designation and Voluntary Cleanup Programs. 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). The project is currently in the construction phase of the NYCOER program.

Development, New York State Brownfield Site, BJ's Wholesale, Brooklyn, New York. Senior Project Manager for the remedial execution within the NYSDEC BCP and NYCOER E-Designation programs at an 8-acre peninsula in Gravesend Bay being redeveloped by BJ's Wholesale Club (BJ's) into a "big-box" warehouse and parking garage, and a publicly accessible, waterfront open space. He implemented a comprehensive community air monitoring plan (CAMP), managed the design and installation of a passive sub slab depressurization system, and oversaw handling and off-site disposal of impacted material generated by BJ's (the Lessee for the subject site) during their foundation construction activities.

Development, New York State Brownfield Site, Coney Island, Brooklyn, New York. Senior Project Manager responsible for the environmental design during the rehabilitation and expansion of a 1970s-era mixed-use complex, which covers an area equivalent to three city blocks. He facilitated the BCP applications for two adjacent parcels within the complex impacted by historic dry-cleaning uses. Site investigations performed had documented the presence of PCE in soil gas and was delineated over three separate structural slabs in commercial and residential space utilizing a mobile laboratory. He designed and installed two sub-slab depressurization systems and prepared Remedial Investigation Work Plan which outlined work required to delineate the vertical and horizontal extent of the impacted soils, soil vapor and groundwater at both BCP sites. The system was designed with below slab suction pits, remote sensing vacuum monitoring points, and a variable frequency drive blower tied into the monitoring points for optimization and power savings.

Development, New York City OER Site - Memorial Sloan Kettering Cancer Center (MSKCC), New York, New York. Project Manager for environmental remediation for this MSKCC development project. James was solely responsible for subsurface investigation and remediation activities, large, manufactured gas plant (MGP) gas holder removal (from former Con Edison Operations), UST removal, daily status updates to the NYCOER, implementation of the CAMP and the management, handling, characterization, and off-site disposal of MGP impacted soil and dewatering fluids.

New York State Spill Remediation, Metropolitan Transportation Agency Bridges and Tunnels, New York, New York. Project Manager responsible for execution of a remedial action scope which included UST removal, excavation of 600 cubic yards of petroleum impacted soil, design and installation of a groundwater extraction and treatment system and post remediation samples. He implemented the In Situ Chemical Oxidation program for the injection of 54,000 gallons of 8 percent solution Fenton's Reagent and the O&M (Operation & Maintenance) of the petroleum spill with respect to Fenton's performance and the plume migration.

Various Public Schools, New York City School Construction Authority, New York, New York. Project Manager responsible for environmental remediation proposed several school developments sites, including PS 312, P.S. 281, and PS 27K. Assisted in the design and implementation of the remediation programs for the sites for petroleum spills, PCB TSCA contamination and hazardous lead hot spots.

Development, i.Park Edgewater, Edgewater, New Jersey. Project Manager responsible for the design and environmental remediation on-site. Implemented the construction plan for remediation of arsenic, pitch- and PCB-impacted soil for excavation and off-site disposal of 20,000 tons. He managed the air monitoring system on-site which consisted of four permanent stations set upwind and downwind on-site for volatile organic compounds (VOCs) and particulate migration off-site. Also, James performed redesigns throughout the project to keep within the current schedule and budget.

Development, New York State Brownfield, Queens West, Long Island City, New York. Project Manager responsible for oversight of the Environmental Remediation on-site. James implemented the construction plan for remediation of 20,000 cubic yards of LNAPL on the Site; he assisted in design and oversight of the In Situ Chemical Oxidation mixing on-site. The project was eventually developed into three large towers and a new school.

Manufactured Gas Plant, National Grid, Rockaway, New York. James aided in the design and implementation of the soil characterization plan for MGP impacted sands. After delineation of the contamination plume, drafted work plans and site layout of the negative pressure tent. He performed and trained the on-site staff on the use of personal air monitoring equipment and aided with design considerations on the installation of a waterloo barrier to be advanced to minus 80 feet below grade surface. James also helped with the design and permitting for the groundwater treatment system installed on-site.

Manufactured Gas Plant, Con Edison, New York, New York. Environmental engineer for responsible party for all environmental issues associated with this job, including transportation and disposal of 8,000 tons of MGP contaminated soil from former Con Edison operations. James scheduled weekly work for all civil and environmental tasks on the job. He was responsible for the design and installation of the dewatering treatment system with a daily discharge of 25,000 gallons per day of MGP -impacted water.

New York State Superfund Project, NYSDEC, Hicksville, New York. James performed O&M and reporting on the Site's Potassium Permanganate Injection system, which was on a timed system; maintained the system, troubleshooting problems and ensuring that the proper ratios were being injected. He performed the fieldwork for analysis and drafted interim reports for the project manager.

Retail Petroleum, New York State Spills Program, Hess Amerada, Various Locations, New York. Environmental Engineer responsible for the design and installation of groundwater and soil vapor remedial systems at over 30 retail petroleum stations for Hess. Responsible for ensuring that the remedial systems were operating properly and performing repairs as necessary during operation. He performed groundwater and soil vapor monitoring and drafted O&M reports for the NYSDEC. Plume size ranged from within the retail station property with monitoring off-site impacts in local neighborhoods greater than a 3-mile radius.

Retail Petroleum, New York State Spills Program, British Petroleum (BP), Various Locations, New York. Environmental Engineer responsible for the design and installation of groundwater and soil vapor remedial systems at over 10 retail petroleum stations for BP. He was responsible for ensuring that the remedial systems were operating properly and performing repairs necessary during operation. He performed groundwater and soil vapor monitoring and drafted O&M reports for the NYSDEC. Plume size ranged from within the retail station property with monitoring off-site impacts in local neighborhoods greater than a 2-mile radius.

Development, 524 West 19th Street, New York, NY (Metal Shutter Homes). Project Engineer responsible party for all environmental and civil issues associated with this job, including transportation and disposal of 5,000 tons of MGP contaminated soil from former Con Edison operations. James scheduled weekly work for all civil and environmental tasks on the job. He successfully redesigned the grout cutoff wall connections to the installed steel sheeting with a secant wall installed off-site. He provided technical guidance for drilling 4-foot diameter exploratory casings for subsurface anomalies. Additionally, James was responsible for the design and installation of the dewatering treatment system with a daily discharge of 25,000 gallons per day of MGP impacted water.

EPA Superfund Site, Newtown Creek Superfund, Brooklyn, New York. Environmental Engineer who aided in the design of the pump and treat system installed at Peerless Importers. He also aided in the design and installation of the harbor boom set up. Operated and Maintained groundwater/LNAPL extraction systems on-site and performed monthly site gauging as part of the O&M plan.

EMILY BUTLER

Project Manager, Geologist

EDUCATION

B.A., Geology, Geography, Colgate University

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)
30-Hour OSHA Construction Safety Training
10-Hour OSHA Construction Safety Training
LIRR Contractor Safety and Security Training
Amtrak Contractor Training
Metro-North Railroad Contractor Training, 2022
NYC DOB Site Safety Training, 2020-2025
First Aid/CPR/AED Certified

Emily is a geologist and project manager with 10 years of experience working in the environmental services and petroleum industries. She brings experience designing, implementing, and managing multiple large remediation, due diligence, and redevelopment projects across regulatory programs (e.g., New York State Brownfield Cleanup Program, New York City Office of Environmental Remediation Voluntary Cleanup Program, and New York State Superfund Program) with budgets ranging from $20k to $5M. Emily has led and coordinated project teams consisting of subcontractors, vendors, and junior staff. She has successfully negotiated with regulatory agencies and prepared technical reports to ensure compliance and progress of remediation efforts. In addition, she has managed investigations and remediations of complex contaminants, including petroleum, chlorinated solvents, and per-and polyfluoroalkyl substances (PFAS).

RELEVANT PROJECT EXPERIENCE

Lendlease, The Riverie, Brownfield Cleanup Program site, Brooklyn, New York. Emily was the project manager for a large redevelopment project located on the waterfront in the Greenpoint neighborhood of Brooklyn, New York. The 2.6-acre site is being redeveloped into a mixed-use development, including a residential tower with 800 residential units, retail space, and a shoreline esplanade with New York City Ferry terminal access. Project management responsibilities included management of field staff overseeing the remedial action, waste management and tracking, budget management, management of subcontractors and vendors, and communication with the client, the New York State Department of Environmental Conservation (NYSDEC), and site contractors. Emily negotiated with NYSDEC to maximize soil reuse, and developed and implemented a complex remedial design program and community air monitoring program. The remedy for the site included design of a sub-slab depressurization system (SSDS) to mitigate vapors beneath the future building, as well as negotiation with NYSDEC and the New York City Office of Environmental Remediation (NYCOER) to ensure 421a schedule requirements were achieved. This project will achieve the highest green and sustainable standards, and includes a massive, closed-loop geothermal system to provide heating and cooling. Once complete, this all-electric project will be the largest geothermal project in New York State to use a geothermal exchange system. Components of this system include, in part, a well field of over 320 vertical geothermal wells drilled to a depth of approximately 500 feet below land surface.

Confidential client, 85-89 Jane Street, New York, New York. Emily was the project manager of a NYCOER site redevelopment in lower Manhattan, New York, of a former garage and auto repair operation and a manufacturing facility on two adjacent lots into a multistory single-family residence. The site contains an E-designation and as such is going through the NYCOER Voluntary Cleanup Program (VCP). Project management responsibilities included

management of field staff, waste management and tracking, budget management, management of laboratory subcontractors and vendors, and routine communication with NYCOER, client, and site contractors.

Cinemagic, NYSDEC BCP site, Long Island City, New York. Emily served as the project manager for a brownfield redevelopment in Long Island City for a former warehouse building/printing press under the NYSDEC Brownfield Cleanup Program (BCP). The redevelopment includes an interim remedial measure (IRM) installation of a retrofit SSDS for the building. The redevelopment will include sound stages for a movie studio.

Goodman, NYSDEC BCP site, Long Island City, New York. Emily was the project manager for a brownfield redevelopment of a former retail gasoline station and automobile dealership/service center under the NYSDEC BCP. The redevelopment includes two adjacent BCP sites that will be redeveloped into one industrial/commercial distribution warehouse. There is contamination of soil, groundwater, and soil vapor on the site related to its former use as a gasoline filling station and service center.

Amtrak, Sunnyside Yard, New York State Superfund site, Long Island City, New York. Emily served as project manager for multiple projects to support remediation activities at the Amtrak Sunnyside Yard State Superfund Site. Responsibilities included characterization of subsurface conditions, including polychlorinated biphenyls (PCB) and polycyclic aromatic hydrocarbons (PAH) soil and groundwater contamination. Emily oversaw the implementation of remediation activities, including soil excavation and off-site disposal.

F&T Group, Tangram Plaza, NYCOER cleanup site, Flushing, New York. Emily was the field manager for a remedial investigation and waste characterization program at a former mall. She was responsible for soil trucking and manifesting for proper disposal of over 300,000 cubic yards of soil to multiple off-site disposal facilities, including several sites enrolled into the NYCOER Clean Soil Bank. Daily excavation oversight included coordination with the general contractor, groundwater dewatering oversight, Community Air Monitoring Program implementation, inspection of vapor barrier and waterproofing installation, and daily reporting of site activity. Project management duties consisted of staff management, daily reporting to the NYCOER project manager, and communication with both the client and contractor.

Pfizer, NYSDEC Spills Program site, Brooklyn, New York. Emily was the field manager for a site in the NYSDEC Spills Program. This project included an in situ chemical oxidation injection program utilizing RegenOx™ oxidant compound, which was injected into 28 injection points throughout the site. Responsibilities included monitoring groundwater from influence from injections; subcontractor oversight; and providing health and safety oversight.

Forest City, Atlantic Terminal/Pacific Park Redevelopment Project, Brooklyn, New York. Emily served as field manager for a large redevelopment project including four buildings with E-designations. The project encompasses 22 acres including the Barclays Center. Project included oversight of in situ waste characterization sampling, excavation, and proper disposal of soil. Emily provided oversight of pre-demolition asbestos and hazardous materials surveys. She also provided environmental support for demolition and relocation of an active 9-acre 100-year-old railyard. Emily was responsible for oversight of remediation work at several NYSDEC spill sites within the project footprint, including underground storage tank (UST) removal and soil excavation.

Gotham Organization, NYSDEC BCP site, Queens, New York. Emily was the field manager for remediation of two parcels, as part of the NYSDEC BCP. This project included due diligence environmental assessment and investigation, development of NYSDEC-approved Remedial Investigation Work Plan and Remedial Action Work Plan, and remediation during construction of two mixed-use, affordable housing developments.

ExxonMobil, LNAPL evaluation, multiple sites, New York. Emily was the field manager for site-wide light nonaqueous phase liquid (LNAPL) transmissivity evaluation at multiple sites in New York including former refinery and petroleum storage terminal sites. Field investigation methods included baildown and manual skimming tests.

Triangle Equities, The Crossings at Brick Church Station, mixed-use development, East Orange, New Jersey. Emily served as field manager for the remedial investigation of a redevelopment site that contained seven former and one operating dry cleaner, three former fueling stations, and a former automotive repair shop. Responsibilities included oversight of New Jersey-specific monitoring well installation and collection of soil and groundwater samples for suspected contamination of chlorinated solvents.

Powerhouse Arts, former MGP site, **Brooklyn, New York.** Emily was the field manager responsible for the field implementation of a soil characterization work plan and a chlorinated solvent delineation work plan for a former manufactured gas plant (MGP) site. The operation of the MGP led to contamination of subsurface soil and groundwater by coal tar, a byproduct of the gas manufacturing process, and as a result, the NYSDEC issued a Record of Decision specifying the required remedy for the site. The remedy will include soil excavation and off-site thermal treatment, a sheet pile barrier wall, a vapor barrier, and basement ventilation system. A comprehensive air monitoring program was conducted during the fieldwork due to the concerns over coal tar residue emissions and odors on the surrounding community.

ExxonMobil, former petroleum refinery, Brooklyn, New York. Emily was a field staff member addressing the largest subsurface free-product plume in North America at a former petroleum refinery and terminal. Responsibilities included construction oversight of subcontractors, implementation of site-specific health and safety plan, construction management of infrastructure upgrades, soil investigation and sampling programs, installation of groundwater monitoring wells, classification of soil lithology, and collection and screening of soil, groundwater, and soil vapor samples.

Columbia Falls Aluminum Company, EPA Superfund site, Columbia Falls, Montana. Emily was the field manager for a 1,300-acre former aluminum smelter site under the federal Superfund program. Fieldwork included groundwater, surface water, and sediment sampling.

Multiple clients, oilfield services analyst, Gulf of Mexico. Emily was an oilfield services analyst in offshore well-site units on exploration drilling rigs for multiple clients in the Gulf of Mexico. She was responsible for collecting, processing, and analyzing geological samples and using various laboratory techniques to evaluate complex data for signs of oil or gas. Additionally, she operated, maintained, and monitored a real-time computer-based acquisition system that recorded drilling parameters as the first line of defense for the safety and efficiency of drilling operations.

BRIAN A. FERGUSON

Senior Engineer | Health & Safety Manager

EDUCATION

MS, Geotechnical Engineering, Tufts University, Medford, Massachusetts
BS, Civil Engineering, State University of New York - Environmental, Science, and Forestry, Syracuse, New York
AS, Applied Science and Technology (Nuclear Engineering), Thomas A. Edison State College, Trenton, New Jersey

CERTIFICATIONS

BCSP Certified Safety Professional (#CSP-45145)
BCSP Associate Safety Professional (#ASP-31270)

PROFESSIONAL SOCIETIES

Associate Safety Professional – 2019
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
24-Hour Asbestos Inspector
Asbestos Inspector License (June 2018 and renewed Annually)

ENGINEERING EXPERIENCE

Brian has over 23 years of experience serving as a project engineer on a variety of real estate development projects. His project experience has included monitoring field investigations, performing construction oversight, performing due diligence, engineering analyses, performing geotechnical analyses, developing geotechnical recommendations, and preparing geotechnical reports, and project specifications.

As a project engineer, in addition to providing engineering design support, Brian has managed and participated in many 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 and rock anchors, 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

Fenway Center. Project engineer for the construction of laboratory space constructed over the Massachusetts Turnpike, two residential towers, and the Fenway Area consisting of 8 to 14 stories and multiple levels below grade. Construction responsibilities included coordination of construction monitoring, observing Support of Excavation (SOE) and footing installation, coordination of installation of Slurry Walls, assisting with project management, reviewing

weekly field construction reports, reviewing, and responding to geotechnical design submittals, and attending project meetings.

Massachusetts Institute of Technology, The Schwarzman College of Computing Project. Project Engineer for a new approximately eight stories above ground and one story below ground building and contains approximately 189,000 gross square feet (gsf) of mixed-use space for: offices, research laboratory, academic, event, collaboration, meetings, café, convening, and associated services. Responsibilities included coordination of construction monitoring, observing SOE, micropile, and Caisson Installation, assisting with project management, reviewing weekly field construction reports, reviewing, and responding to geotechnical design submittals, and attending project meetings. Brian also was the main point of contact for construction-related issues with the project owner and contractors.

Massachusetts Institute of Technology, Graduate Housing Project. Project Engineer for construction of two new five- to eight- story residential buildings with a total gross floor space of approximately 261,000 square feet (sq ft). Responsibilities included coordination of construction monitoring, observing SOE, micropile, and Caisson Installation, assisting with project management, reviewing weekly field construction reports, reviewing and responding to geotechnical design submittals, and attending project meetings. Brian was the main point of contact for construction-related issues with the project owner and contractors and conducted Health & Safety Audits of Haley & Aldrich personnel during construction.

Edwards Vacuum Project. Project Engineer for a new single-level 101,000-sq ft building with a mezzanine located in the south portion of the proposed building. Responsibilities included developing subsurface exploration program coordination, writing the Geotech Report, and coordinating field staff to observe construction activities, including mass excavation of approximately 100,000 cubic yards of soil, installation of spread footing, and construction dewatering. Brian assisted with project management, reviewing weekly field construction reports, reviewing, and responding to geotechnical design submittals, and attending project meetings. Brian was the main point of contact for construction-related issues with the project owner and contractors and conducted Health & Safety Audits of Haley & Aldrich personnel during construction.

St. Elizabeth's Hospital – 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 and subcontractors, assisting with project management, reviewing subcontractors invoices, reviewing and summarizing subsurface data, and writing data reports.

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 ensures the work we do for our clients is done safely – knowing this reduces costs, improves service quality and site conditions, and ultimately protects our clients' reputations. In addition to building the Haley & Aldrich Health & Safety (H&S) culture, Brian is hands-on with clients to help improve their and their partners' safety cultures.

He has extensive expertise in the Occupational Safety and Health Administration (OSHA) general industry, process safety management, and construction safety programs. He is an active member of the Alliance of Hazardous Materials Professionals and the New England chapter of the Academy of Certified Hazardous Materials Managers.

Brian knows an organization's success is predicated on empowering its people to safely work within the complex, living processes in which they operate. He is a student of human factors in the workplace, of the phenomena of human error and drift into failure, and of the safety applications of Lean techniques.

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.

SARAH COMMISSO, GIT

Senior Geologist

EDUCATION

B.S., Geological Sciences with a minor in Chemistry, State University of New York-Binghamton

PROFESSIONAL REGISTRATIONS

2021/ NY: Geologist in Training (GIT) Certification

SPECIAL STUDIES AND COURSES

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)
8-Hour OSHA HAZWOPER Refresher Training
10-Hour OSHA Construction Safety Training
8-Hour DOT Hazmat Employee & RCRA Hazardous Waste Generator Training

Sarah is a geologist with over four years of experience in Phase I Environmental Site Assessments (ESAs), Phase II Environmental Site Investigations, site characterization, and contaminated site remediation, primarily in the New York City area. She also has experience in Resource Conservation and Recovery Act (RCRA) hazardous waste site closure.

RELEVANT PROJECT EXPERIENCE

Environmental Experience

Madison Realty Capital, New York State Superfund Site, Former NuHart Plastics Site, New York State Superfund Site (NuHart West) and Brownfield Cleanup Program (BCP) Site (NuHart East), Brooklyn, New York. Sarah was the senior geologist responsible for implementation of RCRA Closure of the NuHart East and NuHart West Site including disposal of hazardous U-List waste and completion of the RCRA Closure Report, preparation of the 100% Remedial Design (NuHart West) including on- and off-site remedial components, execution of the remedial action, and preparation of closure documentation. Remedial action at the NuHart West Site included excavation and in situ solidification (ISS) of phthalate-impacted soil under a negative pressure enclosure, removal of twelve underground storage tanks (USTs), off-site zero-valent iron (ZVI) injections to treat groundwater impacted with chlorinated solvents, and installation of an off-site light nonaqueous phase liquid (LNAPL) recovery system. Sarah was responsible for preparation of Contained-in Requests for all above- and below-grade material requiring off-site disposal including all soils to be disposed as non-hazardous waste at a thermal treatment facility. Sarah was also responsible for preparation of all Brownfield Cleanup Program (BCP) related work plans (NuHart East), coordination to vest the site for 421-a, and preparation of the Final Engineering Report (NuHart East) leading to achievement of a Certificate of Completion in 2023. She was involved in coordination of all community outreach programs for the former plasticizer facility with on- and off-site pollutant concerns. NuHart is a high-profile site that requires coordination with the New York State Department of Environmental Conservation (NYSDEC), the New York City Office of Environmental Remediation (NYCOER), local regulatory agencies, community stakeholders, and local elected officials.

125 3rd Street Gowanus BCP Site, Brooklyn, New York. As senior geologist, Sarah was responsible for coordinating implementation of the Remedial Action including excavation and disposal of hazardous lead-impacted soil, installation of an active sub-slab depressurization system (SSDS), and injections to treat arsenic-impacted groundwater. She was responsible for the preparation of the Final Engineering Report and Site Management Plan for which the site received a Certificate of Completion in December 2024. The site has a footprint of 20,300 square feet with a completed development of a 13-story mixed-use commercial and residential building that includes affordable housing.

TA Realty, Due Diligence Portfolios. As assistant project manager, Sarah is responsible for due diligence during property acquisitions of commercial, residential, industrial, or vacant properties across the United Stated. She is responsible for reviewing Phase I ESAs and Preliminary Assessment Reports (PARs) for acquisition of 30 commercial-

use properties in New Jersey, which included multiple properties in the New Jersey Site Remediation Program with Industrial Site Recovery Act (ISRA) subject or applicable tenants. She assists in advising TA Realty on potential environmental risks during acquisition as well as obligations for site management long term.

Northpoint Development, Former Port Mobil Terminal, Staten Island, New York. Sarah serves as assistant project manager and is responsible for assisting in coordination of an Interim Remedial Measure including excavation and treatment of grossly impacted soil at the 240-acre waterfront former petroleum bulk storage terminal under an Administrative Order of Consent. She is assisting in preparation of the Alternatives Analysis/Remedial Action Work Plan for the site-wide remedy. Port Mobil is a high-profile site that requires coordination with the NYSDEC and U.S. Environmental Protection Agency (EPA).

Former NRG Energy Norwalk Harbor Generating Station Facility due diligence, South Norwalk, Connecticut. Sarah served as the senior geologist responsible for conducting a Phase I ESA for potential redevelopment of an approximately 140-acre former coal-fired power plant, which was later converted to fuel oil for combustion. Sarah conducted site reconnaissance of the now-inactive power plant facility and reviewed historical site documentation to identify recognized environmental conditions and areas of concern.

828 Metropolitan Avenue, BCP site, Brooklyn, New York. Sarah served as the senior geologist responsible for coordinating implementation of the Remedial Action for this former Speedway gasoline service station enrolled in the BCP. She was responsible for the preparation of the Final Engineering Report for which the site received a Certificate of Completion in 2024. The site has a footprint of 20,300 square feet with a completed development of a nine-story mixed-use commercial and residential building that includes affordable housing.

JCS Realty, 180 East 125th Street, New York, New York. Sarah was the assistant project manager and was responsible for the due diligence during acquisition, preparation of the BCP Application, remedial investigation, and remedial action design (BCP and OER) for the 180 East 125th Street Development Site under the New York State Brownfield Cleanup program and NYCOER E-Designation Programs (Air/Noise). The site has a footprint of 42,000 square feet with a planned development of a 15-story mixed use building to include affordable housing.

Madison Realty Capital, River North, Staten Island, New York. Sarah was the senior geologist responsible for coordinating field staff and subcontractors for the execution of the remedial investigation at this approximately 2-acre site enrolled in the NYSDEC Brownfield Cleanup Program. The remedial investigation involved the installation of approximately 50 soil borings, 20 soil vapor points, including soil borings extending to bedrock, and bedrock well installation. Sarah was responsible for preparation of the Remedial Investigation Report and coordination for waste characterization of soil and bedrock sitewide.

Madison Realty Capital, 644 East 14th Street, New York, New York. Sarah is the lead drafter of the Remedial Investigation Work Plan and the Remedial Investigation Report for the 644 East 14th Site, which is enrolled in the NYSDEC Brownfield Cleanup Program. Sarah coordinated field staff and subcontractors for the execution of the Remedial Investigation Work Plan, which included installation of soil borings, groundwater monitoring wells, and soil vapor points, and sampling of each.

The Jay Group, Speedway Portfolio, Multiple Boroughs, New York. As staff geologist, Sarah was responsible for the expedited due diligence during acquisition of five former Speedway Sites of Phase I ESAs and Limited Phase II ESIs, preparation of the BCP Applications, Remedial Investigation Work Plans, Interim Remedial Measure Work Plans and Air/Noise Remedial Action Work Plans (NYCOER). Four of the sites were accepted into the NYSDEC BCP with one currently pursuing the program pending the acquisition. Remedial Investigations for compliance with the BCP have been completed and the Remedial Investigation Reports are being drafted.

JCS Realty, 40 Bruckner Boulevard, Bronx, New York. As staff geologist, Sarah was responsible for the due diligence during acquisition, preparation of the BCP Application, Change of Use Documents, BCA Amendments, remedial

investigation, and remedial action design (BCP and Office of Environmental Remediation [OER]) for the former Mill Sanitary Wiping Cloth Site under the New York State BCP and NYCOER E-Designation Programs (Air/Noise). The site has a footprint of 45,000 square feet with a planned development of a 12-story mixed-use building with approximately 480 units, which include affordable housing.

Toldos Yehuda, Former Techtronics Site (8 Walworth Street), Brooklyn, New York. Sarah served as staff geologist for the remedial investigation, remedial action design and remedial action implementation for the former Techtronics Site under the NYSBCP as a participant where trichloroethene (TCE) and tetrachloroethene (PCE) were encountered in soil and groundwater. She successfully delineated the vertical and lateral extents of the plumes, which were identified as an upgradient, on site. For this site we have designed source removal to 20 feet below ground surface, zero valent iron (ZVI) reactive barrier wall, in situ ZVI injections sitewide, and a vertical vapor mitigation system. The site is currently in the remedial implementation phase.

Waterfront Management of NY, 590-594 Myrtle Avenue, Brooklyn, New York. As lead field geologist, Sarah was responsible for the oversight of the excavation and remediation of the property under the NYCOER. During remediation, Sarah observed and documented the excavation and proper disposal of on-site soil required for the installation of foundation elements. In addition, she oversaw the proper cleaning and removal of three underground storage tanks encountered during sitewide excavation. After excavation was complete, she inspected the installation of a sub-slab vapor barrier and conducted the community air monitoring program during the course of remedial action.

Oxford Property Group, Naval Yard Phase I Portfolio. Sarah conducted two of five Phase I ESAs for Oxford Property Group in the Philadelphia Naval Yard part of due diligence for potential acquisition of the properties. Each property was approximately 8 acres in size developed with active life sciences facilities. Sarah conducted site reconnaissance of the properties and reviewed historical site documentation to identify recognized environmental conditions at each site.

Target, Multiple Locations in New York and New Jersey. Sarah conducted Phase I ESAs as part of due diligence for potential acquisition of properties by Target in Jersey City, and performed oversight of upgrades and construction at various Target stores in Brooklyn, Queens, Long Island, and Jersey City, including methane monitoring, air monitoring, collection of endpoint soil samples, and groundwater sampling. Sarah performed all oversight work in accordance with the Site-specific Soil Materials Management Plan.

BCP Applications and Remedial Investigation Work Plans for NYSDEC. Sarah has completed writing several BCP Applications for various clients in New York State. In writing the applications, Sarah reviews previous subsurface investigations of the site, and historical information to help get underutilized and abandoned contaminated properties into the BCP to be remediated and redeveloped under NYSDEC. After completing the application, she prepares a Remedial Investigation Work Plan to strategically investigate site contamination so proper Remedial Action can take place.

Excavation Oversight and CAMP Monitoring, Various Sites, Bronx and Brooklyn, New York. Sarah served as field geologist for several projects under the NYCOER program and NYSBCP. Her responsibilities included performing excavation oversight, air monitoring, vapor barrier installation oversight, and logging trucks for off-site disposal.

Multiple Clients, Phase I ESAs and Due Diligence, Multiple Locations in New York, New Jersey, Pennsylvania and Massachusetts. Sarah conducted Phase I ESAs for buyers on a variety of properties including commercial, industrial, and residential sites in New York, New Jersey, Pennsylvania, and Massachusetts. She has experience conducting site reconnaissance and reviewing historical site documentation to identify recognized environmental conditions at the sites.

Multiple Clients, Phase II, Multiple Locations, New York. As field geologist, Sarah conducted Phase II ESAs on a variety of different sites. She assisted with the development of sampling plans primarily based off previous environmental investigations and due diligence. Primary responsibilities for Phase II investigations included oversight of the installation of test borings and/or test pits, the installation of groundwater monitoring wells, and soil vapor points.

Geotechnical Engineering Experience

Smithsonian Institution Revitalization of the Historic Core, Washington, D.C. Sarah supported a team providing geotechnical engineering services for the renovation of several Smithsonian Institution buildings adjacent to the National Mall. Sarah was responsible for the oversight of geotechnical borings using hollow stem augur and mud rotary techniques as well as rock coring operations. Sarah classified soil samples using the Unified Soil Classification System, analyzed bedrock samples, and analyzed the geology of the Washington D.C area.

Parcel B Development, Washington, D.C. Sarah was the lead field Geologist for the geotechnical investigation for the development of the Parcel B Site adjacent to the D.C. United Stadium in Washington D.C. Sarah was responsible for the oversight of geotechnical borings using hollow stem augur and mud rotary techniques. She observed and coordinated Pressure meter testing of several borings and observed the installation of several groundwater monitoring wells to investigate impacted groundwater on the property. Additionally, based on her soil classifications in the field, she drafted boring logs and analyzed subsurface conditions at the site.

APPENDIX K
Proposed Remedial Action Project Schedule

REMEDIAL ACTION PROJECT SCHEDULE

FORMER NEW CITY LINK AUTO REPAIR SITE

BCP PROJECT C224407

Task	Duration	Start	End	2025						2026											
				Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Design and Permitting	90	7/1/2025	9/29/2025																		
NYSDEC BCP RAWP Review	61	8/1/2025	10/1/2025																		
45-Day Public Comment for RAWP	45	10/15/2025	11/29/2025																		
Final RAWP Submission	90	12/1/2025	3/1/2026																		
Implementation of RAWP	150	4/1/2026	8/29/2026																		
Preparation of FER and SMP/ EE (if required)	60	7/31/2026	9/29/2026																		
NYSDEC & NYSDOH Review of FER & SMP/ EE (if required)	60	9/30/2026	11/29/2026																		
NYSDEC Issues COC	15	12/7/2026	12/22/2026																		

Notes:

1. Schedule is preliminary 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. FER - Final Engineering Report

8. SMP - Site Management Plan

9. EE - Environmental Easement

10. SVI - Soil Vapor Intrusion

11. COC - Certificate of Completion

12. COC issuance estimated prior to November 1, 2026

APPENDIX L
Odor Control Suppressant Safety Data Sheets

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 : >200ºF [93ºC]
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

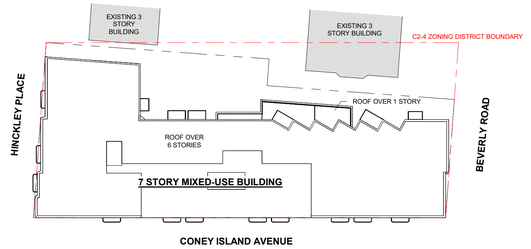
NA = No disponible o No se aplica
NE = No se ha establecido

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

APPENDIX M
Proposed Development Plans



1 COVER KEY PLAN
1" = 40'-0"

- ● NEW DRAWING
- ◓ ISSUED WITH CHANGES
- ○ NO CHANGES
- ⊗ NOT ISSUED
- – NOT APPLICABLE

DRAWING LIST

SHEET #	SHEET TITLE	DOB Submission 1	DOB Submission 2	DOB Submission 3	DOB Submission 4	DOB Submission 5	DOB Submission 6
01 GENERAL							
G001.00	COVER SHEET	●	◓	○	◓	◓	◓
G101.00	TRI/TR8	●	○	○	○	◓	○
G102.00	GENERAL NOTES				–	–	
G103.00	GENERAL NOTES				–	–	
G104.00	ADA REQUIREMENTS		●	○	○	○	○
G105.00	ADA REQUIREMENTS		●	○	○	○	○
G106.00	SITE PLAN	●	○	○	○	○	○
G107.00	ZONING MAP	●	○	○	○	○	○
G108.00	SURVEY	●	○	○	○	○	○
02 ZONING							
Z000.00	ZONING ANALYSIS	●	○	○	◓	○	○
Z001.00	ZONING ANALYSIS	●	○	○	○	○	○
Z002.00	ZONING ANALYSIS	●	○	○	○	○	○
Z003.00	ZONING ANALYSIS	●	○	○	○	○	○
Z010.00	ZONING DIAGRAMS - ENVELOPE SECTION & PLOT PLAN	●	○	○	○	○	○
Z011.00	ZONING DIAGRAMS - ENVELOPE 3D AXON	●	○	○	○	○	○
Z012.00	ZONING DIAGRAMS - LOT COVERAGE & BASE PLANE	●	○	○	○	○	○
Z013.00	ZONING DIAGRAMS - STREET TREE, STREET WALL & GLAZING	●	○	○	○	○	○
Z100.00	Z.F.A. CALCULATIONS - CELLAR	●	○	◓	○	○	○
Z101.00	Z.F.A. CALCULATIONS - GROUND FLOOR	●	○	◓	○	○	○
Z102.00	Z.F.A. CALCULATIONS - 2ND FLOOR	●	○	◓	○	○	○
Z102.01	Z.F.A. CALCULATIONS - 3RD FLOOR	●	○	◓	○	○	○
Z102.02	Z.F.A. CALCULATIONS - 4TH FLOOR	●	○	◓	○	○	○
Z102.03	Z.F.A. CALCULATIONS - 5TH FLOOR	●	○	◓	○	○	○
Z102.04	Z.F.A. CALCULATIONS - 6TH FLOOR	●	○	◓	○	○	○
Z104.00	Z.F.A. CALCULATIONS - 7TH FLOOR & ROOF	●	○	○	○	○	○
Z105.00	Z.F.A. CALCULATIONS SUMMARY	●	○	○	○	○	○
Z110.00	HPD COMPLIANCE	●	○				
Z111.00	HPD COMPLIANCE	●	◓				
Z112.00	HPD COMPLIANCE	●	◓				
Z113.00	HPD COMPLIANCE	●	◓				
03 CODE							
A600.00	LIGHT & AIR - GROUND-7TH FLOOR	●	◓	◓	○	⊗	○
BC100.00	BUILDING CODE ANALYSIS		●	○	○	○	○
BC101.00	BUILDING CODE ANALYSIS		●	◓	○	○	○
BC102.00	BUILDING CODE ANALYSIS		●	◓	○	○	○
EG100.00	EGRESS & OCCUPANCY PLAN - CELLAR		●	◓	◓	○	○
EG100.01	EGRESS & OCCUPANCY PLAN - GROUND FLOOR		●	◓	○	○	○
EG101.00	EGRESS & OCCUPANCY PLAN - 2ND-6TH FLOORS		●	◓	○	○	○
EG102.00	EGRESS & OCCUPANCY PLAN - 7TH FLOOR & ROOF		●	○	○	○	○
EN001.00	ENERGY CODE ANALYSIS	●	◓	–	○	◓	◓
EN002.00	ENERGY CODE ANALYSIS	●	◓	–	○	◓	◓
EN003.00	ENERGY CODE ANALYSIS	●	◓	–	○	◓	◓
EN100.00	ENERGY CODE DIAGRAMS - ENCLOSURE ELEVATION	●	◓	○	○	◓	○
EN101.00	ENERGY CODE DIAGRAMS - ENCLOSURE ELEVATION	●	◓	○	○	◓	○
EN102.00	ENERGY CODE DIAGRAMS - GLAZING AREA	●	◓	○	○	◓	○
EN103.00	ENERGY CODE DIAGRAMS - GLAZING AREA	●	◓	○	○	◓	○
EN104.00	ENERGY CODE ANALYSIS - AIR BARRIER CONTINUITY SECTION	●	◓	○	○	◓	◓
EN105.00	ENERGY CODE ANALYSIS - AIR BARRIER CONTINUITY PLAN	●	◓	○	○	◓	○
04 ARCHITECTURE							
A001.00	EXTERIOR WALL ASSEMBLIES		●	○	○	◓	◓
A002.00	INTERIOR WALL ASSEMBLIES		●	○	○	○	○

DRAWING LIST

SHEET #	SHEET TITLE	DOB Submission 1	DOB Submission 2	DOB Submission 3	DOB Submission 4	DOB Submission 5	DOB Submission 6
A003.00	WINDOW & DOOR SCHEDULE		◓	○	○	◓	○
A004.00	WINDOW & DOOR SCHEDULE		●	○	○	◓	○
A009.00	WALL SECTIONS		●	○	○	○	○
A010.00	DOOR SCHEDULE - CELLAR					–	
A011.00	DOOR SCHEDULE - GROUND FLOOR					–	
A012.00	DOOR SCHEDULE - 2ND FLOOR					–	
A013.00	DOOR SCHEDULE - 3RD FLOOR					–	
A014.00	DOOR SCHEDULE - 4TH FLOOR					–	
A015.00	DOOR SCHEDULE - 5TH FLOOR					–	
A016.00	DOOR SCHEDULE - 6TH FLOOR					–	
A017.00	DOOR SCHEDULE - ROOF					–	
A100.00	FLOOR PLAN - CELLAR	●	◓	◓	◓	○	○
A101.00	FLOOR PLAN - GROUND FLOOR	●	◓	○	◓	○	○
A102.00	FLOOR PLAN - 2ND FLOOR	●	◓	○	○	○	○
A103.00	FLOOR PLAN - 3RD FLOOR	●	◓	○	○	○	○
A104.00	FLOOR PLAN - 4TH FLOOR	●	◓	○	○	○	○
A105.00	FLOOR PLAN - 5TH FLOOR	●	◓	○	○	○	○
A106.00	FLOOR PLAN - 6TH FLOOR	●	◓	◓	○	○	○
A107.00	FLOOR PLAN - 7TH FLOOR & ROOF	●	◓	○	○	○	○
A108.00	FLOOR PLAN - BULKHEAD ROOF	●	◓	○	○	○	○
A110.00	ENLARGED FLOOR PLAN - CELLAR					–	
A111.00	ENLARGED FLOOR PLAN - GROUND FLOOR						
A112.00	ENLARGED FLOOR PLAN - 2ND FLOOR						
A112.01	ENLARGED FLOOR PLAN - 2ND FLOOR						
A113.00	ENLARGED FLOOR PLAN - 3RD & 4TH FLOOR NW SIDE						
A113.01	ENLARGED FLOOR PLAN - 3RD & 4TH FLOOR SW SIDE						
A114.00	ENLARGED FLOOR PLAN - 5TH FLOOR NW SIDE						
A114.01	ENLARGED FLOOR PLAN - 5TH FLOOR SW SIDE						
A116.00	ENLARGED FLOOR PLAN - ROOF NW SIDE						
A116.01	ENLARGED FLOOR PLAN - ROOF SW SIDE						
A117.00	ENLARGED FLOOR PLAN - BULKHEAD ROOF						
A120.00	RCP - CELLAR					●	○
A121.00	RCP - GROUND FLOOR				–	●	○
A122.00	RCP - 2ND- 6TH TYP. FLOOR				–	●	○
A122.01	RCP - 7TH FLOOR & ROOF				–	●	○
A200.00	BUILDING ELEVATION - NORTH & WEST	●	◓	○	○	○	○
A201.00	BUILDING ELEVATION - EAST 1 & EAST 2	●	◓	○	○	○	○
A202.00	BUILDING ELEVATION - SOUTH 1 & SOUTH 2	●	◓	○	○	○	○
A300.00	BUILDING SECTION -- LONGITUDINAL				–		
A300.01	BUILDING SECTION -- LONGITUDINAL				–		
A301.00	BUILDING SECTION - TRANVERSE 1				–	●	
A301.01	BUILDING SECTION - TRANVERSE 2				–	●	
A400.00	ENLARGED PLANS 1A - 1B - 1C				–		
A401.00	ENLARGED PLANS 1D - 1E - 1F				–		
A402.00	ENLARGED PLANS 1G - 1H - 1I				–		
A403.00	ENLARGED PLANS 1J - 2A - 2B - 2C - 2D				–		
A404.00	ENLARGED PLANS 2E- 2F - 2G - 2H - 2I						
A405.00	ENLARGED PLANS 2J - 2K - 2L - 2M - 2N						
A405.01	ENLARGED PLANS 2O - 2P - 2Q						
A420.00	DETAILS - BATHROOM				–	–	
A430.00	COMPACTOR ROOM & TRASH ROOM				–		
A510.00	CORE DETAILS - STAIRWAY A & B				–	–	
A520.00	RAMP DETAILS - PARKING				–	–	
A521.00	FIRE SHUTTER DETAILS				–	–	
A550.00	TYPICAL DETAILS - PENETRATIONS				–	–	
A551.00	TYPICAL DETAILS - PENETRATIONS				–	–	
A552.00	TYPICAL DETAILS - BUILDING ENVELOPE WINDOWS		●	○	–	◓	
A553.00	TYPICAL DETAILS - BUILDING ENVELOPE - PARAPETS		●	○	–	◓	
A560.00	TYPICAL DETAILS - BUILDING ENVELOPE - BALCONIES		●	○	–	◓	
A561.00	TYPICAL DETAILS - BUILDING ENVELOPE - WALL SECTION				–	◓	
A562.00	TYPICAL DETAILS - BUILDING ENVELOPE - WALL SECTION				–	–	
A570.00	TYPICAL DETAILS - BUILDING ENVELOPE - DOORS				–	–	

Grand total: 111

SCOPE OF

NEW RESIDENTIAL, MIXED-USE
DEVELOPMENT OVER 5 STORIES

APPLICATIONS FILED SEPARATELY

	JOB TYPE	JOB NUMBER
1	SOE	#B00706931-S2
2	545 CONEY ISLAND AVENUE	#GC - B00706931-I1
3	SPRINKLERS, STANDPIPES & PLUMBING	#N/A
4	MECHANICAL	#B00706931
5	BPP	#N/A
6	STRUCTURAL / FO	#B00706931-S1

ZONING & PROPERTY SYNOPSIS

545 CONEY ISLAND AVENUE		
ZONING DISTRICT:	**R6A** / C2-4	
BLOCK:	5114	
LOT:	1	
MAP #:	22C	
LOT AREA:	19,082.90 SF	
LOT COVERAGE PERCENTAGE:	77.71%	
OCCUPANCY GROUP:	R-2, M, S-2	
CONST. CLASSIFICATION:	IB	
PRIMARY STRUCTURAL SYSTEM:	CONCRETE	
LOT AREA		
MAX F.A.R.		SEE ZONING ANALYSIS
PERMITTED F.A.R.		SEE ZONING ANALYSIS
PROPOSED F.A.		SEE ZONING ANALYSIS
SEE ZONING SHEETS	>	SEE ZONING ANALYSIS
SEE ZONING ANALYSIS SHEET Z000.00		

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	DOB SUBMISSION 7 COY	-

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TR1: TECHNICAL REPORT				
Y	**N**	**SPECIAL INSPECTION ITEMS**		**CODE SECTION**
	X	- STRUCTURAL STEEL - WELDING		BC 1704.3.1
	X	- STRUCTURAL STEEL - DETAILS		BC 1704.3.2
	X	- STRUCTURAL STEEL - HIGH STRENGTH BOLTING		BC 1704.3.3
	X	- STRUCTURAL STEEL - COLD-FORMED STEEL		BC 1704.3.4
X		- CONCRETE - CAST-IN-PLACE		BC 1704.4
	X	- CONCRETE - PRECAST		BC 1704.4
	X	- CONCRETE - PRESTRESSED		BC 1704.4
X		- MASONRY		BC 1704.5
	X	- WOOD - INSTALLATION OF HIGH-LOAD DIAPHRAGMS		BC 1704.6.1
	X	- WOOD - INSTALLATION OF METAL-PLATE CONNECTED TRUSSES		BC 1704.6.2
	X	- WOOD - INSTALLATION OF PREFABRICATED I-JOINTS		BC 1704.6.3
	X	- SUBGRADE INSPECTION		BC 1704.7.1
	X	- SUBSURFACE CONDITIONS - FILL PLACEMENT & IN-PLACE DENSITY		BC 1704.7.2, BC 1704.7.3
	X	- SUBSURFACE INVESTIGATIONS (BORING/TEST PITS)	TR4	BC 1704.7.4
	X	- DEEP FOUNDATION ELEMENTS	TR5	BC 1704.8
	X	- HELICAL PILES (BB # 2014-020)	TR5H	BC 1704.8
	X	- VERTICAL MASONRY FOUNDATION ELEMENTS		BC 1704.9
X		- WALL PANELS, CURTAIN WALLS, AND VENEERS		BC 1704.10
	X	- SPRAYED FIRE-RESISTANT MATERIALS		BC 1704.11
X		- MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS		BC 1704.12
X		- EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)		BC 1704.13
	X	- ALTERNATIVE MATERIALS - OTCR BUILDINGS BULLETIN # _____		BC 1704.14
X		- SMOKE CONTROL SYSTEMS		BC 1704.15
X		- MECHANICAL SYSTEMS		BC 1704.16
	X	- FUEL-OIL STORAGE AND FUEL-OIL PIPING SYSTEMS		BC 1704.17
	X	- HIGH-PRESSURE STEAM PIPING (WELDING)		BC 1704.18
	X	- HIGH TEMPERATURE HOT WATER PIPING (WELDING)		BC 1704.18
	X	- HIGH-PRESSURE FUEL-GAS PIPING (WELDING)		BC 1704.19
	X	- STRUCTURAL STABILITY - EXISTING BUILDINGS		BC 1704.20.1
X		- EXCAVATIONS - SHEETING, SHORING, AND BRACING		BC 1704.20.2
X		- UNDERPINNING		BC 1704.20.3, BC 1814
	X	- MECHANICAL DEMOLITION		BC 1704.20.4
	X	- RAISING AND MOVING OF A BUILDING		BC 1704.20.5
	X	- SOIL PERCOLATION TEST - PRIVATE ON-SITE STORM WATER DRAINAGE DISPOSAL SYSTEMS, AND DETENTION FACILITIES		BC 1704.21.1.2
	X	- PRIVATE ON-SITE STORM WATER DRAINAGE DISPOSAL SYSTEMS, AND DETENTION FACILITIES INSTALLATION		BC 1704.21.2
	X	- INDIVIDUAL ON SITE-PRIVATE SEWAGE DISPOSAL SYSTEMS INSTALLATION		BC 1704.22
	X	- SOIL PERCOLATION TEST - INDIVIDUAL ON-SITE PRIVATE SEWAGE DISPOSAL SYSTEMS		BC 1704.22
X		- SPRINKLER SYSTEMS		BC 1704.23
X		- STANDPIPE SYSTEMS		BC 1704.24
X		- HEATING SYSTEMS		BC 1704.25
	X	- CHIMNEYS		BC 1704.26
X		- FIRE-RESISTANT PENETRATIONS AND JOINTS		BC 1704.27
	X	- ALUMINUM WELDING		BC 1704.28
	X	- FLOOD ZONE COMPLIANCE (ATTACH FEMA ELEVATION/DRY FLOODPROOFING CERTIFICATE WHERE APPLICABLE)		BC 1704.29, BC G105
		- LUMINOUS EGRESS PATH MARKINGS	TR7	BC 1704.30, BC 1024.8
	X	- EMERGENCY AND STANDBY POWER SYSTEMS (GENERATORS)		BC 1704.31
X		- POST-INSTALLED ANCHORS (BB # 2014-018, 2014-019)		BC 1704.32
	X	- SEISMIC ISOLATION SYSTEMS		BC 1704.8
X		- CONCRETE DESIGN MIX	TR3	BC 1905.3, BC 1913.5
X		- CONCRETE SAMPLING AND TESTING	TR2	BC 1905.6, BC 1913.10
		PROGRESS INSPECTION ITEMS		
	X	- PRELIMINARY		28-116.2.1, BC 110.2
X		- FOOTING AND FOUNDATION		BC 110.3.1
	X	- LOWEST FLOOR ELEVATION (ATTACH FEMA FORM)		BC 110.3.2
	X	- STRUCTURAL WOOD FRAME		BC 110.3.3
X		- ENERGY CODE COMPLIANCE INSPECTIONS	TR8	BC 110.3.5
X		- FIRE-RESISTANCE RATED CONSTRUCTION		BC 110.3.4
	X	- PUBLIC ASSEMBLY EMERGENCY LIGHTING		26-116.2.2
		- FINAL *		28-116.2.4.2, BC 110.5, DIRECTIVE 14 OF 1975, AND 1 RCNY SS 101-10
* INDICATE DATE WHEN THE ACTUAL FINAL INSPECTION WAS PERFORMED				

TR8: ENERGY CODE				
Y	**N**	**ENERGY CODE PROGRESS INSPECTION ITEMS**		
X		- PROTECTION OF EXPOSED FOUNDATION INSULATION		(IA1),(IIA1)
X		- INSULATION PLACEMENT & R VALUES		(IA2),(IIA2)
X		- FENESTRATION U-FACTOR AND PRODUCT RATING		(IA3),(IIA3)
X		- FENESTRATION AIR LEAKAGE		(IA4),(IIA4)
X		- FENESTRATION AREAS		(IA5),(IIA5)
X		- AIR SEALING AND INSULATION - VISUAL		(IA6),(IIA6)
X		- AIR SEALING AND INSULATION - TESTING		(IA7),(IIA7)
X		- AIR BARRIER TESTING		(IIA7)
X		- LOADING DECK WEATHER SEALS		(IIA8)
	X	- VESTIBULES		(IIA9)
	X	- FIREPLACES		(IB1),(IIB1)
	X	- ELECTRICAL ENERGY CONSUMPTION		(IC1),(IIC1)
X		- LIGHTING IN DWELLING UNITS		(IIC2)
X		- INTERIOR LIGHTING POWER		(IC2),(IIC3)
X		- EXTERIOR LIGHTING POWER		(IIC4)
	X	- LIGHTING CONTROLS		(IIC5)
X		- MAINTENANCE INFORMATION		(ID1),(IID1)

V.9 AIR BARRIER CONTINUITY NOTE:

FOR NEW BUILDINGS OR ADDITIONS = 10,000 SF AND < 50,000 SF, AND HEIGHT > 75, OR FOR NEW BUILDINGS ADDITIONS = 50,000 SF:

(A) TESTING//INSPECTIONS PER AIR BARRIER CONTINUITY PLAN IS REQUIRED,

(B) AIR BARRIER CONTINUITY PLAN ON DRAWINGS TO SPECIFY

(B.1) AIR SEALING DETAILS KEYED TO BUILDING THERMAL BOUNDARY PLAN/SECTION DIAGRAMS

(B.2) SEALING METHODS/MATERIALS

(B.3) TESTING METHODS/STANDARDS

(C) PROVIDE FIELD INSPECTION CHECKLIST FOR AIR BARRIER COMMISSIONING (C408.4.1/ 5.7.5.1)

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ACCESSIBLE ELEMENTS AND SPACES

4.1 BASIC COMPONENTS
ACCESSIBLE SITES, FACILITIES, AND BUILDINGS, INCLUDING PUBLIC-USE, EMPLOYEE-USE, AND COMMON-USE SPACES IN HOUSING FACILITIES, SHALL PROVIDE ACCESSIBLE ELEMENTS AND SPACES AS IDENTIFIED IN TABLE 2. APPLICATION BY ADOPTING AUTHORITIES SHALL BE IN ACCORDANCE WITH
4.13 DOORS.
4.13.1 GENERAL DOORS
DOORS TO ACCESSIBLE SPACES AND ELEMENTS AND ALONG ACCESSIBLE ROUTES SHALL COMPLY WITH THE REQUIREMENTS OF 4.13.
4.13.2 REVOLVING DOORS AND TURNSTILES.
REVOLVING DOORS OR TURNSTILES SHALL COMPLY WITH 4.13 OR SHALL NOT BE THE ONLY MEANS OF PASSAGE AT AN ACCESSIBLE ENTRANCE OR ALONG AN ACCESSIBLE ROUTE.
4.13.3 GATES
GATES, INCLUDING TICKET GATES, SHALL MEET ALL APPLICABLE SPECIFICATIONS OF 4.13.
4.13.4 DOUBLE-LEAF DOORWAYS
IF DOORWAYS HAVE TWO INDEPENDENTLY OPERATED DOOR LEAVES, THAN AT LEAST ONE HEAF SHALL MEET THE SPECIFICATIONS IN 4.13.5 AND 4.13.6. THAT LEAF SHALL BE AN ACTIVE LEAF.
4.13.5 CLEAR WIDTH
DOORWAYS INTENDED FOR USER PASSAGE SHALL HAVE A MINIMUM CLEAR OPENING OF 32 IN (815 MM) WITH THE DOOR OPEN 90 DEGRESS, MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP (SEE FIG. 24 (A), (B), (C), AND (D)).
4.13.6 MANEUVERING CLEARANCES AT DOORS
MINIMUM MANEUVERING CLEARNACES AT DOORS THAT ARE NOT AUTOMATIC SHALL BE AS SHOWN IN FIG.25. THE FLOOR OR GROUND AREA WITHIN THE REQUIRED CLEARANCES SHALL BE LEVEL AND CLEAR. ENTRY DOORS TO ACUTE CARE HOSPITAL BEDROOMS FOR INPATIENTS SHALL BE EXEMPT FROM THE REQUIREMENTS FOR SPACE AT THE LATCH SIDE OF THE DOOR (SEE DIMENSION X IN FIG. 25) IF THE DOOR IS AT LEAST 44 IN (1120 MM) WIDE.
4.13.8* THRESHOLDS AT DOORWAYS
THRESHOLDS AT DOORWAYS SHALL NOT EXCEED 3/4 IN (19 MM) IN HEIGHT FOR EXTERIOR RESIDENTIAL SLIDING DOORS OR 1/2 IN (13 MM) FOR OTHER TYPES OF DOORS. RAISED THRESHOLDS AND FLOOR LEVEL SHANGES AT ACCESSIBLE DOORWAYS SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2 (SEE 4.5.2).
4.13.9* DOOR HARDWARE
HANDLES, PULL, LATCHES, LOCKS, AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE HTAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE. THEY SHALL BE MOUNTED WITHIN REACH RANGES SPECIFIED IN 4.2. LEVER-OPERATED MECHANISMS, PUSH-TYPE MECHANISMS, AND U-SHAPED HANDLES ARE ACCEPTABLE DESIGNS. WHEN SLIDING DOORS ARE FULLY OPEN, OPERATING HARDWARE SHALL BE EXPOSED AND USABLE FROM BOTH SIDES. IN DWELLING UNITS, ONLY DOORS AT ACCESIBLE ENTRANCES TO THE UNIT ITSELF SHALL COMPLY WITH THE REQUIREMENTS OF THIS PARAGRAPH. DOORS TO HAZARDOUS AREAS SHALL HAVE HARDWARE COMPLYING WITH 4.27.3.
4.13.10* DOOR CLOSERS
IF A DOOR HAS A CLOSER THAN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO AN OPEN POSITION OF APPROXIMATELY 12 DEGREES.
4.13.11* DOOR-OPENING FORCE
THE MAXIMUM FORCE, EXPRESSED IN POUNDS-FORCE (LBF) AND NEWTONS (N), FOR PUSHING OR PULLING OPEN A DOOR SHALL BE AS FOLLOWS:
(1) FIRE DOORS SHALL HAVE THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY.
(2) OTHER DOORS:
(A) EXTERIOR HINGED DOORS: 8.5 LBF (37.8 N)
(B) INTERIOR HINGED DOORS: 5 LBF (22.2 N)
(C) SLIDING OR FOLDING DOORS: 5 LBF (22.2 N)
THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DIENGAGE OTHER DEVICES THAT MAY HOLD THE DOOR IN A CLOSED POSITION.
4.14 ENTRANCES
4.14.1 GENERAL
ENTRANCES TO A BUILDING OR FACILITY THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH 4.3. SUCH ENTRANCES SHALL BE CONNECTED BY AN ACCESSIBLE ROUTE TO PUBLIC TRANSPORTATION STOPS, TO ACCESSIBLE PARKING AND PASSENGER LOADING ZONES, AND TO PUBLIC STREETS OR SIDEWALKS IF AVAILABLE (SEE 4.3.2(1)). THEY SHALL ALSO BE CONNECTED BY AN ACCESSIBLE ROUTE TO ALL ACCESSIBLE SPACES OR ELEMENTS WITHIN THE BUILDING OR FACILITY.
4.14.2 SERVICE ENTRANCES
A SERVICE ENTRANCE SHALL NOT BE THE SOLE ACCESSIBLE ENTRANCE UNLESS IT IS THE ONLY ENTRANCE TO A BUILDING OR FACILITY (FOR EXAMPLE, IN A FACTORY OR GARAGE).
4.15 WATER FOUNTAINS AND COOLERS
4.15.1 GENERAL
ALL DIRNKING FOUNTAINS AND WATER COOLERS ON AN ACCESSIBLE ROUTE SHALL COMPLY WITH 4.4. ACCESSIBLE DRINKING FOUNTAINS OR WATER COOLERS SHALL COMPLY WITH 4.15 AND SHALL BE ON AN ACCESSIBLE ROUTE.
4.15.2* SPOUT HEIGHT
SPOUTS SHALL BE NO HIGHER THAN 36 IN (915 MM), MEASURED FROM THE FLOOR OR GROUND SURFACES TO THE SPOUT OUTLET (SEE FIG. 27 (A)).
4.15.3 SPOUT LOCATION
THE SPOUTS OF DRINKING FOUNTAINS AND WATER COOLERS SHALL BE AT THE FRONT OF THE UNIT AND SHALL DIRECT THE WATER FLOW IN A TRAJECTORY THAT IS PARALLEL OR NEARLY PARALLEL TO THE FRONT OF THE UNIT. THE SPOUT SHALL PROVIDE A FLOW OF WATER AT LEAST 4 IN (100 MM) HIGH SO AS TO ALLOW THE INSERTION OF A CUP OR GLASS UNDER THE FLOW OF WATER.
4.15.4 CONTROLS
CONTROLS SHALL BE LOCATED AT OR NEAR THE FRONT EDGE OF THE FOUNTAIN OR WATER COOLER AND SHALL COMPLY WITH 4.25.4.
4.15.5 CLEARANCES
(1) WALL-MOUNTED AND POST-MOUNTED CANTILEVERED UNITS SHALL HAVE A CLEAR KNEE SPACE BETWEEN THE BOTTOM OF THE APRON AND THE FLOOR OR GROUND AT LEAST 27 IN (685 MM) HIGH, 30 IN (760 MM) WIDE, AND 17 IN TO 19 IN (430 MM TO 485 MM) DEEP (SEE FIG. 27 (A) AND (B)). SUCH UNITS SHALL ALSO HAVE A MINIMUM CLEAR FLOOR SPACE 30 IN x 48 IN (760 MM x 1220 MM) TO ALLOW A PERSON IN A WHEELCHAIR TO APPROACH THE UNIT FACING FORWARD.
(2) FREE-STANDING OR BUILT-IN UNITS NOT HAVING A CLEAR SPACE UNDER THEM SHALL HAVE A CLEAR FLOOR SPACE AT LEAST 30 IN x 48 IN (760 MM x 1220 MM) THAT ALLOWS A PERSON IN A WHEELCHAIR TO MAKE A PARALLEL APPROACH TO THE UNIT (SEE FIG.27 (C) AND (D)). THIS CLEAR FLOOR SPACE SHALL COMPLY WITH 4.2.4.
4.16 WATER CLOSETS
4.16.1 GENERAL
ACCESSIBLE WATER CLOSETS SHALL COMPLY WITH 4.16. FOR WATER CLOSETS IN DWELLING UNITS, SEE 4.32.4.2.
4.16.2 CLEAR FLOOR SPACE
CLEAR FLOOR SPACE FOR WATER CLOSETS NOT IN STALLS SHALL COMPLY WITH FIG. 28. CLEAR FLOOR SPACE MAY BE ARRANGED TO ALLOW EITHER A LEFT-HAND OR RIGHT-HAND APPROACH.
4.16.3* HEIGHT
THE HEIGHT OF WATER CLOSETS SHALL BE 17 IN TO 19 IN (430 MM TO 485 MM), MEASURED TO THE TOP OF THE TOILET SEAT (SEE FIG. 29). SEATS SHALL NOT BE SPRUNG TO RETURN TO A LIFTED POSITION.
4.16.4* GRAB BARS
GRAB BARS FOR WATER CLOSETS NOT LOCATED IN STALLS SHALL COMPLY WITH FIG. 29 AND WITH 4.24.
4.16.5* FLUSH CONTROLS
FLUSH CONTROLS SHALL BE HAND OPERATED OR AUTOMATIC AND SHALL COMPLY WITH 4.25.4. CONTROLS FOR FLUSH VALVES SHALL BE MOUNTED FOR USE FROM THE WIDE SIDE OF THE TOILET STALL AND SHALL BE NO MORE THAN 44 IN (1120 MM) ABOVE THE FLOOR.
4.16.6 DISPENSERS
TOILET PAPER DISPENSERS SHALL COMPLY WITH 4.25.4 AND SHALL BE INSTALLED WITHIN REACH, AS SHOWN IN FIG. 29 (B).
4.17 TOILET STALLS
4.17.1 GENERAL
ACCESSIBLE TOILET STALLS SHALL BE ON AN ACCESSIBLE ROUTE AND SHALL COMPLY WITH THE REQUIREMETNS OF 4.17.
4.17.2 WATER CLOSETS
WATER CLOSETS IN ACCESSIBLE STALLS SHALL COMPLY WITH 4.16.
4.17.3 SIZE AND ARRANGEMENT
THE SIZE AND ARRANGEMENT OF TOILET STALLS SHALL COMPLY WITH EITHER FIG. 30 (A) OR (B). TOILET STALLS WITH A MINIMUM DEPTH OF 56 IN (1420 MM) (SEE FIG. 30 (A)) OR 66 IN (1675 MM) (SEE FIG. 30 (B)) SHALL HAVE WALL-MOUNTED WATER CLOSETS. IF THE DEPTH OF TOILET STALLS IS INCREASED AT LEAST 3 IN (75 MM), THEN A FLOOR-MOUNTED WATER CLOSET MAY BE USED. ARRANGEMENTS SHOWN FOR ALL STALLS MAY BE REVERSED TO ALLOW EITHER A LEFT-HAND OR A RIGHT-HAND APPROACH.
4.17.4 TOE CLEARANCES
IN STANDARD STALLS, THE FRONT PARTITION AND AT LEAST ONE SIDE PARTITION SHALL PROVIDE A TOE CLEARANCE OF AT LEAST 9 IN (230 MM) ABOVE THE FLOOR. IF THE DEPTH OF THE STALL IS GREATER THAN 60 IN (1525 MM), THEN THE TOE CLEARANCE IS NOT REQUIRED.
4.17.5* DOORS
TOILET STALL DOORS SHALL COMPLY WITH 4.13, EXCEPT THAT IF THE APPROACH IS TO THE LATCH SIDE OF THE STALL DOOR, THE CLEARANCE BETWEEN THE DOOR SIDE OF THE STALL AND ANY OBSTRUCTION MAY BE REDUCED TO A MINIMUM OF 42 IN (1065 MM) (SEE FIG. 30).
4.17.6 GRAB BARS
GRAB BARS COMPLYING WITH THE LENGTH AND POSITIONING SHOWN IN FIG. 30 (A), (B), (C), AND (D) SHALL BE PROVIDED. GRAB BARS MAY BE MOUNTED BY ANY DESIRED METHOD AS LONG AS THEY HAVE A GRIPPING SURFACE AT THE LOCATIONS SHOWN AND DO NOT OBSTRUCT THE REQUIRED CLEAR FLOOR AREA. GRAB BARS SHALL COMPLY WITH 4.24.
4.19 LAVATORIES
4.19.1 GENERAL
ACCESSIBLE LAVATORY FIXTURES, SINKS, VANITIES, AND BUILT-IN LAVATORIES SHALL COMPLY WITH 4.19.
4.19.2 HEIGHT AND CLEARANCES
4.19.2.1 LAVATORIES
LAVATORIES SHALL BE MOUNTED WITH A CLEARANCE OF AT LEAST 29 IN (735 MM) FROM THE FLOOR TO THE BOTTOM OF THE APRON. KNEE AND TOE CLEARANCES SHALL COMPLY WITH FIG. 31.
4.19.2.2 SINKS
SINKS SHALL BE MOUNTED WITH THE COUNTER OR SINK NO HIGHER THAN 34 IN (865 MM) FROM THE FLOOR. EACH SINK SHALL BE A MAXIMUM OF 6-1/2 IN (165 MM) DEEP. (SINKS IN KITCHENS OF ACCESSIBLE DWELLING UNITS SHALL COMPLY WITH 4.32.5.5)
4.19.3 CLEAR FLOOR SPACE
A CLEAR FLOOR SPACE 30 IN x 48 IN (760 MM x 1220 MM) COMPLYING WITH 4.2.4 SHALL BE PROVIDED IN FRONT OF A LAVATORY OR SINK TO ALLOW A FORWARD APPROACH. SUCH CLEAR ROUTE AND SHALL EXTEND A MAXIMUM OF 19 IN (485 MM) UNDERNEATH THE LAVATORY OR SINK (SEE FIG. 32).
4.19.4 EXPOSED PIPES AND SURFACES
HOT WATER AND DRAIN PIPES UNDER LAVATORIES OR SINKS SHALL BE INSULATED OR OTHERWISE PROTECTED IF THEY ARE WITHIN THE CLEARANCE AREAS INDICATED IN FIG. 31. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES OR SINKS.
4.19.5 FAUCETS
FAUCETS SHALL COMPLY WITH 4.25.4. CONVENTIONAL ONE-QUARTER-TURN, LEVER-OPERATED, PUSH-TYPE, AND AUTOMATICALLY CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS. SELF-CLOSING VALVES ARE ALLOWED IF THE FAUCET REMAINS OPEN FOR AT LEAST 10 SECONDS.
4.19.6* MIRRORS
MIRRORS SHALL BE MOUNTED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE NO HIGHER THAN 40 IN (1015 MM) FROM THE FLOOR (SEE FIG. 31).
SECTION 2.
4.2.4* CLEAR FLOOR OR GROUND SPACE FOR WHEELCHAIR
4.2.4.1 SIZE AND APPROACH
THE MINIMUM CLEAR FLOOR OR GROUND SPACE REQUIRED TO ACCOMMODATE A SINGLE, STATIONARY WHEELCHAIR AND OCCUPANT IS 30 IN x 38 IN (760 MM x 1220 MM) (SEE FIG. 4 (A)). THE MINIMUM CLEAR FLOOR OR GROUND SPACE FOR WHEELCHAIRS MAY BE POSITIONED FOR FORWARD OR PARALLEL APPROACH TO AN OBJECT (SEE FIG. 4 (B) AND (C)). CLEAR FLOOR OR GROUND SPACE FOR WHEELCHAIRS MAY BE PART OF THE KNEE SPACE REQUIRED UNDER SOME OBJECTS.
4.2.4.2 RELATIONSHIP OF MANEUVERING OBJECTS; CLEARANCES TO WHEELCHAIR SPACES
ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR OR GROUND SPACE FOR A WHEELCHAIR SHALL ADJOIN OR OVERLAP AN ACCESSIBLE ROUTE OR ADJOIN ANOTHER WHEELCHAIR CLEAR FLOOR SPACE. IF A CLEAR FLOOR SPACE IS LOCATED IN AN ALCOVE OR OTHER-WISE CONFINED ON ALL OR PART OF THREE SIDES, ADDITIONAL MANEUVERING CLEARANCES SHALL BE PROVIDED AS SHOWN IN FIG. 4 (D) AND (E).
4.2.4.3 SURFACES OF WHEELCHAIR SPACES
CLEAR FLOOR OR GROUND SPACES FOR WHEELCHAIRS SHALL COMPLY WITH 4.5.
4.2.5 FORWARD REACH
IF THE CLEAR FLOOR SPACE ALLOWS PARALLEL APPROACH BY A PERSON IN A WHEELCHAIR, THE MAXIMUM HIGH SIDE REACH ALLOWED SHALL BE 54 IN (1370 MM) AND THE LOW SIDE REACH SHALL BE NO LESS THAN 9 IN (230 MM) ABOVE THE FLOOR (FIG. 6 (A) AND (B)). IF THE SIDE REACH IS OVER AN OBSTRUCTION, THE REACH AND CLEARANCES SHALL BE AS SHOWN IN FIG. 6 (C).
4.2.6 SIDE REACH
IF THE CLEAR FLOOR SPACE ALLOWS PARALLEL APPROACH BY A PERSON IN A WHEELCHAIR, THE MAXIMUM HIGH SIDE REACH ALLOWED SHALL BE 54 IN (1370 MM) AND THE LOW SIDE REACH SHALL BE NO LESS THAN 9 IN (230 MM) ABOVE THE FLOOR (FIG. 6 (A) AND (B)). IF THE SIDE REACH IS OVER AN OBSTRUCTION, THE REACH AND CLEARANCES SHALL BE AS SHOWN IN FIG. 6 (C).
4.23 STORAGE
4.23.1 GENERAL
ACCESSIBLE STORAGE FACILITIES SUCH AS CABINETS, SHELVES, CLOSETS, AND DRAWERS SHALL COMPLY WITH 4.23.
4.23.2 CLEAR FLOOR SPACE
A CLEAR FLOOR SPACE AT LEAST 30 IN x 48 IN (760 MM x 1220 MM) COMPLYING WITH 4.2.4 THAT ALLOWS EITHER A FORWARD OR PARALLEL APPROACH BY A PERSON USING A WHEELCHAIR SHALL BE PROVIDED AT ACCESSIBLE STORAGE FACILITIES.
4.23.3 HEIGHT
ACCESSIBLE STORAGE SPACES SHALL BE WITHIN AT LEAST ONE OF THE REACH RANGES SPECIFIED IN 4.2.5. AND 4.2.6. CLOTHES RODS SHALL BE A MAXIMUM OF 54 IN (1370 MM) FROM THE FLOOR (SEE FIG. 38).
4.23.4 HARDWARE
HARDWARE FOR ACCESSIBLE STORAGE FACILITIES SHALL COMPLY WITH 4.25.4. TOUCH LATCHES AND U-SHAPED PULLS ARE ACCEPTABLE.
4.24 GRAB BARS, TUBS & SHOWER SEATS
4.24.2 SIZE AND SPACING OF GRAB BARS
THE DIAMETER OR WIDTH OF THE GRIPPING SURFACES OF A GRAB BAR SHALL BE 1-1/4 IN TO 1-1/2 IN (32 MM TO 38 MM), OR THE SHAPE SHALL PROVIDE AN EQUIVALENT GRIPPING SURFACE. IF GRAB BARS ARE MOUNTED ADJACENT TO A WALL, THE SPACE BETWEEN THE WALL AND THE GRAB BAR SHALL BE 1-1/2 IN (38 MM) (SEE FIG. 39 (A), (B), (C), AND (E)). HANDRAILS MAY BE LOCATED IN A RECESS IF THE RECESS IS A MAXIMUM OF 3 IN (75 MM) DEEP AND EXTENDS AT LEAST 18 IN (455 MM) ABOVE THE TOP OF THE RAIL (SEE FIG. 39 (D)).
4.24.3 STRUCTURAL STRENGTH
THE STRUCTURAL INDUCED BY THE MAXIMUM BENDING MOMENT FROM THE STRENGTH OF GRAB BARS, TUB AND SHOWER SEATS, FASTENERS, AND MOUNTING DEVICES SHALL MEET THE FOLLOWING SPECIFICATIONS:
(1) BENDING STRESS IN A GRAB BAR OR SEAT APPLICATION OF 250 LBF (1112 N) SHALL BE LESS THAN THE ALLOWABLE STRESS FOR THE MATERIAL OF THE GRAB BAR OR SEAT.
(2) SHEAR STRESS INDUCED IN A GRAB BAR OR SEAT BY THE APPLICATION OF 250 LBF (1112 N) SHALL BE LESS THAN THE ALLOWABLE STRESS FOR THE MATERIAL OF THE GRAB BAR OR SEAT. IF THE CONNECTION BETWEEN THE GRAB BAR OR SEAT AND ITS MOUNTING BRACKET OR OTHER SUPPORT IS CONSIDERED TO BE FULY RESTRAINED, THEN DIRECT AND TORSIONAL SHEAR STRESSES SHALL BE TOTALED FOR THE COMBINED SHEAR STRESS, WHICH SHALL NOT EXCEED THE ALLOWABLE SHEAR STRESS.
(3) SHEAR FORCE INDUCED IN A FASTENER OR MOUNTING DEVICE FROM THE APPLICATION OF 250 LBF (1112 N) SHALL BE LESS THAN THE ALLOWABLE LATERAL LOAD OF EITHER THE FASTENER OR MOUNTING DEVICE OR HTE SUPPORTING STRUCTURE, WHICHEVER IS THE SMALLER ALLOWABLE LOAD.
(4) TENSILE FORCE INDUCED IN A FASTENER BY A DIRECT TENSION FORCE OF 250 LBF (1112 N) PLUS THE MAXIMUM MOMENT FRONT THE APPLICATION OF 250 LBF (1112 N) SHALL BE LESS THAN THE ALLOWABLE WITHDRAWAL LOAD BETWEEN THE FASTENER AND THE SUPPORTING STRUCTURE.
(5) GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS.
4.24.4 ELIMINATING HAZARDS
A GRAB BAR AND ANY WALL OR OTHER SURFACE ADJACENT TO IT SHALL BE FREE OF ANY SHARP OR ABRASIVE ELEMENTS. EDGES SHALL HAVE A MINIMUM RADIUS OF 1/8 IN (3.2 MM)
4.26 ALARMS
4.26.1 GENERAL
EMERGENCY WARNING SYSTEMS SHALL INCLUDE BOTH AUDIBLE ALARMS COMPLYING WITH 4.26.2 AND VISUAL ALARMS COMPLYING WITH 4.26.3. AUXILIARY VISUAL ALARMS SHALL COMPLY WITH 4.26.4.
4.26.2* AUDIBLE ALARMS
AUDIBLE ALARMS SHALL PRODUCE A SOUND THAT EXCEEDS THE PREVAILING EQUIVALENT SOUND LEVEL IN THE ROOM OR SPACE BY AT LEAST 15 DECIBELS OR EXCEEDS ANY MAXIMUM SOUND LEVEL WITH A DURATION OF 30 SECONDS BY 5 DECIBELS, WHICHEVER IS LOUDER. SOUND LEVELS FOR ALARM SIGNALS SHALL NOT EXCEED 120 DECIBELS.
4.26.3* VISUAL ALARMS
VISUAL ALARMS SHALL BE FLASHING LIGHTS ARRANGED TO FLASH IN CONJUNCTION WITH THE AUDIBLE EMERGENCY ALARMS. THE FLASHING FREQUENCY OF VISUAL ALARMS SHALL BE APPROXIMATELY 1 HZ. SPECIALIZED SYSTEMS USING ADVANCED TECHNOLOGY MAY BE SUBSTITUTED IF EQUIVALENT PROTECTION IS AFFORDED HANDICAPPED USERS OF THE BUILDING OR FACILITY.
4.27 DETECTABLE WARNINGS
4.27.1 GENERAL
DETECTABLE WARNINGS SHALL COMPLY WITH 4.27.
4.27.2* DETECTABLE WARNINGS ON WALKING SURFACES
DETECTABLE WARNING TEXTURES ON WALKING SURFACES SHALL CONSIST OF EXPOSED AGGREGATE CONCRETE, CUSHIONED SURFACES MADE OF RUBBER OR PLASTIC, RAISED STRIPS, OR GROOVES. TEXTURES SHALL CONTRAST WITH THAT OF THE SURROUNDING SURFACE. RAISED STRIPS OR GROOVES SHALL COPMLY WITH FIG. 40. GROOVES MAY BE USED INDOORS ONLY.
4.27.4 DETECTABLE WARNINGS AT STAIRS
ALL STAIRS, EXCEPT THOSE IN DWELLING UNITS, IN ENCLOSED STAIR TOWERS, OR SET TO THE SIDE OF THE PATH OF TRAVEL SHALL HAVE A DETECTABLE WARNING AT THE TOP OF STAIR RUNS (SEE FIG. 41).
4.28 SIGNAGE
4.28.1* GENERAL
ALL SIGNAGE THAT PROVIDES EMERGENCY INFORMATION OR GENERAL CIRCULATION DIRECTIOSN OR IDENTIFIED ROOMS AND SPACES SHALL COMPLY WITH 4.28.2, 4.28.3, AND 4.28.5.
4.28.2* CHARACTER PROPORTION
LETTERS AND NUMBERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO BETWEEN 3:5 AND 1:1 AND A STROKE-WIDTH-TO-HEIGHT RATIO BETWEEN 1:5 AND 1:10, UTILIZING UPPER-CASE "X" FOR MEASUREMENT.
4.28.3* COLOR CONTRAST
CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND - EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.
4.28.4 TACTILE CHARACTERS OR SYMBOLS
CHARACTERS, SYMBOLS, OR PICTOGRAPHS ON TACTILE SIGNS SHALL BE RAISED 1-32 IN (0.8 MM) MINIMUM. RAISED LETTERS AND NUMBERS SHALL BE SANS SERIF UPPERCASE CHARACTERS. RAISED CHARACTERS OR SYMBOLS SHALL BE AT LEAST 5/8 IN (16 MM) HIGH, BUT NO HIGHER THAN A NOMINAL 2 IN (51 MM).
4.28.5* EQUIPMENT FOR HEARING-IMPAIRED PEOPLE
TELEPHONES SHALL BE EQUIPPED WITH A RECEIVER THAT GENERATES A MAGNETIC FIELD IN THE AREA OF THE RECEIVER CAP. VOLUME CONTROL SHALL BE AVAILABLE IN ANY BUILDING OR FACILITY CONTAINING A BANK OF TELEPHONES WIHT AN ACCESSIBLE TELEPHONE. IF A TELECOMMUNICATIONS DEVICE FOR THE DEAF (TDD) OR SIMILAR EQUIPMENT IS PROVIDED, THE LOCATION OF SUCH EQUIPMENT SHALL BE INDICATED BY STRATEGICALLY PLACED SIGNAGE.
4.29.6 CONTROLS
ACCESSIBLE TELEPHONES SHALL HAVE PUSHBUTTON CONTROLS WHERE SERVICE FOR SUCH EQUIPMENT IS AVAILABLE.
4.29.7 TELEPHONE DIRECTORIES
TELEPHONE DIRECTORIES, IF PROVIDED, SHALL BE LOCATED IN ACCORDANCE WITH 4.2.
4.29.8 CORD LENGTH
ACCESSIBLE TELEPHONES SHALL BE EQUIPPED WITH A MINIMUM HANDSET CORD LENGTH OF 29 IN (735 MM).
4.3 ACCESSIBLE ROUTE
4.3.1* GENERAL
ALL WALKS, HALLS, CORRIDORS, AISLES, AND OTHER SPACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH:
4.3.2 LOCATION
(1) ACCESSIBLE ROUTES WITHIN THE BOUNDARY OF THE SITE SHALL BE PROVIDED FROM PUBLIC TRANSPORTION STOPS, ACCESSIBLE PARKING AND ACCESSIBLE PASSENGER LOADING ZONES, AND PUBLIC STREETS OR SIDEWALKS TO THE ACCESSIBLE BUILDING ENTRANCE THEY SERVE.
(2) ACCESSIBLE ROUTES SHALL CONNECT ACCESSIBLE BUILDINGS, FACILITIES, ELEMENTS, AND SPACES THAT ARE ON THE SAME SITE.
(3) ACCESSIBLE ROUTES SHALL CONNECT ACCESSIBLE BUILDING OR FACILITY ENTRANCES WITH ALL ACCESSIBLE SPACES AND ELEMENTS AND WITH ALL ACCESSIBLE DWELLING UNITS WITHIN THE BUILDING OR FACILITY.
(4) ACCESSIBLE ROUTES SHALL CONNECT ACCESSIBLE ENTRANCES OF EACH ACCESSIBLE DWELLING UNIT WITH THOSE EXTERIOR AND INTERIOR SPACES AND FACILITIES THAT SERVE THE ACCESSIBLE DWELLING UNIT.
4.3.3 WIDTH
THE MINIMUM CLEAR WIDTH OF AN ACCESSIBLE ROUTE SHALL BE 36 IN (915 MM) EXCEPT AT DOORS (SEE 4.13.5). IF A PERSON IN A WHEELCHAIR MUST MAKE A TURN AROUND AN OBSTRUCTION, THE MINIMUM CLEAR WIDTH OF THE ACCESSIBLE ROUTE SHALL BE AS SHOWN IN FIG. 7 (A) AND (B).
4.3.4 PASSING SPACE
IF AN ACCESSIBLE ROUTE HAS LESS THAN 60 IN (1525 MM) CLEAR WIDTH, THEN PASSING SPACES AT LEAST 60 IN x 60 IN (1525 MM x 1525 MM) SHALL BE LOCATED AT REASONABLE INTERVALS NOT TO EXCEED 200 FT (61 MM). AN INTERSECTION OF TWO CORRIDORS OR WALKS SHALL ALSO BE CONSIDERED A PASSING SPACE.
4.3.5 HEADROOM
ACCESSIBLE ROUTES SHALL COMPLY WITH 4.4.2.
4.3.6 SURFACE TEXTURE
THE SURFACE OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH 4.5.
4.3.7 SLOPE
AS ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 1:20 IS A RAMP AND SHALL COMPLY WITH 4.8. NOWHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50.
4.3.8 CHANGES IN LEVEL
CHANGES IN LEVEL ALONG AN ACCESSIBLE ROUTE SHALL COMPLY WITH 4.5.2. IF AN ACCESSIBLE ROUTE HAS CHANGES IN LEVEL GREATER THAN 1/2 IN (13 MM), THEN A CURB RAMP, ELEVATOR, OR PLATFORM LIFT SHALL BE PROVIDED THAT COMPLIES WITH 4.7, 4.8, 4.10, OR 4.11, RESPECTIVEL. STAIRS SHALL NOT BE PART OF AN ACCESSIBLE ROUTE.
4.3.9 DOORS
DOORS THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH 4.13.
4.3.10* EGRESS
ACCESSIBLE ROUTES SERVING ANY ACCESSIBLE SPACE OR ELEMENT SHALL ALSO SERVE AS A MEANS OF EGRESS FOR EMERGENCIES OR CONNECT TO AN ACCESSIBLE PLACE OF REFUGE. SUCH ACCESSIBLE ROUTES AND PLACES OF REFUGE SHALL COMPLY WITH THE REQUIREMENTS ESTABLISHED BY THE ADMINISTRATIVE AUTHORITY HAVING JURISDICTION.
4.5 GROUND AND FLOOR SURFACES
4.5.1* GENERAL
GROUND AND FLOOR SURFACES ALONG ACCESSIBLE ROUTES AND IN ACCESSIBLE ROOMS AND SPACES, INCLUDING FLOORS, WALKS, RAMPS, STAIRS, AND SURB RAMPS, SHALL BE STABLE, FIRM, AND SLIP RESISTANT, AND SHALL COMPLY WITH 4.5.
4.5.2 CHANGES IN LEVEL
CHANGES IN LEVEL UP TO 1/4 IN (6 MM) MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4 IN AND 1/2 IN (6 MM AND 13 MM) SHALL BE ACCOMPLISHED BY MEANS OF A RAMP THAT COMPLIES WITH 4.7 OR 4.8.
4.5.4 GRATINGS
IF GRATINGS ARE LOCATED IN WALKING SURFACES, THEN THEY SHALL HAVE SPACES NO GREATER THAN 1/2 IN (13 MM) WIDE IN ONE DIRECTION. IF GRATINGS HAVE ELONGATED OPENINGS, THEN THEY SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR OT THE DOMINANT DIRECTION OR TRAVEL.

GENERAL HANDICAP ACCESSIBILITY NOTES

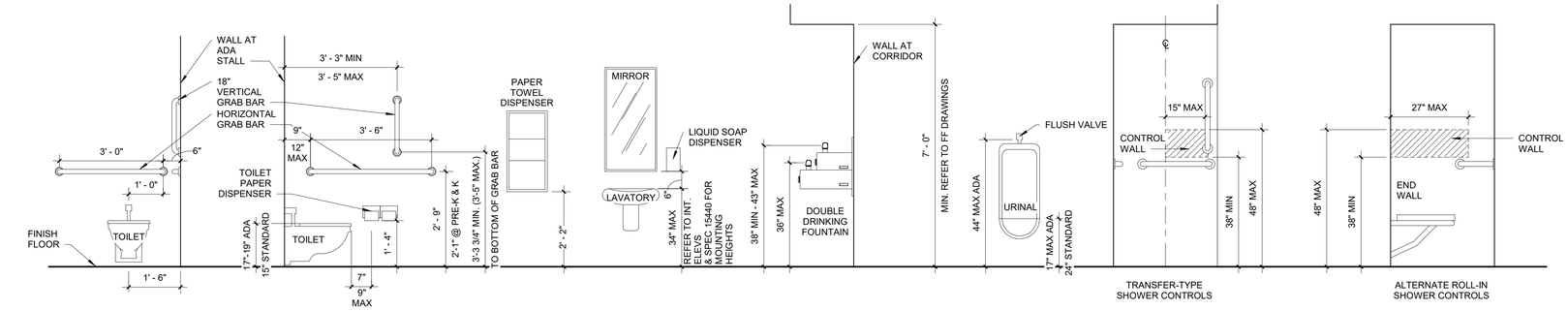
1. AREAS THAT ARE ACCESSIBLE TO PHYSICALLY HANDICAPPED PEOPLE SHALL COMPLY WITH THE FOLLOWING PROVISIONS AS STATED BELOW.
2. ALL WALKS, HALLS, CORRIDORS, AISLES, AND OTHER SPACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH R.S. 4-6 (ANSI A1117.1-1986) 4.3 AND LOCAL LAW 58/87.
3. ACCESSIBLE ROUTES ARE DEFINED AS CONTINUOUS UNOBSTRUCTED PATHS CONNECTING ALL ACCESSIBLE ELEMENTS AND SPACES IN A BUILDING THAT CAN BE NEGOTIATED BY A PERSON WITH A SEVERE DISABILITY USING A WHEELCHAIR AND THAT ARE ALSO SAGE FOR AND USABLE BY PEOPLE WITH OTHER DISABILITIES. ACCESSIBLE ROUTES CAN BE BOTH EXTERIOR AND INTERIOR. EXAMPLES OF ACCESSIBLE ROUTES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

A. EXTERIOR ACCESSIBLE ROUTES:
- SIDEWALKS
- CURB RAMPS
- BUILDING PRIMARY ENTRANCE(S)
- ANY NORMAL DAY TO DAY ENTRANCE(S) INCLUDING COMMERCIAL SPACES AND ANY ACCESSORY TENANT SPACES

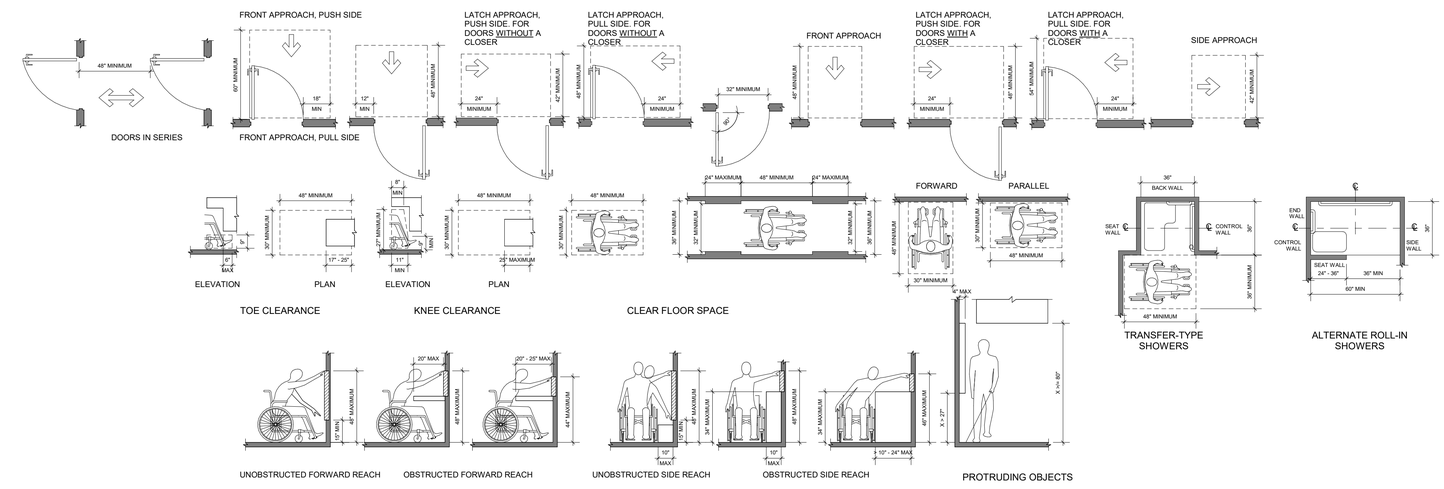
B. INTERIOR ACCESSIBLE ROUTES:
- CORRIDORS AND HALLWAYS
- FLOORS
- RAMPS AND STAIRS
- LOBBIES, FOYERS AND VESTIBULES
- ELEVATORS
- CLEAR FLOOR SPACE AT FIXTURES AND EQUIPMENT

C. EXAMPLES OF ACCESSIBLE SPACES & ELEMENTS SHALL INCLUDE BUT NOT LIMITED TO:
- ALL ADAPTABLE DWELLING UNITS
- ALL PUBLIC SPACES WITHIN THE BUILDING(S)
- TENANT AND COMMUNITY ROOMS
- KITCHENS ACCESSORY TO TENANT AND COMMERCIAL ROOMS
- LAUNDRY ROOMS
- OFFICES (INCLUDING TOILET ROOMS)
- COMMERCIAL SPACES (INCLUDING TOILET ROOMS)
- PUBLIC USE TOILET ROOMS
- REFUSE CHUTE & COLLECTION RMS

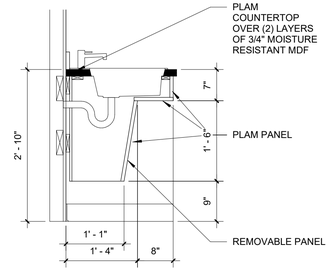
4. ALL ELEVATORS SHALL COMPLY WITH R.S. 4-6 SECTION 4.10.
5. GROUND AND FLOOR SURFACES ALONG ACCESSIBLE ROUTES AND IN ROOMS AND SPACES INCLUDING FLOORS, WALKS, RAMPS, STAIRS AND CURB RAMPS SHALL BE STABLE, FIRM AND SLIP RESISTANT AND COMPLY WITH R.S. 4-6 SECTION 4.5.
6. ANY PART OF AN ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 SHALL BE CONSIDERED A RAMP AND SHALL COMPLY W/ R.S. 4-6 SECTION 4.8.
7. ALL STAIRS ALONG AN ACCESSIBLE RO



1 ADA TYPICAL MOUNTING HEIGHTS
1/2" = 1'-0"



2 ADA DIAGRAMS
1/4" = 1'-0"



3 SINK/COUNTER DETAIL
3/4" = 1'-0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

ADA REQUIREMENTS

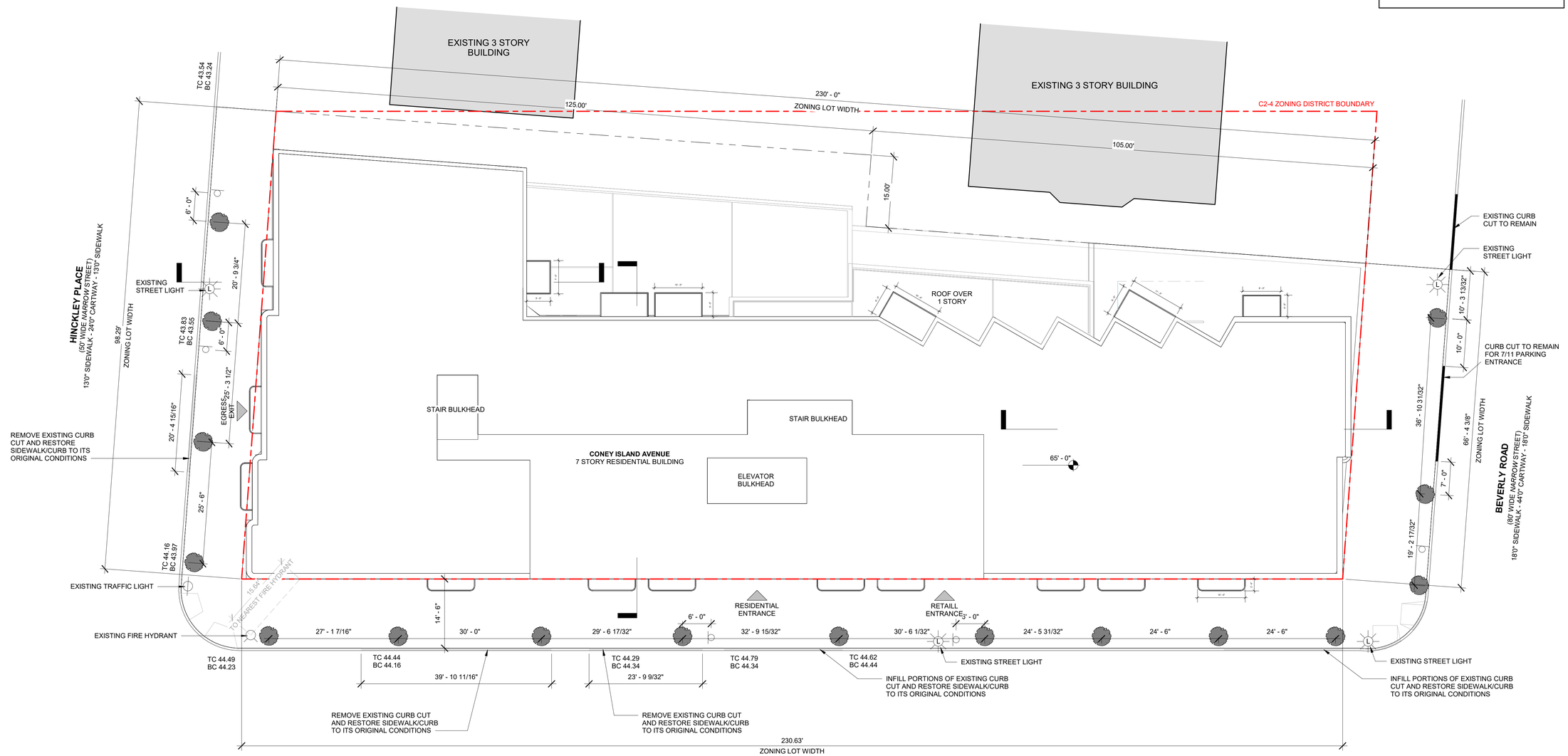
DRAWING No.

G105.00

	545 CONEY ISLAND AVENUE
JOB #	#
CONSTRUCTION CLASSIFICATION	IB
OCCUPANCY CLASSIFICATION	R-2
# OF STORIES	5 STORIES
DISCRIPTION OF USE	MIXED-USE (RESIDENTIAL & COMMERCIAL)
ENCROACHMENTS	-
	STREET BREAKDOWN: **CONEY ISLAND AVENUE** 15'-0" SIDEWALK 70'-0" CARTWAY 15'-0" SIDEWALK **TOTAL 100' R.O.W** **HINCKLEY PLACE** 13'-0" SIDEWALK 24'-0" CARTWAY 13'-0" SIDEWALK **TOTAL 50' R.O.W** **BEVERLY ROAD** 18'-0" SIDEWALK 44'-0" CARTWAY 18'-0" SIDEWALK **TOTAL 80' R.O.W**

SITE PLAN LEGEND

TC	TOP OF CURB
BC	BOTTOM OF CURB
	TRAFFIC SIGN
	LIGHT POLE
	LOW PRESSURE FIRE HYDRANT
	TRAFFIC LIGHT
TREE	
PROPOSED	EXISTING



1 SITE PLAN
3/32" = 1'-0"

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#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY:	CHECKED BY:
CW	DMC

DRAWING TITLE:

SITE PLAN

DRAWING No.

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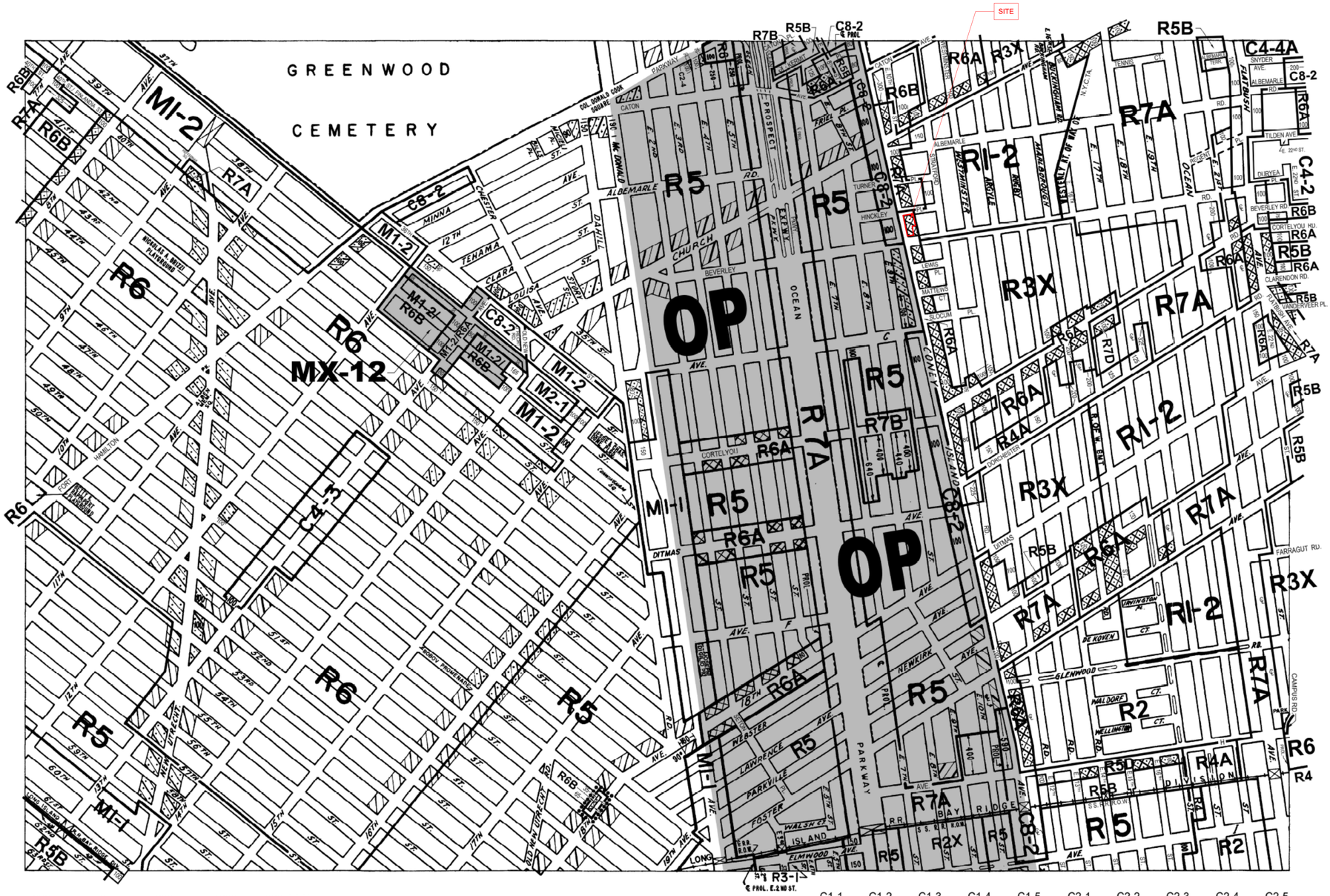

C1-1 C1-2 C1-3 C1-4 C1-5 C2-1 C2-2 C2-3 C2-4 C2-5

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:

11–10–2021 C 200296 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.

N

MAP KEY

16b	16d	17b
22a	**22c**	23a
22b	22d	23b

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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.

ZONING MAP 22c

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

ZONING MAP

DRAWING No.

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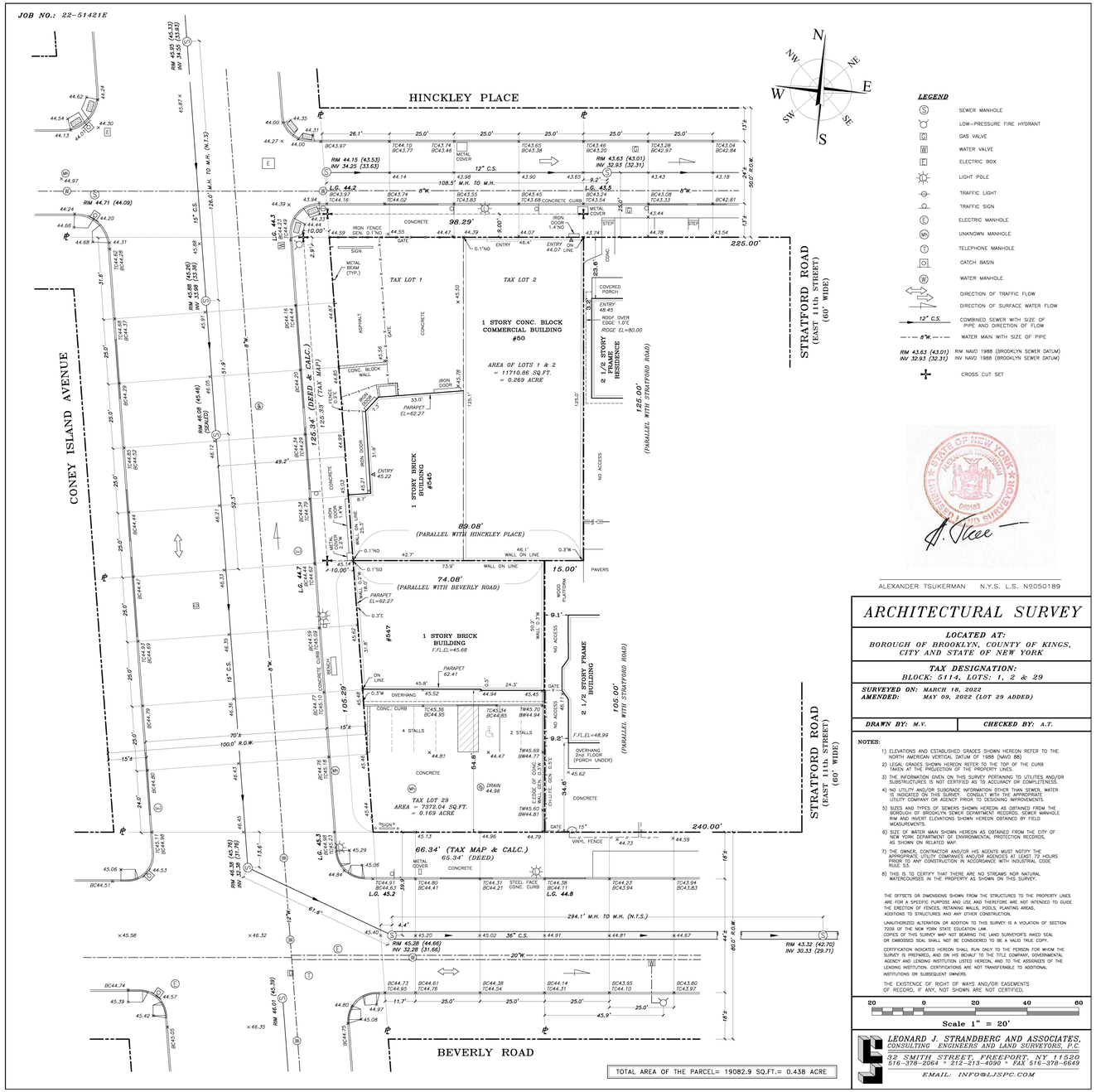

LEGEND

- SEWER MANHOLE
- LOW-PRESSURE FIRE HYDRANT
- GAS VALVE
- WATER VALVE
- ELECTRIC BOX
- LIGHT POLE
- TRAFFIC LIGHT
- TRAFFIC SIGN
- ELECTRIC MANHOLE
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE
- CATCH BASIN
- WATER MANHOLE
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF SURFACE WATER FLOW
- 12" C.S. — COMBINED SEWER WITH SIZE OF PIPE AND DIRECTION OF FLOW
- 8"W. — WATER MAIN WITH SIZE OF PIPE
- RIM 43.63 (43.01) / INV 32.93 (32.31) — RIM NAVD 1988 (BROOKLYN SEWER DATUM) / INV NAVD 1988 (BROOKLYN SEWER DATUM)
- CROSS CUT SET

ALEXANDER TSUKERMAN N.Y.S. L.S. N9050189

ARCHITECTURAL SURVEY

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

TAX DESIGNATION:
BLOCK: 5114, LOTS: 1, 2 & 29

SURVEYED ON: *MARCH 18, 2022*
AMENDED: *MAY 09, 2022 (LOT 29 ADDED)*

DRAWN BY: *M.V.* | ***CHECKED BY:*** *A.T.*

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 UTILITIES AND/OR SUBSTRUCTURES IS NOT CERTIFIED AS TO ACCURACY OR COMPLETENESS.
4) NO UTILITY AND/OR SUBGRADE INFORMATION OTHER THAN SEWER, WATER IS INDICATED ON THIS SURVEY. CONSULT WITH THE APPROPRIATE UTILITY COMPANY OR AGENCY PRIOR TO DESIGNING IMPROVEMENTS.
5) SIZES AND TYPES OF SEWERS SHOWN HEREON AS OBTAINED FROM THE BOROUGH OF BROOKLYN SEWER DEPARTMENT RECORDS. SEWER MANHOLE RIM AND INVERT ELEVATIONS SHOWN HEREON OBTAINED BY FIELD MEASUREMENTS.
6) SIZE OF WATER MAIN SHOWN HEREON AS OBTAINED FROM THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION RECORDS, AS SHOWN ON RELATED MAP.
7) 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.
8) 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 VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW.
COPIES OF THIS SURVEY MAY 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.

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Scale 1" = 20'

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW | CHECKED BY: DMC

DRAWING TITLE: SURVEY

DRAWING No.
G108.00

ZONING ANALYSIS: 545 CONEY ISLAND AVENUE

Block:	5114
Tax Lot:	1
Map:	22C
Zoning:	R6A / C2-4
Zoning Lot Area:	19,082.90 SF
Tax Lot Area:	19,082.90 SF (Lot 1)
Community District	14

	Z.R. Section	Description	Permitted / Required	Proposed Lot 1	Compliant
1	**FAR Regulations**				
	33-121	Commercial Floor FAR	2.00	0.17	Complies
		Commercial Floor FA (zsf)	38,165.80	3,274.00 SF	Complies - see Z110
	23-22	Residential FAR	3.9	3.73	Complies
		Residential FA (zsf)	74,423.31	70,440.00 SF	Complies - see Z106 for tabulated total
	35-31	Total FAR for All Combined Uses	3.9	3.90	Complies
		Total FA for All Combined Uses (zsf)	74,423.31	74,815 SF	Complies - see Z106 for tabulated total
2	**Use Regulations**				
	32-11	Permitted Use Groups in C1 - C6 (C2-4)	UG 1 & 2, as per ZR 22-11 & ZR 22-12	UG 2 on all floors	Complies
	22-12	Permitted Use Groups in R Districts (R6A)	UG 1-4	UG 2 on all floors	Complies
	32-12	Permitted Use Groups in C1 - C6 (C2-4)	UG 5-9, 14	UG 6 on ground floor	Complies
3	**UAP - Affordable housing**				
	27-12	**General Provisions:** MIH and UAP are established to promote the creation and preservation of affordable housing for residents with varied incomes citywide and to enhance neighborhood economic diversity and thus to promote the general welfare. Requirements for affordable housing are set forth in Section 27-00, inclusive. Wherever the provisions of Section 27-00, inclusive, provide that approval is required, HPD may specify the form of such approval in the guidelines.			
4	**Bulk and Density Regulations**				
	35-01	**Applicability** The bulk regulations of this Chapter apply to any mixed building located on any zoning lot or portion of a zoning lot in any Commercial District in which such building is permitted. The bulk regulations of this Chapter shall also apply in any Commercial District where there are multiple buildings on a single zoning lot and such zoning lot contains a residential use and either a commercial use or a community facility use. In addition, the bulk regulations of this Chapter, or of specified Sections thereof, also apply in other provisions of this Resolution where they are incorporated by cross-reference.		Proposed development is comprised of an individual building on a single tax lot, on a shared zoning lot. The building contains a residential use and a commercial use component. The commercial use component is located on the ground floor - the bulk regulations of Article 3 Chapter 5 are applicable.	Complies See following analysis for demonstration of compliance
	35-010	**General Provisions** Except as otherwise provided in this Chapter, the portions of a building used for residential use are subject to the bulk regulations set forth in Article II, Chapter 3, and the portions of a building used for commercial or community facility use are subject to the bulk regulations set forth in Article III, Chapter 3. Special provisions applying to mixed buildings or zoning lots with multiple buildings subject to the provisions of this Chapter are set forth in Sections 35-20 (APPLICABILITY OF RESIDENCE DISTRICT BULK REGULATIONS), inclusive, 35-30 (APPLICABILITY OF FLOOR AREA AND OPEN SPACE REGULATIONS), inclusive, 35-40 (APPLICABILITY OF DENSITY REGULATIONS), inclusive, 35-50 (MODIFICATION OF YARD REGULATIONS) and 35-60 (MODIFICATION OF HEIGHT AND SETBACK REGULATIONS),inclusive.		The subject zoning lot is located in a C2-4 commercial overlay mapped within an R6 district. Pursuant to the general provisions of this Chapter, the portions of the building used for residential use shall comply with the bulk regulations set forth in Article II, Chapter 3, and the portions of the building used for commercial use shall comply with the bulk regulations set forth in Article III, Chapter 3.	
	35-21	**General Provisions** C1 **C2** C3 C4 C5 C6 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.		The bulk regulations set forth in Article II, Chapter 3, shall apply to all residential portions of the building.	
	35-24	**Applicability of Residential Bulk Rules to Non-residential Portions of Mixed Buildings** For the non-residential portion of mixed buildings or for commercial or community facility buildings on the same zoning lot as residences, the following regulations shall apply with regard to the applicability of certain bulk regulations from Article II, Chapter 3. (a) Height and setback 1) In Commercial Districts mapped within, or with a residential equivalent of an R6 through R12 District with a letter suffix, the height and setback regulations of Section 23-43 (Height and Setback Requirements in R6 Through R12 Districts), inclusive, shall be applied to all buildings in accordance with the applicable Residence District regulations, as modified by the provisions of Section 35-60 (MODIFICATION OF HEIGHT AND SETBACK REGULATIONS), inclusive. 2) In all other Commercial Districts, the residential height and setback regulations may be applied as follows: ii) the height and setback regulations of Section 23-43 (Height and Setback Requirements in R6 Through R12 Districts), inclusive, may be applied to Commercial Districts mapped within, or with a residential equivalent of, an R6 through R12 District without a letter suffix, in accordance with the applicable Residence District regulations, as modified by the provisions of Section 35-60, inclusive.		The residential portion of the building shall comply with all of the regulations of Article II, Chapter 3 as applicable to buildings located within R6A districts.	
	23-01	**Applicability** The bulk regulations of this Chapter apply to any zoning lot or portion of a zoning lot located in any Residence District which contains any residential building or other structure, or to the residential portion of a building or other structure used for both residential and community facility uses. The bulk regulations of Article II, Chapter 4, shall apply to any zoning lot or portion of a zoning lot containing a community facility building or to the community facility portion of a building used for both residential and community facility uses, except as set forth in Section 24-012 (Exceptions to the bulk regulations of this Chapter). In addition, the bulk regulations of this Chapter, or of specified Sections thereof, also apply in other provisions of this Resolution where they are incorporated by cross reference.		Subject zoning lot is located in an R6A district, and the residential portion of the building shall comply with all of the regulations of Article II, Chapters 3	Complies See following analysis for demonstration of compliance
	23-362 (a)	**Maximum lot coverage in R6 through R12 Districts** R6 R7 R8 R9 R10 R11 R12 **(a) For standard lots** **In the districts indicated, the maximum residential lot coverage for interior lots or through lots shall be 80 percent and the maximum residential lot coverage for corner lots shall be 100 percent.** (b) For eligible sites In the districts indicated, for zoning lots with buildings utilizing the eligible site provisions of Section 23-434 (Height and setback modifications for eligible sites), the maximum residential lot coverage of the entire site shall be: (1) 65 percent on zoning lots with a lot area of 30,000 square feet or more that are not large sites; and (2) 50 percent on large sites. **Individual corner lot, interior lot, or through lot portions may exceed such overall maximum, provided they do not exceed the respective maximums that would apply to zoning lots that are not utilizing the eligible site provisions.**		Proposed Commercial FAR = 0.17 Proposed Commercial FA = 3,274 zsf Proposed Residential FAR = 3.73 Proposed Residential FA = 74,815 ZSF	Complies
	23-12	**Minimum Lot Area or Lot Width for Residences**		Minimum Lot Area: 1,700 sf Minimum Lot Width: 18'-0" Proposed Lot Area: 19,082.90 sf Proposed Lot Width: Varies See Survey	Complies See zoning diagrams on Z012
	23-52	**Density Regulation / Maximum Number of Dwelling Units or Rooming Units** R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 R11 R12 In the districts indicated, for buildings containing multiple dwelling residences, the maximum number of dwelling units permitted shall be determined by dividing the maximum residential floor area permitted on the zoning lot by the applicable dwelling unit factor. The applicable dwelling unit factor shall be as follows: (B) For all other types of multiple dwelling residences, the applicable dwelling unit factor shall be 680. Fractions equal to or greater than three-quarters resulting from this calculation shall be considered to be one dwelling unit. Factor for dwelling units in R6: 680		Max floor area permitted for the zoning lot: 74,423.31 sf Total permitted number of dwelling units: 74,423.31 sf / 680 = 109 units Total proposed number of dwelling units: 97 units	Complies

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DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

ZONING ANALYSIS

DRAWING No.

Z000.00

5	**Yard Regulations**			
	23-51	**Special Provisions for Yards Adjacent to R1 Through R5 Districts** **R6** R7 R8 R9 R10 In the districts indicated, the provisions of this Section shall apply to zoning lots located, wholly or partially, within an R6, R7, R8, R9 or R10 District that are adjacent to a zoning lot located wholly or partially within an R1, R, R3, R4 or R5 District. A side yard at least eight feet wide shall be provided along the entire length of the common side lot line. Such side yard may be used for accessory parking.	Proposed 8'-0" side yard	Complies See zoning diagrams on Z012
	24-36, 24-39/24-391	**Other Special Provisions for Rear Yards** Within one hundred feet of corners R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 **R6** R7 R8 R9 R10 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.	No rear yard is required.	Complies See zoning diagrams on Z012
	24-393	**For Zoning Lots with Multiple Rear Lot Lines** R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 In all districts, as indicated, for zoning lots with multiple rear lot lines, if a rear yard extends from a rear lot line away from the street line which is used to determiner such rear lot lines, the following rules shall apply along such rear lot line: (c) In R6 through R10 Districts, no rear yard shall be required where such rear lot line coincides with a side lot line of an adjoining zoning lot.		
	35-32	**Modification of Rear Yard Requirements** C1 C2 C3 C4 C5 C6 C7 C8 (b) In all districts, the regulations set forth in Section 33-303 (For zoning lots with multiple rear lot lines) may be modified in accordance with the provisions of Section 73-69 (Rear Yard Modifications).	In the residential portion of the mixed building, the rear yard is provided at the floor level of the lowest story used for dwelling units or rooming units	Complies See zoning diagrams on Z010
	23-312	**Additional permitted obstructions generally permitted in all yards** In all Residence Districts, the obstructions set forth in Section 23-311 (Permitted obstructions in all yards, courts and open areas), as well as the following obstructions, shall be permitted within any yard or rear yard equivalent: (e)Parking spaces for automobiles, off-street, open, accessory, within a side or rear yard;	Complies	Complies See zoning diagrams on Z012
	23-62(a)	**Balconies in R6 through R10 Districts** R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 In the districts indicated, 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	Balconies comply	Complies See G106 for demonstration
6	**Height and Setback Regulations**			
	23-43	**Height and Setback Requirements in R6 Through R12 Districts** **R6** R7 R8 R9 R10 R11 R12 In the districts indicated, the street wall location of a building shall be as set forth in Section 23-431, the height and setback regulations of a building or other structure shall be as set forth in Section 23-432, and standard setback provisions shall be as set forth in Section 23-433. The maximum heights set forth in Section 23-432 may be modified for zoning lots meeting certain criteria, in accordance with Section 23-434, or where towers are permitted in accordance with Section 23-435. Additional height and setback provisions are set forth in Section 23-436 and Section 23-44, inclusive. The height of all buildings or other structures shall be measured from the base plane. For the purposes of this Section, where base planes of different elevations apply to different portions of a building or other structure, each such portion of the building may be considered to be a separate building. Lot coverages for towers, including maximums and minimums, where applicable, shall be applied at every level.	The residential portion of the building shall comply with all of the regulations of Article II, Chapter 3 as applicable to buildings located within R6A districts.	
	23-431(b)(1)	**Street wall location requirements** **R6** R7 R8 R9 R10 R11 R12 IIn 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 For all buildings that are not subject to the provisions of paragraph (a), the following shall apply: 1)Along wide streets, at least 70 percent of the aggregate width of street walls shall be located within eight feet of the street line and extend to at least the minimum base height specified in Section 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. However, where the street walls surrounding the subject building are located on a block with a prevailing street wall frontage that is located further from the street line than the applicable provisions of this paragraph, the line-up provisions of paragraph (a) of this Section may be applied. 2)Along narrow streets, at least 70 percent of the aggregate width of street wall shall be located within 10 feet of the street line and extend to at least the minimum base height specified in Section 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 10 feet of the street line, provided that any such recesses deeper than 15 feet are located within an outer court.	23-431(b)(1) & (2) are applicable 100% of street wall is located within 25' of street line and aligned with existing commercial building on same zoning lot Street wall location is not required on Hinckley Place and Beverly Road	Complies See zoning diagram on Z013
	23-432	**Height and setback requirements** **R6 R7 R8 R9 R10 R11 R12** **In the districts indicated, the minimum base height, maximum base height, and maximum building height shall be as set forth in the following table. Separate maximum base heights and maximum building heights are set forth for zoning lots containing standard residences and zoning lots containing qualifying affordable housing or qualifying senior housing.** **For portions of a building street wall that exceed the maximum base height, a setback shall be provided at a height not lower than the minimum base height or higher than the maximum base height in accordance with Section 23-433.**	Permitted Minimum Base Height = 40'-0" Proposed Minimum Base Height = 0 Permitted Maximum Base Height = 65'-0" Proposed Maximum Base Height = 65'-0" Permitted Building Height = 75'-0" Proposed Building Height = 75'-0"	Complies See zoning diagrams on Z010 and Z011
	23-433	**Standard setback regulations** **R6 R7 R8 R9 R10 R11 R12** At a height not lower than the minimum base height or higher than the maximum base height specified for the applicable district, a setback with a depth of at least 10 feet shall be provided from any street wall fronting on a wide street, and a setback with a depth of at least 15 feet shall be provided from any street wall fronting on a narrow street. Such minimum setbacks may be modified as follows: a)The depth of such required setback may be reduced by one foot for every foot that the street wall is located beyond the street line, but in no event shall a setback of less than seven feet in depth be provided, except as otherwise set forth in this Section. To allow street wall articulation, where a street wall is divided into different segments and located at varying depths from the street line, such permitted setback reduction may be applied to each street wall portion separately. b)The depth of such setbacks may include the depth of recesses or outer courts in the street wall of the building base, provided that the aggregate width of any such recessed portion of a street wall with a setback less than seven feet, as applicable, does not exceed 30 percent of the aggregate width of street wall at any level. c)These setback provisions are optional for any building wall that either is located beyond 50 feet of a street line, or oriented so that lines drawn perpendicular to it, in plan, would intersect a street line at an angle of 65 degrees or less. In the case of an irregular street line, the line connecting the most extreme points of intersection shall be deemed to be the street line. d)Dormers provided in accordance with the provisions of Section 23-413 (Permitted obstructions in certain districts) may penetrate a required setback area.	Front Setback: Not required up to 65' maximum base height per ZR 23-432 (R6A table). Any portion above 65' to comply with contextual setback (min 10').	Complies See zoning diagrams on Z011
	23-436	**Additional height and setback provisions** **R6** R7 R8 R9 R10 R11 R12 In the districts indicated, the following additional regulations shall apply: c)On corner lots, or portions thereof, the street wall location requirements of Section 23-431 shall be mandatory along only one street frontage. Where one of the street frontages bounding the corner lot is a wide street and the other a narrow street, the street wall location rules shall be applied along the wide street frontage;	N/A	N/A
7	**Parking and Loading**			
	25-211	**Required Parking in the Inner Transit Zone** R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 In the districts indicated, within the Inner Transit Zone, no accessory off-street parking spaces shall be required for dwelling units or rooming units created after December 5, 2024.	Inside the Inner Transit Zone (and in the Manhattan Core/LIC areas): no off-street parking is required for new residences.	N/A

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ZONING ANALYSIS

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25-62	**Size and Location of Spaces** R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 In all districts, as indicated, for all accessory off-street parking spaces, open or enclosed, each 300 square feet of unobstructed standing or maneuvering area shall be considered one parking space. However, an area of less than 300 square feet, but in no event less than 200 square feet, may be considered as one space, where the layout and design of the parking area are adequate to permit convenient access and maneuvering in accordance with regulations promulgated by the Commissioner of Buildings, or where the developer or applicant for a building permit or certificate of occupancy certifies that such spaces will be fully attended. In no event shall the dimensions of any parking stall be less than 18 feet long and 8 feet, 6 inches wide.	12 spaces provided on ground floor 12 x 200 = 2,400 sf required 3,787 sf provided on ground floor Minimum size of space = 8'-6" x 18'-0" 0 spaces required 6 total spaces provided 1,098 total sf provided	Complies See A100 and A101 for analysis
36-521	**Size of Spaces** C1 **C2** C3 C4 C5 C6 C7 C8 In all districts, as indicated, for all accessory off-street parking spaces, open or enclosed, each 300 square feet of unobstructed standing or maneuvering area shall be considered one parking space. However, an area of less than 300 square feet, but in no event less than 200 square feet, may be considered as one space, where the layout and design of the parking area are adequate to permit convenient access and maneuvering in accordance with regulations promulgated by the Commissioner of Buildings, or where the developer or applicant for a building permit or certificate of occupancy certifies that such spaces will be fully attended. In no event shall the dimensions of any parking stall be less than 18 feet long and 8 feet, 6 inches wide.		
25-63	**Location of Access to the Street** R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 In all districts, as indicated, the entrances and exits for all permitted or required accessory group parking facilities with 10 or more spaces shall be located not less than 50 feet from the intersection of any two street lines. However, access located within 50 feet of such intersection may be permitted if the Commissioner of Buildings certifies that such a location is not hazardous to traffic safety and not likely to create traffic congestion. The Commissioner of Buildings may refer such matter to the Department of Transportation for a report and may base his determination on such report.	Providing (1) curb cuts in existing curb cut along Beverly Road at 16'-0" wide. Providing (1) curb cuts in existing curb cut along Coney Island Ave. at 20'-0" wide.	Complies See zoning diagram on Z013
25-631	**Location and width of curb cuts in certain districts** **R6** R7 R8 (e) In the districts indicated, except as provided for in paragraph (d) of this Section, only one curb cut, having a maximum width of 12 feet, including splays, shall be permitted on any street frontage of a zoning lot. However, where a curb cut accesses a group parking facility with 50 or more spaces, the maximum width of a curb cut shall be 22 feet, including splays, or alternatively, two curb cuts shall be permitted to access such group parking facility, each with a maximum width of 12 feet, including splays, and spaced at least 60 feet apart. For zoning lots subdivided after April 14, 2010, curb cuts shall only be permitted along the street frontage of such subdivided zoning lot where at least 34 feet of uninterrupted curb space is maintained, and shall comply with the width and spacing requirements of this paragraph, (e).		
36-57	**Parking Lot Maneuverability and Curb Cut Regulations** C1 **C2** C3 C4 C5 C6 C7 C8 (c) Curb cuts serving one travel lane shall have a maximum width of 12 feet, excluding splays, and curb cuts serving two travel lanes shall have a maximum width of 24 feet, excluding splays. For parking lots with more than 100 parking spaces, curb cuts of up to 30 feet, excluding splays, shall be permitted.		
36-62	**Required Accessory Off-street Loading Berths** C1 **C2** C3 C4 C5 C6 C7 C8 In all districts, as indicated, accessory off-street loading berths, open or enclosed, shall be provided in conformity with the requiremetns set forth in the table in this Section and under rules and regulations promulgated by the Commissioner of Buildings, for all developments and enlargements after December 15, 1961, for the uses listed in the table, except as otherwise provided in Section 36-63 (Special Provisions for a Single Zoning Lot With Uses Subject to Different Loading Requirements). Commercial Uses All retail or service uses listed in Use Group 6A, 6C, 7B, 8B, 9A, 10A, 12B, 14A or 16A C1 **C2** C3 C4-1 C4-2 C4-3 C7 C8-1 C8-2 (Mapped within R1 R2 R3 R4 R5 **R6**) First 8,000 sq. ft. - None required	No loading berth required	
36-70	**Bicycle Parking** C1 **C2** C3 C4 C5 C6 C7 C8 In all districts, as indicated, the provisions of this Section, inclusive, relating to bicycle parking spaces shall apply to: (a) developments Bicycle parking spaces shall be provided in accordance with the requirements set fort in this Section, inclusive, as a condition precedent to the use of such development, enlargement, conversion, group parking facility or open parking area. The number of accessory bicycle parking spaces provided pursuant to this Section, the total area, in square feet, of bicycle parking spaces and the total area, in square feet, excluded from the calculation of floor area for such spaces shall be noted on the certificate of occupancy.		
25-80	**Bicycle Parking** R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 In all districts, as indicated, the provisions of this Section, inclusive, relating to bicycle parking spaces shall apply to: (a) developments		
25-81, 25-811	**Required Bicycle Parking Spaces** **Enclosed Bicycle Parking Spaces** R1 R2 R3 R4 R5 **R6** R7 R8 R9 R10 In all districts, as indicated, enclosed accessory bicycle parking spaces shall be provided for at least that amount specified for the applicable use set forth in the table in this Section. For the purposes of calculating the number of required bicycle parking spaces, any fraction of a space 50 percent or greater shall be counted as an additional space. For residences, the accessory bicycle parking requirement shall be calculated separately for separate buildings or building segments. Where any building or zoning lot contains two or more uses having different bicycle parking requirements as set forth in the table, the bicycle parking requirements for each type of use shall apply to the extent of that use. Where an enclosed accessory group parking facility is provided, the required number of bicycle parking spaces for the use to which such facility is accessory shall be the amount set forth for such use in the table, or one for every 10 automobile parking spaces that are enclosed within a building or other structure or located on the roof of a building, whichever will require a greater number of bicycle parking spaces. Use Group 2 - 1 per 2 dwelling units	97 units proposed = 48.5~49 residential bike spaces required 49 residential bike spaces proposed 321 sf / 49 spaces = 6.69 sf per space No commercial bicycle parking spaces required	Complies
36-71, 36-711	**Required Bicycle Parking Spaces** **Enclosed Bicycle Parking Spaces** C1 **C2** C3 C4 C5 C6 C7 C8 In all districts, as indicated, enclosed accessory bicycle parking spaces shall be provided for at least that amount specified for the applicable use set forth in the table in this Section. For the purpose of calculating the number of required bicycle parking spaces, any fraction of a space 50 percent or greater shall be counted as an additional space. For general retail or service uses (6A): 1 per 10,000 square feet of floor area		

8	**Minimum Transparency Requirements**			
37-34	**Minimum Transparency Requirements** The ground floor level street wall along a primary street frontage or a designated retail street set forth in a Special Purpose District, as applicable, shall be glazed with transparent materials which may include show windows, transom windows or glazed portions of doors, except as set forth in Section 37-31 (Applicability). Such transparent materials shall occupy at least 50 percent of the surface area of such ground floor level street wall between a height of two feet and 12 feet, or the height of the ground floor ceiling, whichever is higher, as measured from the adjoining sidewalk. Transparent materials provided to satisfy such 50 percent requirement shall not begin higher than 2 feet, 6 inches, above the level of the adjoining sidewalk, with the exception of transom windows, or portions of windows separated by mullions or other structural dividers, and shall have a minimum width of two feet. The maximum width of a portion of the ground floor level street wall without transparency shall not exceed 10 feet. However, such transparency requirements shall not apply to portions of the ground floor level occupied by entrances or exits to accessory off-street parking facilities and public parking garages, where permitted, entryways to required loading berths, where permitted, entryways to subway stations, as applicable, or doors accessing emergency egress stairwells and passageways.	50% of required ground floor at Coney Island Avenue between 2' and 12' must be composed of transparent material. 51.61% is provided.	Complies See zoning diagram on Z013	

9	**Street Trees**			
26-41	**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. Such trees shall be planted at approximately equal intervals along the entire length of the curb of the street adjacent to the zoning lot .	98' - 3 1/2" @Hinckley Place 98' / 25 = 4 trees 230' - 7 1/2" @Coney Island Ave 231' / 25 = 9 trees 66' - 4 1/8" @Coney Island Ave 66' / 25 = 3 trees 0 Existing Trees to Protect 16 Proposed trees to be planted = 16 Trees total	Complies 395'-3 1/8" total frontage 395'-3" / 25 = 16 Trees Refer zoning diagrams on Z013 and refer to approved Forestry Application	
	Provisions of Section 26-42 (planting strips) shall not apply			

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
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	DOB SUBMISSION 7 COY	-

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ZONING ANALYSIS

DRAWING No.

Z002.00

10	**Deductions**			
	23-23	**Special Floor Area Provisions for Multiple Dwelling Residences** R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 In the districts indicated, for buildings containing multiple dwelling residences, floor space allocated to building amenities, 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. However, exempted floor space shall be considered floor area for the purposes of satisfying other ground floor level use regulations of this Resolution, including, but not limited to, limitations on floor area for certain uses, parking wrap and screening requirements, and requirements for floor area at the ground floor level. Such provisions may be applied to buildings developed after December 5, 2024, and to existing buildings where, after December 5, 2024, an enlargement, extension, conversion or other alteration results in newly created or altered floor space that conforms with such specific provisions of this Section, inclusive.	In accordance with ZR §23-23, the following spaces at the elevated ground floor level are exempt from floor area: Building amenities (as applicable); Corridors and access areas providing connection to dwelling units located above the elevated ground floor; Refuse storage and disposal areas serving the residential use; Access circulation required for entry to elevated dwelling units. Exempted areas have been calculated pursuant to ZR §12-10 (Definitions) and are excluded from total zoning floor area. Such exemptions are applied consistent with the effective date of December 5, 2024, as this development qualifies as post-enactment new construction.	See diagrams on Z100 - Z105 for compliance
	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 provides direct 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 vertical circulation core to the door of the furthest dwelling unit on the story, does not exceed 100 linear feet. For the purposes of this Section, a vertical circulation core shall refer to an elevator core (consisting of one or more elevators) or, in a non-elevator building, to a central stairwell.	Compliance Note — ZR §23-233 (Corridor Floor Area Exemption) Corridors comply with ZR §23-233, allowing up to 50% exemption each under paragraphs (a) and (b). Project utilizes both provisions in combination for a 100% floor area deduction of qualifying corridors. Exempted areas are calculated per ZR §12-10 and excluded from total zoning floor area.	See diagrams on Z100 - Z105 for compliance
	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.	Compliance Note — ZR §23-233 (Refuse Storage and Disposal) In accordance with ZR §23-233, floor space allocated to refuse storage and disposal is exempt from floor area in an amount not to exceed 3 square feet per dwelling unit. Exempted refuse areas are applied on all floors and excluded from total zoning floor area per ZR §12-10.	See diagrams on Z100 - Z105 for compliance
	23-234	**Elevated Ground Floor Units** For buildings with entryways at curb level that accommodate ramps, stairs or lifts to dwelling units that are elevated above curb level on the first story of the building, up to 100 square feet of such entryways may be exempted from the definition of floor area for each foot of difference between the floor level of such dwelling units and curb level. However, no more than a maximum of 500 square feet of floor space may be exempted from the definition of floor area for each building.	Compliance Note — ZR §23-234 (Elevated Ground Floor Units) In accordance with ZR §23-234, the building's elevated ground floor (5'-0" above curb level) qualifies for a floor area exemption of up to 100 square feet per foot of elevation, not to exceed 500 square feet total per building. Exempted entryway floor space is calculated per ZR §12-10 and excluded from total zoning floor area.	See diagrams on Z100 - Z105 for compliance
	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, amenity 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.	Compliance Note — ZR §23-231 (Residential Amenities) Pursuant to ZR §23-231, floor space allocated to residential amenities is exempt from floor area up to 5% of the building's total residential floor area. Qualifying amenities include recreation, co-working, library, storage, package, laundry, or pet facilities accessible to residents. Circulation areas, including corridors and vertical cores, are not eligible for this exemption.	See diagrams on Z100 - Z105 for compliance
	23-63	**Required Recreation Space in Multiple Dwelling Residences** 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 amenities) are met. Additionally, such recreation space shall comply with the following standards: all recreation space shall be accessible to the residents of the building; the minimum dimension of any recreation space, in any direction, whether indoor or outdoor, shall be 15 feet; any outdoor recreation space shall be open to the sky, except that: 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 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 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.	70,440.00 zsf residential proposed 0.033 x 70,440 = 2,113.2 sf required x sf rec space total provided on Cellar floor	Complies See diagrams on Z100 - Z105 for compliance
11	**Permitted Obstructions**			
	23-312	**Additional permitted obstructions generally permitted in all yards** R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 In R6 through R10 Districts without a letter suffix, the obstructions permitted for any yard set forth in paragraph (a) of Section 23-311 (Permitted obstructions in all yards, courts and open areas), as well as the following obstructions, shall be permitted in any open space required on a zoning lot. For the purposes of applying such allowances to open space, all percentage calculations shall be applied to the area of the open space instead of the yard: (a) balconies, unenclosed, subject to the provisions of Section 23-62;	See Z012.00 for Balcony locations and Dimension	Complies

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

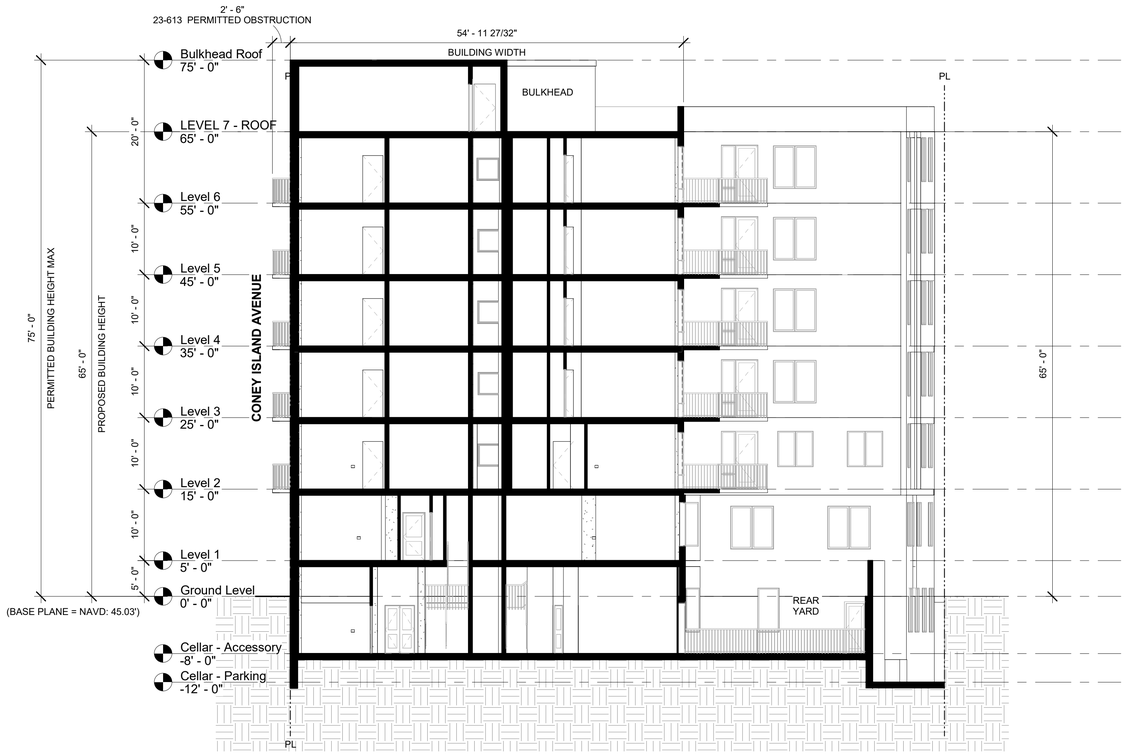
DRAWN BY:	CHECKED BY:
CW	DMC

DRAWING TITLE:

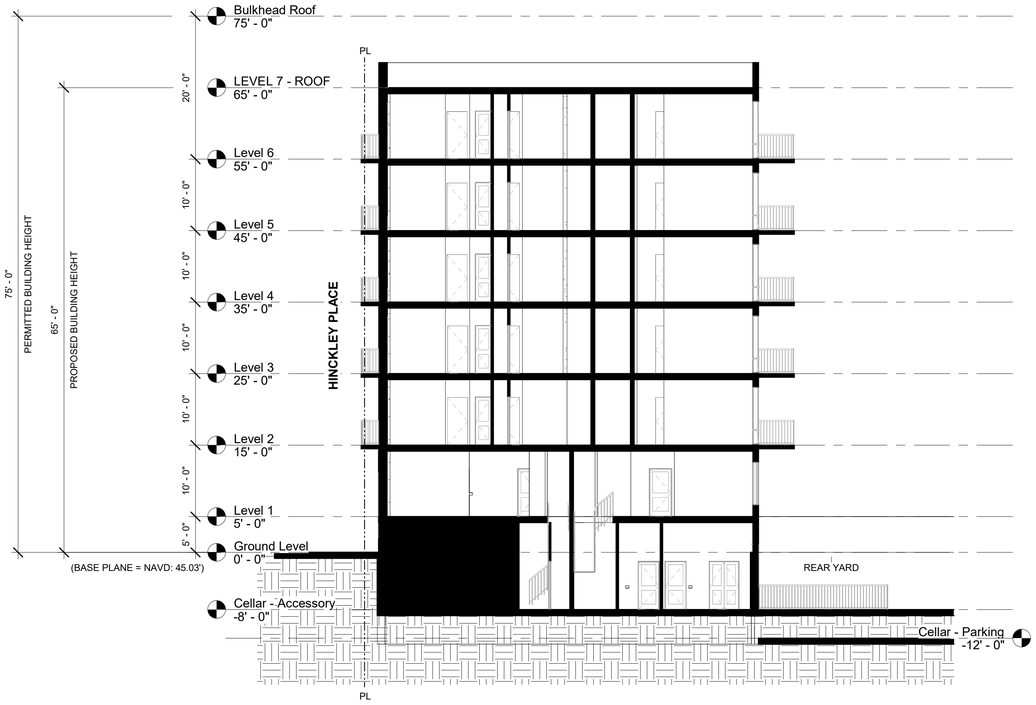
ZONING ANALYSIS

DRAWING No.

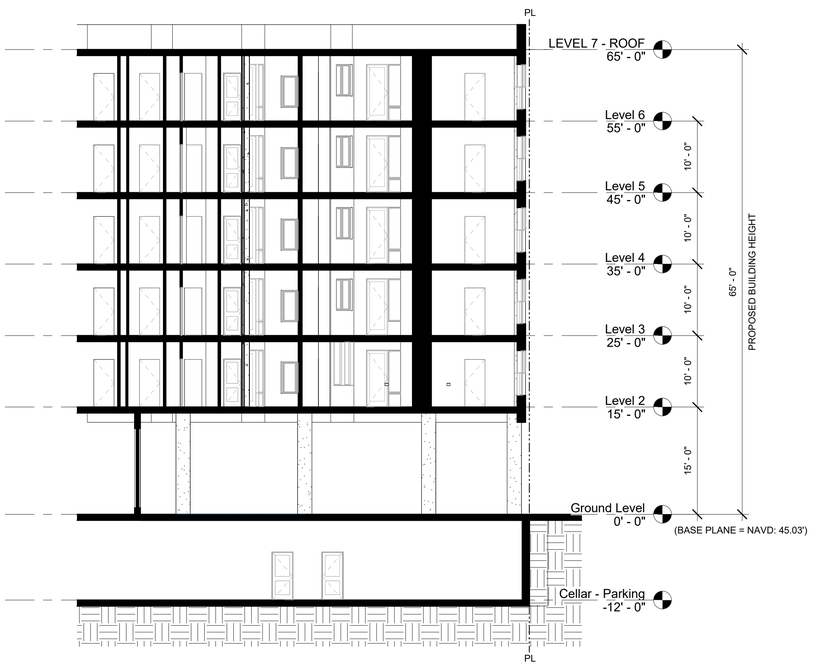
Z003.00



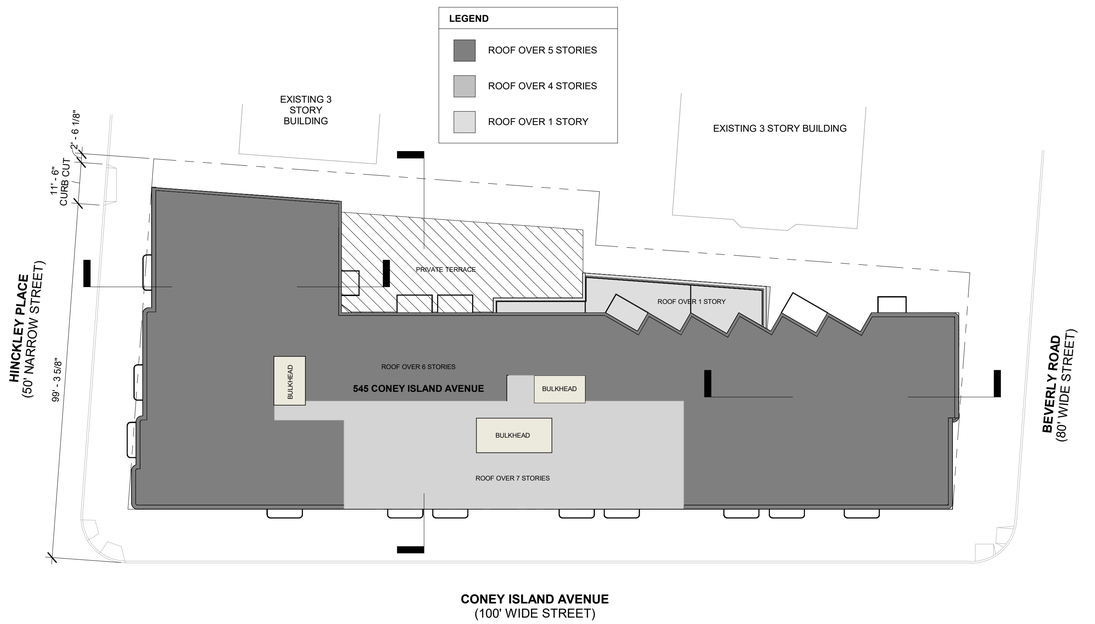
1 ZONING SECTION DIAGRAM - CONEY ISLAND AVE
1" = 10'-0"



2 ZONING SECTION DIAGRAM - HINCKLEY PLACE
1" = 10'-0"



3 ZONING SECTION DIAGRAM - BEVERLY ROAD
1" = 10'-0"



4 PLOT PLAN - CONEY ISLAND
1" = 20'-0"

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CONEY ISLAND AVENUE

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ZONING DIAGRAMS - ENVELOPE SECTION & PLOT PLAN

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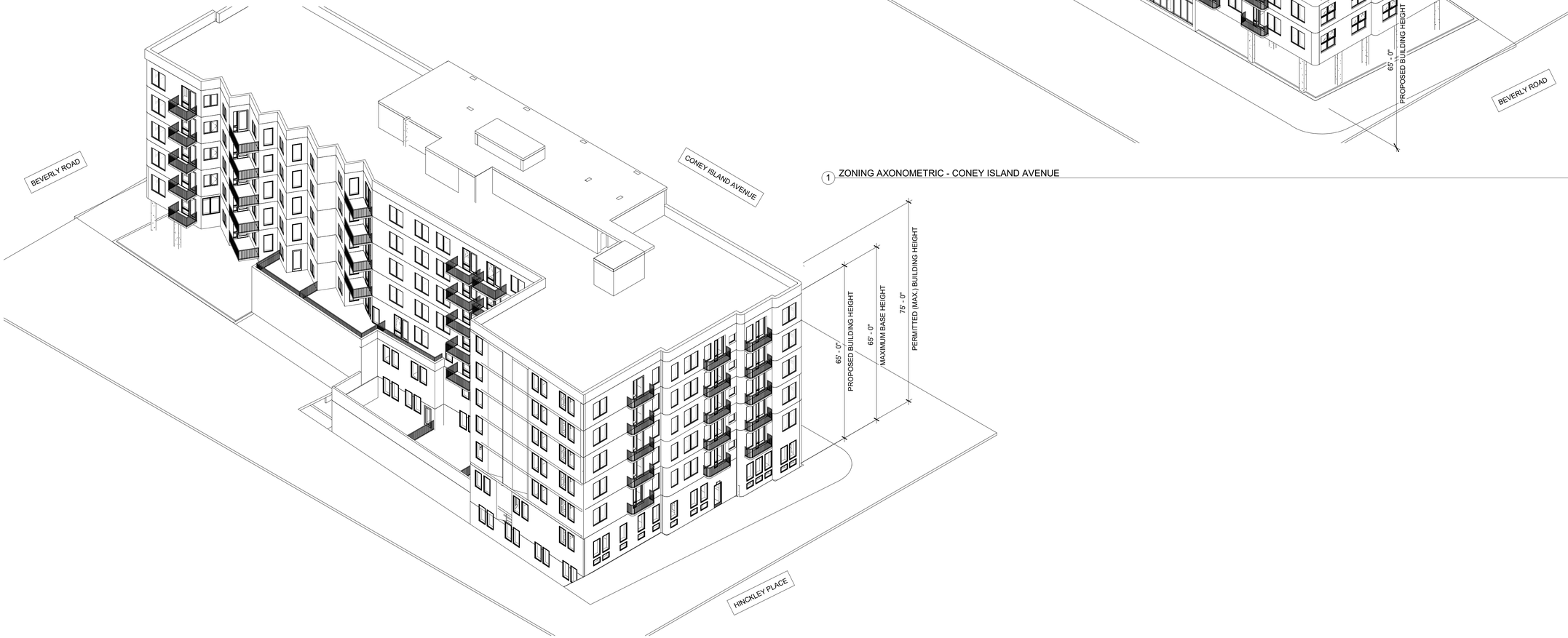

1 ZONING AXONOMETRIC - CONEY ISLAND AVENUE

2 ZONING AXONOMETRIC - HINCKLEY PLACE

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ZONING DIAGRAMS - ENVELOPE 3D AXON

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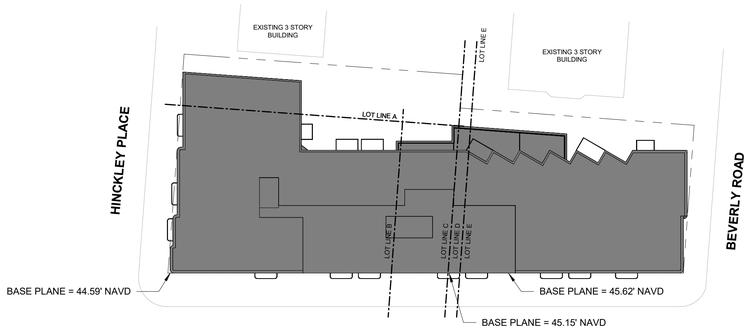
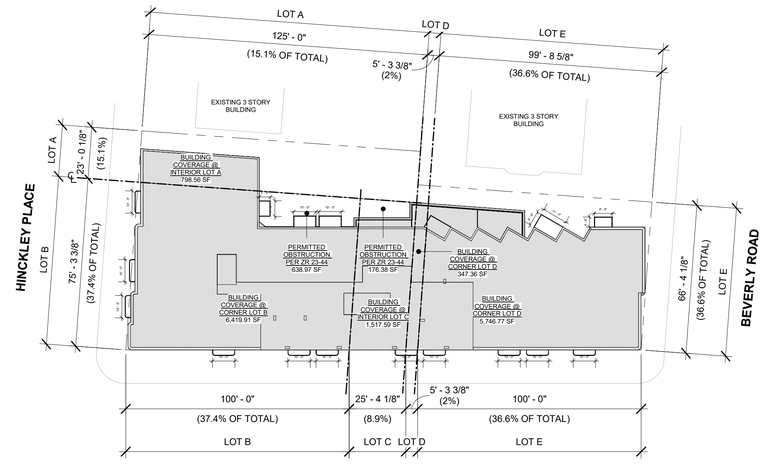


CONEY ISLAND AVENUE

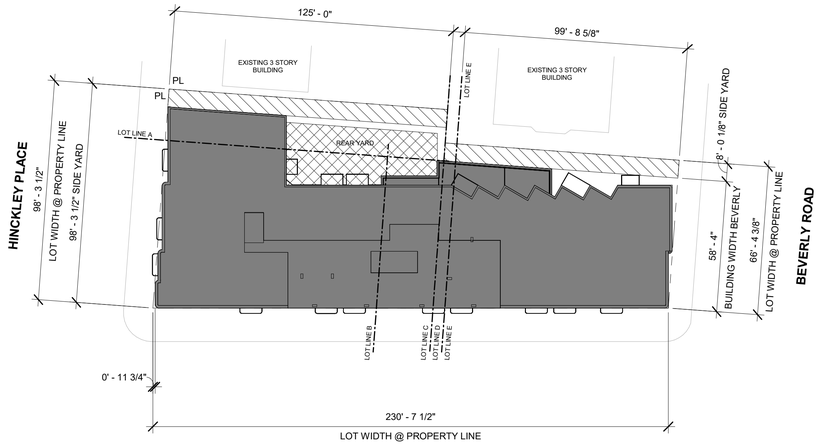
BASE PLANE CALCULATIONS AS PER ZR 12-10					
LOT PORTION	**BUILDING COVERAGE IN SQ. FT.**	**NAVD**	**% OF COVERAGE**	**WEIGHTED NAVD ELEVATION**	**PROPOSED BASE PLANE 45.06'... COMPLIES**
INTERIOR LOT A & CORNER LOT B	7,218.47 SF	44.59	48.67%	23.41	
INTERIOR LOT C & INTERIOR LOT D	1,864.95 SF	45.15	12.57%	4.92	
CORNER LOT E	5,746.77 SF	45.62	38.76%	16.70	
TOTAL	14,830.19 SF		**100%**	**45.06**	

BASE PLANE CALCULATION NOTES
AS PER ZR 12-10, BASE PLANE* DEFINITION (c) *FOR BUILDINGS LOCATED PARTIALLY WITHIN AND PARTIALLY BEYOND 100 FEET OF A STREET LINE, OR WHERE CORNER LOT OR THROUGH LOT REGULATIONS SUBJECT DIFFERENT PORTIONS OF A BUILDING TO BASE PLANES OF DIFFERENT ELEVATIONS, (...) OR, AS AN OPTION, THE ELEVATION OF EACH SUCH BASE PLANE MAY BE MULTIPLIED BY THE PERCENTAGE OF THE TOTAL LOT COVERAGE OF THE BUILDING TO WHICH SUCH BASE PLANE APPLIES. THE SUM OF THE PRODUCTS THUS OBTAINED MAY BE THE ELEVATION OF THE ADJUSTED BASE PLANE APPLICABLE TO SUCH BUILDINGS.

1 BASE PLANE CALCULATION DIAGRAM
1/32" = 1'-0"



CONEY ISLAND AVENUE



CONEY ISLAND AVENUE

SIDE YARD EQUIVALENT SCHEDULE PER ZR 23-51			
LINE OF MEASUREMENT	**LOT DEPTH**	**MINIMUM SIDE YARD**	**PROPOSED SIDE YARD**
LOT LINE A	125'-0"	8'-0"	8'-0"
LOT LINE E	99'-8 5/8"	8'-0"	8'-0"

2 REQUIRED SIDE YARD & SIDE YARD EQUIVALENTS
1/32" = 1'-0"

LOT COVERAGE PORTIONS & BUILDING BREAK DOWN		
LOT PORTION	**BUILDING COVERAGE IN SQ. FT.**	**PROPOSED LOT COVERAGE 14,830.19 SF / 19,084.52 SF = 77.71%**
INTERIOR LOT A	798.56 SF	
CORNER LOT B	6,419.91 SF	
INTERIOR LOT C	1,517.59 SF	
INTERIOR LOT D	347.36 SF	
CORNER LOT E	5,746.77 SF	
TOTAL	**14,830.19 SF**	
LOT PORTION	**LOT TOTAL AREA IN SQ. FT.**	
INTERIOR LOT A	2,875.13 SF	
CORNER LOT B	7,142.78 SF	
INTERIOR LOT C	1,693.96 SF	
INTERIOR LOT D	389.53 SF	
CORNER LOT E	6,983.12 SF	
TOTAL	**19,084.52 SF**	

LOT COVERAGE PERCENTAGE COMPLIANCE					
LOT PORTION	**LOT TOTAL AREA IN SQ.FT.**	**FRACTIONAL % OF ZONING LOT TOTAL**	**PERM LOT COVERAGE FOR ZONING LOT PROPORTION**	**WEIGHTED AVERAGE LOT COVERAGE**	**PROPOSED LOT COVERAGE 14,830.19 SF / 19,084.52 SF = 77.71% < 96.20%**
INTERIOR LOT A	2,875.13 SF	15.1%	100%*	0.151	
CORNER LOT B	7,142.78 SF	37.4%	100%	0.374	
INTERIOR LOT C	1,693.96 SF	8.9%	65%	0.058	
INTERIOR LOT D	389.53 SF	2.0%	65%	0.013	
CORNER LOT E	6,983.12 SF	36.6%	100%	0.366	
TOTAL	**19,084.52 SF**	**100%**		0.962	

18,359.31 SF MAX ALLOWED

* 100% ALLOWABLE PER ZR 23-362 (a)

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

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

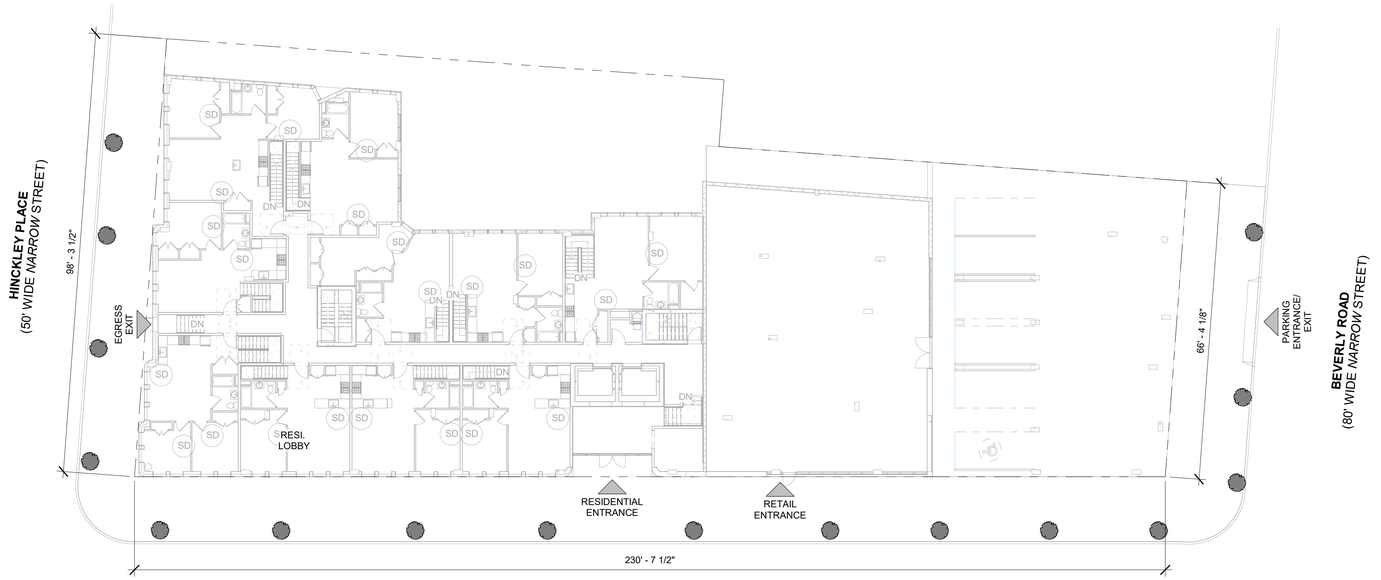
ZONING DIAGRAMS - LOT COVERAGE & BASE PLANE

DRAWING No.

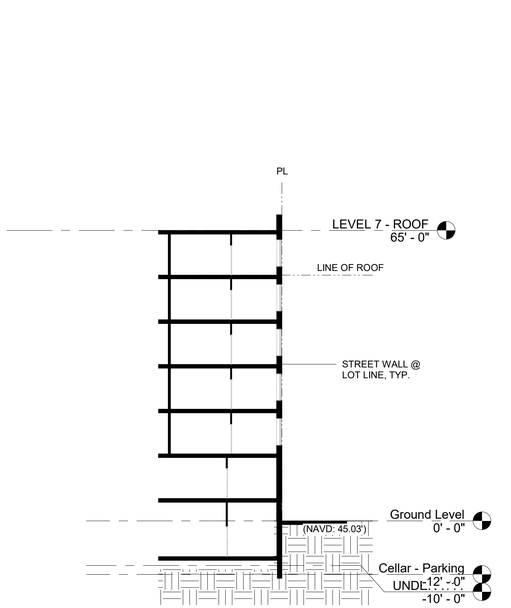
Z012.00

STREET TREES TABLE		
PROPERTY FRONTAGE	395' - 3 1/8" TOTAL	98' - 3 1/2" @ HINCKLEY 230' - 7 1/2" @ CONEY ISLAND 66' - 4 1/8" @ BEVERLY
NO. OF REQUIRED TREES	395' - 3 1/8" / 25 = 16	98' - 3 1/2" / 25 = 4 230' - 7 1/2" / 25 = 9 66' - 4 1/8" / 25 = 3
EXISTING TREES TO PROTECT	0*	
PROPOSED TREES TO BE PLANTED	16 TOTAL	4 @ HINCKLEY 9 @ CONEY ISLAND 3 @ BEVERLY
TREES TO PAY INTO TREE FUND	0	
NO. OF PORPOSED TREES	16	4 @ HINCKLEY 9 @ CONEY ISLAND 3 @ BEVERLY

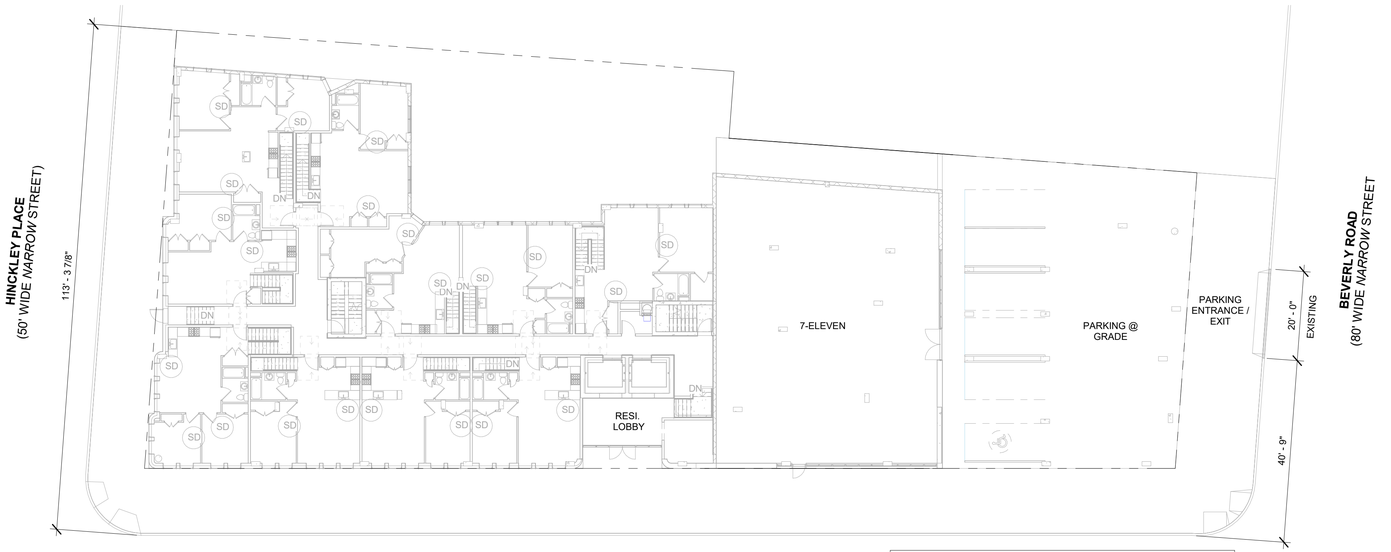
*THERE ARE NO EXISTING TREES AT SIDEWALK



2 STREET TREE COMPLIANCE
1/16" = 1'-0"

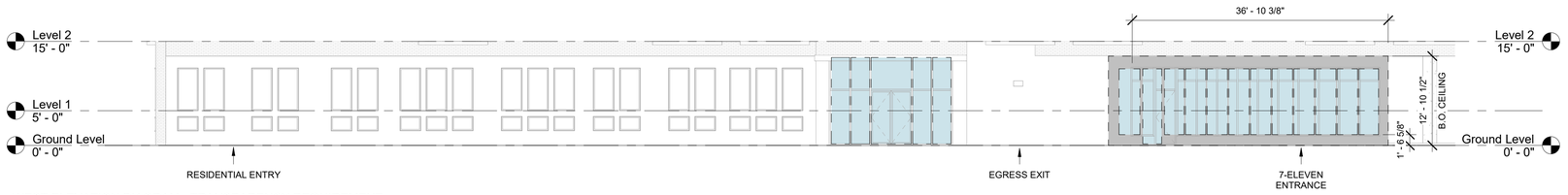


3 STREET WALL ARTICULATION
1/16" = 1'-0"



TOTAL PARKING ENTRANCE & EXIT WIDTHS ON BEVERLY ROAD:
20'-0" < 30'-0" PER BC 406.10.1.1 COMPLIES

1 MAXIMUM WIDTH OF DIFFERENT USES
1/16" = 1'-0"



GROUND FLOOR STREET WALL TRANSPARENCY

TOTAL WALL AREA = 518.96 SF
GLAZING AREA = 332.63 SF
PERCENTAGE = 60.23%

4 WEST ELEVATION DIAGRAM - TRANSPARENCY REQUIREMENT
1" = 10'-0"

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BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC

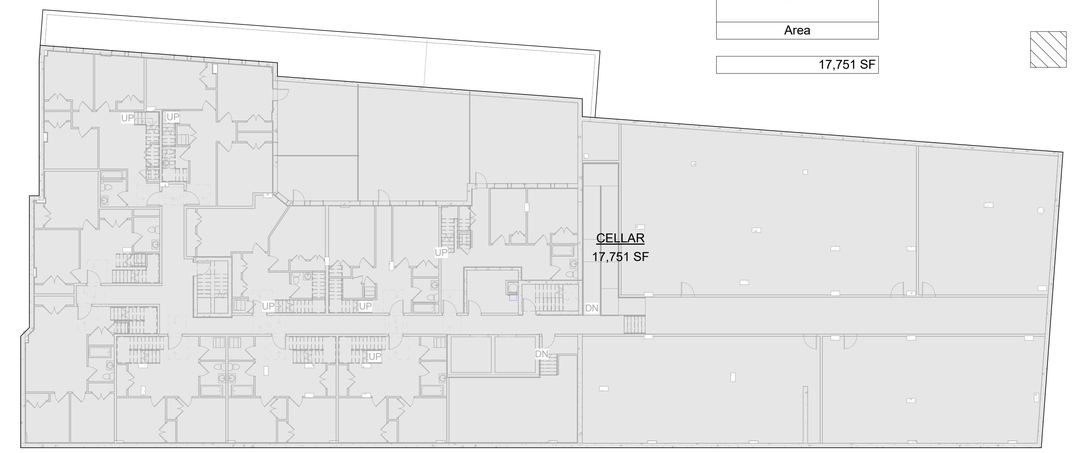
DRAWING TITLE:

ZONING DIAGRAMS - STREET TREE, STREET WALL & GLAZING

DRAWING No.

Z013.00

DOB - GROSS - CELLAR
Area
17,751 SF



1 Cellar
1/16" = 1'-0"

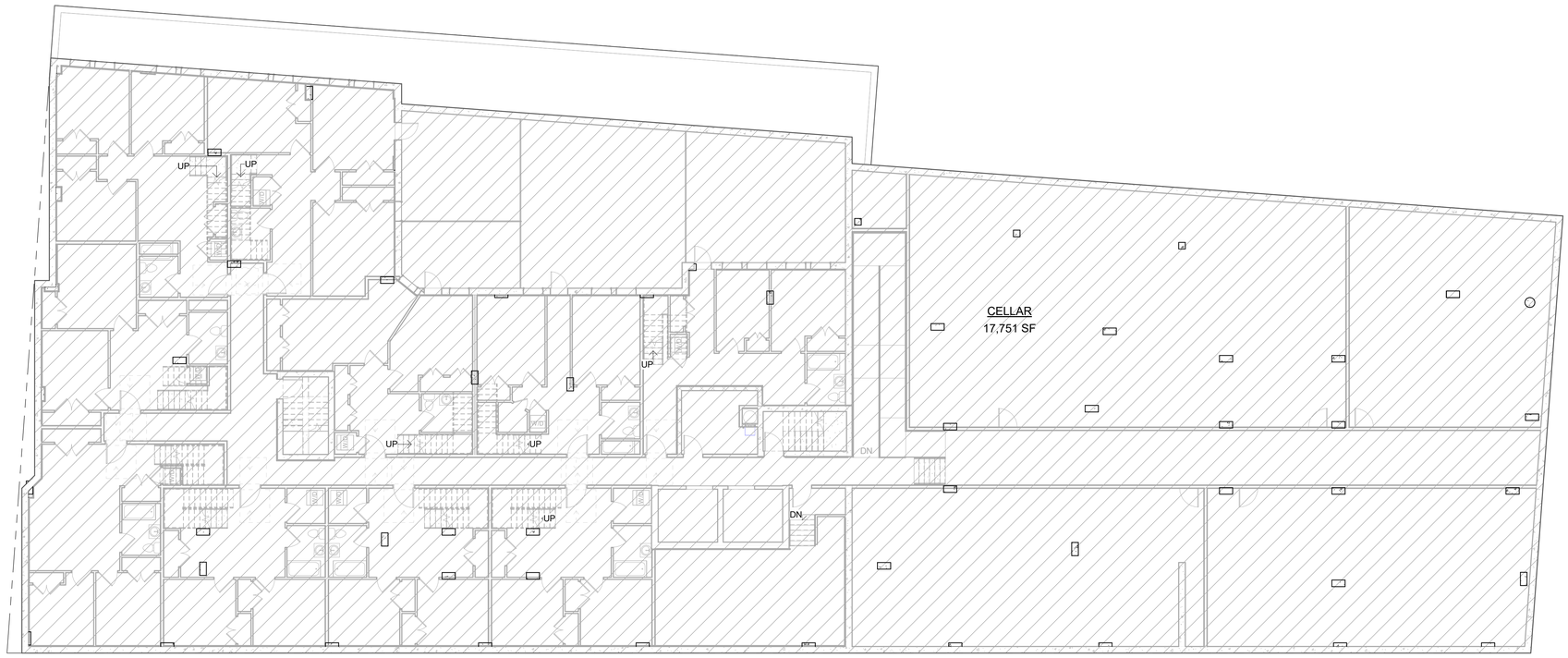
ZONING DEDUCTIONS LEGEND

CELLAR

ZONING AREA SUMMARY								
	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
CELLAR	17,751 SF	17,751 SF	0 ZSF	0 SF	0 SF	0 SF	17,753 SF	0 ZSF
GROUND FLOOR	8,625 SF	1,793 SF	6,832 ZSF	3,274 SF	0 SF	3,274 ZSF	11,899 SF	10,106 ZSF
2ND FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
3RD FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
7TH FLOOR	3,151 SF	1847 SF	1,305 ZSF	0 SF	0 SF	0 ZSF	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274 SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

NOTE:
"Non-habitable cellar space accessory to dwelling units above.
No living, No sleeping and no cooking in the accessory cellar space".

DOB - DEDUCTIONS - CELLAR	
Number	Deduction
CELLAR SPACE	
1	17,751 SF
TOTAL	17,751 SF



2 Cellar
1" = 10'-0"

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NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

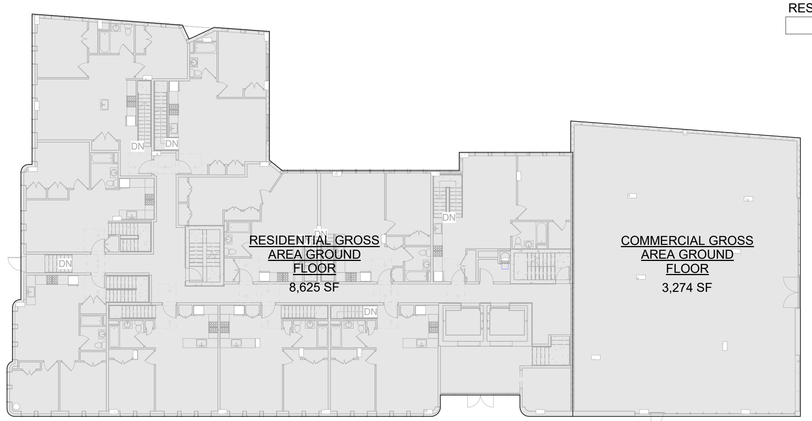
DRAWN BY: OW
CHECKED BY: DMC
DRAWING TITLE:

Z.F.A. CALCULATIONS - CELLAR

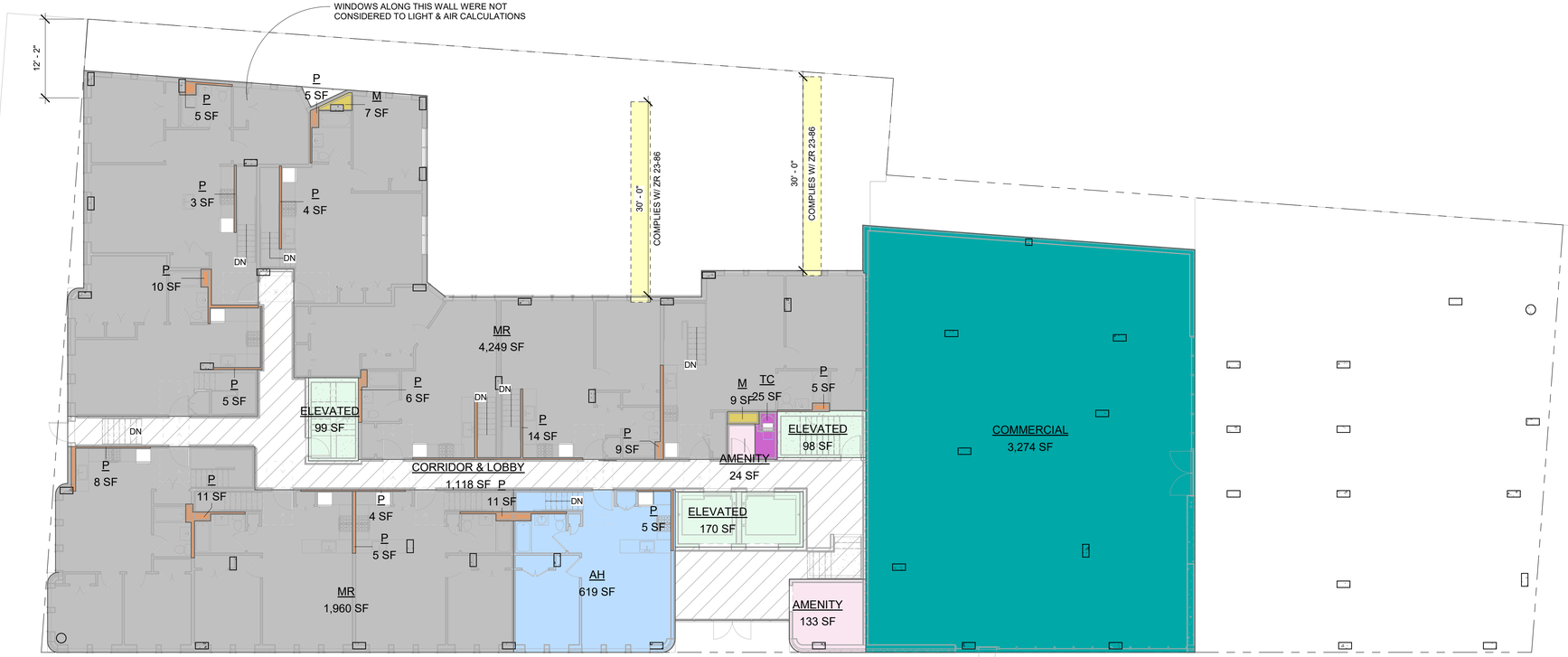
DRAWING No.

Z100.00

DOB - GROSS - GROUND FLOOR
Area
COMMERCIAL
3,274 SF
3,274 SF
RESIDENTIAL
8,625 SF
8,625 SF



1 GROSS FA GROUND FLOOR
1/16" = 1'-0"



2 Level 1
1" = 10'-0"

ZONING DEDUCTIONS LEGEND

- CORRIDOR - ELEVATED GROUND LEVEL DEDUCTION
- CORRIDOR
- MECHANICAL
- PLUMBING
- TRASH CHUTE
- TRASH ROOM
- COMMERCIAL FLOOR AREA
- AMENITY

FLOOR AREA

- MR RESIDENTIAL FLOOR AREA
- AH RESIDENTIAL FLOOR AREA

ZONING AREA SUMMARY

	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
CELLAR	17,751 SF	17,751 SF	0 ZSF	0 SF	0 SF	0 SF	17,753 SF	0 ZSF
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2ND FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
3RD FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
7TH FLOOR	3,151 SF	1847 SF	1,305 ZSF	0 SF	0 SF	0 ZSF	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274 SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

DOB - DEDUCTIONS - GROUND FLOOR	
Name	Deduction
Area Deduction	
AMENITIES	
AMENITY	133 SF
AMENITY	24 SF
CORRIDOR - DENSITY & LIGHT (100%)	
CORRIDOR & LOBBY	1,118 SF
ELEVATED DEDUCTION	
ELEVATED	170 SF
ELEVATED	98 SF
ELEVATED	99 SF
MECHANICAL SHAFT	
M	9 SF
M	7 SF
PLUMBING	
P	5 SF

DOB - DEDUCTIONS - GROUND FLOOR	
Name	Deduction
P	11 SF
P	9 SF
P	5 SF
P	4 SF
P	14 SF
P	5 SF
P	4 SF
P	5 SF
P	5 SF
P	3 SF
P	10 SF
P	5 SF
P	11 SF
P	8 SF
P	6 SF
TRASH CHUTE	
TC	25 SF
	1,793 SF

DOB - FLOOR AREA - GROUND FLOOR		
Name	Deduction	Comments
COMMERCIAL FLOOR AREA		
COMMERCIAL	3,274 SF	FLOOR AREA
RESIDENTIAL AH		
AH	619 SF	FLOOR AREA
RESIDENTIAL MR		
MR	1,960 SF	FLOOR AREA
MR	4,249 SF	FLOOR AREA
TOTAL	10,102 SF	

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: OW
CHECKED BY: DMC
DRAWING TITLE:

Z.F.A. CALCULATIONS - GROUND FLOOR

DRAWING No.
Z101.00

2 GROSS FA - 2ND FLOOR
1/16" = 1'-0"

DOB - GROSS - 2ND - 4TH FLOOR
Area
14,113 SF

ZONING AREA SUMMARY

	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
CELLAR	17,751 SF	17,751 SF	0 ZSF	0 SF	0 SF	0 SF	17,753 SF	0 ZSF
GROUND FLOOR	8,625 SF	1,793 SF	6,832 ZSF	3,274 SF	0 SF	3,274 ZSF	11,899 SF	10,106 ZSF
2ND FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
3RD FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
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6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
7TH FLOOR	3,151 SF	1847 SF	1,305 ZSF	0 SF	0 SF	0 ZSF	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274 SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

DOB - DEDUCTIONS - 2ND FLOOR		
Name	Deduction	Comments
AMENITIES		
AMENITY	24 SF	Area Deduction
CORRIDOR - DENSITY & LIGHT (100%)		
CORRIDOR	1,124 SF	Area Deduction
MECHANICAL SHAFT		
M	9 SF	Area Deduction
M	3 SF	Area Deduction
M	7 SF	Area Deduction
M	2 SF	Area Deduction
PLUMBING		
P	12 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	12 SF	Area Deduction
P	9 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	1 SF	Area Deduction
P	6 SF	Area Deduction

DOB - DEDUCTIONS - 2ND FLOOR		
Name	Deduction	Comments
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	10 SF	Area Deduction
P	1 SF	Area Deduction
P	15 SF	Area Deduction
P	1 SF	Area Deduction
P	5 SF	Area Deduction
P	10 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	9 SF	Area Deduction
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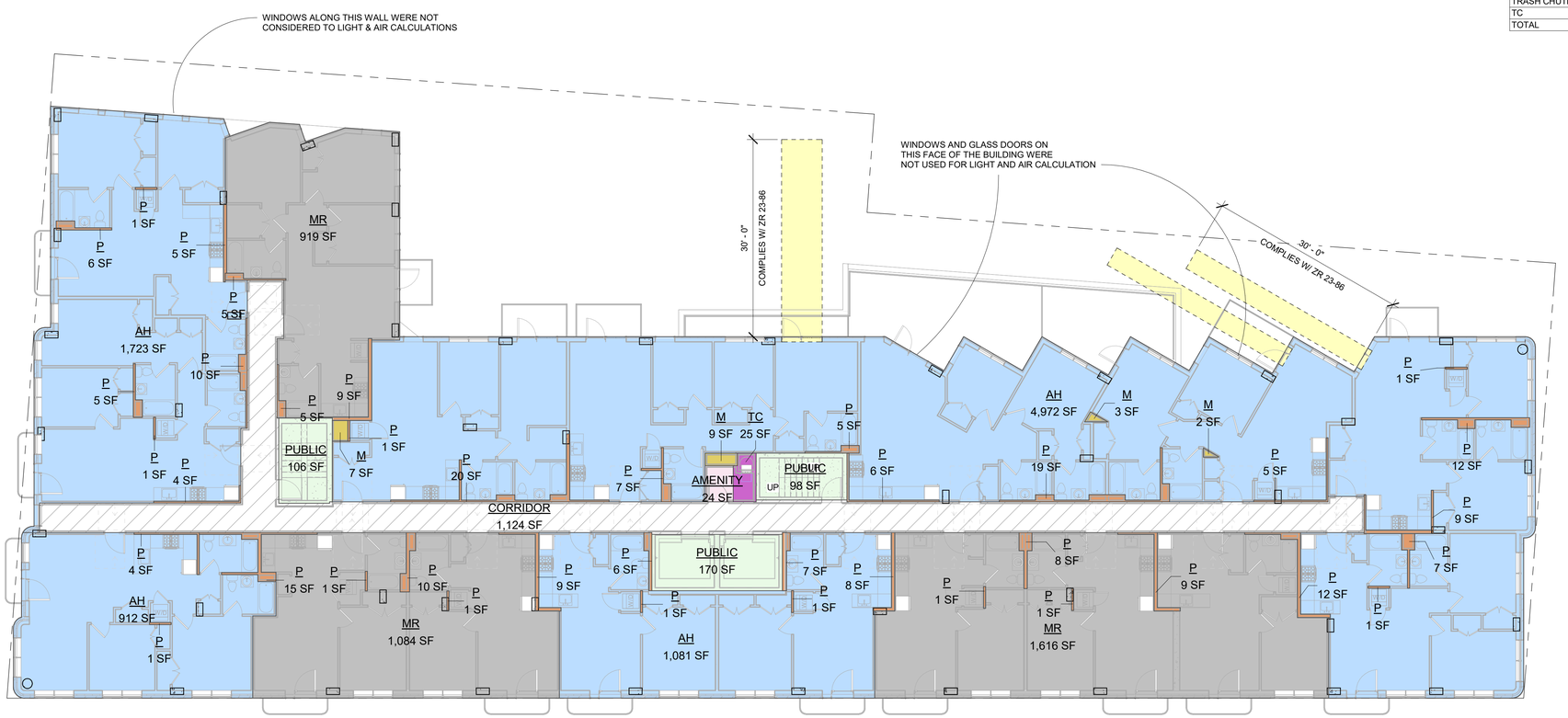
P	5 SF	Area Deduction
P	6 SF	Area Deduction
P	19 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	4 SF	Area Deduction
P	4 SF	Area Deduction
P	6 SF	Area Deduction
P	1 SF	Area Deduction
P	1 SF	Area Deduction
TRASH CHUTE		
TC	25 SF	Area Deduction
TOTAL	1,432 SF	

DOB - FLOOR AREA - 2ND FLOOR		
Name	Deduction	Comments
PUBLIC		
PUBLIC	106 SF	FLOOR AREA
PUBLIC	98 SF	FLOOR AREA
PUBLIC	170 SF	FLOOR AREA
RESIDENTIAL AH		
AH	1,081 SF	FLOOR AREA
AH	912 SF	FLOOR AREA
AH	1,723 SF	FLOOR AREA
AH	4,972 SF	FLOOR AREA
RESIDENTIAL MR		
MR	1,616 SF	FLOOR AREA
MR	1,084 SF	FLOOR AREA
MR	919 SF	FLOOR AREA
TOTAL	12,681 SF	



1 2ND FLOOR DEDUCTIONS
1" = 10'-0"

ZONING DEDUCTIONS LEGEND

- CORRIDOR - CORRIDOR TERMINATION (50%) & LENGTH OF CORRIDOR (50%)
- PLUMBING
- TRASH CHUTE
- TRASH ROOM
- MECHANICAL
- AMENITY

FLOOR AREA

- MR RESIDENTIAL FLOOR AREA
- AH RESIDENTIAL FLOOR AREA
- PUBLIC RESIDENTIAL FLOOR AREA

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CONTACT
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GEOTECHICAL:
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14 PENN PLAZA - 225 WEST 34TH STREET
NEW YORK, NY 10122

t: (917) 339-9300
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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

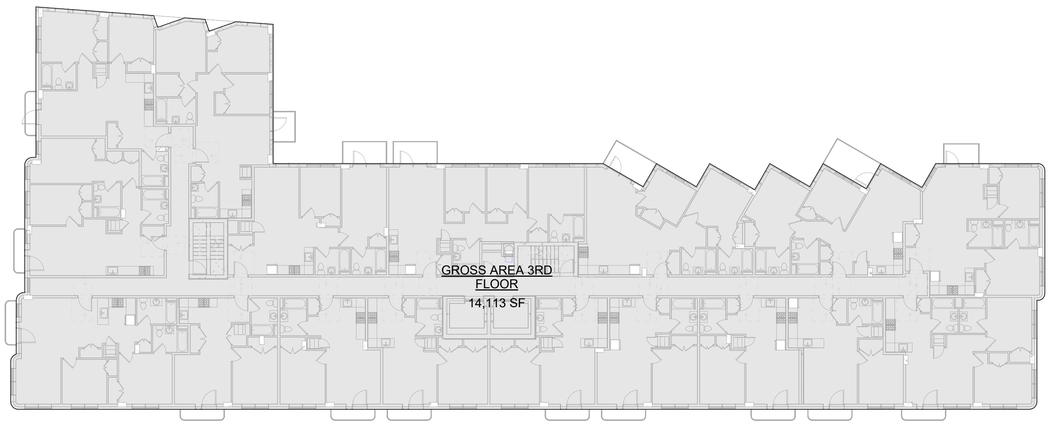
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

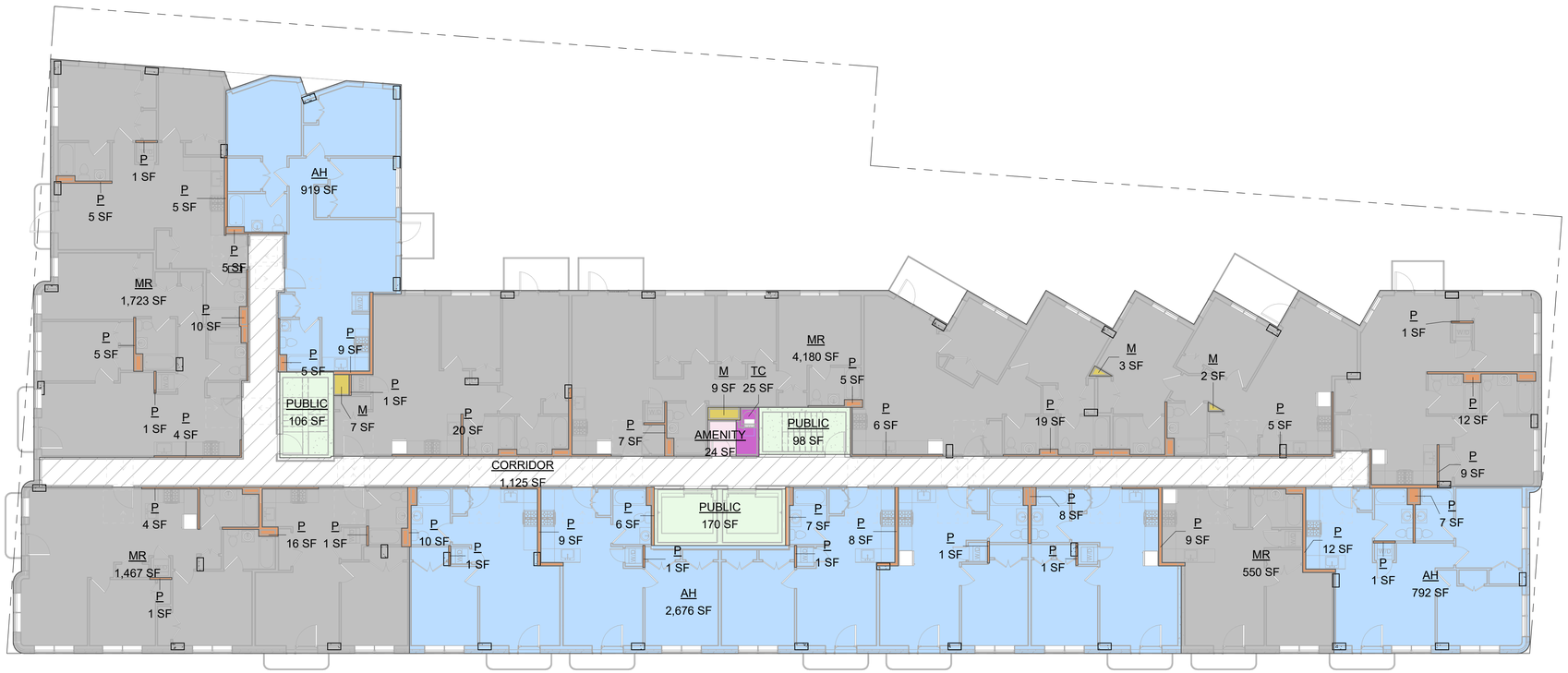
Z.F.A. CALCULATIONS - 2ND FLOOR

DRAWING No.
Z102.00

DOB - GROSS - 2ND - 4TH FLOOR
Area
14,113 SF



2 GROSS FA - 3RD FLOOR
1/16" = 1'-0"



1 3RD FLOOR DEDUCTIONS
1" = 10'-0"

ZONING AREA SUMMARY

	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
CELLAR	17,751 SF	17,751 SF	0 ZSF	0 SF	0 SF	0 SF	17,753 SF	0 ZSF
GROUND FLOOR	8,625 SF	1,793 SF	6,832 ZSF	3,274 SF	0 SF	3,274 ZSF	11,899 SF	10,106 ZSF
2ND FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
3RD FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
7TH FLOOR	3,151 SF	1847 SF	1,305 ZSF	0 SF	0 SF	0 ZSF	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274 SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

DOB - DEDUCTIONS - 3RD FLOOR		
Name	Deduction	Comments
AMENITIES		
AMENITY	24 SF	Area Deduction
CORRIDOR - DENSITY & LIGHT (100%)		
CORRIDOR	1,125 SF	Area Deduction
MECHANICAL SHAFT		
M	9 SF	Area Deduction
M	3 SF	Area Deduction
M	7 SF	Area Deduction
M	2 SF	Area Deduction
PLUMBING		
P	12 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	12 SF	Area Deduction
P	9 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	1 SF	Area Deduction
P	6 SF	Area Deduction

DOB - DEDUCTIONS - 3RD FLOOR		
Name	Deduction	Comments
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	10 SF	Area Deduction
P	1 SF	Area Deduction
P	16 SF	Area Deduction
P	1 SF	Area Deduction
P	5 SF	Area Deduction
P	10 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	20 SF	Area Deduction
P	7 SF	Area Deduction
P	5 SF	Area Deduction
P	6 SF	Area Deduction
P	19 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	4 SF	Area Deduction
P	4 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	1 SF	Area Deduction
TRASH CHUTE		
TC	25 SF	Area Deduction
TOTAL	1,432 SF	

DOB - FLOOR AREA- 3RD FLOOR		
Name	Deduction	Comments
PUBLIC		
PUBLIC	106 SF	FLOOR AREA
PUBLIC	98 SF	FLOOR AREA
PUBLIC	170 SF	FLOOR AREA
RESIDENTIAL AH		
AH	2,676 SF	FLOOR AREA
AH	919 SF	FLOOR AREA
AH	792 SF	FLOOR AREA
RESIDENTIAL MR		
MR	550 SF	FLOOR AREA
MR	1,467 SF	FLOOR AREA
MR	1,723 SF	FLOOR AREA
MR	4,180 SF	FLOOR AREA
TOTAL	12,682 SF	

ZONING DEDUCTIONS LEGEND

- CORRIDOR - CORRIDOR TERMINATION (50%) & LENGTH OF CORRIDOR (50%)
- PLUMBING
- TRASH CHUTE
- TRASH ROOM
- MECHANICAL
- AMENITY

FLOOR AREA

- MR RESIDENTIAL FLOOR AREA
- AH RESIDENTIAL FLOOR AREA
- PUBLIC RESIDENTIAL FLOOR AREA

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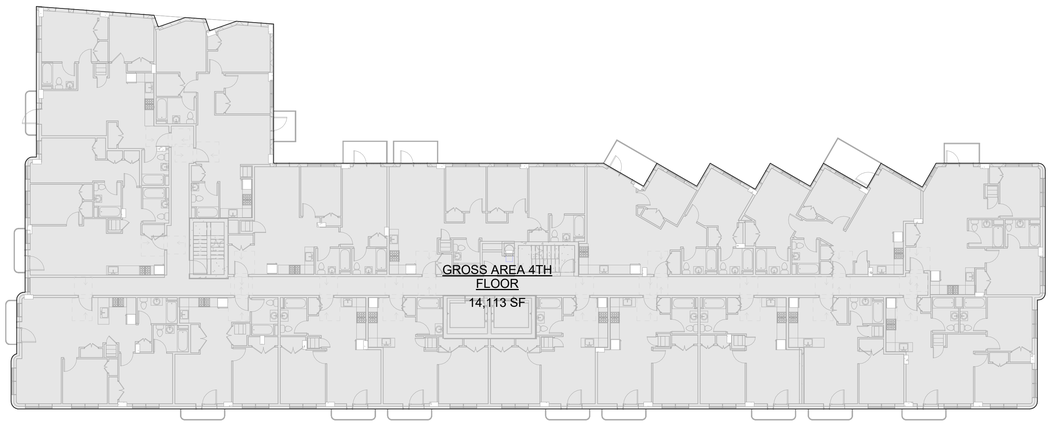
DRAWING TITLE:

Z.F.A. CALCULATIONS - 3RD FLOOR

DRAWING No.

Z102.01

DOB - GROSS - 2ND - 4TH FLOOR
Area
14,113 SF



2 GROSS FA - 4TH FLOOR
1/16" = 1'-0"

1 4TH FLOOR DEDUCTIONS
1" = 10'-0"

ZONING DEDUCTIONS LEGEND

- CORRIDOR - CORRIDOR TERMINATION (50%) & LENGTH OF CORRIDOR (50%)
- PLUMBING
- TRASH CHUTE
- TRASH ROOM
- MECHANICAL
- AMENITY

FLOOR AREA

- MR RESIDENTIAL FLOOR AREA
- AH RESIDENTIAL FLOOR AREA
- PUBLIC RESIDENTIAL FLOOR AREA

ZONING AREA SUMMARY

	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
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4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
7TH FLOOR	3,151 SF	1847 SF	1,305 ZSF	0 SF	0 SF	0 ZSF	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274 SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

DOB - DEDUCTIONS - 4TH FLOOR

Name	Deduction	Comments
AMENITIES		
AMENITY	24 SF	Area Deduction
CORRIDOR - DENSITY & LIGHT (100%)		
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MECHANICAL SHAFT		
M	9 SF	Area Deduction
M	3 SF	Area Deduction
M	7 SF	Area Deduction
M	2 SF	Area Deduction
PLUMBING		
P	12 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	12 SF	Area Deduction
P	9 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	1 SF	Area Deduction
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DOB - DEDUCTIONS - 4TH FLOOR

Name	Deduction	Comments
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	10 SF	Area Deduction
P	1 SF	Area Deduction
P	16 SF	Area Deduction
P	1 SF	Area Deduction
P	5 SF	Area Deduction
P	10 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	20 SF	Area Deduction
P	7 SF	Area Deduction
P	5 SF	Area Deduction
P	6 SF	Area Deduction
P	19 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	4 SF	Area Deduction
P	4 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	1 SF	Area Deduction
TRASH CHUTE		
TC	25 SF	Area Deduction
TOTAL	1,432 SF	

DOB - FLOOR AREA- 4TH FLOOR

Name	Deduction	Comments
PUBLIC		
PUBLIC	106 SF	FLOOR AREA
PUBLIC	98 SF	FLOOR AREA
PUBLIC	170 SF	FLOOR AREA
RESIDENTIAL AH		
AH	545 SF	FLOOR AREA
AH	912 SF	FLOOR AREA
RESIDENTIAL MR		
MR	9,767 SF	FLOOR AREA
MR	1,084 SF	FLOOR AREA
TOTAL	12,682 SF	

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BLOCK: 5114, LOT: 1

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

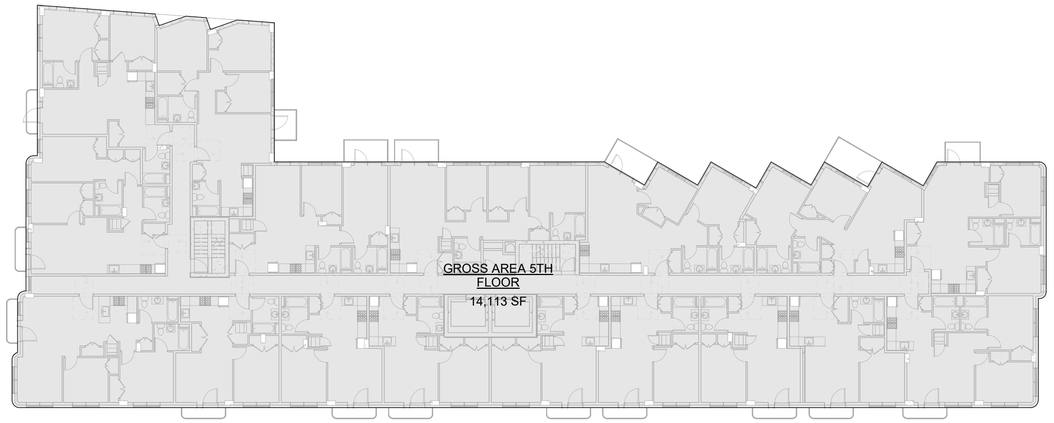
DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

Z.F.A. CALCULATIONS - 4TH FLOOR

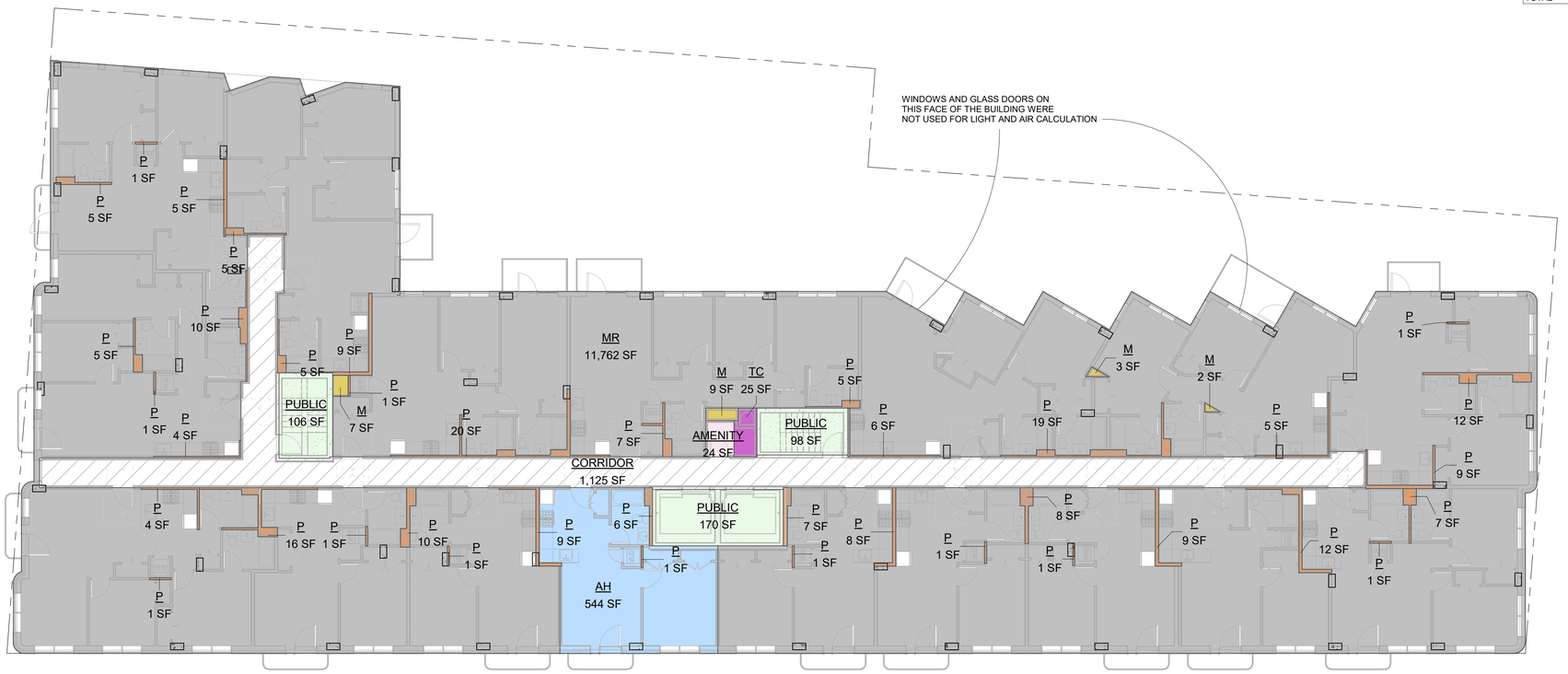
DRAWING No.

Z102.02

DOB - GROSS - 2ND - 4TH FLOOR
Area
14,113 SF



2 GROSS FA - 5TH FLOOR
1/16" = 1'-0"



1 5TH FLOOR - DEDUCTIONS
1" = 10'-0"

ZONING AREA SUMMARY								
	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
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4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
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DOB - DEDUCTIONS - 5TH FLOOR		
Name	Deduction	Comments
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MECHANICAL SHAFT		
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M	3 SF	Area Deduction
M	7 SF	Area Deduction
M	2 SF	Area Deduction
PLUMBING		
P	12 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	12 SF	Area Deduction
P	9 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	1 SF	Area Deduction
P	6 SF	Area Deduction

DOB - DEDUCTIONS - 5TH FLOOR		
Name	Deduction	Comments
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	10 SF	Area Deduction
P	1 SF	Area Deduction
P	16 SF	Area Deduction
P	1 SF	Area Deduction
P	5 SF	Area Deduction
P	10 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	20 SF	Area Deduction
P	7 SF	Area Deduction
P	5 SF	Area Deduction
P	6 SF	Area Deduction
P	19 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	4 SF	Area Deduction
P	4 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	1 SF	Area Deduction
TRASH CHUTE		
TC	25 SF	Area Deduction
TOTAL	1,432 SF	

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Name	Deduction	Comments
PUBLIC		
PUBLIC	106 SF	FLOOR AREA
PUBLIC	98 SF	FLOOR AREA
PUBLIC	170 SF	FLOOR AREA
RESIDENTIAL AH		
AH	544 SF	FLOOR AREA
RESIDENTIAL MR		
MR	11,762 SF	FLOOR AREA
TOTAL	12,681 SF	

ZONING DEDUCTIONS LEGEND

- CORRIDOR - CORRIDOR TERMINATION (50%) & LENGTH OF CORRIDOR (50%)
- PLUMBING
- TRASH CHUTE
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- MECHANICAL
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FLOOR AREA

- MR RESIDENTIAL FLOOR AREA
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	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
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DRAWING TITLE:

Z.F.A. CALCULATIONS - 5TH FLOOR

DRAWING No.

Z102.03

DOB - GROSS - 2ND - 4TH FLOOR
Area
14,113 SF

2 GROSS FA - 6TH FLOOR
1/16" = 1'-0"

1 6TH FLOOR - DEDUCTIONS
1" = 10'-0"

ZONING DEDUCTIONS LEGEND

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FLOOR AREA

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ZONING AREA SUMMARY

	RESIDENTIAL			COMMERCIAL			TOTAL	
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M	7 SF	Area Deduction
M	2 SF	Area Deduction
PLUMBING		
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P	1 SF	Area Deduction
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P	8 SF	Area Deduction
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P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	6 SF	Area Deduction
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P	6 SF	Area Deduction

DOB - DEDUCTIONS - 6TH FLOOR

Name	Deduction	Comments
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	10 SF	Area Deduction
P	1 SF	Area Deduction
P	15 SF	Area Deduction
P	1 SF	Area Deduction
P	5 SF	Area Deduction
P	10 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	9 SF	Area Deduction
P	1 SF	Area Deduction
P	20 SF	Area Deduction
P	7 SF	Area Deduction
P	5 SF	Area Deduction
P	6 SF	Area Deduction
P	19 SF	Area Deduction
P	5 SF	Area Deduction
P	5 SF	Area Deduction
P	4 SF	Area Deduction
P	4 SF	Area Deduction
P	5 SF	Area Deduction
P	1 SF	Area Deduction
P	1 SF	Area Deduction
TRASH CHUTE		
TC	25 SF	Area Deduction
TOTAL	1,431 SF	

DOB - FLOOR AREA- 6TH FLOOR

Name	Deduction	Comments
PUBLIC		
PUBLIC	106 SF	FLOOR AREA
PUBLIC	98 SF	FLOOR AREA
PUBLIC	170 SF	FLOOR AREA
RESIDENTIAL AH		
AH	544 SF	FLOOR AREA
RESIDENTIAL MR		
MR	11,763 SF	FLOOR AREA
TOTAL	12,682 SF	

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

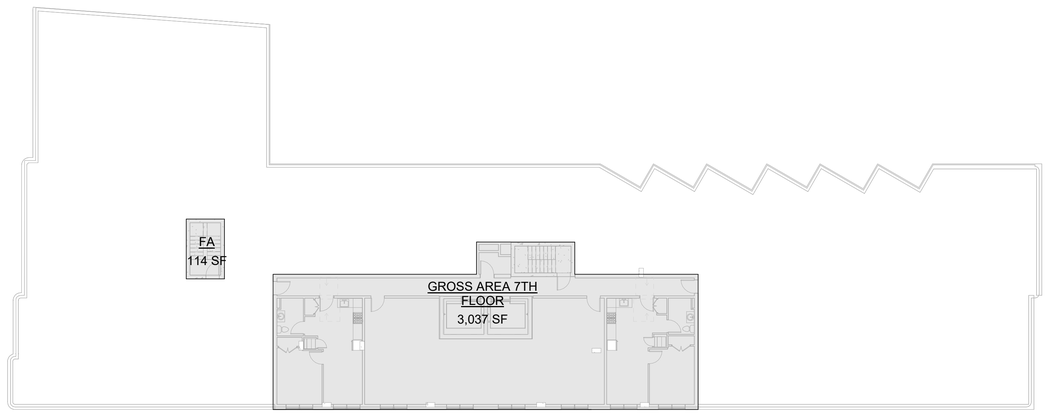
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

Z.F.A. CALCULATIONS - 6TH FLOOR

DRAWING No.

Z102.04



1 GROSS FA - 7TH & ROOF FLOOR
1/16" = 1'-0"

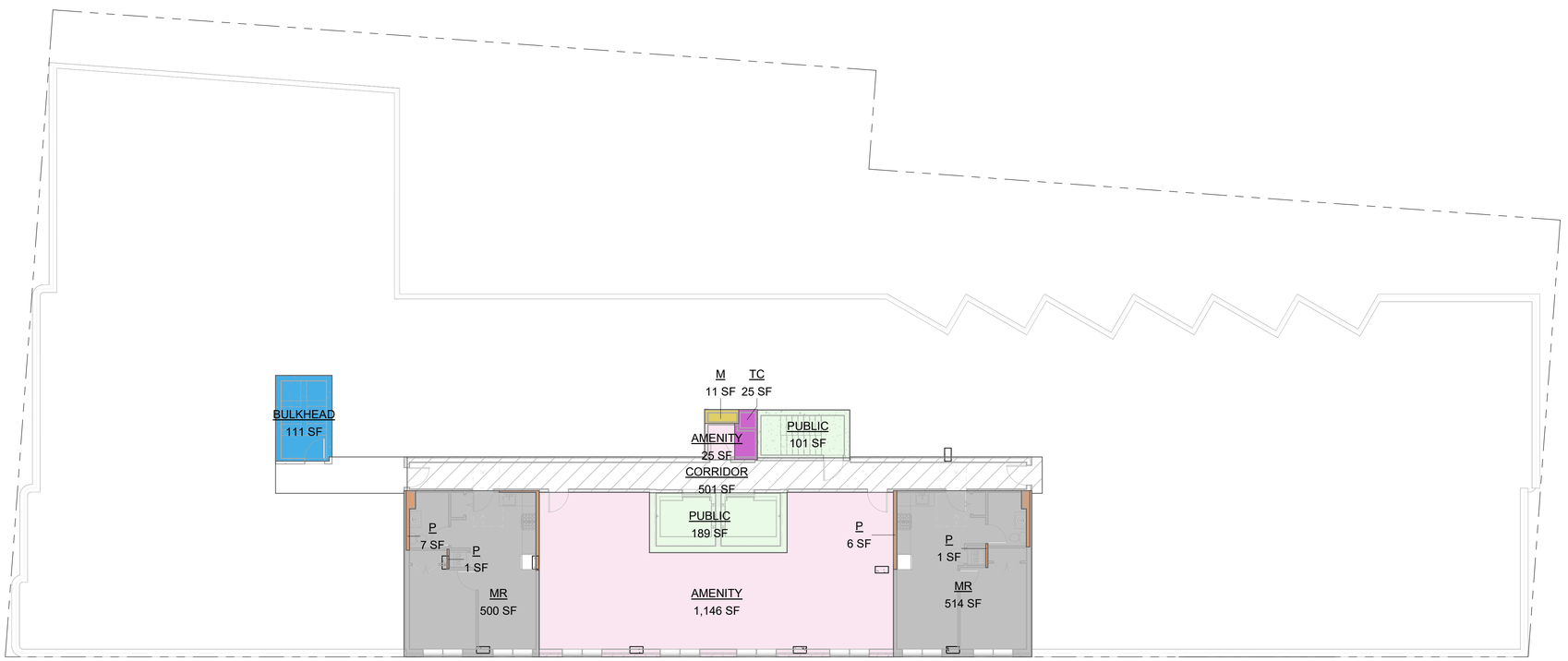
DOB - GROSS - ROOF
Area
3,037 SF
114 SF
3,151 SF

ZONING AREA SUMMARY

	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL DEDUCTIONS	TOTAL Z.F.A.	GROSS FLOOR AREA	TOTAL Z.F.A.
CELLAR	17,751 SF	17,751 SF	0 ZSF	0 SF	0 SF	0 SF	17,753 SF	0 ZSF
GROUND FLOOR	8,625 SF	1,793 SF	6,832 ZSF	3,274 SF	0 SF	3,274 ZSF	11,899 SF	10,106 ZSF
2ND FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
3RD FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	0 SF	0 SF	0 ZSF	14,113 SF	12,681 ZSF
7TH FLOOR	3,151 SF	1847 SF	1,305 ZSF	0 SF	0 SF	0 ZSF	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274 SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

DOB - DEDUCTIONS - 7TH FLOOR		
Name	Deduction	Comments
AMENITIES		
AMENITY	25 SF	Area Deduction
AMENITY	1,146 SF	Area Deduction
BULKHEAD		
BULKHEAD	111 SF	AREA DEDUCTION
CORRIDOR - DENSITY & LIGHT (100%)		
CORRIDOR	501 SF	Area Deduction
MECHANICAL SHAFT		
M	11 SF	Area Deduction
PLUMBING		
P	8 SF	Area Deduction
P	1 SF	Area Deduction
P	7 SF	Area Deduction
P	6 SF	Area Deduction
P	1 SF	Area Deduction
P	6 SF	Area Deduction
TRASH CHUTE		
TC	25 SF	Area Deduction
TOTAL	1,847 SF	

DOB - FLOOR AREA- 7TH FLOOR		
Name	Deduction	Comments
PUBLIC		
PUBLIC	101 SF	FLOOR AREA
PUBLIC	189 SF	FLOOR AREA
RESIDENTIAL MR		
MR	500 SF	FLOOR AREA
MR	514 SF	FLOOR AREA
TOTAL	1,305 SF	



2 LEVEL 7 - ROOF
1" = 10'-0"

ZONING DEDUCTIONS LEGEND

- CORRIDOR - CORRIDOR TERMINATION (50%) & LENGTH OF CORRIDOR (50%)
- PLUMBING
- TRASH CHUTE
- TRASH ROOM
- MECHANICAL
- AMENITY

FLOOR AREA

- MR RESIDENTIAL FLOOR AREA
- AH RESIDENTIAL FLOOR AREA
- PUBLIC RESIDENTIAL FLOOR AREA

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

Z.F.A. CALCULATIONS - 7TH FLOOR & ROOF

DRAWING No.

Z104.00

545 CONEY ISLAND AVENUE								
	RESIDENTIAL			COMMERCIAL			TOTAL	
	GROSS	DED	NET (ZFA)	GROSS	DED	NET (ZFA)	GROSS	NET (ZFA)
CELLAR	17,751 SF	17,751 SF	0 ZSF	-	-	-	17,753 SF	-
GROUND FLOOR	8,625 SF	1,793 SF	6,832 ZSF	3,274 SF	0	3,274 ZSF	11,899 SF	10,106 ZSF
2ND FLOOR	14,113 SF	1,432 SF	12,681 ZSF	-	-	-	14,113 SF	12,681 ZSF
3RD FLOOR	14,113 SF	1,432 SF	12,681 ZSF	-	-	-	14,113 SF	12,681 ZSF
4TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	-	-	-	14,113 SF	12,681 ZSF
5TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	-	-	-	14,113 SF	12,681 ZSF
6TH FLOOR	14,113 SF	1,432 SF	12,681 ZSF	-	-	-	14,113 SF	12,681 ZSF
ROOF	3,151 SF	1,847 SF	1,305 ZSF	-	-	-	3,151 SF	1,305 ZSF
TOTALS	**100,092 SF**	**28,551 SF**	**71,542 ZSF**	**3,274SF**	**0 SF**	**3,274 ZSF**	**103,366 SF**	**74,816 ZSF**

TOTAL SITE		19,082.90
PERMITTED	COMMERCIAL FAR	2.00
	COMMERCIAL FA	38,165.80 SF
PROPOSED	COMMERCIAL FAR	0.17
	COMMERCIAL FA	3,274 SF
PERMITTED	RESIDENTIAL FAR	3.0
	RESIDENTIAL FA	57,246 SF
PROPOSED	RESIDENTIAL FAR	2.87
	RESIDENTIAL FA	53,138 SF
PERMITTED BONUS AH	RESIDENTIAL FAR	.90
	RESIDENTIAL FA	17,173.8 SF
PROPOSED BONUS AH	RESIDENTIAL FAR	.85
	RESIDENTIAL FA	16,239 SF

FA DISTRIBUTION SUMMARY		
MARKET RATE FA	53,138 SF **(76.5% OF TOTAL FA)**	
AFFORDABLE HOUSING FA	16,239 SF **(23.5% OF TOTAL FA)**	
MR PUBLIC FA	1,656 SF (77% OF PUBLIC)	
AH PUBLIC FA	508 SF(23% OF PUBLIC)	
TOTAL PUBLIC FA	2,163 SF	
TOTAL MR + PUBLIC FA	54,794 SF	2.87 FAR
TOTAL AH + PUBLIC FA	16,747 SF	.88 FAR
TOTAL RESIDENTIAL FLOOR AREA	71,541 SF	3.75 FAR
TOTAL COMMERCIAL FA	3,274 SF	.17 FAR
TOTAL MR RESIDENTIAL FA	71,541 SF	3.79 FAR
TOTAL PROPOSED FA ALL USES	74,815 SF	3.92 FAR

PERMITTED	ALL USES	3.90	.02 FAR OVER
	ALL USES	74,420 SF	395 SF OVER
PROPOSED	ALL USES	3.961	
	ALL USES	74,815 SF	

REC SPACE		
REQUIRED	x ZSF x 3.3%	2,113.2 SF
PROPOSED		x SF

DOB - FA SUMMARY - RESIDENTIAL AFFORDABLE HOUSING

Level	Name	Deduction	Comments
RESIDENTIAL AH			
Level 1	AH	619 SF	FLOOR AREA
Level 2	AH	1,081 SF	FLOOR AREA
Level 2	AH	912 SF	FLOOR AREA
Level 2	AH	1,723 SF	FLOOR AREA
Level 2	AH	4,972 SF	FLOOR AREA
Level 3	AH	2,676 SF	FLOOR AREA
Level 3	AH	919 SF	FLOOR AREA
Level 3	AH	792 SF	FLOOR AREA
Level 4	AH	545 SF	FLOOR AREA
Level 4	AH	912 SF	FLOOR AREA
Level 5	AH	544 SF	FLOOR AREA
Level 6	AH	544 SF	FLOOR AREA
TOTAL		16,239 SF	

DOB - FA SUMMARY - RESIDENTIAL MARKET RATE

Level	Name	Deduction	Comments
RESIDENTIAL MR			
Level 1	MR	1,960 SF	FLOOR AREA
Level 2	MR	1,616 SF	FLOOR AREA
Level 2	MR	1,084 SF	FLOOR AREA
Level 2	MR	919 SF	FLOOR AREA
Level 3	MR	550 SF	FLOOR AREA
Level 3	MR	1,467 SF	FLOOR AREA
Level 3	MR	1,723 SF	FLOOR AREA
Level 3	MR	4,180 SF	FLOOR AREA
Level 4	MR	9,767 SF	FLOOR AREA
Level 4	MR	1,084 SF	FLOOR AREA
Level 5	MR	11,762 SF	FLOOR AREA
Level 6	MR	11,763 SF	FLOOR AREA
LEVEL 7 - ROOF	MR	500 SF	FLOOR AREA
LEVEL 7 - ROOF	MR	514 SF	FLOOR AREA
Not Placed	MR	Not Placed	FLOOR AREA
Level 1	MR	4,249 SF	FLOOR AREA
TOTAL		53,138 SF	

DOB - FA SUMMARY - PUBLIC

Level	Name	Deduction	Comments
PUBLIC			
Level 2	PUBLIC	106 SF	FLOOR AREA
Level 2	PUBLIC	98 SF	FLOOR AREA
Level 2	PUBLIC	170 SF	FLOOR AREA
Level 3	PUBLIC	106 SF	FLOOR AREA
Level 3	PUBLIC	98 SF	FLOOR AREA
Level 3	PUBLIC	170 SF	FLOOR AREA
Level 4	PUBLIC	106 SF	FLOOR AREA
Level 4	PUBLIC	98 SF	FLOOR AREA
Level 4	PUBLIC	170 SF	FLOOR AREA
Level 5	PUBLIC	106 SF	FLOOR AREA
Level 5	PUBLIC	98 SF	FLOOR AREA
Level 5	PUBLIC	170 SF	FLOOR AREA
Level 6	PUBLIC	106 SF	FLOOR AREA
Level 6	PUBLIC	98 SF	FLOOR AREA
Level 6	PUBLIC	170 SF	FLOOR AREA
LEVEL 7 - ROOF	PUBLIC	101 SF	FLOOR AREA
LEVEL 7 - ROOF	PUBLIC	189 SF	FLOOR AREA
TOTAL		2,163 SF	

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

Z.F.A. CALCULATIONS SUMMARY

DRAWING No.

Z105.00

DOB - MIH BONUS CALCL - RENTAL UNIT SUMMARY NET AREA		
TYPE	TOTAL HOUSING UNITS	AREA
Level 1		
1 BEDROOM	7	4,313 SF
1 BEDROOM AH	1	569 SF
2 BEDROOM	2	1,491 SF
	10	6,372 SF
Level 2		
1 BEDROOM	5	2,507 SF
1 BEDROOM AH	2	996 SF
2 BEDROOM AH	8	6,249 SF
3 BEDROOM	1	865 SF
3 BEDROOM AH	1	880 SF
	17	11,497 SF
Level 3		
1 BEDROOM	2	1,027 SF
1 BEDROOM AH	5	2,476 SF
2 BEDROOM	7	5,524 SF
2 BEDROOM AH	1	724 SF
3 BEDROOM	1	880 SF
3 BEDROOM AH	1	865 SF
	17	11,497 SF
Level 4		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	7	5,413 SF
2 BEDROOM AH	1	836 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
Level 5		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	8	6,249 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
Level 6		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	8	6,249 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
LEVEL 7 - ROOF		
1 BEDROOM	2	921 SF
	2	921 SF
TOTAL	97	64,777 SF

TOTAL 1 BEDROOM
46 X 23%= 10.58

REQ. AH - 11 1 BR UNITS

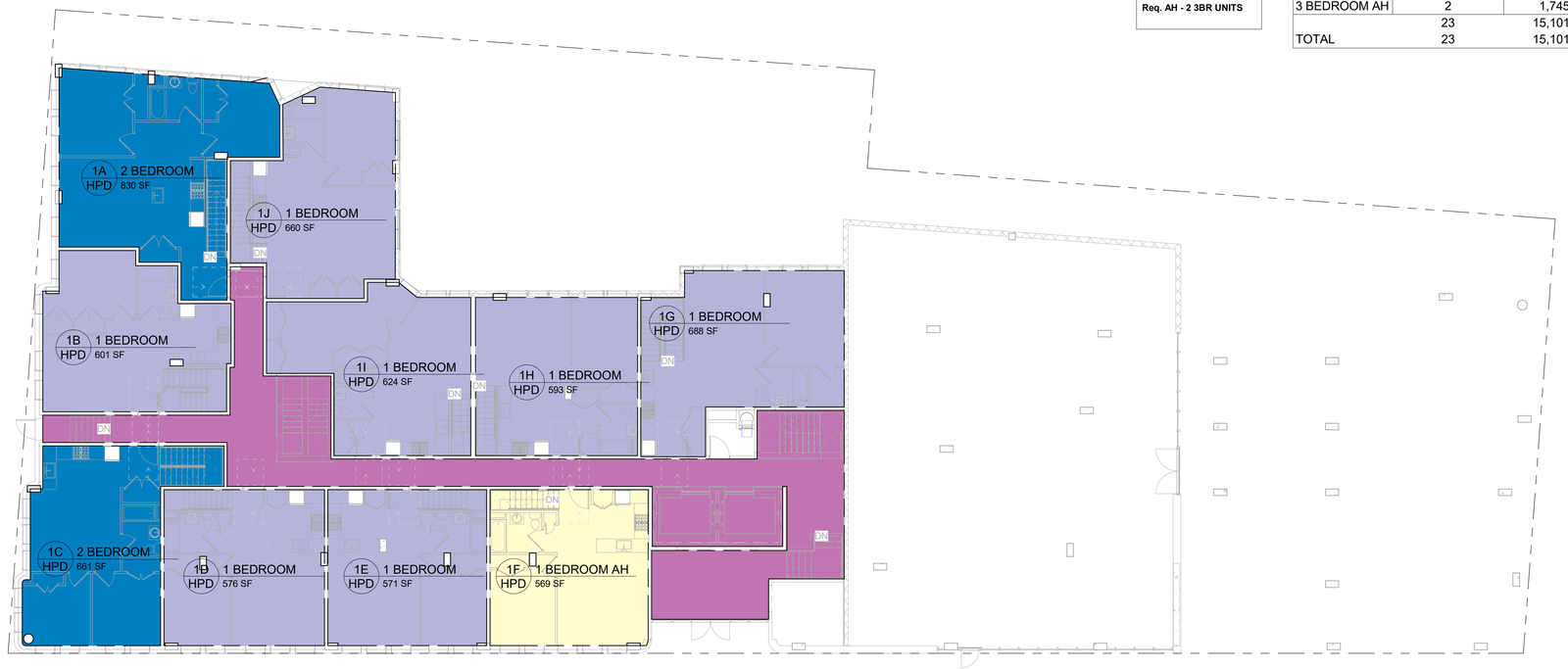
TOTAL 2 BEDROOM
42 X 23%=9.66

REQ. AH - 10 2BR UNITS

TOTAL 3 BEDROOM
10 X 23%= 2.30

Req. AH - 2 3BR UNITS

DOB - TOTAL UNITS SUMMARY		
TYPE	TOTAL HOUSING UNITS	AREA NET
HPD		
1 BEDROOM AH	11	5,546 SF
2 BEDROOM AH	10	7,809 SF
3 BEDROOM AH	2	1,745 SF
	23	15,101 SF
TOTAL	23	15,101 SF



2 GROUND FLOOR
3/32" = 1'-0"

1 CELLAR
3/32" = 1'-0"

HPD LEGEND

— — —	NET FA BOUNDARY
	MARKET RATE UNIT - 1 BR
	MARKET RATE UNIT - 2 BR
	MARKET RATE UNIT - 3 BR
	AFFORDABLE HOUSING UNIT - 1 BR
	AFFORDABLE HOUSING UNIT - 2 BR
	AFFORDABLE HOUSING UNIT - 3 BR
MR	MARKET RATE UNIT
AH	AFFORDABLE HOUSING UNIT

THIS DRAWING IS INTENDED FOR ROOM TYPE, BLOW-UP LOCATION AND ASSOCIATED REFERENCES ONLY.

TOTAL No. PROPOSED	TYPE	APT.
TOTAL SQFT OF AFFORDABLE HOUSING	1BR DUP.	1F
16,788 SF	1BR	2F-2G-3E-3F-3G-3H-3I-4F-5F -6F
	2BR	2A-2B-2C-2K-2L-2M-2N-2P -3K
	3BR	2O-3Q-4C

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

HPD COMPLIANCE

DRAWING No.
Z110.00

DOB - MIH BONUS CALCL - RENTAL UNIT SUMMARY NET AREA		
TYPE	TOTAL HOUSING UNITS	AREA
Level 1		
1 BEDROOM	7	4,313 SF
1 BEDROOM AH	1	569 SF
2 BEDROOM	2	1,491 SF
	10	6,372 SF
Level 2		
1 BEDROOM	5	2,507 SF
1 BEDROOM AH	2	996 SF
2 BEDROOM AH	8	6,249 SF
3 BEDROOM	1	865 SF
3 BEDROOM AH	1	880 SF
	17	11,497 SF
Level 3		
1 BEDROOM	2	1,027 SF
1 BEDROOM AH	5	2,476 SF
2 BEDROOM	7	5,524 SF
2 BEDROOM AH	1	724 SF
3 BEDROOM	1	880 SF
3 BEDROOM AH	1	865 SF
	17	11,497 SF
Level 4		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	7	5,413 SF
2 BEDROOM AH	1	836 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
Level 5		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	8	6,249 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
Level 6		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	8	6,249 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
LEVEL 7 - ROOF		
1 BEDROOM	2	921 SF
	2	921 SF
TOTAL	97	64,777 SF

TOTAL 1 BEDROOM
46 X 23%= 10.58

REQ. AH - 11 1 BR UNITS

TOTAL 2 BEDROOM
42 X 23%=9.66

REQ. AH - 10 2BR UNITS

TOTAL 3 BEDROOM
10 X 23%= 2.30

Req. AH - 2 3BR UNITS

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TYPE	TOTAL HOUSING UNITS	AREA NET
HPD		
1 BEDROOM AH	11	5,546 SF
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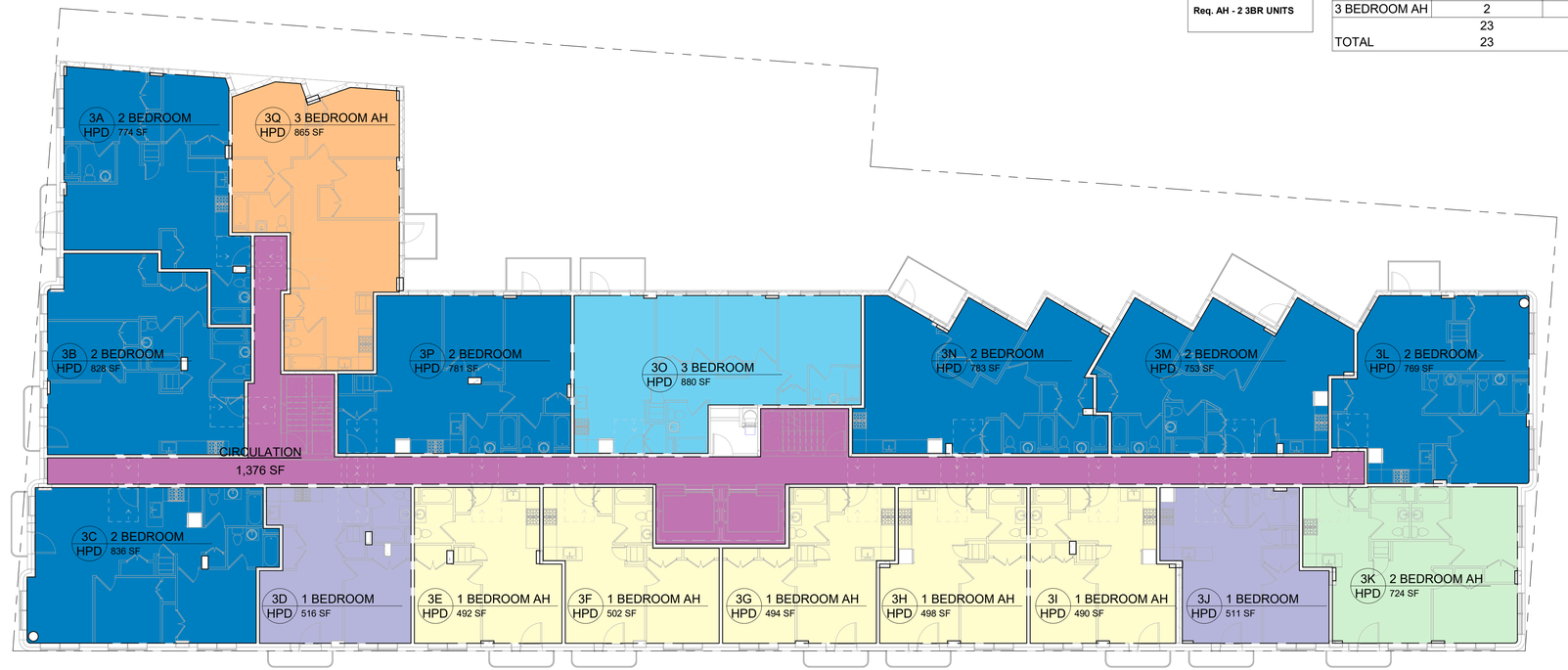
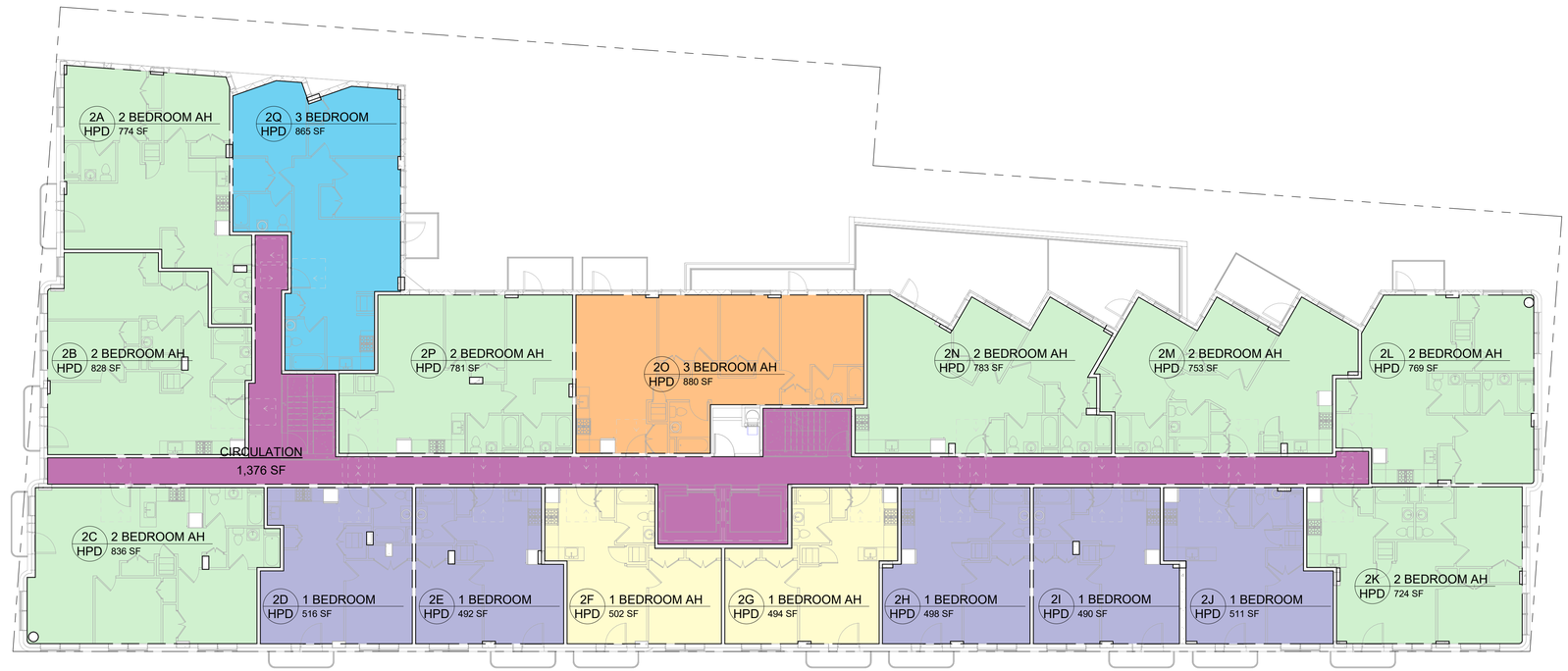
3 BEDROOM AH	2	1,745 SF
	23	15,101 SF
TOTAL	23	15,101 SF



2 3RD FLOOR
3/32" = 1'-0"



1 2ND FLOOR
3/32" = 1'-0"

HPD LEGEND

— — —	NET FA BOUNDARY
	MARKET RATE UNIT - 1 BR
	MARKET RATE UNIT - 2 BR
	MARKET RATE UNIT - 3 BR
	AFFORDABLE HOUSING UNIT - 1 BR
	AFFORDABLE HOUSING UNIT - 2 BR
	AFFORDABLE HOUSING UNIT - 3 BR
MR	MARKET RATE UNIT
AH	AFFORDABLE HOUSING UNIT

THIS DRAWING IS INTENDED FOR ROOM TYPE, BLOW-UP LOCATION AND ASSOCIATED REFERENCES ONLY.

TOTAL No. PROPOSED	TYPE	APT.
TOTAL SQFT OF AFFORDABLE HOUSING	1BR DUP.	1F
16,788 SF	1BR	2F-2G-3E-3F-3G-3H-3I-4F-5F -6F
	2BR	2A-2B-2C-2K-2L-2M-2N-2P -3K
	3BR	2O-3Q-4C

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

HPD COMPLIANCE

DRAWING No.

Z111.00

DOB - MIH BONUS CALCL - RENTAL UNIT SUMMARY NET AREA		
TYPE	TOTAL HOUSING UNITS	AREA
Level 1		
1 BEDROOM	7	4,313 SF
1 BEDROOM AH	1	569 SF
2 BEDROOM	2	1,491 SF
	10	6,372 SF
Level 2		
1 BEDROOM	5	2,507 SF
1 BEDROOM AH	2	996 SF
2 BEDROOM AH	8	6,249 SF
3 BEDROOM	1	865 SF
3 BEDROOM AH	1	880 SF
	17	11,497 SF
Level 3		
1 BEDROOM	2	1,027 SF
1 BEDROOM AH	5	2,476 SF
2 BEDROOM	7	5,524 SF
2 BEDROOM AH	1	724 SF
3 BEDROOM	1	880 SF
3 BEDROOM AH	1	865 SF
	17	11,497 SF
Level 4		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	7	5,413 SF
2 BEDROOM AH	1	836 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
Level 5		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	8	6,249 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
Level 6		
1 BEDROOM	6	3,001 SF
1 BEDROOM AH	1	502 SF
2 BEDROOM	8	6,249 SF
3 BEDROOM	2	1,745 SF
	17	11,497 SF
LEVEL 7 - ROOF		
1 BEDROOM	2	921 SF
	2	921 SF
TOTAL	97	64,777 SF

TOTAL 1 BEDROOM
46 X 23%= 10.58

REQ. AH - 11 1 BR UNITS

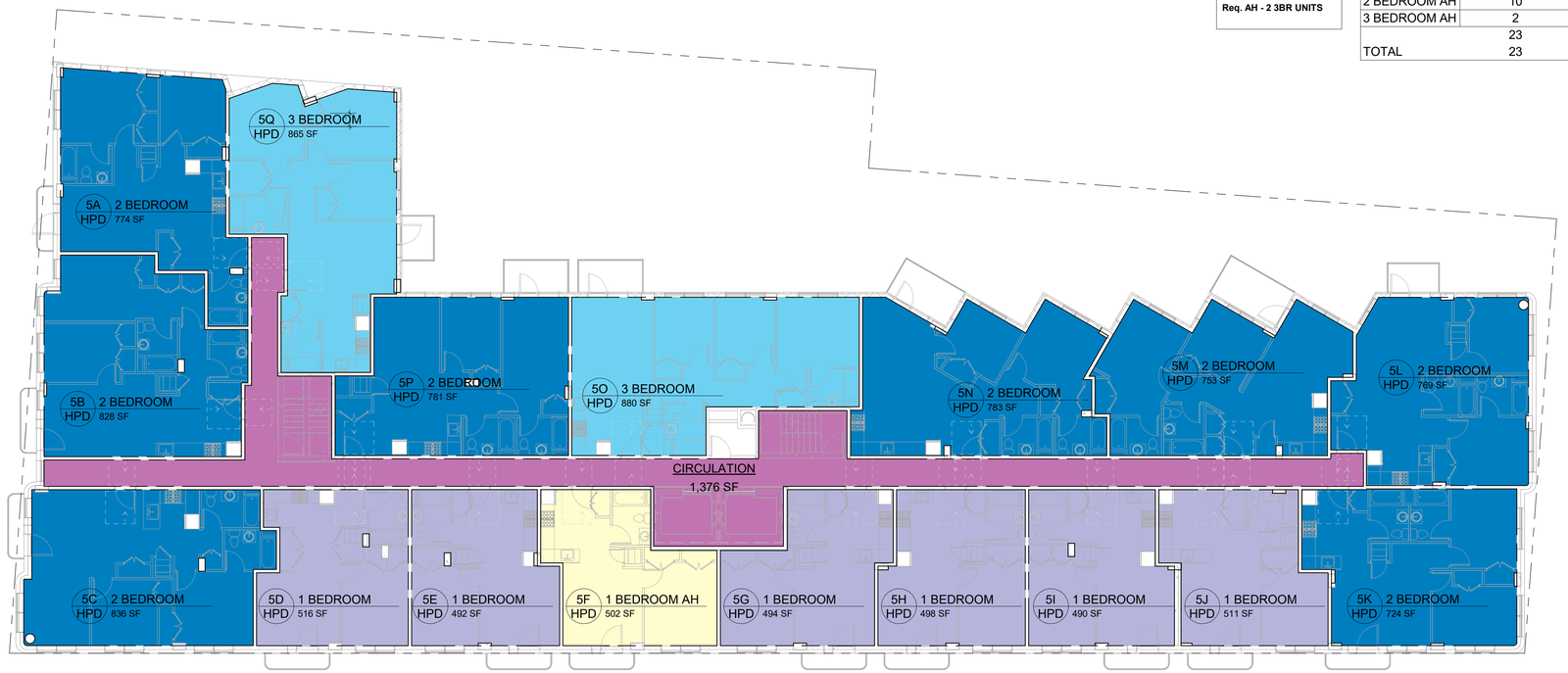
TOTAL 2 BEDROOM
42 X 23%=9.66

REQ. AH - 10 2BR UNITS

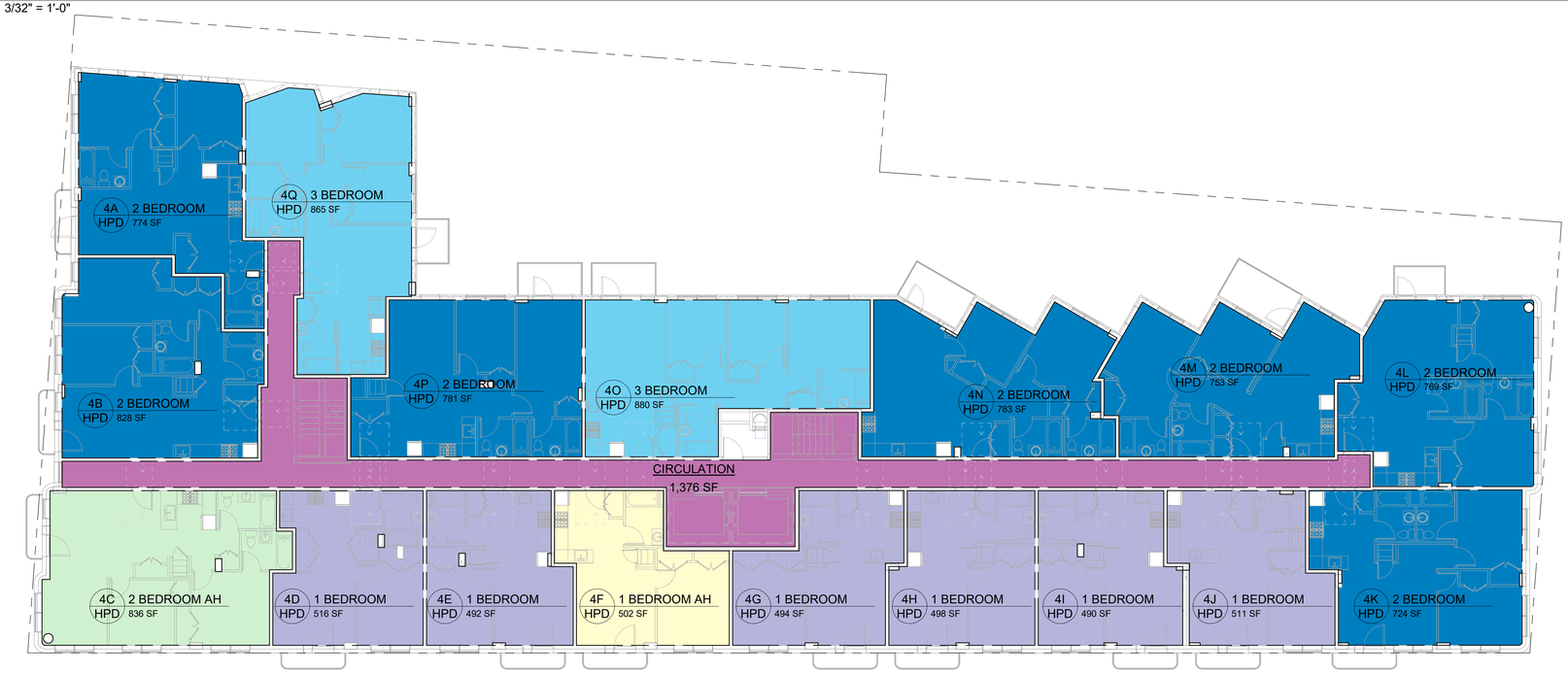
TOTAL 3 BEDROOM
10 X 23%= 2.30

Req. AH - 2 3BR UNITS

DOB - TOTAL UNITS SUMMARY		
TYPE	TOTAL HOUSING UNITS	AREA NET
HPD		
1 BEDROOM AH	11	5,546 SF
2 BEDROOM AH	10	7,809 SF
3 BEDROOM AH	2	1,745 SF
	23	15,101 SF
TOTAL	23	15,101 SF



2 5TH FLOOR
3/32" = 1'-0"



1 4TH FLOOR
3/32" = 1'-0"

HPD LEGEND	
	NET FA BOUNDARY
	MARKET RATE UNIT - 1 BR
	MARKET RATE UNIT - 2 BR
	MARKET RATE UNIT - 3 BR
	AFFORDABLE HOUSING UNIT - 1 BR
	AFFORDABLE HOUSING UNIT - 2 BR
	AFFORDABLE HOUSING UNIT - 3 BR
MR	MARKET RATE UNIT
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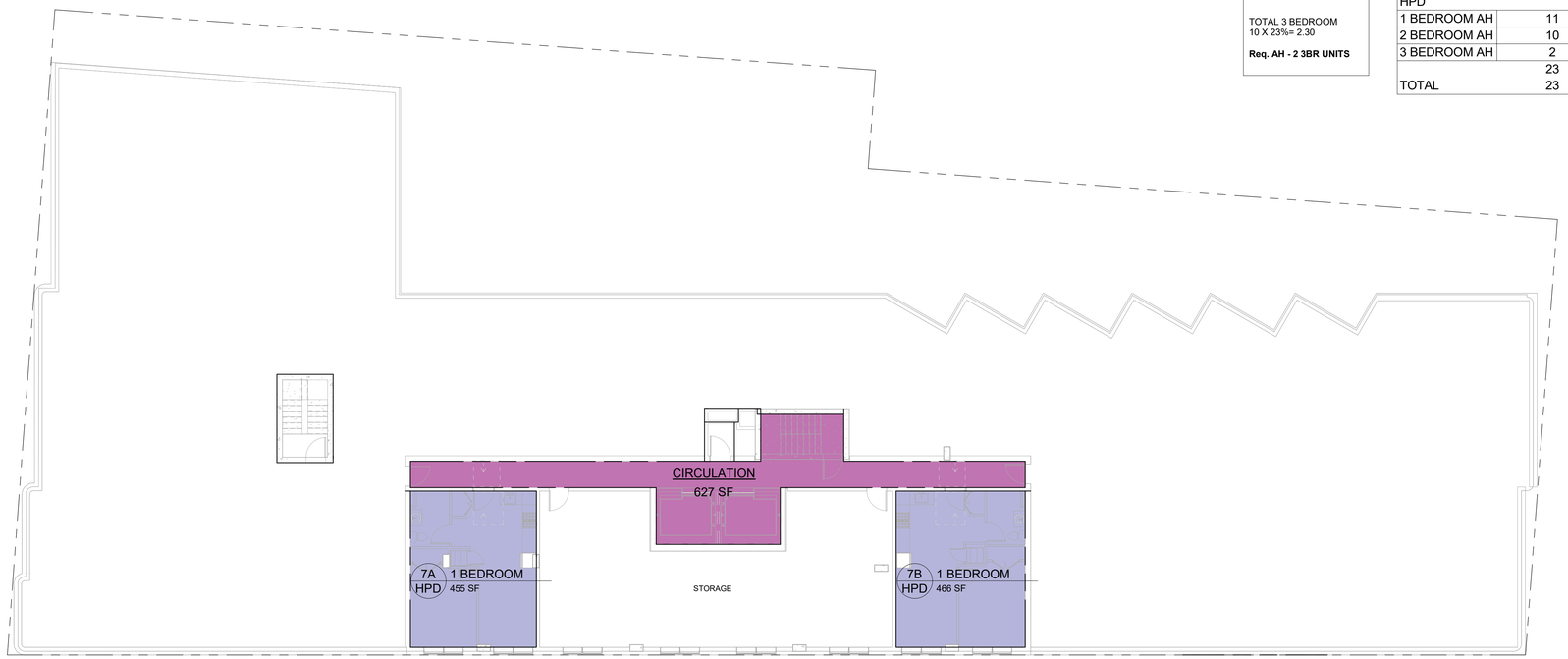
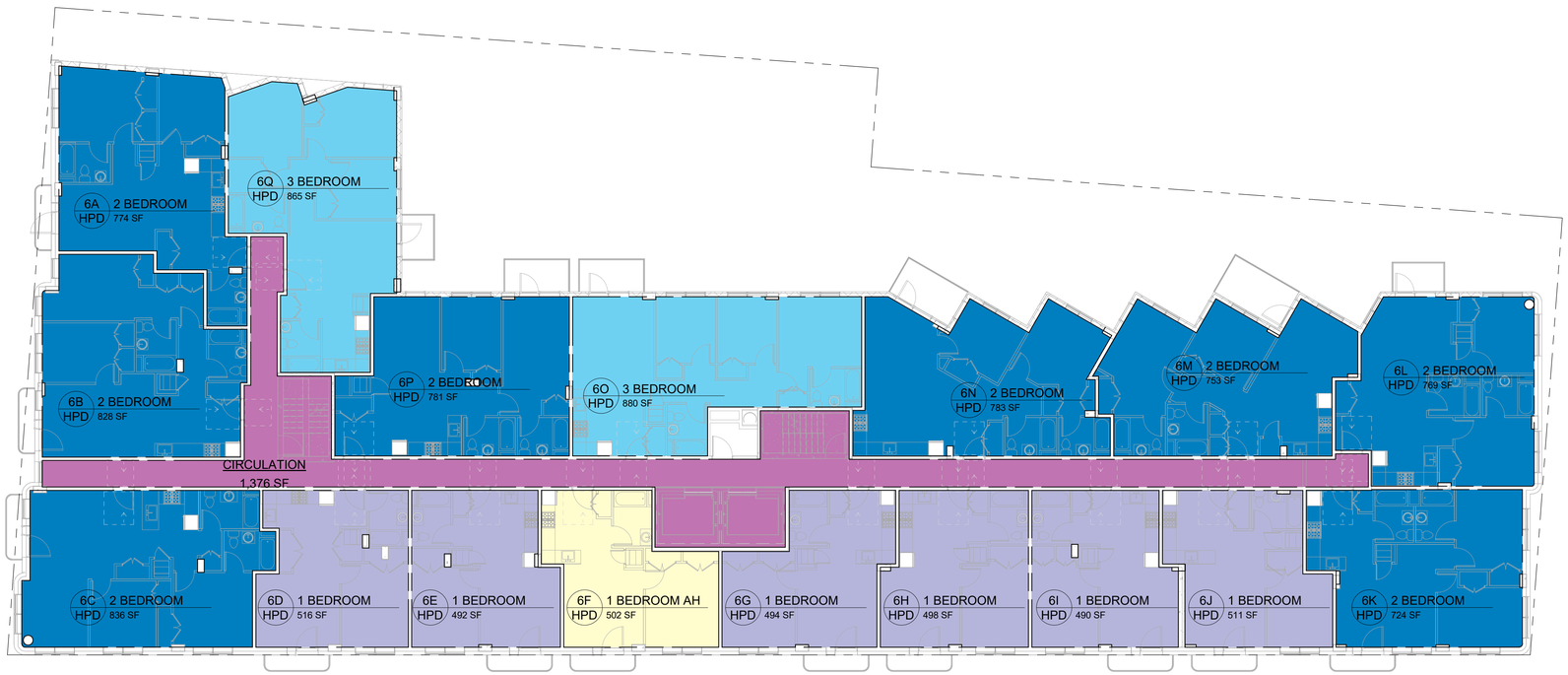


2 LEVEL 7 - ROOF
3/32" = 1'-0"



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- **NOTE:**

NON-HABITABLE CELLAR SPACE ACCESORY TO DWELLING UNITS ABOVE. NO LIVING, NO SLEEPING AND NO COOKING IN THE ACCESSORY CELLAR SPACE.

BUILDING CODE INFORMATION

APPLICABLE CODES

ANALYSIS BASED ON THE FOLLOWING BUILDING CODES
- 2022 INTERNATIONAL BUILDING CODE (NYC)
- 2022 INTERNATIONAL PLUMBING CODE (NYC)
- 2022 INTERNATIONAL FIRE CODE (NYC)
- 2022 INTERNATIONAL MECHANICAL CODE (NYC)
- 2022 INTERNATIONAL FUEL GAS CODE (NYC)
- 2020 ENERGY CODE (NYC)
- 2011 ELECTRICAL CODE (NYC)
- 2010 ADA STANDARDS
- ANSI A117.1-2009
- NEW YORK STATE MULTIPLE DWELLING LAW
- NEW YORK CITY ZONING RESOLUTION

INTERNATIONAL BUILDING CODE, NEW YORK CITY EDITION, 2022

CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION

- SECTION 309, BUSINESS M
  MERCANTILE GROUP M OCCUPANCY INCLUDES, AMONG OTHERS, THE USE OF A BUILDING OR STRUCTURE OR A PORTION THEREOF FOR THE DISPLAY AND SALE OF MERCHANDISE, AND INVOLVES STOCKS OF GOODS, WARES OR MERCHANDISE INCIDENTAL TO SUCH PURPOSES AND ACCESSIBLE TO THE PUBLIC.
- SECTION 310, RESIDENTIAL R-2
  RESIDENTIAL GROUP R-2 OCCUPANCIES CONTAINING SLEEPING UNITS OR MORE THAN TWO DWELLING UNITS THAT ARE OCCUPIED FOR PERMANENT RESIDENCE PURPOSES.
- SECTION 311, STORAGE S-2
  STORAGE GROUP S-2 OCCUPANCIES INCLUDE, AMONG OTHERS, BUILDINGS USED FOR THE STORAGE OF NONCOMBUSTIBLE MATERIALS SUCH AS PRODUCTS ON WOOD PALLETS OR IN PAPER CARTONS WITH OR WITHOUT SINGLE THICKNESS DIVISIONS; OR IN PAPER WRAPPINGS.

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

- SECTION 406.4 PUBLIC PARKING GARAGES
  PARKING GARAGES, OTHER THAN PRIVATE PARKING GARAGES, SHALL BE CLASSIFIED AS PUBLIC PARKING GARAGES AND SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 406.4.2 THROUGH 406.4.10 AND SHALL BE CLASSIFIED AS EITHER AN OPEN PARKING GARAGE OR AN ENCLOSED PARKING GARAGE. ENCLOSED PARKING GARAGES SHALL ALSO COMPLY WITH SECTION 406.6. SEE SECTION 510 FOR SPECIAL PROVISIONS FOR PARKING GARAGES.
  - 406.4.1 CLEAR HEIGHT
    THE CLEAR HEIGHT OF EACH FLOOR LEVEL IN VEHICLE AND PEDESTRIAN TRAFFIC AREAS SHALL BE NOT LESS THAN 7 FEET. VEHICLE AND PEDESTRIAN AREAS ACCOMMODATING VAN-ACCESSIBLE PARKING SHALL COMPLY WITH SECTION 1106.5.
  - 406.4.3 VEHICLE BARRIER SYSTEM
    VEHICLE BARRIERS NOT LESS THAN 2 FEET 9 INCHES IN HEIGHT SHALL BE PLACED WHERE THE VERTICAL DISTANCE FROM THE FLOOR OF A DRIVE LANE OR PARKING SPACE TO THE GROUND OR SURFACE DIRECTLY BELOW IS GREATER THAN 1 FOOT. VEHICLE BARRIERS SHALL COMPLY WITH THE LOADING REQUIREMENTS OF SECTION 1607.9.
  - 406.4.4 RAMPS
    RAMPS SHALL HAVE A GRADIENT NOT EXCEEDING ONE IN SEVEN, WITH NONSLIP SURFACES. A LEVEL LANDING HAVING A MINIMUM OF 20 FEET SHALL BE PROVIDED AT THE DISCHARGE POINT OF ALL RAMPS AT THE STREET LEVEL, WITHIN THE PROPERTY LINE. RAMPS USED FOR THE MOVEMENT OF MOTOR VEHICLES NEED NOT BE ENCLOSED WHEN SERVING TIERS ABOVE GRADE. VEHICLE RAMPS MAY SERVE AS PART OF A MEANS OF EGREE IN ACCORDANCE WITH SECTION 1006.4.
  - 406.4.6 SEPARATION
    PARKING GARAGES SHALL BE SEPARATED FROM OTHER OCCUPANCIES IN ACCORDANCE WITH SECTION 508.1.
  - 406.4.9 FIRE-FIGHTER AISLES
    IN ANY PARKING GARAGE OR LOT, ONE OR MORE AISLES, AT LEAST 24 INCHES IN WIDTH, SHALL BE PROVIDED TO PERMIT ACCESS BY FIRE-FIGHTING PERSONNEL TO ALL PARTS OF THE GARAGE OR LOT. THERE SHALL NOT BE MORE THAN THREE ROWS OF PARKING MOTOR VEHICLES BETWEEN AISLES.
  - 406.4.10 ELECTRIC VEHICLE CHARGING STATIONS
    PARKING GARAGES SHALL BE CAPABLE OF SUPPORTING ELECTRICAL VEHICLE CHARGING STATIONS IN ACCORDANCE WITH THIS SECTION.
- SECTION 406.6 ENCLOSED PARKING GARAGES
  - 406.6.2 VENTILATION
    A MECHANICAL VENTILATION SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH THE NEW YORK CITY MECHANICAL CODE.
  - 406.6.3 AUTOMATIC SPRINKLER SYSTEM
    AUTOMATIC SPRINKLER SYSTEMS AND STANDPIPES SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 903. AN AUTOMATIC DRY SPRINKLER SYSTEM MAY BE INSTALLED IN UNHEATED GARAGES.
- SECTION 406.9 OPEN PARKING LOTS
  - 406.9.3 LOCATIONS PROHIBITED
    ALL VEHICULAR ACTIVITIES ASSOCIATED WITH THE OPERATION OF OPEN PARKING LOTS SHALL BE ENTIRELY WITHIN THE PROPERTY LINES OF THE PREMISES. VEHICLES SHALL NOT BE PERMITTED TO ENCROACH UPON THE SIDEWALKS. NO MOTOR VEHICLE MAY BE STORED OR PARKED IN ANY LOCATION WHERE IT WOULD OBSTRUCT A REQUIRED WINDOW OR REQUIRED EXIT OF ANY ADJACENT BUILDING.
  - 406.9.5 CURBS AND BUMPERS
    OPEN PARKING LOTS SHALL BE COMPLETELY SEPARATED FROM ADJOINING PREMISES AND PUBLIC SIDEWALKS BY CURBS OR BUMPERS OF CONCRETE, MASONRY, STEEL, HEAVY TIMBER, OR OTHER SIMILAR AND EQUALLY SUBSTANTIAL MATERIALS, AND SHALL BE SECURELY ANCHORED SO AS TO STOP MOTOR VEHICLES. CURBS AND BUMPERS SHALL BE AT LEAST 8 INCHES HIGH AND 8 INCHES WIDE.
  - 406.9.8 ELECTRIC VEHICLE CHARGING STATIONS
    OPEN PARKING LOTS SHALL BE CAPABLE OF SUPPORTING ELECTRIC VEHICLE CHARGING STATIONS IN ACCORDANCE WITH THIS SECTION.
    EXCEPTION 1: THE PROVISIONS OF THIS SECTION SHALL NOT APPLY TO OPEN PARKING LOTS FOR BUILDING OF OCCUPANCY GROUP M (MERCANTILE).
- SECTION 406.10 CURB CUTS AND DRIVEWAYS
  - 406.10.1 CURB CUTS
    FOR THE PURPOSE OF THIS SECTION, A CURB CUT SHALL INCLUDE ALL SPLAYS WHEN DETERMINING THE TOTAL LENGTH OF CUT CURB. ALL CURB CUTS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
    1. THE AGGREGATE LENGTH OF THE CURB CUTS SHALL NOT EXCEED 60 PERCENT OF ANY STREET FRONTAGE 100 FEET OF LESS IN LENGTH. NO SINGLE CURB CUT SHALL EXCEED 30 FEET IN LENGTH, AND THERE SHALL NOT BE MORE THAN TWO CURB CUTS ON ANY STREET FRONTAGE 100 FEET OR LESS IN LENGTH. THE MINIMUM DISTANCE BETWEEN TWO CURB CUTS SHALL BE 5 FEET.
    2. FOR EACH 50 FEET OF STREET FRONTAGE LENGTH OVER 100 FEET, AN ADDITIONAL CURB CUT NO GREATER THAN 30 FEET IN LENGTH MAY BE PERMITTED.
    3. NO CURB CUT SHALL COMMENCE WITHIN 8 FEET OF A SIDE LOT LINE.
       EXCEPTION 2: IN OPEN OR ENCLOSED PARKING GARAGES WHERE A LEVEL LANDING HAVING A MINIMUM DIMENSION OF 20 FEET IS PROVIDED AT THE DISCHARGE POINT OF ALL RAMPS AT THE STREET LEVEL WITHIN THE PROPERTY LINE, THE CURB CUT MAY COMMENCE NO LESS THAN 30 INCHES FROM A SIDE LOT LINE.
    4. NO CURB CUT, INCLUDING SPLAYS, SHALL BE LESS THAN 10 FEET IN LENGTH.
  - 406.10.2 DRIVEWAYS
    DRIVEWAYS SERVING PASSENGER VEHICLES SHALL BE A MINIMUM OF 8 FEET IN WIDTH AND SHALL NOT EXCEED THE LENGTH OF THE CURB CUT, NOT INCLUDING THE LENGTHS OF THE SPLAYS. FOR ALL OTHER MOTOR VEHICLES, THE MINIMUM WIDTH OF DRIVEWAYS SHALL BE 10 FEET.
- SECTION 420 GROUPS I-1, R-1, R-2, R-3
  - 420.2 SEPARATION WALLS
    WALL SEPARATING DWELLING UNITS IN THE SAME BUILDING, WALLS SEPARATING SLEEPING UNITS IN THE SAME BUILDING AND WALLS SEPARATING DWELLING OR SLEEPING UNITS FROM OTHER OCCUPANCIES CONTIGUOUS TO THEM IN THE SAME BUILDING SHALL BE CONSTRUCTED AS FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 AND SHALL BE AT LEAST 1-HOUR FIRE-RESISTANCE-RATED.
  - 420.3 HORIZONTAL SEPARATION
    FLOOR ASSEMBLIES SEPARATING DWELLING UNITS IN THE SAME BUILDINGS, FLOOR ASSEMBLIES SEPARATING SLEEPING UNITS IN THE SAME BUILDING AND FLOOR ASSEMBLIES SEPARATING DWELLING OR SLEEPING UNITS FROM OTHER OCCUPANCIES CONTIGUOUS TO THEM IN THE SAME BUILDING SHALL BE CONSTRUCTED AS HORIZONTAL ASSEMBLIES IN ACCORDANCE WITH SECTION 711.
  - 420.5 AUTOMATIC SPRINKLER SYSTEM
    GROUP R OCCUPANCIES SHALL BE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.2.8. QUICK RESPONSE OR RESIDENTIAL AUTOMATIC SPRINKLERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 903.3.2.
  - 420.6 FIRE ALARM SYSTEMS AND SMOKE ALARMS
    FIRE ALARM SYSTEMS AND SMOKE ALARMS SHALL BE PROVIDED IN GROUP I-1, R-1, AND R-2 OCCUPANCIES IN ACCORDANCE WITH SECTIONS 907.2.6, 907.2.8 AND 907.2.9, RESPECTIVELY. SINGLE OR MULTIPLE STATION SMOKE ALARMS SHALL BE PROVIDED IN GROUP I-1, R-2, AND R-3 IN ACCORDANCE WITH SECTION 907.2.11.

CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS

- SECTION 504 BUILDING HEIGHT AND NUMBER OF STORIES
  - 504.1.1 UNLIMITED AREA BUILDINGS
    THE HEIGHT OF UNLIMITED AREA BUILDINGS SHALL BE DESIGNED IN ACCORDANCE WITH SECTION 507.
  - 504.1.2 SPECIAL PROVISIONS
    THE SPECIAL PROVISIONS OF SECTION 510 PERMIT THE USE OF SPECIAL CONDITIONS THAT ARE EXEMPT FROM, OR MODIFY, THE SPECIFIC REQUIREMENTS OF THIS CHAPTER REGARDING THE ALLOWABLE HEIGHTS OF BUILDINGS BASED ON THE OCCUPANCY CLASSIFICATION AND TYPE OF CONSTRUCTION, PROVIDED THE SPECIAL CONDITION COMPLIES WITH THE PROVISIONS SPECIFIED IN SECTION 510.
  - 504.2 MIXED OCCUPANCY
    IN A BUILDING CONTAINING MIXED OCCUPANCIES IN ACCORDANCE WITH SECTION 508, NO INDIVIDUAL OCCUPANCY SHALL EXCEED THE HEIGHT AND NUMBER OF STORY LIMITS SPECIFIED IN SECTION 504 FOR THE APPLICABLE OCCUPANCIES.
  - 504.3 HEIGHT IN FEET AND NUMBER OF STORIES
    EXCEPTION 1: ROOFTOP STRUCTURES INCLUDING BUT NOT LIMITED TO ROOF TANKS AND THEIR SUPPORTS, VENTILATING, AIR CONDITIONING, COMBINED HEAT AND POWER SYSTEMS AND SIMILAR BUILDING SERVICE EQUIPMENT, BULKHEADS, PENTHOUSES, GREENHOUSES, CHIMNEYS, AND PARAPET WALLS 4 FEET OR LESS IN HEIGHT SHALL NOT BE INCLUDED IN THE BUILDING HEIGHT OF THE BUILDING OR CONSIDERED AN ADDITIONAL STORY UNLESS THE AGGREGATE AREA OF ALL SUCH STRUCTURES, EXCLUSIVE OF ANY SOLAR THERMAL AND SOLAR (PHOTOVOLTAIC) COLLECTORS AND/OR PANELS AND THEIR SUPPORTING EQUIPMENT, EXCEEDS 33 1/3 PERCENT OF THE AREA OF THE ROOF OF THE BUILDING UPON WHICH THEY ARE ERECTED. ROOFTOP STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 1510.

    TYPE IIA CONSTRUCTION, R-2 OCCUPANCY, BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1
    - MAXIMUM HEIGHT IN FEET = 85'-0"
    - MAXIMUM HEIGHT IN STORIES = 7
- SECTION 506 BUILDING AREA MODIFICATIONS
  - 506.1.3 BASEMENT AND CELLAR
    A SINGLE BASEMENT OR CELLAR NEED NOT BE INCLUDED IN THE TOTAL ALLOWABLE BUILDING AREA, PROVIDED SUCH BASEMENT OR CELLAR DOES NOT EXCEED THE AREA PERMITTED FOR A BUILDING WITH NO MORE THAN ONE STORY ABOVE GRADE PLANE.
  - 506.2 ALLOWABLE AREA DETERMINATION
    TYPE IIA CONSTRUCTION, R-2 OCCUPANCY, BUILDING EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1
    - ALLOWABLE AREA = UNLIMITED
- SECTION 507 UNLIMITED AREA BUILDINGS
  - 507.17 GROUP R BUILDINGS
    THE AREA OF GROUP R-1 AND R-2 BUILDINGS OF TYPE IIA, IIIA OR IV CONSTRUCTION SHALL NOT BE LIMITED WHERE THE BUILDING IS PROTECTED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM WITH SECTION 903.3.1.1 OR 903.3.1.2, AS APPLICABLE.
- SECTION 508 MIXED USE AND OCCUPANCY
  EACH PORTION OF A BUILDING SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. WHERE A BUILDING CONTAINS MORE THAN ONE OCCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTIONS 508.2, 508.3 OR 508.4, OR A COMBINATION OF THESE SECTIONS.
  EXCEPTIONS:
  1. OCCUPANCIES SEPARATED IN ACCORDANCE WITH SECTION 510.
  3. WHERE IDENTIFIED IN TABLE 509, ROOMS OR SPACES SHALL BE TREATED AS INCIDENTAL USES.
  4. WHERE NOT IDENTIFIED IN TABLE 509, MECHANICAL AND/OR ELECTRICAL EQUIPMENT ROOMS SHALL BE PERMITTED TO BE CLASSIFIED AS THE OCCUPANCY WITHIN WHICH THEY ARE LOCATED, OR AT THE OPTION OF THE APPLICANT, CLASSIFIED AS GROUP F-2 OCCUPANCY IN ACCORDANCE WITH SECTION 306.3.

TABLE 509
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
ROOMS CONTAINING FIRE PUMPS IN NON-HIGH-RISE BUILDINGS	2 HOURS; OR 1 HOUR AND PROVIDE AUTOMATIC SPRINKLER SYSTEM THROUGHOUT THE BUILDING

- SECTION 509 INCIDENTAL USES
  - 509.2 OCCUPANCY CLASSIFICATION
    INCIDENTAL USES SHALL NOT BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. INCIDENTAL USES SHALL BE INCLUDED IN THE BUILDING OCCUPANCIES WITHIN WHICH THEY ARE LOCATED.
  - 509.3 AREA LIMITATIONS
    INCIDENTAL USES SHALL NOT OCCUPY MORE THAN 10 PERCENT OF THE BUILDING IN WHICH THEY ARE LOCATED.
- SECTION 510 SPECIAL PROVISIONS
  - 510.2 HORIZONTAL BUILDING SEPARATION ALLOWANCE
    BUILDINGS SHALL BE CONSIDERED AS SEPARATE AND DISTINCT FROM EACH OTHER FOR THE PURPOSE OF DETERMING AREA LIMITATIONS, CONTINUITY OF FIRE WALLS, LIMITATION OF NUMBER OF STORIES, AND TYPE OF CONSTRUCTION, WHERE ALL OF THE FOLLOWING CONDITIONS ARE MET:
    1. THE BUILDINGS ARE SEPARATED WITH A HORIZONTAL FLOOR ASSEMBLY HAVING A FIRE-RESISTANCE RATING OF NOT LESS THAN 3 HOURS.
    2. THE BUILDING BELOW THE HORIZONTAL ASSEMBLY IS OF TYPE IA CONSTRUCTION.
    3. SHAFT, STAIRWAY, RAMP OR ESCALATOR ENCLOSURES THROUGH THE HORIZONTAL FLOOR ASSEMBLY SHALL HAVE NOT LESS THAN A 2-HOUR FIRE-RESISTANCE RATING WITH OPENING PROTECTIVES IN ACCORDANCE WITH SECTION 716.5.
       EXECPTIONS: WHERE THE ENCLOSURE WALLS BELOW THE HORIZONTAL FLOOR ASSEMBLY HAVE NOT LESS THAN A 3-HOUR FIRE-RESISTANCE RATING WITH OPENING PROTECTIVES IN ACCORDANCE WITH SECTION 716.5, THE ENCLOSURE WALLS EXTENDING ABOVE THE HORIZONTAL FLOOR ASSEMBLY SHALL BE PERMITTED TO HAVE A 1-HOUR FIRE-RESISTANCE RATING, PROVIDED:
       1. THE BUILDING ABOVE THE HORIZONTAL FLOOR ASSEMBLY IS NOT REQUIRED TO BE TYPE I CONSTRUCTION;
       2. THE ENCLOSURE CONNECTS FEWER THAN FOUR STORIES; AND
       3. THE ENCLOSURE OPENING PROTECTIVES ABOVE THE HORIZONTAL FLOOR ASSEMBLY HAVE A FIRE PROTECTION RATING OF NOT LESS THAN 1 HOUR.
    1. THE BUILDING OR BUILDINGS ABOVE THE HORIZONTAL ASSEMBLY SHALL BE PERMITTED TO HAVE MULTIPLE GROUP A OCCUPANCY USES, EACH WITH AN OCCUPANT LOAD OF LESS THAN 300, OR GROUP B, M, R OR S OCCUPANCIES.
    2. THE BUILDING BELOW THE HORIZONTAL ASSEMBLY SHALL BE PROTECTED THROUGHOUT BY AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, AND SHALL BE PERMITTED TO BE ANY OCCUPANCY ALLOWED BY THIS CODE EXCEPT GROUP H.
    3. THE MAXIMUM BUILDING HEIGHT IN FEET AS MEASURED FROM THE GRADE PLANE SHALL NOT EXCEED THE LIMITS SET FORTH IN SECTION 504.3 FOR THE BUILDING HAVING THE SMALLER ALLOWABLE HEIGHT AS MEASURED FROM THE GRADE PLANE.

CHAPTER 6 - CONSTRUCTION CLASSIFICATION

- CONSTRUCTION CLASSIFICATION: IB (WITH AUTOMATIC SPRINKLER SYSTEM)
- TABLE 601 - FIRE RESISTANCE RATING REQUIREMENTS FOR NEW BUILDING ELEMENTS (HOURS)
  - TYPE IB

PRIMARY STRUCTURAL FRAME =	2 HOUR[a]
BEARING WALLS, EXTERIOR =	2 HOUR
BEARING WALLS, INTERIOR =	2 HOUR[a]
NONBEARING WALLS/PARTITIONS, EXTERIOR =	TABLE 602
NONBEARING WALLS/PARTITIONS, INTERIOR =	0 HOUR
FLOOR CONSTRUCTION =	2 HOUR
ROOF CONSTRUCTION =	1 HOUR

  a. ROOF SUPPORTS: FIRE-RESISTANCE RATINGS OF PRIMARY STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING A ROOF ONLY.

TABLE 602
FIRE RESISTANCE RQMTS FOR EXTERIOR WALLS BASED ON FIRE SEP. DISTANCE

FIRE SEP. DISTANCE	CONSTRUCTION TYPE	OCCUPANCY	RATING
X < 5[c]	ALL	B, R, S-2	1
5 ≤ X < 10	IA	B, R, S-2	1
	OTHERS		1
10 ≤ X < 30	IA	B, R, S-2	1
	OTHERS		1
X ≥ 30	ALL	B, R, S-2	0

c. SEE SECTION 706.1.1 FOR PARTY WALLS.

- REFER TO DRAWINGS ON LS101, LS102, LS103, AND LS104 FOR FIRE SEPARATION DISTANCES PER CHAPTER 7.
- ALL FIRE SEPARATION DISTANCES ARE MEASURED FROM THE BUILDING FACE TO:
  1. THE CLOSEST INTERIOR LOT LINE
  2. THE CENTER LINE OF A STREET, AN ALLEY, OR PUBLIC WAY MEASURED AT RIGHT ANGLES FROM THE FACE OF THE WALL

CHAPTER 7 - FIRE AND SMOKE PROTECTION FEATURES

- SECTION 705 EXTERIOR WALLS
  - 705.3 BUILDINGS ON THE SAME TAX LOT
    FOR THE PURPOSES OF DETERMINING THE REQUIRED WALL AND OPENING PROTECTION, PROJECTIONS AND ROOF-COVERING REQUIREMETNS, BUILDING ON THE SAME TAX LOT SHALL BE ASSUMED TO HAVE AN IMAGINARY LINE BETWEEN THEM.
    EXCEPTIONS:
    1. TWO OR MORE BUILDINGS ON THE SAME TAX LOT SHALL BE EITHER REGULATED AS SEPARATE BUILDINGS OR SHALL BE CONSIDERED AS PORTIONS OF ONE BUILDING IF THE AGGREGATE AREA OF SUCH BUILDINGS IS WITHIN THE LIMITS SPECIFIED IN CHAPTER 5 FOR A SINGLE BUILDING. WHERE THE BUILDINGS CONTAIN DIFFERENT OCCUPANCY GROUPS OR ARE OF DIFFERENT TYPES OF CONSTRUCTION, THE AREA SHALL BE THAT ALLOWED FOR THE MOST RESTRICTIVE OCCUPANCY OR CONSTRUCTION.
  - 705.8.3 UNPROTECTED OPENINGS
    WHERE UNPROTECTED OPENINGS ARE PERMITTED, WINDOWS AND DOORS SHALL BE CONSTRUCTED OF ANY APPROVED MATERIALS. GLAZING SHALL CONFORM TO THE REQUIREMENTS OF CHAPTERS 24 AND 26.
  - 705.8.5 VERTICAL SEPARATION OF OPENINGS
    THIS SECTION SHALL NOT APPLY TO BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.

TABLE 706.4
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING
R-2	3 HOURS
M	3 HOURS
S-2	2

- SECTION 707 FIRE BARRIERS
  - 707.4 EXTERIOR WALLS
    WHERE EXTERIOR WALLS SERVE AS A PART OF A REQUIRED FIRE-RESISTANCE-RATED SHAFT, STAIRWAY OR RAMP ENCLOSURE, OR SEPARATION, SUCH WALLS SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 705 FOR EXTERIOR WALLS AND THE FIRE-RESISTANCE-RATED ENCLOSURE OR SEPARATION REQUIREMENTS SHALL NOT APPLY.
  - 707.6 OPENINGS
    OPENINGS IN A FIRE BARRIER SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 716. OPENINGS SHALL BE LIMITED TO A MAXIMUM AGGREGATE WIDTH OF 25 PERCENT OF THE LENGTH OF THE WALL. OPENINGS SHALL NOT BE LIMITED TO 156 SQUAREE FEET WHERE ADJOINING FLOOR AREAS ARE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1.
  - 708.4 CONTINUITY
    FIRE PARTITIONS SHALL EXTEND FROM THE TOP OF THE FOUNDATION OR FLOOR/CEILING ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, SLAB OR DECK ABOVE OR TO THE FIRE-RESISTANCE-RATED FLOOR/CEILING OR ROOF/CEILING ASSEMBLY ABOVE, AND SHALL BE SECURELY ATTACHED THERETO. IF THE FIRE PARTITIONS ARE NOT CONTINUOUS TO THE SHEATHING, DECK OR SLAB, THE SPACE BETWEEN THE CEILING AND THE SHEATHING, DECK OR SLAB ABOVE SHALL BE FIRE BLOCKED OR DRAFT STOPPED IN ACCORDANCE WITH SECTIONS 718.2 AND 718.3 AT THE PARTITION LINE. THE SUPPORTING CONSTRUCTION SHALL BE PROTECTED TO AFFORD THE REQUIRED FIRE-RESISTANCE RATING OF THE WALL SUPPORTED.

- SECTION 711 HORIZONTAL ASSEMBLIES
  - 711.2.4 FIRE-RESISTANCE RATING
    THE FIRE-RESISTANCE RATING OF HORIZONTAL ASSEMBLIES SHALL COMPLY WITH SECTIONS 711.2.4.1 THROUGH 711.2.4.6 BUT SHALL NOT BE LESS THAN THAT REQUIRED BY THE BUILDING TYPE OF CONSTRUCTION.
  - 711.2.4.1 SEPARATING MIXED OCCUPANCIES
    WHERE THE HORIZONTAL ASSEMBLY SEPARATES MIXED OCCUPANCIES, THE ASSEMBLY SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN THAT REQUIRED BY SECTION 508.4 BASED ON THE OCCUPANCIES BEING SEPARATED.
  - 711.2.4.3 DWELLING UNITS AND SLEEPING UNITS
    HORIZONTAL ASSEMBLIES SERVING AS DWELLING OR SLEEPING UNIT SEPARATIONS IN ACCORDANCE WITH SECTION 420.3, LOCATED IN GROUP I-1 AND R OCCUPANCIES, SHALL BE NOT LESS THAN 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION.
  - 711.2.4.5 SEPARATING INCIDENTAL USES
    WHERE THE HORIZONTAL ASSEMBLY SEPARATED INCIDENTAL USES FROM THE REMAINDER OF THE BUILDING, THE ASSEMBLY SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN THAT REQUIRED BY SECTION 509.
- SECTION 712 VERTICAL OPENINGS
  - 712.1.2 INDIVIDUAL DWELLING UNIT
    UNCONCEALED VERTICAL OPENINGS TOTALLY WITHIN AN INDIVIDUAL RESIDENTIAL DWELLING UNIT AND CONNECTING FOUR STORIES OR LESS, WHERE SUCH DWELLING UNIT IS FULLY SPRINKLERED IN ACCORDANCE WITH SECTIONS 903.3.1.1, 903.3.1.2 OR 903.3.1.3, SHALL BE PERMITTED.

    712.1.10 PARKING GARAGES
    VERTICAL OPENINGS IN PARKING GARAGES FOR AUTOMOBILE RAMPS, ELEVATORS AND DUCT SYSTEMS SHALL COMPLY WITH SECTION 712.1.10, 712.1.10.2 OR 712.1.10.3, AS APPLICABLE. VERTICAL OPENINGS FOR AUTOMOBILE RAMPS IN OPEN AND ENCLOSED PARKING GARAGES SHALL BE PERMITTED WHERE CONSTRUCTED IN ACCORDANCE WITH SECTIONS 406.5 AND 406.6, RESPECTIVELY.
- SECTION 713 SHAFT ENCLOSURES
  - 713.2 CONSTRUCTION
    SHAFT ENCLOSURES SHALL BE CONSTRUCTED AS FIRE BARRIERS IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES IN ACCORDANCE WITH SECTION 711, OR BOTH.
  - 713.4 FIRE-RESISTANCE RATING
    SHAFT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 2 HOURS WHERE PENETRATING THREE STORIES OR MORE, AND NOT LESS THAN 1 HOUR WHERE PENETRATING FEWER THAN THREE STORIES. THE NUMBER OF STORIES CONNECTED BY THE SHAFT ENCLOSURE SHALL INCLUDE ANY BASEMENTS OR CELLARS, BUT NOT ANY MEZZANINES. SHAFT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING NOT LESS THAN THE FLOOR ASSEMBLY PENETRATED, BUT NEED NOT EXCEED 2 HOURS. SHAFT ENCLOSURES SHALL MEET THE REQUIREMENTS OF SECTION 703.2.1.
  - 713.7 OPENINGS
    OPENINGS IN A SHAFT ENCLOSURE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 716 AS REQUIRED FOR FIRE BARRIERS. DOORS SHALL BE SELF- OR AUTOMATIC-CLOSING BY SMOKE DETECTION IN ACCORDANCE WITH SECTION 716.5.9.3. AUTOMATIC-CLOSING BY SMOKE DETECTION IS NOT PERMITTED FOR DOORS SERVING INTERIOR EXIT STAIRWAYS OR RAMPS.
    - OPENINGS OTHER THAN THOSE NECESSARY FOR THE PURPOSE OF THE SHAFT SHALL NOT BE PERMITTED IN SHAFT ENCLOSURES.
  - 713.8 PENETRATIONS
    PENETRATIOSN IN A SHAFT ENCLOSURE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 714 AS REQUIRED FOR FIRE BARRIERS. STRUCTURAL ELEMENTS, SUCH AS BEAMS OR JOISTS, WHERE PROTECTED IN ACCORDANCE WITH SECTION 714 SHALL BE PERMITTED TO PENETRATE A SHAFT ENCLOSURE.
    - PENETRATIONS OTHER THAN THOSE NECESSARY FOR THE PURPOSE OF THE SHAFT SHALL NOT BE PERMITTED IN SHAFT ENCLOSURES.
  - 713.11 ENCLOSURE AT THE BOTTOM
    SHAFTS THAT DO NOT EXTEND TO THE BOTTOM OF THE BUILDING OR STRUCTURE SHALL COMPLY WITH ONE OF THE FOLLOWING:
    2. THEY SHALL TERMINATE IN A ROOM HAVING A USE RELATED TO THE PURPOSE OF THE SHAFT. THE ROOM SHALL BE SEPARATED FROM THE REMAINDER OF THE BUILDING BY FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH. THE FIRE-RESISTANCE RATING AND OPENING PROTECTIVES SHALL BE NOT LESS THAN THE PROTECTION REQUIRED FOR THE SHAFT ENCLOSURE.
  - 713.12 ENCLOSURE AT THE TOP
    SHAFTS THAT DO NOT EXTEND TO THE TOP OF THE BUILDING OR STRUCTURE SHALL COMPLY WITH ONE OF THE FOLLOWING:
    1. THEY SHALL BE ENCLOSED AT THE HIGHEST LEVEL WITH CONSTRUCTION OF THE SAME FIRE-RESISTANCE RATING AS THE HIGHEST FLOOR THROUGH WHICH THE SHAFT PASSES, BUT NOT LESS THAN THE RATING REQUIRED FOR THE SHAFT ENCLOSURE.
  - 713.13.1 WASTE AND LINEN
    A SHAFT ENCLOSURE CONTAINING A RECYCLING, OR WASTE OR LINEN CHUTE, AND ANY ASSOCIATED DISCHARGE ROOM, SHALL NOT BE USED FOR ANY OTHER PURPOSE AND SHALL HAVE A FIRE-RESISTANCE RATING OF 2 HOURS. OPENINGS INTO THE SHAFT, INCLUDING THOSE FROM ACCESS ROOMS AND DISCHARGE ROOMS, SHALL BE PROTECTED IN ACCORDANCE WITH THIS SECTION AND SECTION 716. OPENINGS INTO CHUTES SHALL NOT BE LOCATED IN CORRIDORS. DOORS INTO CHUTES SHALL BE SELF-CLOSING. DISCHARGE DOORS SHALL BE SELF-, OR AUTOMATIC-CLOSING UPON THE ACTUATION OF A SMOKE DETECTOR IN ACCORDANCE WITH SECTION 716.5.9.3, EXCEPT THAT HEAT-ACTIVATED CLOSING DEVICES SHALL BE PERMITTED BETWEEN THE SHAFT AND THE DISCHARGE ROOM.
  - 713.13.3 WASTE AND LINEN CHUTE ACCESS ROOMS
    ACCESS OPENINGS FOR WASTE AND LINEN CHUTES SHALL BE LOCATED IN DEDICATED ROOMS OR COMPARTMENTS ENCLOSED BY NOT LESS THAN 2-HOUR FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711 OR BOTH. OPENINGS INTO THE ACCESS ROOMS SHALL BE PROTECTED BY OPENING PROTECTIVES HAVING A FIRE PROTECTION RATING OF NOT LESS THAN 1 1/2 HOURS. DOORS TO ACCESS ROOMS SHALL BE SELF-CLOSING, EXCEPT WHERE THE STORAGE OF WASTE, INCLUDING RECYCLABES, OR LINEN AND OTHER LAUNDRY, IS NOT PERMITTED IN SUCH ACCESS ROOM, DOORS M

- 906.5 CONSPICUOUS LOCATION
  PORTABLE FIRE EXTINGUISHERS SHALL BE LOCATED IN CONSPICUOUS LOCATIONS WHERE THEY WILL BE READILY ACCESSIBLE AND IMMEDIATELY AVAILABLE FOR USE. THESE LOCATIONS SHALL BE ALONG NORMAL PATHS OF TRAVEL, UNLESS THE COMMISSIONER DETERMINES THAT THE HAZARD POSED INDICATES THE NEED FOR PLACEMENT AWAY FROM NORMAL PATHS OF TRAVEL.

- SECTION 907 FIRE ALARM AND DETECTION SYSTEMS
  - 907.2 WHERE REQUIED
    THE MANUAL FIRE ALARM BOX IS NOT REQUIRED FOR GROUP R-2 OCCUPANCIES UNLESS REQUIRED BY THE FIRE DEPARTMENT TO PROVIDE A MEANS FOR FIRE WATCH PERSONNEL TO INITIATE AN ALARM DURING A SPRINKLER SYSTEM IMPAIREMENT EVENT. WHERE PROVIDED, THE MANUAL FIRE ALARM BOX SHALL NOT BE LOCATED IN AN AREA THAT IS ACCESSIBLE TO THE PUBLIC.
  - 907.2.9 GROUP R-2
    A FIRE ALARM SYSTEM WITHOUT ALARM NOTIFICATION APPLIANCES AND SMOKE ALARMS SHALL BE INSTALLED IN ACCORDANCE WITH THIS SECTION IN GROUP R-2 OCCUPANCIES, OTHER THAN STUDENT APARTMENTS, WHERE SUCH OCCUPANT SATISFIES ANY ONE OF THE FOLLOWING CONDITIONS:
    1. ANY DWELLING UNIT IS LOCATED THREE OR MORE STORIES ABOVE THE LOWEST LEVEL OF EXIT DISCHARGE, INCLUDING DWELLING UNITS IN PENTHOUSES OF ANY AREA;
    3. THE BUILDING CONTAINS MORE THAN 16 DWELLING UNITS.

    ACTUATION OF SMOKE DETECTORS SHALL NOT INITIATE A SIGNAL TO ALARM NOTIFICATION APPLIANCES. THE ACTIVATION OF ANY DETECTOR REQUIRED BY THIS SECTION SHALL INITIATE A SIGNAL AT A CENTRAL STATION OR A CONSTANTLY ATTENDED LOCATION. SMOKE DETECTORS SHALL BE LOCATED AS FOLLOWS:
    1. IN EACH MECHANICAL EQUIPMENT, ELECTRICAL, TRANSFORMER, TELEPHONE EQUIPMENT OR SIMILAR ROOM.
    2. IN AIR DISTRIBUTION SYSTEMS IN ACCORDANCE WITH SECTION 606 OF THE NEW YORK CITY MECHANICAL CODE.
    3. IN ELEVATOR MACHINE ROOMS AND IN ELEVATOR LOBBIES.
  - 907.2.10 GROUP S
    A MANUAL AND AUTOMATIC FIRE ALARM SYSTEM SHALL BE INSTALLED IN GROUP S OCCUPANCIES WHERE ANY ONE OF THE FOLLOWING CONDITIONS EXISTS:
    1. GROUP S FIRE AREA HAS AN OCCUPANT LOAD OF 300 OCCUPANTS OR MORE;
    2. THE COMBINED OCCUPANT LOAD OF ALL GROUP S FIRE AREAS ON ALL FLOORS, INCLUDING MEZZANINES, IS 300 OR MORE.
  - 907.2.11.1 SMOKE ALARMS IN GROUPS R-2 AND R-3
    SINGLE- OR MULTIPLE-STATION SMOKE ALARMS SHALL BE INSTALLED AND MAINTAINED IN GROUPS R-2 AND R-3, REGARDLESS OF OCCUPANT LOAD AT ALL OF THE FOLLOWING LOCATIONS WITHIN ALL DWELLING UNITS:
    1. ON THE CEILING OR WALL OUTSIDE OF EACH ROOM USED FOR SLEEPING PURPOSES WITHIN 15 FEET FROM THE DOOR TO SUCH ROOM.
    2. IN EACH ROOM USED FOR SLEEPING PURPOSES.
    3. IN EACH STORY WITHIN A DWELLING UNIT, INCLUDING BELOW-GRADE STORIES AND PENTHOUSES OF ANY AREA, BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
  - 907.2.11.1.1 GROUP R-2 OCCUPANCY
    SMOKE ALARMS SHALL BE PROVIDED WITH THE CAPABILITY TO SUPPORT VISIBLE ALARM NOTIFICATION APPLIANCES IN ACCORDANCE WITH ICC/ANSI A117.1.
  - 907.2.11.1.1 GROUP R-2 OCCUPANCY
    SMOKE ALARMS SHALL BE PROVIDED WITH THE CAPABILITY TO SUPPORT VISIBLE ALARM NOTIFICATION APPLIANCES IN ACCORDANCE WITH ICC/ANSI A117.1.

- SECTION 913 FIRE PUMPS
  - 913.2.1 PROTECTION OF FIRE PUMP ROOMS
    FIRE PUMPS SHALL BE LOCATED IN ROOMS THAT ARE SEPARATED FROM ALL OTHER AREAS OF THE BUILDING BY 2-HOUR FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR 2-HOUR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH.
    EXCEPTION 1: IN OTHER THAN HIGH-RISE BUILDINGS, SEPARATION BY 1-HOUR FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR 1-HOUR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH, SHALL BE PERMITTED IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2.

CHAPTER 10 - MEANS OF EGRESS

- REFER TO LIFE SAFETY DRAWINGS FOR COMPLETE EGRESS PLANS SHOWING INDIVIDUAL ROOM OCCUPANT LOADS, REQUIRED AND PROVIDED WIDTHS OF EGRESS COMPONENTS, EGRESS PATH OF TRAVEL, ETC.

CELLAR	=	-
GROUND & 1ST FLOOR	=	-
2ND FLOOR	=	-
3RD FLOOR	=	-
4TH FLOOR	=	-
5TH FLOOR	=	-
TOTAL OCCUPANT LOAD	=	-

OCCUPANCY TYPE	AREA	AREA PER PERSON	OCCUPANT LOAD
GROUND FLOOR:			
PARKING GARAGE	3,718 SF	300 GROSS	13
7-ELEVEN	3,092 SF	30 GROSS	104
MAIL ROOM	123 SF	300 GROSS	1
RESIDENTIAL	5,774 SF	200 GROSS	32
CELLAR:			
BIKE STORAGE	318 SF	300 GROSS	2
ELEC. ROOM	333 SF	300 GROSS	2
COMM. ROOM	175 SF	300 GROSS	2
RESIDENTIAL	5,525 SF	200 GROSS	30
FIRE PUMP	187 SF	300 GROSS	1
SEWER, SPRINKLER	290 SF	300 GROSS	1
MECH. ROOM	132 SF	300 GROSS	1
COMPACTOR ROOM	179 SF	300 GROSS	1
ATTENDED PARKING	7,909 SF	300 GROSS	27
2ND / 4TH FLOOR:			
RESIDENTIAL	11,222 SF	200 GROSS	62
5TH FLOOR:			
RESIDENTIAL	5,008 SF	200 GROSS	26
REC. SPACE	1,694 SF	100 GROSS	17
ATTENDED PARKING	850 SF	300 GROSS	2

- SECTION 1004 OCCUPANT LOAD
  - 1004.1.1.2 CUMULATIVE OCCUPANT LOADS IN GROUP R-2 OCCUPANCIES ROOMS, AREAS OR SPACES THAT ARE ACCESSORY TO A GROUP R-2 OCCUPANCY AND THAT COMPLY WITH THE CONDITIONS BELOW MAY HAVE OCCUPANT LOADS CALCULATED INDIVIDUALLY PER ROOM, AREA, OR SPACE, AND BE CLASSIFIED AS OCCUPANCY GROUP R-2.
    - THE OCCUPANT LOAD IN EACH INDIVIDUAL ROOM, AREA AND SPACE, INCLUDING THOSE SUBJECT TO SECTION 1004.1.1.1 WHERE APPLICABLE, SHALL NOT EXCEED 74 PERSONS.
  - 1004.4 OUTDOOR AREAS
    YARDS, PATIOS, COURTS AND SIMILAR OUTDOOR AREAS ACCESSIBLE TO AND USABLE BY THE BUILDING OCCUPANTS SHALL BE PROVIDED WITH MEANS OF EGRESS AS REQUIRED BY THIS CHAPTER. THE OCCUPANT LOAD OF SUCH OUTDOOR AREAS SHALL BE DETERMINED BY THE DESIGN PROFESSIONAL SUBJECT TO THE APPROVAL OF THE COMMISSIONER. WHERE OUTDOOR AREAS ARE TO BE USED BY PERSONS IN ADDITION TO THE OCCUPANTS OF THE BUILDING, AND THE PATH OF EGRESS TRAVEL FROM THE OUTDOOR AREAS PASSES THROUGH THE BUILDING, MEANS OF EGRESS REQUIREMENTS FOR THE BUILDING SHALL BE BASED ON THE SUM OF THE OCCUPANT LOADS OF THE BUILDING PLUS THE OUTDOOR AREAS.
    EXCEPTION 1: BOTH OUTDOOR AREAS ASSOCIATED WITH GROUP R-3 AND INDIVIDUAL DWELLING UNITS OF GROUP R-2

- SECTION 1005 MEANS OF EGRESS SIZING
  - 1005.3.1 STAIRWAYS
    THE CAPACITY, IN INCHES, OF MEANS OF EGRESS STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH STAIRWAYS BY A MEANS OF EGRESS CAPACITY FACTOR OF 0.3 INCH PER OCCUPANT.
  - 1005.3.2 OTHER EGRESS COMPONENTS
    THE CAPACITY, IN INCHES, OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENT BY A MEANS OF EGRESS CAPACITY FACTOR OF 0.2 INCH PER OCCUPANT.
  - 1005.5 DISTRIBUTION OF MINIMUM WIDTH AND REQUIRED CAPACITY
    WHERE MORE THAN ONE EXIT, OR ACCESS TO MORE THAN ONE EXIT, IS REQUIRED, THE MEANS OF EGRESS SHALL BE CONFIGURED SUCH THAT THE LOSS OF ANY ONE EXIT, OR ACCESS TO ONE EXIT, SHALL NOT REDUCE THE AVAILABLE CAPACITY OR WIDTH TO LESS THAN 50 PERCENT OF THE REQUIRED CAPACITY OR WIDTH.

- SECTION 1006 NUMBER OF EXITS AND EXIT ACCESS DOORWAYS
  - 1006.2.1 EGRESS BASED ON OCCUPANT LOAD AND COMMON PATH OF EGRESS TRAVEL DISTANCE
    TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF EGRESS TRAVEL DISTANCE EXCEEDS THE VALUES LISTED IN TABLE 1006.2.1.

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE WITH SPRINKLER SYSTEM (FT)
M	74	75
R-2	20	125
S-2	29	100

  - 1006.2.2.5 VEHICULAR RAMPS
    VEHICULAR RAMPS SHALL NOT BE CONSIDERED AS AN EXIT ACCESS RAMP UNLESS PROVIDED WITH PEDESTRIAN FACILITIES ALONG THE RAMP IN ACCORDANCE WITH SECTION 1012.1.
  - 1006.3.2 EGRESS BASED ON OCCUPANT LOAD
    EACH STORY OR OCCUPIED ROOF DESIGNED FOR HUMAN OCCUPANCY OR USE SHALL HAVE THE MINIMUM NUMBER OF EXITS, OR ACCESS TO EXITS, AS SPECIFIED IN TABLE 1006.3.1. THE REQUIRED NUMBER OF EXITS, OR EXIT ACCESS STAIRWAYS OR RAMPS PROVIDING ACCESS TO EXITS, FROM ANY SUCH STORY OR OCCUPIED ROOF SHALL BE MAINTAINED UNTIL ARRIVAL AT THE EXIT DISCHARGE OR A PUBLIC WAY.

TABLE 1006.3.1
MINIMUM NUMER OF EXITS OR ACCESS TO EXITS PER STORY

OCCUPANCT LOAD PER STORY	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY
1 - 500	2

- SECTION 1006.3.2 SINGLE EXITS
  - A SINGLE EXIT OR ACCESS TO A SINGLE EXIT SHALL BE PERMITTED FROM ANY STORY OR OCCUPIED ROOF DESIGNED FOR HUMAN OCCUPANCY OR USE WHERE ONE OF THE FOLLOWING CONDITIONS EXISTS:
    1. THE OCCUPANT LOAD, NUMBER OF DWELLING UNITS AND EXIT ACCESS TRAVEL DISTANCE DO NOT EXCEED THE VALUES IN TABLE 1006.3.2.
    2. ROOMS, AREAS AND SPACES COMPLYING WITH SECTION 1006.2.1 WITH EXITS THAT DISCHARGE DIRECTLY TO THE EXTERIOR AT THE LEVEL FO EXIT DISCHARGE ARE PERMITTED TO HAVE ONE EXIT OR ACCES TO A SINGLE EXIT.

TABLE 1006.3.2
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT

STORY	OCCUPANCY	MAX OCCUPANT LOAD PER FLOOR	MAX TRAVEL DISTANCE (FEET)
FIRST STORY ABOVE GRADE PLANE OR CELLAR	M	49	75

- SECTION 1007 EXIT AND EXIT ACCESS DOORWAY CONFIGURATION
  - 1007.1.1 TWO EXITS OR EXIT ACCESS DOORWAYS
    EXCEPTION 2: WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, THE SEPARATION DISTANCE SHALL BE NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALLY DIAGONAL DIMENSIONS OF THE AREA SERVED. INTERLOCKING OR SCISSOR STAIRWAYS SHALL BE COUNTED AS ONE EXIT STAIRWAY.
  - 1007.1.1 THREE OR MORE EXITS OR EXIT ACCESS DOORWAYS
    WHERE ACCESS TO THREE OR MORE EXITS IS REQUIRED, NOT LESS THAN TWO EXIT OR EXIT ACCESS DOORWAYS SHALL BE ARRANGED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 1007.1.1. ADDITIONAL REQUIRED EXIT OR EXIT ACCESS DOORWAYS SHALL BE ARRANGED A REASONABLE DISTANCE APART SO THAT IF ONE BECOMES BLOCKED, THE OTHERS WILL BE AVAILABLE.

- SECTION 1009 ACCESSIBLE MEANS OF EGRESS
  - 1009.3.2 STAIRWAY WIDTH
    STAIRWAYS SHALL HAVE A CLEAR WIDTH OF 48 INCHES MINIMUM BETWEEN HANDRAILS.
    EXCEPTIONS
    2. THE CLEAR WIDTH OF 48 INCHES BETWEEN HANDRAILS IS NOT REQUIRED IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1. OR 903.3.1.2.
    4. AREA OF RESCUE ASSISTANCE ARE NOT REQUIRED AT STAIRWAYS IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2.
    8. AREAS OF RESCUE ASSISTANCE ARE NOT REQUIRED IN GROUP R-2 OCCUPANCIES.
  - 1009.3.3 AREA OF REFUGE
    EXCEPTION 2: AREAS OF REFUGE ARE NOT REQUIRED AT STAIRWAYS IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1.

- SECTION 1010 DOORS, GATES AND TURNSTILES
  - 1010.1.1 DOOR WIDTH
    THE REQUIRED CAPACITY OF EACH DOOR OPENING SHALL BE SUFFICIENT FOR THE OCCUPANT LOAD THEREOF AND SHALL PROVIDE A MINIMUM CLEAR WIDTH OF 32 INCHES. THE MAXIMUM WIDTH OF A SWINGING DOOR LEAF SHALL BE 48 INCHES NOMINAL.
    EXCEPTIONS:
    1. THE MINIMUM AND MAXIMUM WIDTH SHALL NOT APPLY TO DOOR OPENINGS THAT ARE NOT PART OF THE REQUIRED MEANS OF EGRESS IN GROUP R-2 OCCUPANCIES
    3. DOOR OPENINGS TO STORAGE CLOSETS LESS THAN 10 SQUARE FEET IN AREA SHALL NOT BE LIMITED BY THE MINIMUM WIDTH.
  - 1010.1.1.3 HEIGHT
    THE HEIGHT OF DOORS SHALL BE NOT LESS THAN 80 INCHES.
    EXCEPTIONS:
    1. DOOR OPENINGS WITHIN A DWELLING UNIT OR SLEEPING UNIT SHALL BE NOT LESS THAN 78 INCHES IN HEIGHT.
    2. EXTERIOR DOOR OPENINGS IN DWELLING UNITS AND SLEEPING UNITS, OTHER THAN THE REQUIRED EXIT DOOR, SHALL BE NOT LESS THAN 76 INCHES IN HEIGHT.
  - 1010.1.2.1 MOUNTING
    EGRESS DOORS SHALL BE OF THE PIVOTED OR SIDE-HINGED SWINGING TYPE.
    EXCEPTION 4: DOORS WITHIN OR SERVING A SINGLE DWELLING UNIT IN GROUPS R-2 AND R-3.
  - 1010.1.2.2 DIRECTION OF SWING
    EXCEPTION: DOORS NEED NOT SWING IN THE DIRECTION OF EGRESS TRAVEL FOR EXTERIOR STREET FLOOR EXIT DOORS FROM LOBBIES SERVING ONLY GROUP R-2 OR R-3 OCCUPANCIES.

- SECTION 1011 STAIRWAYS
  - 1011.2 WIDTH AND CAPACITY
    THE REQUIRED CAPACITY OF STAIRWAYS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005, BUT THE MINIMUM WIDTH SHALL BE NOT LESS THAN 44 INCHES.
    EXCEPTIONS:
    1. A WIDTH OF NOT LESS THAN 36 INCHES SHALL BE PERMITTED IN:
       - A STAIRWAY THAT SERVES AN OCCUPANT LOAD OF 50 OR LESS CUMULATIVE FOR ALL STORIES; OR
       - A STAIRWAY THAT PROVIDES EGRESS TO THE EXIT DISCHARGE SOLELY FOR THE USE OF GROUP R-2 OCCUPANCIES, PROVIDED THE BUILDING IT SERVES 125 FEET OR LESS IN HEIGHT, AND PROVIDED SUCH A STAIRWAY SERVES NOT MORE THAN 30 OCCUPANTS PER FLOOR.
  - 1011.3 HEADROOM
    STAIRWAYS SHALL HAVE A HEADROOM CLEARANCE OF NOT LESS THAN 80 INCHES MEASURED VERTICALLY FROM A LINE CONNECTING THE EDGE OF THE NOSING AND SHALL BE MAINTAINED THE FULL WIDTH OF THE STAIRWAY AND LANDING.
  - 1011.5.2 RISER HEIGHT AND TREAD DEPTH
    STAIR RISER HEIGHTS SHALL BE 7 INCHES MAXIMUM AND 4 INCHES MINIMUM. THE RISER HEIGHT SHALL BE MEASURED VERTICALLY BETWEEN THE NOSINGS OF ADJACENT TREADS. RECTANGULAR TREAD DEPTHS SHALL BE 11 INCHES MINIMUM MEASURED HORIZONTALLY BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AND AT A RIGHT ANGLE TO THE TREAD'S NOSING.
  - 1011.6 STAIRWAY LANDINGS
    THERE SHALL BE A FLOOR OR LANDING AT THE TOP AND BOTTOM OF EACH STAIRWAY. THE WIDTH OF LANDINGS SHALL BE NOT LESS THAN THE WIDTH OF STAIRWAYS SERVED. EVERY LANDING SHALL HAVE A MINIMUM WIDTH MEASURED PERPENDICULAR TO THE DIRECTION OF TRAVEL EQUAL TO THE WIDTH OF THE STAIRWAY. WHERE THE STAIRWAY HAS A STRAIGHT RUN, THE DEPTH NEED NOT EXCEED 48 INCHES.
  - 1011.7 STAIRWAY CONSTRUCTION
    STAIRWAYS SHALL BE BUILT OF MATERIALS CONSISTENT WITH THE TYPES PERMITTED FOR THE TYPE OF CONSTRUCTION OF THE BUILDING, EXCEPT THAT WOOD HANDRAILS SHALL BE PERMITTED FOR ALL TYPES OF CONSTRUCTION.
  - 1011.12 STAIRWAY TO ROOF AND ROOF ACCESS
    IN BUILDINGS FOUR OR MORE STORIES OR MORE THAN 40 FEET IN HEIGHT ABOVE GRADE, ONE STAIRWAY SHALL EXTEND TO THE ROOF SURFACE THROUGH A STAIRWAY BULKHEAD COMPLYING WITH SECTION 1510.2.

- SECTION 1012 RAMPS
  - 1012.2 SLOPE
    RAMPS USED AS PART OF A MEANS EF EGRESS OR PART OF AN ACCESSIBLE ROUTE SHALL HAVE A RUNNING SLOPE NOT STEEPER THAN ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL.
  - 1012.4 VERTICAL RISE
    THE RISE FOR ANY RAMP RUN SHALL BE 30 INCHES MAXIMUM.
  - 1012.5.1 WIDTH AND CAPACITY
    THE MINIMUM WIDTH AND REQUIRED CAPACITY OF A MEANS OF EGRESS RAMP SHALL BE NOT LESS THAN THAT REQUIRED FOR CORRIDORS BY SECTION 1020. THE CLEAR WIDTH OF A RAMP BETWEEN HANDRAILS, IF PROVIDED, OR OTHER PERMISSIBLE PROJECTIONS SHALL BE 36 INCHES MINIMUM.
  - 1012.5.2 HEADROOM
    THE MINIMUM HEADROOM IN ALL PARTS OF THE MEANS OF EGRESS RAMP SHALL BE NOT LESS THAN 84 INCHES.
  - 1012.6 LANDINGS
    RAMP LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN ONE UNIT VERTICAL IN 48 UNITS HORIZONTAL IN ANY DIRECTION. CHANGES IN LEVEL ARE NOT PERMITTED. THE LANDING WIDTH SHALL NOT BE LESS THAN THAT WIDTH OF THE WIDEST RAMP RUN ADJOINING THE LANDING. THE LANDING LENGTH SHALL BE 60 INCHES MINIMUM. WHERE CHANGES IN DIRECTION OF TRAVEL OCCUR AT LANDINGS PROVIDED BETWEEN RAMP RUNS, THE LANDING SHALL BE 60 INCHES BY 60 INCHES MINIMUM.
  - 1012.7 RAMP CONSTRUCTION
    RAMPS SHALL BE BUILT OF MATERIALS CONSISTENT WITH THE TYPES PERMITTED FOR THE TYPE OF CONSTRUCTION OF THE BUILDING, EXCEPT THAT WOOD HANDRAILS SHALL BE PERMITTED FOR ALL TYPES OF CONSTRUCTION.
  - 1012.8 HANDRAILS
    RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL HAVE HANDRAILS ON BOTH SIDES. HANDRAILS SHALL COMPLY WITH SECTION 1014.
  - 1012.10 EDGE PROTECTION
    EDGE PROTECTION COMPLYING WITH SECTION 1012.10.1 SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND AT EACH SIDE OF RAMP LANDINGS NOT ADJOINING ANOTHER RAMP RUN OR STAIRWAY.

- SECTION 1013 EXIT SIGNS
  - EXIT SIGNS SHALL BE PROVIDED PER SECTION 1013.1
    - EXCEPTION 1: EXIT SIGNS ARE NOT REQUIRED IN ROOMS OR AREAS THAT REQUIRE ONLY ONE EXIT OR EXIT ACCESS.
    - EXCEPT 2: EXIT SIGNS ARE NOT REQUIRED IN OCCUPANCIES IN GROUP U AND INDIVIDUAL SLEEPING UNITS OR DWELLING UNITS IN GROUP I-1 OR R. HOWEVER, IN CONGREGATE LIVING UNIT WHERE THE OCCUPANCY OF SUCH UNIT EXCEED FOUR PEOPLE, EXIT SIGNS SHALL BE PROVIDED.

- SECTION 1014 HANDRAILS
  - 1014.2 HEIGHT
    HANDRAIL HEIGHT, MEASURED ABOVE STAIR TREAD NOSINGS, OR FINISH SURFACE OF RAMP SLOPE, SHALL BE UNIFORM, NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES.
    EXCEPTION 2: WITHIN DWELLING UNITS IN GROUP R-2 OCCUPANCIES WHERE HANDRAIL FITTINGS OR BENDINGS ARE USED TO PROVIDE CONTINUOUS TRANSITION BETWEEN FLIGHTS, TRANSITION AT WINDER TREADS, TRANSITION FROM HANDRAIL TO GUARD, OR WHERE USED AT THE START OF A FLIGHT, THE HANDRAIL HEIGHT AT THE FITTINGS OR BENDINGS SHALL BE PERMITTED TO EXCEED THE MAXIMUM HEIGHT.
  - 1014.7 CLEARANCE
    CLEAR SPACE BETWEEN A HANDRAIL AND A WALL OR OTHER SURFACE SHALL BE NOT LESS THAN 1 1/2 INCHES.

- SECTION 1016 EXIT ACCESS
  - 1016.2 EGRESS THROUGH INTERVENING SPACES
    1. EXIT ACCESS THROUGH AN ENCLOSED ELEVATOR LOBBY IS PERMITTED. ACCESS TO NOT LESS THAN ONE OF THE REQUIRED EXITS SHALL BE PROVIDED WITHOUT TRAVEL THROUGH THE ENCLOSED ELEVATOR LOBBIES REQUIRED BY SECTION 3006.
    2. EGRESS FROM A ROOM OR SPACE SHALL NOT PASS THROUGH ADJOINING OR INTERVENING ROMS OR AREAS, EXCEPT WHERE SUCH ADJOINING ROOMS OR AREAS AND THE AREA SERVED ARE ACCESSORY TO ONE OF THE OTHER, ARE NOT A GROUP H OCCUPANCY AND PROVIDE A DISCERNIBLE PATH OF EGRESS TRAVEL TO AN EXIT.
    3. AN EXIT ACCESS SHALL NOT PASS THROUGH A ROOM THAT CAN BE LOCKED TO PREVENT EGRESS.
    4. MEANS OF EGRESS FROM DWELLING UNITS OR SLEEPING AREAS SHALL NOT LEAD THROUGH OTHER SLEEPING AREAS, TOILET ROOMS OR BATHROOMS.
    5. EGRESS SHALL NOT PASS THROUGH KITCHENS, STORAGE ROOMS, CLOSETS OR SPACES USED FOR SIMILAR PURPOSES.
       EXCEPTION 1: MEANS OF EGRESS ARE NOT PROHIBITED THROUGH A KITCHEN AREA SERVING ADJOINING ROOMS CONSTITUTING PART OF THE SAME DWELLING UNIT OR SLEEPING UNIT.
  - 1016.2.1 MULTIPLE TENANTS
    WHERE MORE THAN ONE TENANT OCCUPIES ANY ON FLOOR OF A BUILDING OR STRUCTURE, EACH TENANT SPACE, DWELLING UNIT AND SLEEPING UNIT SHALL BE PROVIDED WITH ACCESS TO THE REQUIRED EXITS WITHOUT PASSING THROUGH ADJACENT TENANT SPACES, DWELLING UNITS AND SLEEPING UNITS.

- SECTION 1017 EXIT ACCESS TRAVEL DISTANCE
  - 1017.2 LIMITATIONS
    TRAVEL DISTANCE SHALL NOT EXCEED THE VALUES IN TABLE 1017.2.

TABLE 1017.2
EXIT ACCESS TRAVEL DISTANCE

OCCUPANCY	WITH SPRINKLER SYSTEM (FT)
R	200
M	200
S-2	250

- SECTION 1018 AISLES
  - 1018.3 AISLES IN GROUPS B AND M
    IN GROUP B AND M OCCUPANCIES, THE MINIMUM CLEAR AISLE WIDTH SHALL BE DETERMINED BY SECTION 1005 FOR THE OCCUPANT LOAD SERVED, BUT SHALL BE NOT LESS THAN 36 INCHES.
  - 1018.4 AISLE ACCESSWAYS IN GROUP M
  - AN AISLE ACCESSWAY SHALL BE PROVIDED ON NOT LESS THAN ONE SIDE OF EACH ELEMENT WITHIN THE MERCHANDISE PAD. THE MINIMUM CLEAR WIDTH FOR AN AISLE ACCESSWAY NOT REQUIRED TO BE ACCESSIBLE SHALL BE 30 INCHES. THE REQUIRED CLEAR WIDTH OF THE AISLE ACCESSWAY SHALL BE MEASURED PERPENDICULAR TO THE ELEMENTS AND MERCHANDISE WITHIN THE MERCHANDISE PAD. THE 30-INCH MINIMUM CLEAR WIDTH SHALL BE MAINTAINED TO PROVIDE A PATH TO AN ADJACENT AISLE OR AISLE ACCESSWAY. THE COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED 30 FEET FROM ANY POINT IN THE MERCHANDISE PAD.
    EXCEPTION: FOR AREAS SERVING NOT MORE THAN 50 OCCUPANTS, THE COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED 75 FEET.

- SECTION 1020 CORRIDORS
  - 1020.1 CONSTRUCTION
    CORRIDORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THIS SECTION. INTERIOR CORRIDOR WALLS REQUIRED TO BE FIRE-RESISTANCE RATED SHALL COMPLY WITH SECTION 708 FOR FIRE PARTITIONS. PUBLIC CORRIDOR WALLS SHALL COMPLY WITH SECTION 707 FOR FIRE BARRIERS.

    1021.1.1 INTERIOR CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE 1020.1.1.
    EXCEPTION 2: A FIRE-RESISTANCE RATING IS NOT REQUIRED FOR CORRIDORS CONTAINED WITHIN A DWELLING UNIT OR SLEEPING UNIT IN AN OCCUPANCY IN GROUP R.

    1020.1.2 PUBLIC CORRIDORS SHALL BE FIRE-RESISTANCE RATED IN ACCORDANCE WITH TABLE 1020.1.2.

TABLE 1020.1.2
PUBLIC CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	REQUIRED FIRE-RESISTANCE RATING
M (SPRINKLERED)	1
R-2 (SPRINKLERED)	1[c]
S-2 (SPRINKLERED)	1

c. CORRIDORS SERVING ACCESSORY ROOMS OR SPACES IN GROUP R-2 OCCUPANCIES PURSUANT TO SECTION 1004.1.1.2.3 SHALL BE CONSTRUCTED WITH FIRE BARRIERS WITH 1-HOUR FIRE-RESISTANCE RATING, AND 2-HOUR FIRE-RESISTANCE RATING WHERE THE DEAD-END DISTANCE EXCEEDS 40 FEET IN LENGTH.

  - 1020.2 WIDTH AND CAPACITY
    THE REQUIRED CAPACITY OF CORRIDORS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005, BUT THE MINIMUM WIDTH SHALL BE NOT LESS THAN THAT SPECIFIED IN TABLE 1020.2.

TABLE 1020.1.2
PUBLIC CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	MINIMUM WIDTH (INCHES)
WITH AN OCCUPANT LOAD OF 50 OR LESS, EXCEPT AS OTHERWISE REQUIRED BY CHAPTER 11	36
WITHIN A DWELLING UNIT, IN OCCUPANY GROUPS R-2 AND R-3, EXECPT AS OTHERWISE REQUIRED BY SECTION 1107	30

  - 1020.4 DEAD ENDS
    WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN 20 FEET IN LENGTH.
    EXCEPTIONS 4: IN OCCUPANCIES IN GROUP R-2, THE DEAD END IN A CORRIDOR SHALL NOT EXCEED 40 FEET. HOWEVER, WHERE THE CORRIDORS ARE COMPLETELY ENCLOSED IN CONSTRUCTION HAVING A 2-HOUR FIRE-RESISTANCE RATING WITH ALL DOORS OPENING INTO THE CORRIDOR BEING SELF-CLOSING AND HAVING A FIRE-RESISTANCE RATING OF 1 1/2 HOURS, THE LENGTH OF DEAD END CORRIDOR SHALL NOT EXCEED 80 FEET.

- SECTION 1023 INTERIOR EXIT STAIRWAYS AND RAMPS
  - 1023.1 GENERAL
    INTERIOR EXIT STAIRWAYS AND RAMPS SHALL BE ENCLOSED AND LEAD DIRECTLY TO THE EXTERIOR OF THE BUILDING OR SHALL BE EXTENDED TO THE EXTERIOR OF THE BUILDING WITH AN EXIT PASSAGEWAY CONFORMING TO THE REQUIREMENTS OF SECTION 1024, EXCEPT AS PERMITTED IN SECTION 1028.1. AN INTERIOR EXIT STAIRWAY OR RAMP SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN AS A MEANS OF EGRESS AND A CIRCULATION PATH.

    1023.2 CONSTRUCTION
    ENCLOSURES FOR INTERIOR EXIT STAIRWAYS AND RAMPS SHALL BE CONSTRUCTED AS FIRE BARRIERS IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH. INTERIOR EXIT STAIRWAY AND RAMP ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 2 HOURS WHERE CONNECTING FOUR STORIES OR MORE. IN GROUP R-1 AND R-2 OCCUPANCIES, WHERE INTERIOR EXIT STAIRWAYS AND RAMPS ARE REQUIRED TO HAVE A FIRE-RESISTANCE RATING OF 2 HOURS, SUCH ENCLOSURES SHALL BE CONSTR

TABLE 1006.7.3
VALET AND ATTENDED ACCESSIBLE PARKING SPACES

TOTAL PARKING SPACES PROVIDED IN PARKING FACILITIES	REQUIRED MINIMUM NUMBER OF ACCESSIBLE SPACES
26 TO 50	2

1106.7.3 VALET AND ATTENDED PARKING
THE NUMBER OF ACCESSIBLE PARKING SPACES IN FACILITIES THAT UTILIZE VALET AND ATTENDED PARKING SERVICES SHALL BE PROVIDED IN ACCORDANCE WITH TABLE 1106.7.3, AND SECTIONS 1106.7.3.1 AND 1106.7.3.2.

- SECTIONS 1107 DWELLING UNITS AND SLEEPING UNITS
  - 1107.2 DESIGN
    DWELLING UNITS AND SLEEPING UNITS WHICH ARE REQUIRED TO BE ACCESSIBLE UNITS, TYPE B+NYC UNITS, OR TYPE B UNITS SHALL COMPLY WITH THIS CODE AND THE APPLICABLE PROVISIONS OF CHAPTER 10 OF ICC A117.1. TYPE B+BYCE UNITS SHALL FURTHER COMPLY WITH SECTION 1104 OF ICC A117.1, INCLUDING ANY MODIFICATIONS MADE BY SECTIONS 1107.2.1 THROUGH 1107.2.8 OF THIS CODE. UNITS REQUIRED TO BE TYPE B+NYC UNITS OR TYPE B UNITS ARE PERMITTED TO BE DESIGNED AND CONSTRUCTED AS ACCESSIBLE UNITS.
  - 1107.3 ACCESSIBLE SPACES
    ROOMS AND SPACES AVAILABLE TO THE GENERAL PUBLIC OR AVAILABLE FOR COMMON USE BY RESIDENTS AND SERVING ACCESSIBLE UNITS, TYPE B+NYC UNITS OR TYPE B UNITS SHALL BE ACCESSIBLE. ACCESSIBLE SPACES SHALL INCLUDE, BUT NOT BE LIMITED TO, SPACES FOR RESIDENTS' USE, SUCH AS LAUNDRY ROOMS, REFUSE DISPOSAL AND STORAGE LOCATIONS, MAILBOX AREAS, RECREATIONAL FACILITIES, ASSEMBLY AND TENANTS' MEETING ROOMS, STORAGE ROOMS, MANAGEMENT OFFICES, PARKING AREAS, TOILET AND BATHING ROOMS, KITCHEN, LIVING AND DINING AREAS AND ANY EXTERIOR SPACES, INCLUDING PATIOS, TERRACES AND BALCONIES.
  - 1107.4 ACCESSIBLE ROUTE
    AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDING OR FACILITY ENTRANCES WITH THE REQUIRED ACCESSIBLE ENTRANCE(S) OF EACH ACCESSIBLE UNIT, TYPE B+NYC UNIT, AND TYPE B UNIT WITHIN THE BUILDING OR FACILITY AND WITH THOSE EXTERIOR AND INTERIOR SPACES AND FACILITIES THAT SERVE THE UNITS.
    EXCEPTION 1: EXTERIOR SPACES, INCLUDING BUT NOT LIMITED TO ROOF TERRACES, EXTERIOR DECKS, PATIOS OR BALCONIES THAT ARE PART OF TYPE B+NYC UNITS OR TYPE B UNITS, THAT ARE NOT FOR PUBLIC USE OR COMMON USE, THAT HAVE IMPERVIOUS SURFACES, AND THAT ARE NOT MORE THAN 4 INCHES BELOW THE FINISHED FLOOR LEVEL OF THE ADJACENT INTERIOR SPACE OF THE UNIT. SUCH ROOF TERRACES, DECKS, PATIOS OR BALCONIES SHALL BE DESIGNED SO THAT ACCESSIBILITY CAN BE READILY PROVIDED, WITHOUT MODIFICATIONS TO THE GUARD RAIL HEIGHTS AND STRUCTURAL SUPPORTS, BYT THE INSTALLATION OF A NONCOMBUSTIBLE RAMP IN COMPLIANCE WITH SECTION 405 OF ICC A117.1, OR A NONCOMBUSTIBLE LEVEL PLATFORM, WITH REMOVABLE PANEL FOR ACCESS TO FLOOR DRAINAGE, THAT IS PERMEABLE TO WEATHER AND IN COMPLIANCE WITH SECTION 302 AND SECTION 303 OF ICC A117.1.
  - 1107.6.2 GROUP R-2
    TYPE B+NYC UNITS AND TYPE B UNITS SHALL BE PROVIDED IN GROUP R-2 OCCUPANCIES IN ACCORDANCE WITH SECTION 1107.6.2.1.
  - 1107.6.2.1 TYPE B+BYC UNITS
    EVERY DWELLING UNIT AND SLEEPING UNIT SHALL BE A TYPE B+NYC UNIT.
- SECTION 1108 SPECIAL OCCUPANCIES
  - 1109.2 TOILET AND BATHING ROOMS
    EACH TOILET ROOM AND BATHING ROOM SHALL BE ACCESSIBLE.
  - 1109.17 REFUSE DISPOSAL, REFUSE RECYCLABLE AND REFUSE STORAGE ROOMS
    REFUSE DISPOSAL, REFUSE RECYCLABLE AND REFUSE STORAGE ROOMS INTENDED FOR COMMON-USE SHALL COMPLY WITH THIS SECTION. EACH ROOM MUST COMPLY WITH SECTION 304, SECTION 305, SECTION 309 AND SECTION 404 OF ICC A117.1. THE ROOM DOOR IS PERMITTED TO SWING INTO THE ROOM PROVIDED THAT A CLEAR FLOOR SPACE NOT LESS THAN 30 INCHES BY 48 INCHES IS PROVIDED WITHIN THE ROOM AND BEYOND THE ARC OF THE DOOR SWING.
- SECTION 1110 RECREATIONAL FACILITIES
  1110.2.2 FACILITIES SERVING TYPE A, TYPE B+NYC AND TYPE B UNITS IN A SINGLE BUILDING
  IN GROUP R-2 AND R-3 OCCUPANCIES AND WHERE THERE ARE FOUR OR MORE DWELLING UNITS, WHERE COMMON RECREATIONAL FACILITIES SERVE A SINGLE BUILDING CONTAINING TYPE A, TYPE B+NYC UNITS OR TYPE B UNITS, 25 PERCENT, BUT NOT LESS THAN ONE, OF EACH TYPE OF RECREATIONAL FACILITY SHALL BE ACCESSIBLE. EVERY RECREATIONAL FACILITY OF EACH TYPE ON A SITE SHALL BE CONSIDERED TO DETERMINE THE TOTAL NUMBER OF EACH TYPE THAT IS REQUIRED TO BE ACCESSIBLE.

CHAPTER 12 - INTERIOR ENVIRONMENT

- SECTION 1203 VENTILATION
  - 1203.4.2 OPENINGS FOR UNDER-FLOOR VENTILATION EXCEPTIONS
    3. VENTILATION OPENINGS ARE NOT REQUIRED WHERE CONTINUOUSLY OPERATED MECHANICAL VENTILATION IS PROVIDED AT A RATE OF 1.0 CUBIC FOOT PER MINUTE FOR EACH 50 SQUARE FEET OF CRAWL SPACE FLOOR AREA AND THE GROUND SURFACE IS COVERED WITH A CLASS I VAPOR RETARDER.
    4. VENTILATION OPENINGS ARE NOT REQUIRED WHERE THE GROUND SURFACE IS COVERED WITH A CLASS I VAPOR RETARDER, THE PERIMETER WALLS ARE INSULATED AND THE SPACE IS CONDITION IN ACCORDANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE.
  - 1203.5.1.2 HABITABLE SPACES
    ALL HABITABLE SPACES SHALL BE PROVIDED WITH NATURAL VENTILATION IN ACCORDANCE WITH THIS SECTION. OPENINGS PROVIDING REQUIRED NATURAL VENTILATION TO HABITABLE SPACES SHALL BE WINDOWS AND/OR GLAZED DOORS TO THE OUTDOORS.
  - 1203.5.1.2.1 MINIMUM OPENING
    THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 5 PERCENT OF THE FLOOR AREA OF THE HABITABLE SPACE BEING VENTILATED. EVERY OPENING PROVIDING REQUIRED NATURAL VENTILATION SHALL BE AT LEAST 12 SQUARE FEET OF GLAZED AREA, PROVIDING A MINIMUM OF 6 SQUARE FEET OF OPENABLE AREA.
    EXCEPTION 1: WHERE FRESH AIR IS FURNISHED IN ANY HABITABLE ROOM OR SPACE BY MECHANICAL MEANS SUPPLYING A MINIMUM OF 40 CUBIC FEET PER MINUTE, THE FREE OPENABLE AREA OF THE OPENINGS MAY BE REDUCED TO 2 1/2 PERCENT OF THE FLOOR AREA BUT EACH SUCH OPENING SHALL PROVIDED NOT LESS THAN 5 1/2 SQUARE FEET OF OPENABLE AREA.
  - 1203.5.1.3 BATHROOMS AND TOILET ROOMS IN GROUP R AND I-1 OCCUPANCIES
    BATHROOMS AND TOILET ROOMS IN GROUP R OR I-1 OCCUPANCIES SHALL BE PROVIDED WITH NATURAL VENTILATION IN ACCORDANCE WITH SECTION 1203.5.1.3, UNLESS PROVIDED WITH VENTILATION IN ACCORDANCE WITH THE NEW YORK CITY MECHANICAL CODE.
  - 1203.5.1.4 KITCHENETTES IN GROUP R AND I-1 OCCUPANCIES
    KITCHENETTES IN GROUP R OR I-1 OCCUPANCIES SHALL BE PROVIDED WITH NATURAL VENTILATION IN ACCORDANCE WITH SECTION 1203.5.1.4, UNLESS PROVIDED WITH VENTILATION IN ACCORDANCE WITH THE NEW YORK CITY MECHANICAL CODE.
- SECTION 1205 LIGHTING
  - EVERY ROOM AND SPACE IN EVERY BUILDING SHALL BE PROVIDED WITH ARTIFICIAL LIGHT IN ACCORDANCE WITH SECTION 1205.3. EVERY HABITABLE ROOM AND SPACE SHALL ALSO BE PROVIDED WITH NATURAL LIGHT BY MEANS OF EXTERIOR GLAZED OPENINGS IN ACCORDANCE WITH SECTION 1205.2.
  - 1205.2.1 MINIMUM OPENING
    THE MINIMUM NET GLAZED AREA SHALL BE NOT LESS THAN 10 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED. EVERY OPENING PROVIDING REQUIRED NATURAL LIGHT SHALL BE AT LEAST 12 SQUARE FEET OF GLAZED AREA.
- SECTION 1208 INTERIOR SPACE DIMENSIONS
  - 1208.1 MINIMUM ROOM WIDTHS
    HABITABLE SPACES, OTHER THAN A KITCHEN, SHALL BE NOT LESS THAN 8 FEET IN ANY PLAN DIMENSIONS. KITCHENS AND KITCHENETTES SHALL HAVE A CLEAR PASSAGEWAY OF NOT LESS THAN 3 FEET BETWEEN COUNTER FRONTS AND APPLIANCES OR COUNTER FRONTS AND WALLS.
    EXCEPTIONS 1: A ROOM THAT COMPLIES WITH THE REQUIREMENTS FOR NATURAL LIGHT AND NATURAL VENTILATION AND IN ADDITION HAS AN UNOBSTRUCTED OPENING OF NOT LESS THAN 60 SQUARE FEET INTO AN IMMEDIATELY ADJOINING ROOM SHALL BE NOT LESS THAN 7 FEET IN ANY PLAN DIMENSION.
  - 1208.2 MINIMUM CEILING HEIGHTS
    HABITABLE ROOMS AND SPACES SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 8 FEET. OCCUPIABLE SPACES AND CORRIDORS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET 6 INCHES. BATHROOMS, TOILET ROOMS, KITCHENS IN OTHER THAN GROUP I-1 AND R OCCUPANCIES, KITCHENETTES IN GROUP I-1 OR R OCCUPANCIES, STORAGE ROOMS AND LAUNDRY ROOMS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET. ALL MEASUREMENTS SHALL BE TAKEN FROM THE FINISHED FLOOR TO THE FINISHED UNDERSIDE OF THE CEILING OR CEILING BEAMS.
  - 1208.3.1 HABITABLE ROOMS AND SPACES
    EVERY HABITABLE ROOM OR SPACE SHALL HAVE NOT LESS THAN 80 SQUARE FEET IN NET FLOOR AREA.
  - 1208.3.2 DWELLING UNITS
    IN A DWELLING UNIT, AT LEAST ONE HABITABLE ROOM SHALL HAVE NOT LESS THAN 150 SQUARE FEET OF NET FLOOR AREA.
- SECTION 1210 TOILET AND BATHROOM REQUIREMENTS
  - 1210.2 FINISH MATERIALS
    WALLS, FLOORS AND PARTITIONS IN TOILET AND BATHROOMS SHALL COMPLY WITH SECTIONS 1210.2.1 THROUGH 1210.2.4.

    1210.2.1 FLOORS AND WALL BASES
    IN OTHER THAN DWELLING UNITS, TOILET, BATHING AND SHOWER ROOM FLOOR FINISH MATERIALS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE. THE INTERSECTIONS OF SUCH FLOORS WITH WALLS SHALL HAVE A SMOOTH, HARD, NONABSORBENT VERTICAL BASE THAT EXTENDS UPWARD ONTO THE WALLS NOT LESS THAN 4 INCHES.
    EXCEPTION: GROUP I-1, R-1 AND R-2 OCCUPANCIES SHALL HAVE A VERTICAL BASE THAT EXTENDS UPWARD ONTO WALLS AT LEAST 6 INCHES.

    1210.2.2 WALLS AND PARTITIONS
    WALLS AND PARTITIONS WITHIN 2 FEET OF SERVICE SINKS, URINALS AND WATER CLOSETS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE, TO A HEIGHT OF NOT LESS THAN 4 FEET ABOVE THE FLOOR, AND EXCEPT FOR STRUCTURAL ELEMENTS, THE MATERIALS USED IN SUCH WALLS SHALL BE OF A TYPE THAT IS NOT ADVERSELY AFFECTED BY MOISTURE.
    EXCEPTIONS:
    1. DWELLING UNITS.
    2. TOILET ROOMS THAT ARE NOT ACCESSIBLE TO THE PUBLIC AND THAT HAVE NOT MORE THAN ONE WATER CLOSET.

    ACCESSORIES SUCH AS GRAB BARS, TOWEL BARS, PAPER DISPENSERS AND SOAP DISHES, PROVIDED ON OR WITHIN WALLS, SHALL BE INSTALLED AND SEALED TO PROTECT STRUCTURAL ELEMENTS FROM MOISTURE.

    1210.2.3 SHOWERS
    SHOWER COMPARTMENTS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS SHALL BE FINISHED WITH A SMOOTH, NONABSORBENT SURFACE TO A HEIGHT NOT LESS THAN 72 INCHES ABOVE THE DRAIN INLET.

    1210.2.4 WATERPROOF JOINTS
    BUILT-IN TUBS WITH SHOWERS SHALL HAVE WATERPROOF JOINTS BETWEEN THE TUB AND ADJACENT WALL.

    1210.4 TOILET ROOMS
    IN MULTIPLE DWELLINGS NO TOILET ROOM OR BATHROOM SHALL OPEN ONTO ANY KITCHEN OR KITCHENETTE.
- SECTION 1211 KITCHENS AND KITCHENETTES
  - 1211.2 KITCHENETTES IN MULTIPLE DWELLINGS
    EXCEPT AT ENTRANCES THERETO, EVERY KITCHENETTE IN A MULTIPLE DWELLING SHALL BE SURROUNDED BY PARTITIONS EXTENDING FROM FLOOR TO CEILING, AND/OR BY A SOFFIT DROPPED 1 FOOT FROM THE CEILING.
- SECTION 1213 REFUSE AND RECYCLABLE STORAGE
  - IN GROUP R-2 OCCUPANCIES, SPACE SHALL BE PROVIDED FOR THE STORAGE OF REFUSE AND RECYCLABLES AS A COMMON ACCESSORY SPACE. SUCH REFUSE AND RECYCLABLES STORAGE SPACE SHALL BE A MINIMUM OF 1.5 SQUARE FEET PER DWELLING UNIT, OR A MINIMUM OF 250 SQUARE FEET, WHICHEVER IS LESS, FOR THE STORAGE OF COLLECTED REFUSE AND RECYCLABLES.
    EXCEPTION 1: IN MULTIPLE DWELLINGS REQUIRED TO HAVE A COMPACTOR IN ACCORDANCE WITH SECTION 1213.2, SUCH REFUSE AND RECYCLABLES STORAGE SPACE SHALL BE, IN ADDITION TO SPACE REQUIRED FOR EQUIPMENT OR CIRCULATION, A MINIMUM OF 1.0 SQUARE FOOT PER DWELLING UNIT, OR A MINIMUM OF 350 SQUARE FEET, WHICHEVER IS LESS, FOR THE STORAGE OF COLLECTED REFUSE AND RECYCLABLES.
  - 1213.1.1 INTERIOR SPACE
    WHERE AN INTERIOR ROOM IS PROVIDED FOR THE STORAGE OF REFUSE AND RECYCLABLES, SUCH ROOM SHALL BE COMPLETELY ENCLOSED BY CONSTRUCTION THAT HAS A FIRE-RESISTANCE RATING OF NOT LESS THAN 2 HOURS, WITH SELF-CLOSING OPENING PROTECTIVE HAVING A FIRE PROTECTION RATING OF NOT LESS THAN 1 1/2 HOURS.
  - 1213.2 COMPACTOR
    A REFUSE COMPACTING SYSTEM SHALL BE PROVIDED IN MULTIPLE DWELLINGS IN A GROUP I-1 OR R-2 OCCUPANCY THAT ARE FOUR OR MORE STORIES IN HEIGHT AND CONTAIN 12 OR MORE DWELLING UNITS, AND IN BUILDINGS OF ANY SIZE OCCUPIED AS A GROUP R-1 MULTIPLE DWELLING. SUCH SYSTEM SHALL BE LOCATED WITHIN A REFUSE STORAGE ROOM CONSTRUCTED IN ACCORDANCE WITH SECTION 1213.1 OR IN A REFUSE CHUTE TERMINATION ROOM CONSTRUCTION IN ACCORDANCE WITH SECTION 713.13.4. THE FLOOR WITHIN SUCH ROOM SHALL BE CONSTRUCTED OF CONCRETE AND SHALL BE SLOPED TO A FLOOR DRAIN CONNECTED TO THE BUILDING SEWER. A HOSE CONNECTION SHALL BE PROVIED WITHIN SUCH ROOM.
  - 1213.3. REFUSE CHUTE
    A MULTIPLE DWELLING THAT IS FIVE OR MORE STORIES IN HEIGHT AND THAT CONTAINS 9 OR MORE DWELLING UNITS SHALL BE PROVIDED WITH A REFUSE CHUTE, REFUSE CHUTE ACCESS ROOMS, AND REFUSE CHUTE TERMINATION ROOM CONSTRUTED IN ACCORDANCE WITH SECTION 713.13. A MINIMUM OF 5 SQUARE FEET OF FLOOR AREA WITHIN EACH REFUSE CHUTE ACCESS ROOM SHALL BE PROVIDED FOR THE TEMPORARY HOLDING OF RECYCLABLES.
  - 1213.3.1 REFUSE CHUTE ACCESS ROOM FLOOR AND WALL BASE FINISH
    REFUSE CHUTE ACCESS ROOMS SHALL HAVE A SMOOTH, HARD AND NONABSORBENT SURFACE. THE INTERSECTION OF SUCH FLOORS WITH WALLS SHALL HAVE A SMOOTH, HARD AND NONABSORBENT VERTICAL BASE THAT EXTENDS UPWARD ONTO THE WALLS AT LEAST 4 INCHES.

CHAPTER 14 - EXTERIOR WALLS

- SECTION 1403 PERFORMANCE REQUIREMENTS
  - 1403.2 WEATHER PROTECTION
    EXTERIOR WALLS SHALL PROVIDE THE BUILDING WITH A WEATHER-RESISTANT EXTERIOR WALL ENVELOPE. THE EXTERIOR WALL ENVELOPE SHALL INCLUDE FLASHING, AS DESCRIBED IN SECTION 1405.4. THE EXTERIOR WALL ENVELOPE SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER AS TO PREVENT THE ACCUMULATION OF WATER WITHIN THE WALL ASSEMBLY BY PROVIDING A WATER-RESISTIVE BARRIER BEHIND THE EXTERIOR VENEER, AS DESCRIBED IN SECTION 1404.2, AND A MEANS FOR DRAINING WATER THAT ENTERS THE ASSEMBLY TO THE EXTERIOR. PROTECTION AGAINST CONDENSATION SHALL BE PROVIDED AS REQUIRED.
  - 1403.5 VERTICAL AND LATERAL FLAME PROPAGATION
    EXTERIOR WALLS THAT CONTAIN FOAM PLASTIC INSULATION INCLUDING EXTERIOR INSULATION AND FINISH SYSTEM (EIFS), METAL COMPOSITE MATERIAL (MCM) SYSTEMS, HIGH-PRESSURE DECORATIVE EXTERIOR-GRADE COMPACT LAMINATES (HPL), AND FIBER-REINFORCED POLYMER (FRP) SHALL BE TESTED IN ACCORDANCE WITH AND COMPLY WITH THE ACCEPTANCE CRITERIA OF NFPA 285. FOAM PLASTIC INSULATION ASSEMBLIES AND FRP SHALL BE TESTED IN ACCORDANCE WITH SECTION 2603.5.5. MCM SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH SECTION 1407.11. HPL SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH SECTION 1409.11. APPROVED NFPA 285 TESTED ASSEMBLY DESIGN DOCUMENTATION SHALL BE INCLUDED ON THE SUBMITTED CONSTRUCTION DOCUMENTS COMPLYING WITH SECTION 1401.2. DEVIATION FROM THE NFPA 285 TESTED DESIGN SHALL BE APPROVED BY THE REGISTERED DESIGN PROFESSIONAL AND ADDITIONAL DOCUMENTATION SHALL BE PROVIDED IF REQUESTED BY THE DEPARTMENT. COMBUSTIBLE EXTERIOR WALL COVERINGS SHALL COMPLY WITH SECTION 1406 OF THIS CODE.
  - 1403.5.1 EXTERIOR WALLS WITH WATER-RESISTIVE BARRIERS
    EXTERIOR WALLS ON BUILDINGS OF TYPE I, II, III, OR IV CONSTRUCTION THAT ARE GREATER THAN 40 FEET IN HEIGHT ABOVE GRADE PLANE AND CONTAIN A COMBUSTIBLE WATER-RESISTIVE BARRIER SHALL BE TESTED IN ACCORDANCE WITH AND COMPLY WITH THE ACCEPTANCE CRITERIA OF NFP 285. FOR THE PURPOSES OF THIS SECTION, FENESTRATION PRODUCTS AND FLASHING OF FENESTRATION PRODUCTS AND WATER-RESISTIVE BARRIER FLASHING AND ACCESSORIES AT OTHER LOCATIONS, INCLUDING THROUGH WALL FLASHINGS AND ATTACHMENT ACCESSORIES, SHALL NOT BE CONSIDERED PART OF THE WATER-RESISTIVE BARRIER.
    EXCEPTIONS:
    1. WALLS IN WHICH THE WATER-RESISTIVE BARRIER IS THE ONLY COMBUSTIBLE COMPONENT AND THE EXTERIOR WALL HAS A WALL COVERING OF BRICK, CONCRETE, STONE, TERRA COTTA, STUCCO OR STEEL WITH MINIMUM THICKNESSES IN ACCORDANCE WITH TABLE 1405.2 OF THIS CODE.
    2. WALLS IN WHICH THE WATER-RESISTIVE BARRIER IS THE ONLY COMBUSTIBLE COMPONENT AND THE WATER-RESISTIVE BARRIER HAS A PEAK HEAT RELEASE RATE OF LESS THAN 150 kW/m², A TOTAL HEAT RELEASE OF LESS THAN 20 MJ/m² AND AN EFFECTIVE HEAT OF COMBUSTION OF LESS THAN 18 MJ/kg AS DETERMINED IN ACCORDANCE WITH ASTME E 1354 AND HAS A FLAME SPREAD INDEX OR 25 OR LESS AND A SMOKE-DEVELOPED INDEX OF 450 OR LESS AS DETERMINED IN ACCORDANCE WITH ASTM E 84 OR UL 723. THE ASTM E 1354 TEST SHALL BE CONDUCTED ON SPECIMENS AT THE THICKNESS INTENDED FOR USE, IN THE HORIZONTAL ORIENTATION AND AT AN INCIDENT RADIANT HEAT FLUX OF 50 kW/m².
  - 1403.8 BIRD FRIENDLY MATERIALS
    1403.8.1 EXTERIOR WALL ENVELOPE
    THE EXTERIOR WALL ENVELOPE, AND ANY ASSOCIATED OPENINGS, SHALL BE CONSTRUCTED WITH BIRD FRIENDLY MATERIALS UP TO 75 FEET ABOVE GRADE. MATERIALS OTHER THAN BIRD FRIENDLY MATERIALS SHALL NOT EXCEED AN AGGREGATE OF 10 SQUARE FEET WITHIN ANY 10 FEET BY 10 FEET SQUARE AREA OF EXTERIOR WALL BELOW 75 FEET ABOVE GRADE.
    EXCEPTION 1: WHERE GROUND FLOOR TRANSPARENCY IS REQUIRED BY THE NEW YORK CITY ZONING RESOLUTION, TRANSPARENT BIRD FRIENDLY MATERIAL WITH A UV-REFLECTIVE PATTERN AND A MAXIMUM THREAT FACTOR OF 27 SHALL BE PROVIDED.
  - 1403.8.2 BIRD HAZARD INSTALLATIONS
    BIRD HAZARD INSTALLATIONS SHALL BE CONSTRUCTED OF BIRD FRIENDLY MATERIALS REGARDLESS OF THEIR HEIGHT ABOVE GRADE.

CHAPTER 15 - ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

- SECTION 1503 WEATHER PROTECTION
  - ROOF DECKS SHALL BE COVERED WITH APPROVED ROOF COVERINGS SECURED TO THE BUILDING OR STRUTURE IN ACCORDANCE WITH THE PROVISIONS OF THIS CHAPTER. ROOF COVERINGS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THIS CODE AND THE MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SHALL SERVE TO PROTECT THE BUILDING OR STRUCTURE.
  - 1503.4 ROOF DRAINAGE
    DESIGN AND INSTALLATION OF ROOF DRAINAGE SYSTEMS SHALL COMPLY WITH CHAPTER 11 OF THE NEW YORK CITY PLUMBING CODE AND THIS SECTION.
  - 1503.4.1 SECONDARY (EMERGENCY OVERFLOW) DRAINS OR SCUPPERS
    WHERE ROOF DRAINS ARE REQUIRED, SECONDARY (EMERGENCY OVERFLOW) ROOF DRAINS OR SCUPPERS SHALL BE PROVIDED WHERE THE ROOF PERIMETER CONSTRUCTION EXTENDS ABOVE THE ROOF IN SUCH A MANNER THAT WATER WILL BE ENTRAPPED IF THE PRIMARY DRAINS ALLOW BUILDUP FOR ANY REASON. THE INSTALLATION AND SIZING OF SECONDARY (EMERGENCY OVERFLOW) DRAINS, LEADERS AND CONDUCTORS SHALL COMPLY WITH CHAPTER 11 OF THE NEW YORK CITY PLUMBING CODE, AS APPLICABLE.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS

- SECTION 3002 HOISTWAY ENCLOSURES
  - 3002.4 ELEVATOR REQUIRED
    IN BUILDINGS FIVE STORIES IN HEIGHT OR MORE AND BUILDINGS WITH FOUR OR MORE STORIES BELOW GRADE PLANE, AT LEAST ONE ELEVATOR SHALL PROVIDE ACCESS TO ALL FLOORS.

    3002.4.1 STANDBY POWER REQUIRED FOR ELEVATORS
    STANDBY POWER SHALL BE PROVIDED TO ELEVATORS IN THE FOLLOWING CATEGORIES:
    3. ELEVATOR(S) IN UNDERGROUND BUILDINGS, AS REQUIRED BY SECTION 405.8;
    5. ELEVATOR(S) SERVING AS ACCESSIBLE MEANS OF EGRESS PURSUANT TO SECTION 1009.4.

    - 3002.4.2 ELEVATOR CAR TO ACCOMMODATE AMBULANCE STRETCHER
      WHERE ELEVATORS ARE PROVIDED IN BUILDINGS FIVE OR MORE STORIES ABOVE, OF FOUR OR MORE STORIES BELOW GRADE PLANE, OR UNDERGROUND BUILDINGS AS DESCRIBED IN SECTION 405.1, NOT FEWER THAN ONE ELEVATOR SUBJECT TO SECTION 3003.3 SHALL BE PROVIDED WITH AN ELEVATOR CAR OF SUCH A SIZE AND ARRANGEMENT TO ACCOMMODATE AN AMBULANCE STRETCHER 24 INCHES BY 84 INCHES, WITH NOT LESS THAN 5 INCH RADIUS CORNERS, IN THE HORIZONTAL, OPEN POSITION AND SHALL BE IDENTIFIED BY THE INTERNATIONAL SYMBOL FOR EMERGENCY MEDICAL SERVICES. THE SYMBOL SHALL BE NOT LESS THAN 3 INCHES IN HEIGHT AND SHALL BE PLACED ON BOTH JAMBS OF THE HOISTWAY ENTRANCES ON EACH FLOOR. STANDBY POWER SHALL BE REQUIRED FOR SUCH AN ELEVATOR IS IT SERVES A BUILDING SUBJECT TO SECTION 3002.4.1.
    - 3005.4 MACHINE ROOMS, CONTROL ROOMS, MACHINERY SPACES, AND CONTROL SPACES
      ELEVATOR MACHINE ROOMS, CONTROL SPACES AND MACHINERY SPACES SHALL BE ENCLOSED WITH FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH. THE FIRE-RESISTANCE RATING SHALL BE NOT LESS THAN THE REQUIRED RATING OF THE HOISTWAY ENCLOSURE SERVED BY THE MACHINERY. OPENINGS IN THE FIRE BARRIERS SHALL BE PROTECTED WITH ASSEMBLIES HAVING A FIRE PROTECTION RATING NOT LESS THAN THAT REQUIRED FOR THE HOISTWAY ENCLOSURE DOORS.
    - 3005.7 ELEVATOR MACHINERY NOIST CONTROL IN MULTIPLE DWELLLINGS
      GEAR-DRIVEN MACHINERY, GEARLESS MACHINERY, AND MOTOR GENERATORS LOCATED IN AN ELEVATOR MACHINERY ROOM OR SHAFT ON A ROOF, OR ON A FLOOR OTHER THAN A FLOOR ON GRADE, SHALL BE SUPPORTED ON VIBRATION ISOLATOR PADS HAVING A MINIMUM THICKNESS OF 1/2 INCH.
- SECTION 3006 ELEVATOR LOBBIES AND HOISTWAY OPENING PROTECTION
  ELEVATOR AND OTHER HOISTWAY ENCLOSURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 713 AND CHAPTER 30.
  - 3006.1.1 ELEVATOR LOBBY
    EXCEPTION 5: ENCLOSED ELEVATOR LOBBIES ARE NOT REQUIRED ON GROUP R-2 OCCUPIED FLOORS.
- SECTION 3202 ENCROACHMENTS
  - 302.2.1.3 BALCONIES
    BALCONIES, INCLUDING RAILINGS AND SUPPORTING BRACKETS, NO PARTS OF WHICH ARE LESS THAN 10 FEET ABOVE THE GROUND OR SIDEWALK LEVEL, MAY BE CONSTRUCTED TO PROJECT NOT MORE THAN 2 FEET 6 INCHES BEYOND THE STREET LINE.
- APPENDIX F RODENT-PROOFING
  - EVERY STRUCTURE, ROOM, OR SPACE HEREAFTER ALTERED OR ERECTED IN WHICH PERSONS LIVE, SLEEP OR WORK, OR IN WHICH FEED, FOOD OR FOODSTUFFS ARE STORED, PREPARED, PROCESSED, SERVED OR SOLD, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION. ALL METAL OR WIRE PROTECTION MATERIALS SPECICFIED HEREIN SHALL BE NON-CORROSIVE.
- SECTION 504 OF THE REHABILITATION ACT OF 1973
  ALL HPD-ASSISTED PROJECTS WITH FIVE OR MORE DWELLING UNITS MUST COMPLY WITH THE ACCESSIBILITY REQUIREMENTS OF SECTION 504 OF THE REHABILITATION ACT OF 1973. SECTION 504 REQUIRES THAT, FOR PROJECTS INVOLVING THE NEW CONSTRUCTION OF HOUSING CONTAINING FIVE OR MORE DWELLING UNITS AND FOR PROJECTS INVOLVING THE SUBSTANTIAL ALTERATION OF HOUSING CONTAINING 15 OR MORE DWELLING UNITS AND WHERE THE COST OF ALTERATION IS 75% OR MORE OF THE REPLACEMENT COST OF THE COMPLETED FACILITY, A MINIMUM OF FIVE PERCENT (5%) OF THE TOTAL NUMBER OF DWELLING UNITS MUST BE ACCESSIBLE AND DESIGNATED FOR HOUSEHOLDS WITH A PERSON WITH A MOBILITY-IMPAIRMENT. AN ADDITIONAL MINIMUM OF TWO PERCENT (2%) OF THE TOTAL DWELLING UNITS MUST BE DESIGNATED FOR HOUSEHOLDS WITH A PERSON WITH A HEARING OR VISION IMPAIREMENT. THESE UNITS MUST BE DISTRIBUTED THROUGHOUT THE PROJECT AND MADE AVAILABLE IN A SUFFICIENT RANGE OF SIZES AS NOT TO LIMIT THE CHOICE OF INDIVIDUAL HOUSEHOLDS WITH PHYSICAL IMPAIRMENTS; REFER TO SECTION 8.22 AND 8.23(a).

APPENDIX D FIRE DISTRIC

- BUILDING LOCATED IN THE FIRE DISTRICT
- D102.2.5 "NO BUILDING OR SPACE CLASSIFIED IN OCCUPANCY GROUP R-1 OR R-2 MAY BE LOCATED ON A LOT CONTAINING A BUILDING CLASSIFIED IN CONSTRUCTION TYPE IIB, VA OR VB."
  - COMPLIES CONSTRUCTION TYPE IB

INTERNATIONAL PLUMBING CODE, NEW YORK CITY EDITION, 2022

CHAPTER 4 FIXTURES, FAUCETS AND FIXTURE FITTINGS

- PER SECTION 403 AND TABLE 403.1 OF THE INTERNATIONAL STANDARD PLUMBING CODE (2022) RESIDENTIAL USES REQUIRE THAT EACH UNIT IS EQUIPPED WITH A MINIMUM OF ONE WATER CLOSET, ONE LAVATORY, ONE BATH TUB OR SHOWER, AND ONE KITCHEN SINK PER UNIT. ONE AUTOMATIC CLOTHES WASHER CONNECTION PER 20 DWELLING UNITS IS REQUIRED.
  - ALL UNITS IN THIS PROJECT ARE PROVIDED WITH AT LEAST ONE WATER CLOSET, ONE LAVATORY, ONE BATH TUB OR SHOWER , ONE KITCHEN SINK, AND ONE AUTOMATIC CLOTHES WASHER CONNECTION.
- PER SECTION 403 AND TABLE 403.1 OF THE INTERNATIONAL STANDARD PLUMBING CODE (2022) MERCANTILE USES REQUIRE:
  - 1 WATER CLOSET PER 500 OCCUPANTS
  - 1 LAVATORY PER 750 OCCUPANTS
  - 1 DRINKING FOUNTAIN PER 1,000 OCCUPANTS
  - 1 SERVICE SINK
- PER SECTION 403 AND TABLE 403.1 OF THE INTERNATIONAL STANDARD PLUMBING CODE (2018) INSTITUTIONAL ADULT DAY CARE USES REQUIRE:
  - 1 WATER CLOSET PER 15 OCCUPANTS
  - 1 LAVATORY PER 15 OCCUPANTS
  - 1 BATHTUB/SHOWER
  - 1 DRINKING FOUNTAIN PER 100 OCCUPANTS
  - 1 SERVICE SINK
- PER SECTION 403.1.1 TO DETERMINE THE OCCUPANT LOAD OF EACH SEX, THE TOTAL OCCUPANT LOAD SHALL BE DIVIDED IN HALF. TO DETERMINE THE REQUIRED NUMBER OF FIXTURES, THE FIXTURE RATIO OR RATIOS FOR EACH FIXTURE TYPE SHALL BE APPLIED TO THE OCCUPANT LOAD OF EACH SEX IN ACCORDANCE WITH TABLE 403.1.
- 403

LIFE SAFETY LEGEND

- EXIT SIGN
- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS
- EGRESS PATH START
- EGRESS PATH CONT'D

LIFE SAFETY GENERAL NOTES

FIRE SEP.	LOCATION	BC REF.
1 HR	EXTERIOR WALLS	602
1 HR	STORAGE RM > 100 SF	509
2 HR	STAIRWAYS	1002.1
1 HR	EXIT PASSAGEWAYS	1023.3
2 HR	SHAFTS	708.4
1 HR	BETWEEN DIF. TENANTS	510.10

* BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM

MINIMUM NUMBER OF EXITS FROM SPACE PER TABLE 1012.1	2
MAXIMUM EXIT ACCESS TRAVEL DISTANCE PER TABLE 1016.1	200' - 0"

OCCUPANT LOADS - CELLAR (RESIDENTIAL)

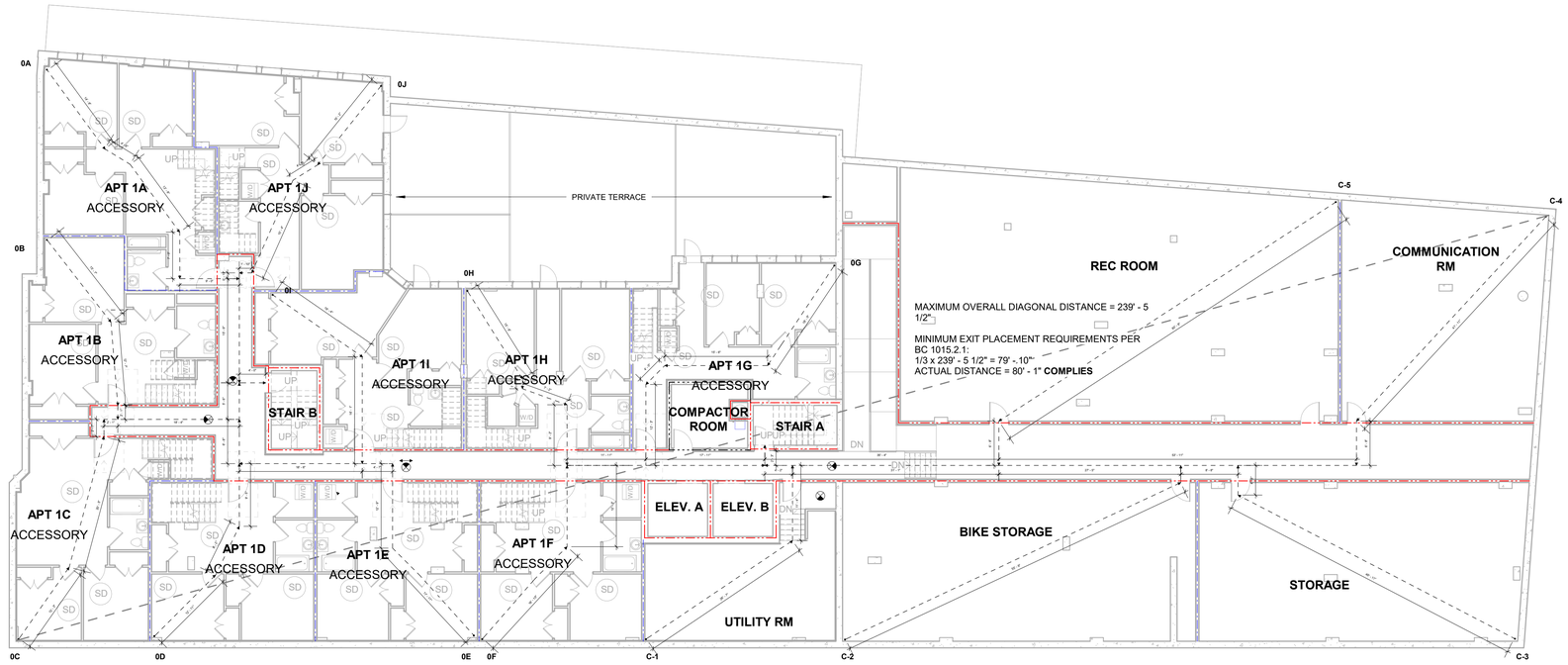
Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
APT 1A	2A	S-2	728 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 1B	2A	S-2	586 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 1C	2A	S-2	672 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 1D	2A	S-2	577 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 1E	2A	S-2	569 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 1F	2A	S-2	573 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 1G	2A	S-2	596 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 1H	2A	S-2	589 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 1I	2A	S-2	620 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 1J	2A	S-2	783 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
					34	0' - 6 3/4"		0' - 10 1/4"	

OCCUPANT LOADS - CELLAR (NON-RESIDENTIAL)

Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
COMPACTOR ROOM	2A	S-2	102 SF	300	1	0' - 0 3/16"	3' - 0"	0' - 0 5/16"	3' - 0"
BIKE STORAGE	2A	S-2	1,254 SF	300	5	0' - 1"	3' - 0"	0' - 1 1/2"	3' - 0"
STORAGE	2A	S-2	1,159 SF	300	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
REC ROOM	2A	R-2	2,348 SF	15	157	2' - 7 1/4"	3' - 0"	3' - 11 1/4"	3' - 0"
COMMUNICATION RM	2A	F-2	965 SF	300	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
UTILITY RM	2A	F-2	495 SF	300	2	0' - 0 3/8"	3' - 0"	0' - 0 5/8"	3' - 0"
					173	2' - 10 7/16"		4' - 4 1/16"	

EGRESS PATH COMPLIANCE - CELLAR

Path Name	Total Travel Distance
PATH 0A	67' - 7"
PATH 0B	58' - 1"
PATH 0C	66' - 1"
PATH 0D	46' - 8"
PATH 0E	69' - 11"
PATH 0F	63' - 2"
PATH 0G	69' - 11"
PATH 0H	65' - 5"
PATH 0I	67' - 1"
PATH 0J	57' - 4"
PATH C-1	44' - 4"
PATH C-2	123" - 3"
PATH C-3	125' - 0"
PATH C-4	140' - 1"
PATH C-5	104' - 9"



1 EGRESS - CELLAR
3/32" = 1'-0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

EGRESS & OCCUPANCY PLAN - CELLAR

DRAWING No.

EG100.00

LIFE SAFETY LEGEND

- EXIT SIGN
- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS
- EGRESS PATH START
- EGRESS PATH CONT'D

LIFE SAFETY GENERAL NOTES

FIRE SEP.	LOCATION	BC REF.
1 HR	EXTERIOR WALLS	602
1 HR	STORAGE RM > 100 SF	509
2 HR	STAIRWAYS	1002.1
1 HR	EXIT PASSAGEWAYS	1023.3
2 HR	SHAFTS	708.4
1 HR	BETWEEN DIF. TENANTS	510.10

* BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM

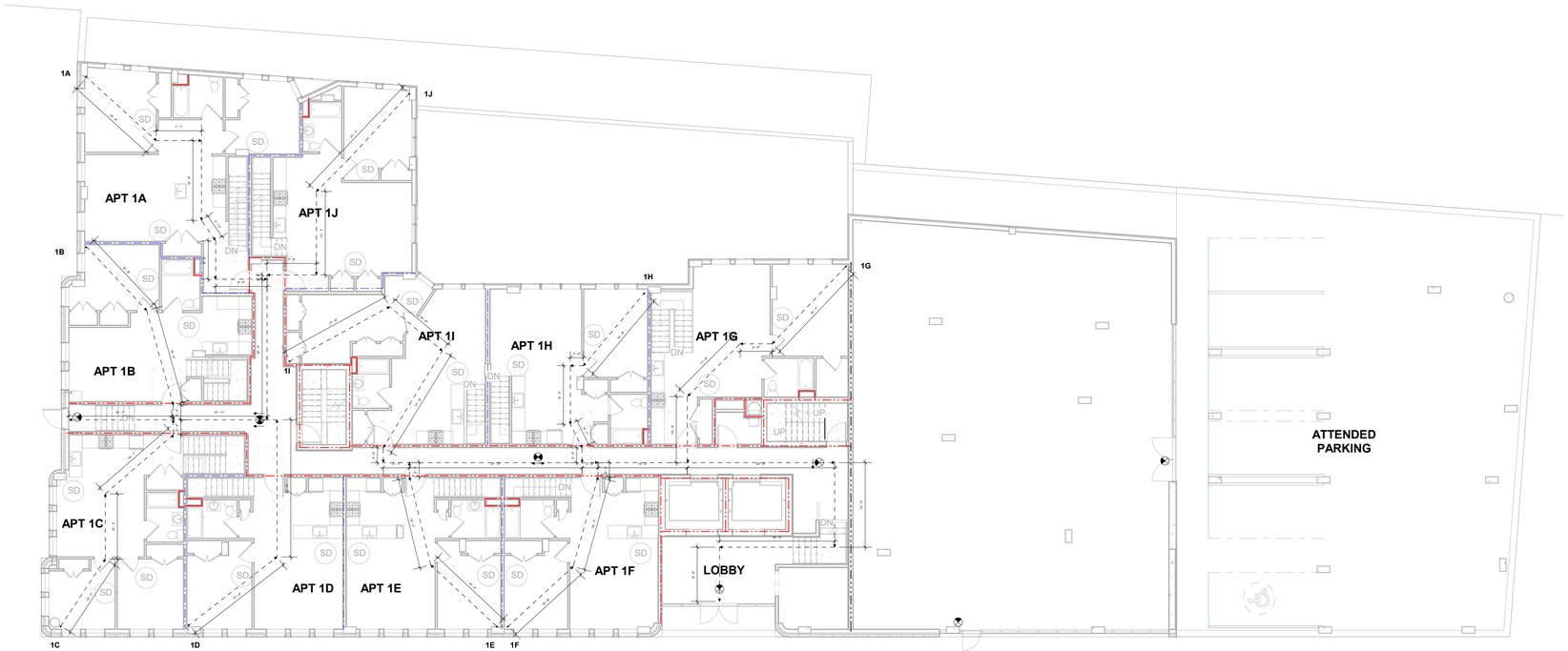
MINIMUM NUMBER OF EXITS FROM SPACE PER TABLE 1012.1	2
MAXIMUM EXIT ACCESS TRAVEL DISTANCE PER TABLE 1016.1	200' - 0"

OCCUPANT LOADS - GROUND FLOOR (RESIDENTIAL)

No	Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
1A	APT 1A	2A	R-2	830 SF	200	5	0' - 1"	3' - 0"	0' - 1 1/2"	3' - 0"
1B	APT 1B	2A	R-2	601 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
1C	APT 1C	2A	R-2	658 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
1D	APT 1D	2A	R-2	578 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
1E	APT 1E	2A	R-2	569 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
1F	APT 1F	2A	R-2	570 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
1H	APT 1G	2A	R-2	683 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
1H	APT 1H	2A	R-2	593 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
1I	APT 1I	2A	R-2	599 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
1J	APT 1J	2A	R-2	658 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
						36	0' - 7 3/16"		0' - 10 13/16"	

OCCUPANT LOADS - GROUND FLOOR (NON-RESIDENTIAL)

No	Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
1	7-ELEVEN	2B	M	76 SF	30	3	0' - 0 5/8"	6' - 0"	0' - 0 7/8"	0' - 0"
7	ATTENDED PARKING	2B	S-2	3,710 SF	300	13	0' - 2 9/16"		0' - 3 15/16"	
						16	0' - 3 3/16"		0' - 4 13/16"	



2 EGRESS - GROUND FLOOR
3/32" = 1'-0"

EGRESS PATH COMPLIANCE - GROUND FLOOR

Path Name	Total Travel Distance
PATH 1A	0' - 0"
PATH 1B	0' - 0"
PATH 1C	0' - 0"
PATH 1D	0' - 0"
PATH 1E	0' - 0"
PATH 1F	0' - 0"
PATH 1G	0' - 0"
PATH 1H	0' - 0"
PATH 1I	0' - 0"
PATH 1J	0' - 0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

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BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

EGRESS & OCCUPANCY PLAN - GROUND FLOOR

DRAWING No.

EG100.01

LIFE SAFETY LEGEND

EXIT	EXIT SIGN
	1-HR RATED WALLS
	2-HR RATED WALLS
	3-HR RATED WALLS
	EGRESS PATH START
	EGRESS PATH CONT'D

LIFE SAFETY GENERAL NOTES

FIRE SEP.	LOCATION	BC REF.
1 HR	EXTERIOR WALLS	602
1 HR	STORAGE RM > 100 SF	509
2 HR	STAIRWAYS	1002.1
1 HR	EXIT PASSAGEWAYS	1023.3
2 HR	SHAFTS	708.4
1 HR	BETWEEN DIF. TENANTS	510.10

* BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM

MINIMUM NUMBER OF EXITS FROM SPACE PER TABLE 1012.1	2
MAXIMUM EXIT ACCESS TRAVEL DISTANCE PER TABLE 1016.1	200' - 0"

OCCUPANT LOADS - 2ND FLOOR

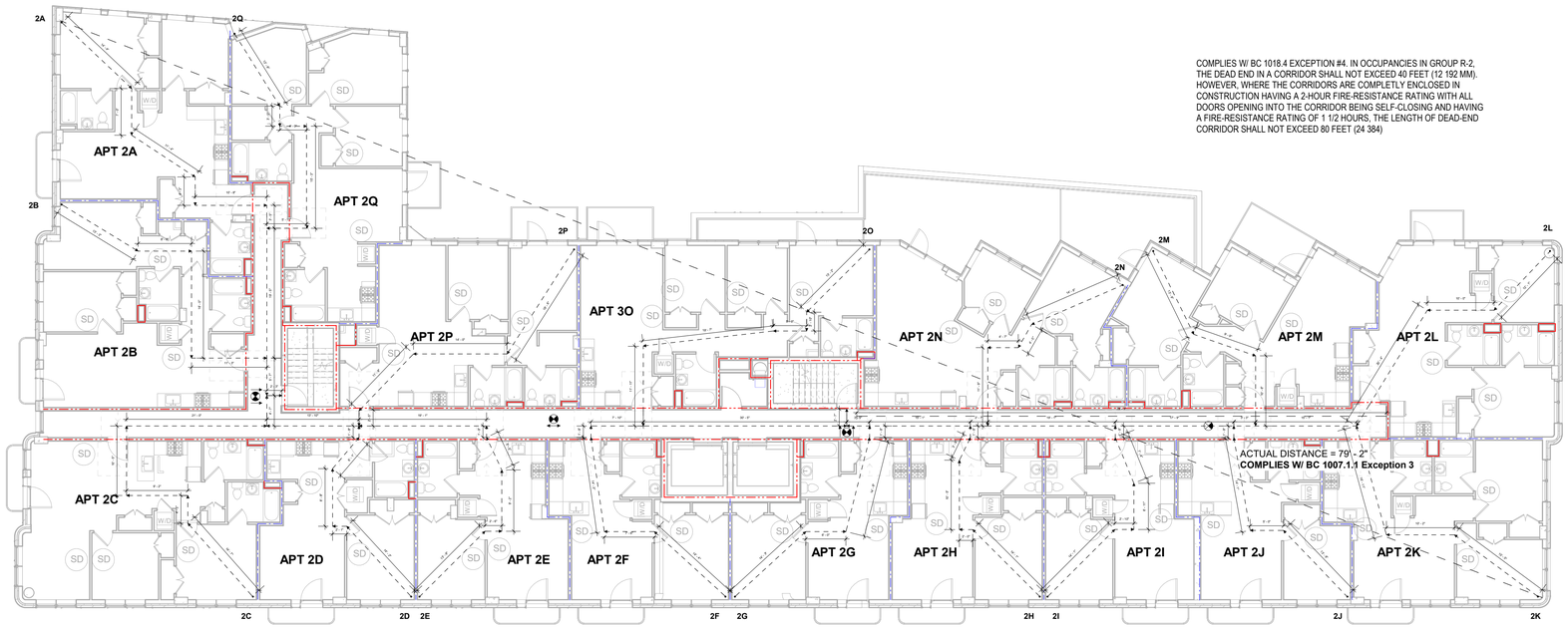
Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
APT 2A	2A	R-2	774 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 2B	2A	R-2	827 SF	200	5	0' - 1"	3' - 0"	0' - 1 1/2"	3' - 0"
APT 2C	2A	R-2	836 SF	200	5	0' - 1"	3' - 0"	0' - 1 1/2"	3' - 0"
APT 2D	2A	R-2	515 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2E	2A	R-2	492 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2F	2A	R-2	501 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2G	2A	R-2	492 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2H	2A	R-2	498 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2I	2A	R-2	490 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2J	2A	R-2	512 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
APT 2K	2A	R-2	725 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 2L	2A	R-2	769 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 2M	2A	R-2	754 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 2N	2A	R-2	783 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 2P	2A	R-2	780 SF	200	4	0' - 0 13/16"	3' - 0"	0' - 1 3/16"	3' - 0"
APT 2Q	2A	R-2	865 SF	200	5	0' - 1"	3' - 0"	0' - 1 1/2"	3' - 0"
APT 3O	2A	R-2	879 SF	200	5	0' - 1"	3' - 0"	0' - 1 1/2"	3' - 0"
					65	1' - 0 15/16"		1' - 7 9/16"	

EGRESS PATH COMPLIANCE - 2ND-6TH FLOOR

Path Name	Total Travel Distance
PATH 2A	78' - 3"
PATH 2B	56' - 4"
PATH 2C	66' - 2"
PATH 2D	53' - 5"
PATH 2E	72' - 4"
PATH 2F	78' - 8"

EGRESS PATH COMPLIANCE - 2ND-6TH FLOOR

Path Name	Total Travel Distance
PATH 2G	42' - 6"
PATH 2H	49' - 8"
PATH 2I	72' - 3"
PATH 2J	91' - 7"
PATH 2K	121' - 4"
PATH 2L	121' - 3"
PATH 2M	97' - 9"
PATH 2N	55' - 4"
PATH 2O	85' - 6"
PATH 2P	67' - 4"
PATH 2Q	68' - 1"



COMPLIES W/ BC 1018.4 EXCEPTION #4. IN OCCUPANCIES IN GROUP R-2, THE DEAD END IN A CORRIDOR SHALL NOT EXCEED 40 FEET (12 192 MM). HOWEVER, WHERE THE CORRIDORS ARE COMPLETLY ENCLOSED IN CONSTRUCTION HAVING A 2-HOUR FIRE-RESISTANCE RATING WITH ALL DOORS OPENING INTO THE CORRIDOR BEING SELF-CLOSING AND HAVING A FIRE-RESISTANCE RATING OF 1 1/2 HOURS, THE LENGTH OF DEAD-END CORRIDOR SHALL NOT EXCEED 80 FEET (24 384)

1 EGRESS - 2ND - 6TH FLOOR
3/32" = 1'-0"

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

EGRESS & OCCUPANCY PLAN - 2ND-6TH FLOORS

DRAWING No.

EG101.00

LIFE SAFETY LEGEND

- EXIT SIGN
- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS
- EGRESS PATH START
- EGRESS PATH CONT'D

LIFE SAFETY GENERAL NOTES

FIRE SEP.	LOCATION	BC REF.
1 HR	EXTERIOR WALLS	602
1 HR	STORAGE RM > 100 SF	509
2 HR	STAIRWAYS	1002.1
1 HR	EXIT PASSAGEWAYS	1023.3
2 HR	SHAFTS	708.4
1 HR	BETWEEN DIF. TENANTS	510.10

* BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM

MINIMUM NUMBER OF EXITS FROM SPACE PER TABLE 1012.1	2
MAXIMUM EXIT ACCESS TRAVEL DISTANCE PER TABLE 1016.1	200' - 0"

EGRESS PATH COMPLIANCE - 7TH FLOOR

Path Name	Total Travel Distance
PATH 2A	78' - 3"
PATH 2B	56' - 4"
PATH 2C	66' - 2"

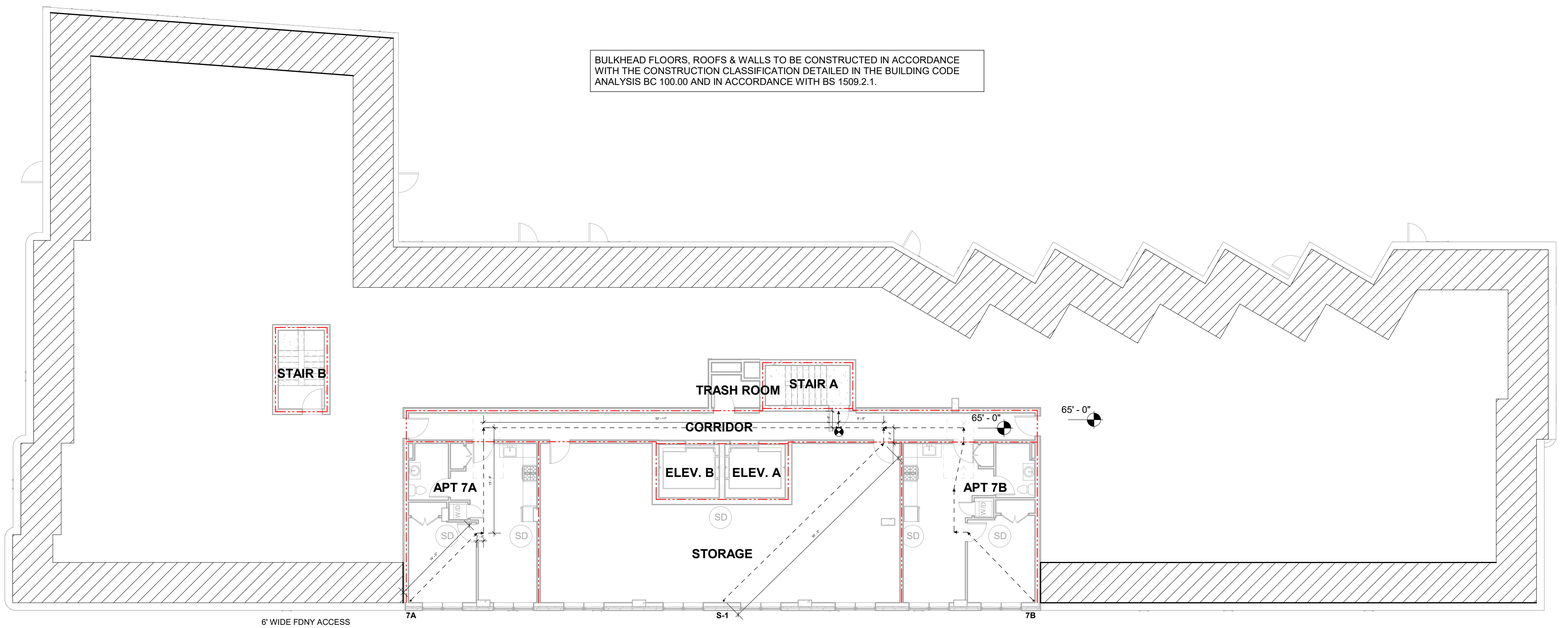
OCCUPANT LOADS - 7TH FLOOR (RESIDENTIAL)

No	Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
1R	APT 7A	2A	R-2	451 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
1S	APT 7B	2A	R-2	465 SF	200	3	0' - 0 5/8"	3' - 0"	0' - 0 7/8"	3' - 0"
							0' - 1 3/16"		0' - 1 13/16"	

OCCUPANT LOADS - 7TH FLOOR (NON-RESIDENTIAL)

Name	Use Group	Occupancy Group	Area	Load Factor	Occupant Load	Min. Width for Doors (0.2 x OCC.)	Proposed Door Width	Min. Width for Stairs (0.3 x OCC.)	Proposed Stair Width
STAIR B			81 SF						
STAIR A			76 SF						
ELEV. A			72 SF						
ELEV. B			72 SF						
TRASH ROOM			32 SF						
STORAGE	2A	S-2	1,080 SF						
						0' - 0"		0' - 0"	

BULKHEAD FLOORS, ROOFS & WALLS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION CLASSIFICATION DETAILED IN THE BUILDING CODE ANALYSIS BC 100.00 AND IN ACCORDANCE WITH BS 1509.2.1.



2 Rooftop
3/32" = 1'-0"

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BLOCK: 5114, LOT: 1

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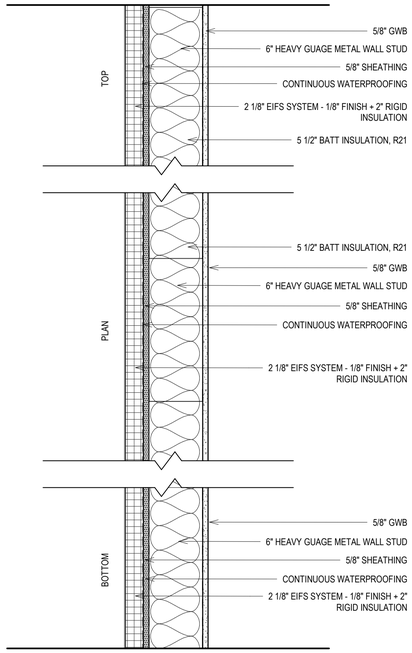
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

EGRESS & OCCUPANCY PLAN - 7TH FLOOR & ROOF

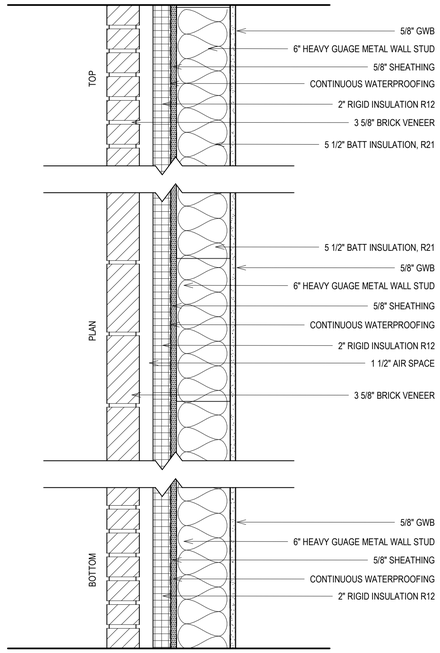
DRAWING No.

EG102.00



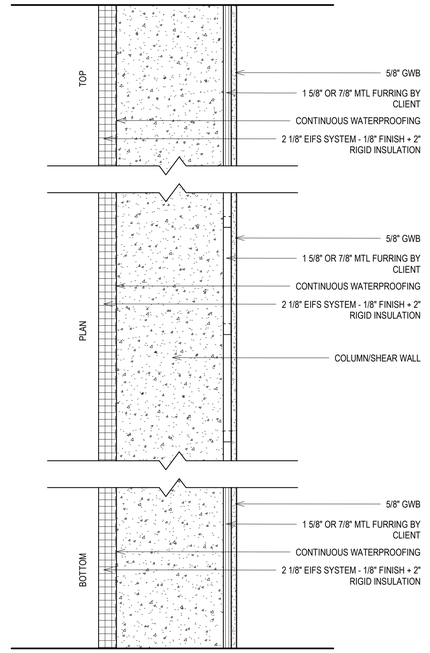
EXTERIOR WALL ASSEMBLY (E1A) 6" MTL STUD W/ EIFS - 1HR

2 1/8" EIFS SYSTEM - 1/8" FINISH + CONTINUOUS 2" RIGID INSULATION, MIN R12ci
CONT. WATERPROOFING = BACKSTOP NT BY DRYVIT OR EQUIV.
6" METAL STUD MAX, 16" O.C.
5 1/2" BATT INSULATION, R21
1 LAYER 5/8" CEMENTITIOUS BOARD AND 1 LAYER 5/8" GWB EASH SIDE
UL U404 - 1 HR CONFIGURATION
FIRE-RTD CONSTRUCTION
INS.: CAVITY = R21 C.I. = R12



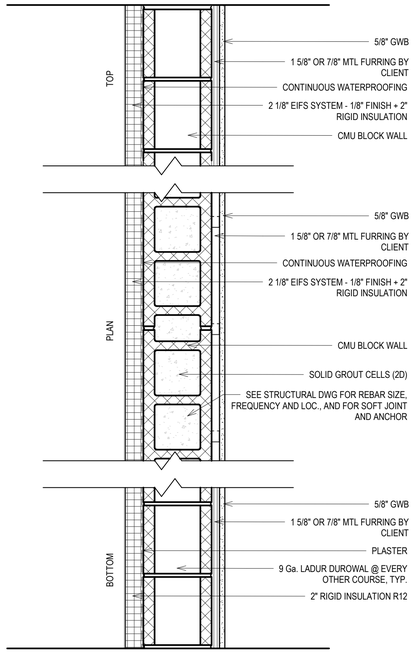
EXTERIOR WALL ASSEMBLY (E1B) 6" MTL STUD W/ BRICK - 1HR

MODULAR BRICKWORK BOND
2" RIGID INSULATION R12
6" METAL STUD MAX, 16" O.C.
5 1/2" BATT INSULATION, R21
1 LAYER 5/8" CEMENTITIOUS BOARD AND 1 LAYER 5/8" GWB EASH SIDE
UL U404 - 1 HR CONFIGURATION
FIRE-RTD CONSTRUCTION
INS.: CAVITY = R21 C.I. = R12



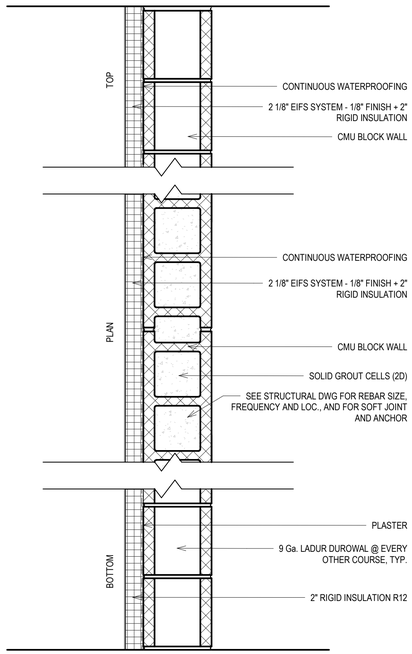
EXTERIOR WALL ASSEMBLY (E2A) 8" CMU BLOCK W/ EIFS

2 1/8" EIFS SYSTEM - 1/8" FINISH + CONTINUOUS 2" RIGID INSULATION, MIN R12ci
CONT. WATERPROOFING = BACKSTOP NT BY DRYVIT OR EQUIV.
C.I.P. COLUMN/SHEAR WALL
1 5/8" OR 7/8" MTL FURRING BY CLIENT
1 LAYER 5/8" GWB
INS.: C.I. = R12



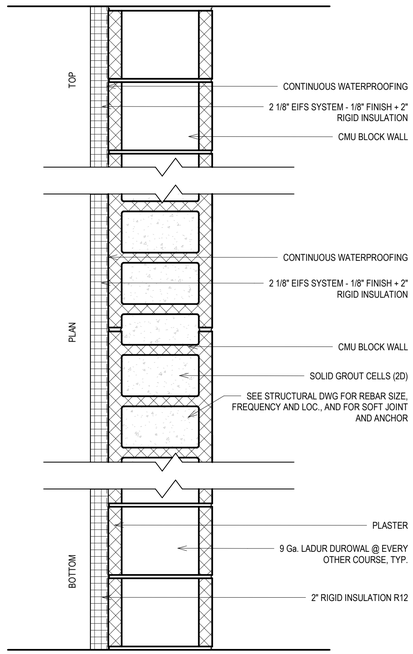
EXTERIOR WALL ASSEMBLY (E2B) 10" CMU BLOCK W/ EIFS

2 1/8" EIFS SYSTEM - 1/8" FINISH + CONTINUOUS 2" RIGID INSULATION, MIN R12ci
CONT. WATERPROOFING = BACKSTOP NT BY DRYVIT OR EQUIV.
10" CMU BLOCK WALL
INS.: C.I. = R12



EXTERIOR WALL ASSEMBLY (E2C) 8" CMU BLOCK W/ EIFS

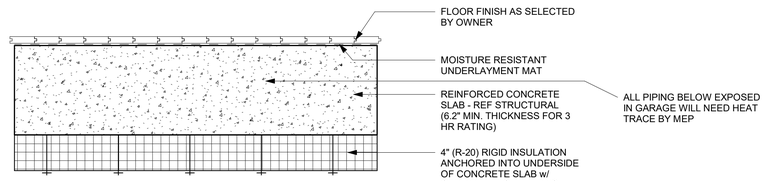
2 1/8" EIFS SYSTEM - 1/8" FINISH + CONTINUOUS 2" RIGID INSULATION, MIN R12ci
CONT. WATERPROOFING = BACKSTOP NT BY DRYVIT OR EQUIV.
8" CMU BLOCK WALL
INS.: C.I. = R12



EXTERIOR WALL ASSEMBLY (E2D) 12" CMU BLOCK W/ EIFS

2 1/8" EIFS SYSTEM - 1/8" FINISH + CONTINUOUS 2" RIGID INSULATION, MIN R12ci
CONT. WATERPROOFING = BACKSTOP NT BY DRYVIT OR EQUIV.
12" CMU BLOCK WALL
INS.: C.I. = R13

EXTERIOR WALL TYPES
1 1/2" = 1'-0"



2 Typical Floor Assembly - Conc Slab
1 1/2" = 1'-0"

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14 PENN PLAZA - 225 WEST 34TH STREET
NEW YORK, NY 10122

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

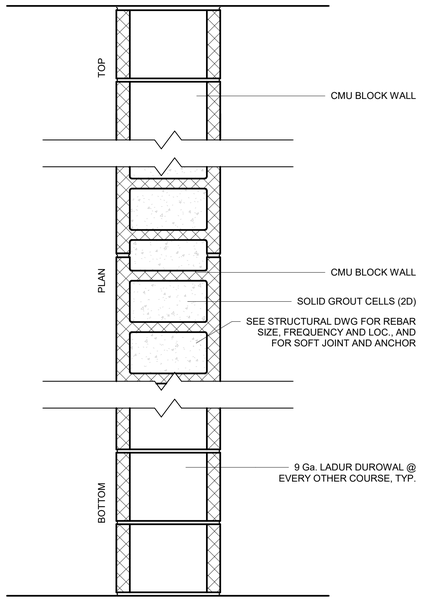
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

EXTERIOR WALL ASSEMBLIES

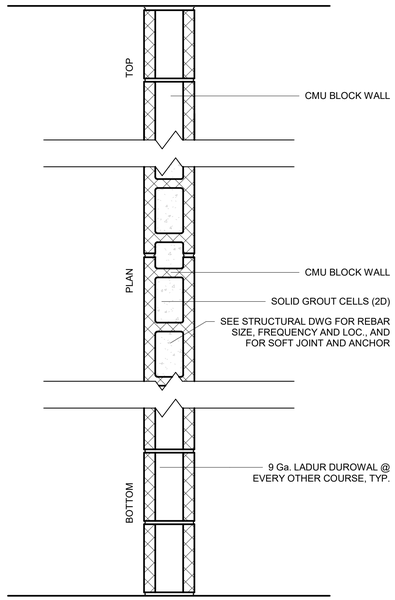
DRAWING No.

A001.00



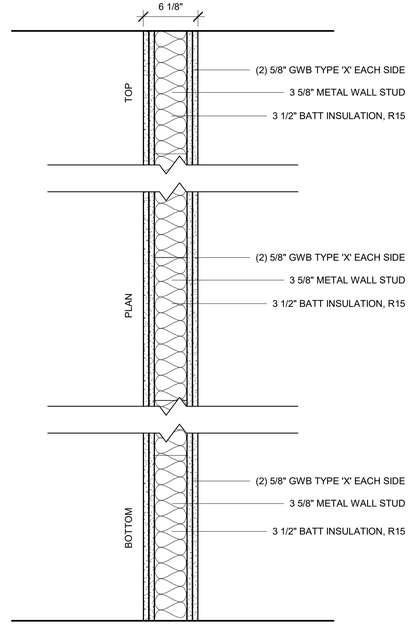
INTERIOR WALL ASSEMBLY (1A) 12" CMU BLOCK - 2HR

1A — 12" CMU BLOCK WALL



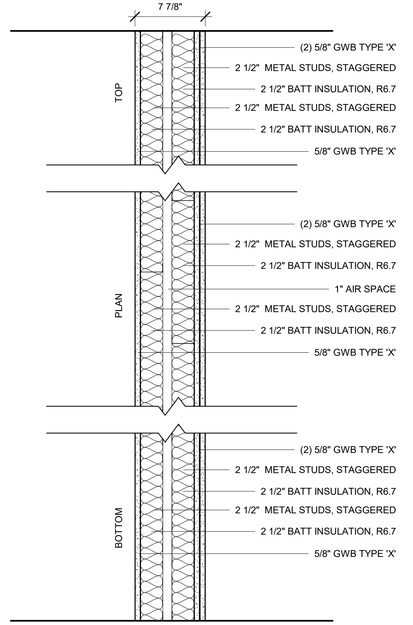
INTERIOR WALL ASSEMBLY (1B) 6" CMU BLOCK - 2HR

1B — 6" CMU BLOCK WALL



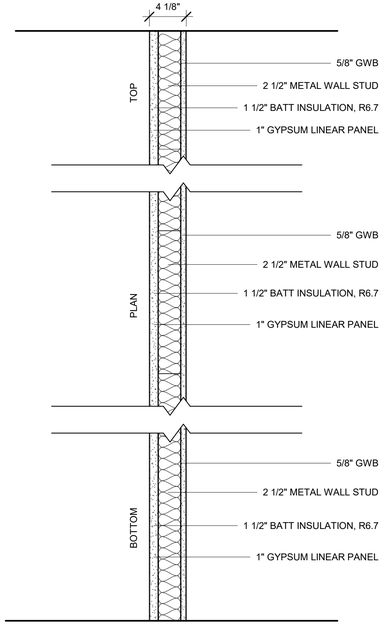
INTERIOR WALL ASSEMBLY (2A) 3 5/8" MTL STUD - 2HR

2A — 2 LAYERS 5/8" GWB TYPE 'X' EACH SIDE
3 5/8" METAL STUD, SPACED 16" O.C. EACH SIDE
5 1/2" BATT INSULATION, R21 EACH SIDE
UL U419 - 2 HR CONFIGURATION
FIRE-RTD CONSTRUCTION
INS.: CAVITY = R15



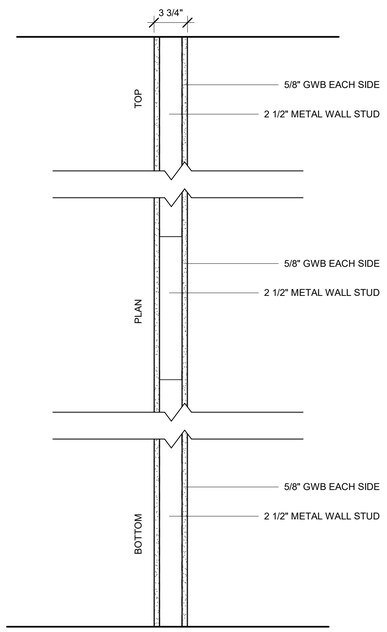
INTERIOR WALL ASSEMBLY (2B) 2 1/2" MTL STUD - 1HR

2B — 2 LAYER 5/8" GWB TYPE 'X'
2 1/2" METAL STUD, STAGGERED, SPACED 16" O.C.
2 1/2" BATT INSULATION, R6.7
1 LAYER 5/8" GWB TYPE 'X'
UL U493 - 1 HR CONFIGURATION
FIRE-RTD CONSTRUCTION
INS.: CAVITY = R6.7



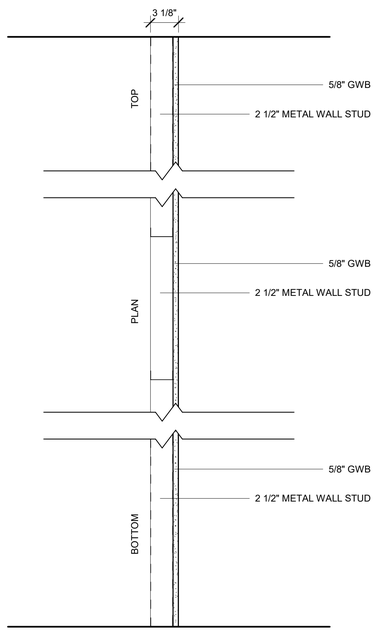
INTERIOR WALL ASSEMBLY (2C) 2 1/2" MTL STUD - 2HR

2C — 1 LAYER 5/8" GWB
2 1/2" METAL STUD, SPACED 16" O.C.
1 1/2" BATT INSULATION, R6.7
1" LAYER GYPSUM LINEAR PANEL
UL U415 - 2 HR CONFIGURATION
FIRE-RTD CONSTRUCTION
INS.: CAVITY = R6.7



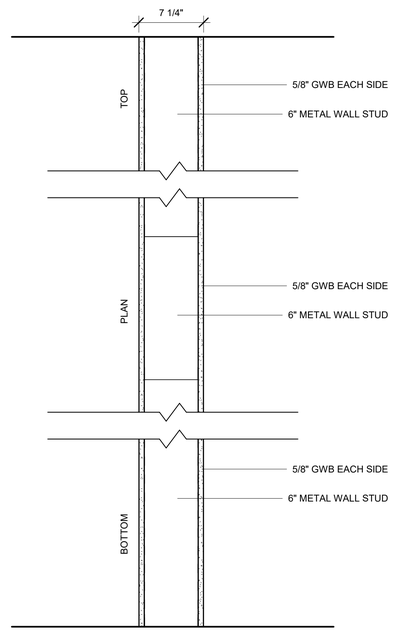
INTERIOR WALL ASSEMBLY (3A) 2 1/2" MTL STUD

3A — 1 LAYER 5/8" GWB EACH SIDE
2 1/2" METAL STUD, SPACED 16" O.C.



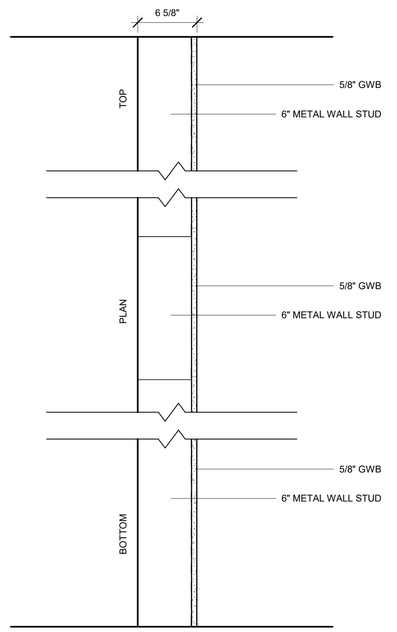
INTERIOR WALL ASSEMBLY (3B) 2 1/2" MTL STUD

3B — 1 LAYER 5/8" GWB
2 1/2" METAL STUD, SPACED 16" O.C.



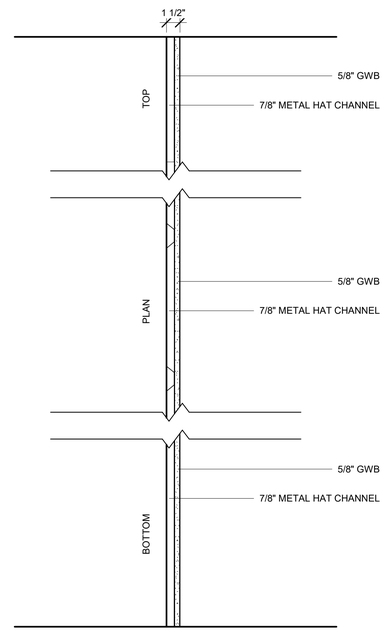
INTERIOR WALL ASSEMBLY (3C) 6" MTL STUD

3C — 1 LAYER 5/8" GWB EACH SIDE
6" METAL STUD, SPACED 16" O.C.



INTERIOR WALL ASSEMBLY (3D) 6" MTL STUD

3D — 1 LAYER 5/8" GWB
6" METAL STUD, SPACED 16" O.C.



INTERIOR WALL ASSEMBLY (3E) 6" MTL STUD

3E — 1 LAYER 5/8" GWB EACH SIDE
7/8" METAL HAT CHANNEL, SPACED 16" O.C.

INTERIOR WALL TYPES
1 1/2" = 1'-0"

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e: dcondatore@mode-arch.com

SEAL AND SIGNATURE:

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CONEY ISLAND AVENUE

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BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

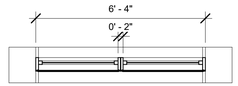
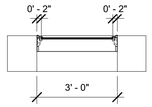
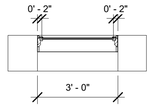
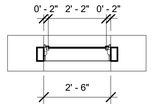
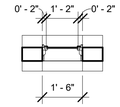
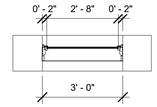
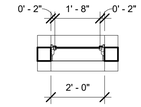
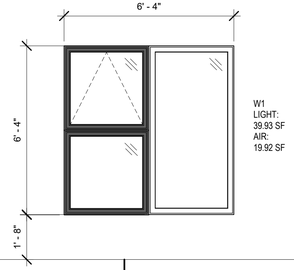
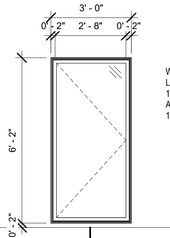
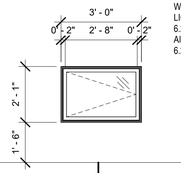
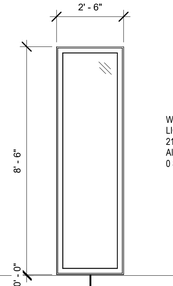
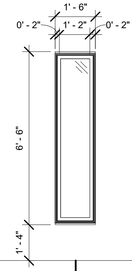
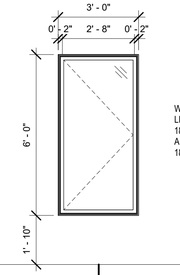
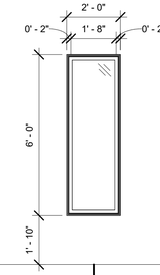
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

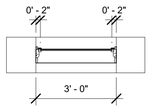
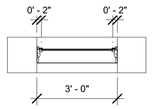
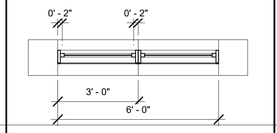
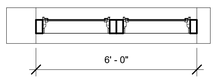
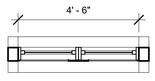
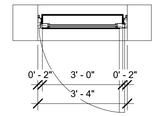
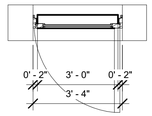
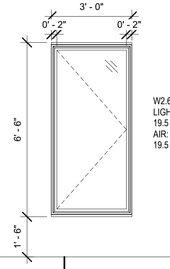
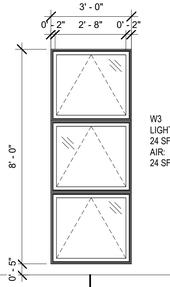
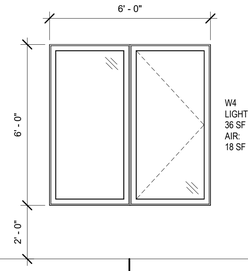
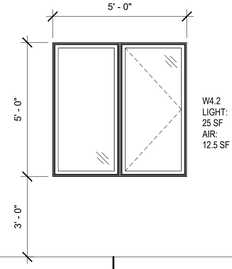
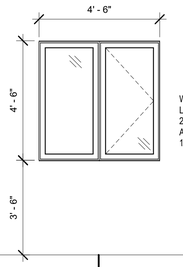
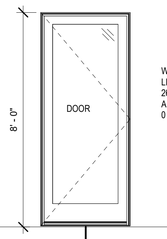
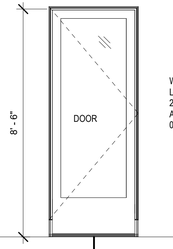
DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

INTERIOR WALL ASSEMBLIES

DRAWING No.

A002.00

TYPE	W1	W2	W2.1	W2.2	W2.3	W2.4	W2.5
PLAN							
ELEVATION VIEW	 W1 LIGHT: 39.93 SF AIR: 19.92 SF	 W2 LIGHT: 18.00 SF AIR: 18.00 SF	 W2.1 LIGHT: 6.25 SF AIR: 6.25 SF	 W2.2 LIGHT: 21.34 SF AIR: 0 SF	 W2.3 LIGHT: 9.69 SF AIR: 0 SF	 W2.4 LIGHT: 18 SF AIR: 18 SF	 W2.5 LIGHT: 12 SF AIR: 0 SF
GENERAL INFORMATION	MODEL / ROUGH OPENING: 6'-4" X 6'-4" TYPE / OPERATION: FIXED / OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 3'-0" X 6'-2" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 3'-0" X 2'-1" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05

TYPE	W2.6	W3	W4	W4.2	W4.3	W5	W5.2
PLAN							
ELEVATION VIEW	 W2.6 LIGHT: 19.5 SF AIR: 19.5 SF	 W3 LIGHT: 24 SF AIR: 24 SF	 W4 LIGHT: 36 SF AIR: 18 SF	 W4.2 LIGHT: 25 SF AIR: 12.5 SF	 W4.3 LIGHT: 20.2 SF AIR: 10.1 SF	 W5 LIGHT: 26.67 SF AIR: 0 SF	 W5.2 LIGHT: 28.38 SF AIR: 0 SF
GENERAL INFORMATION	MODEL / ROUGH OPENING: 3'-0" X 6'-6" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 3'-0" X 6'-2" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 6'-0" X 6'-0" TYPE / OPERATION: OPERABLE / FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 5'-0" X 5'-0" TYPE / OPERATION: OPERABLE / FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 4'-6" X 4'-6" TYPE / OPERATION: FIXED / OPERABLE QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: FIXED QUANTITY: U VALUE: 0.30 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

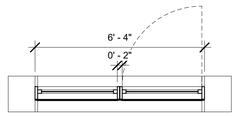
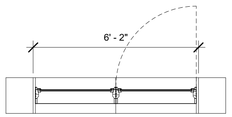
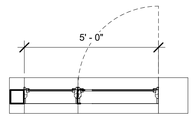
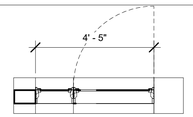
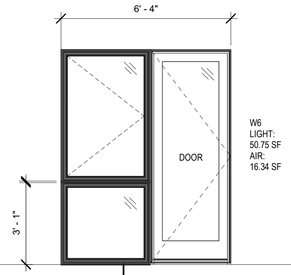
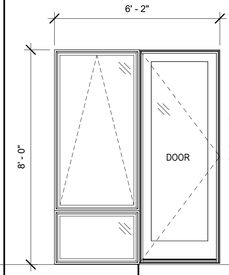
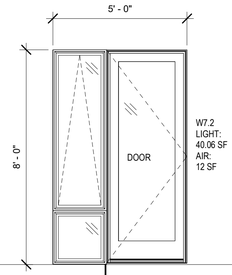
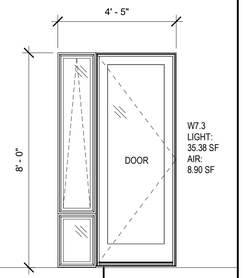
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

WINDOW & DOOR SCHEDULE

DRAWING No.

A003.00

TYPE	W6	W7	W7.2	W7.3
PLAN				
ELEVATION VIEW				
GENERAL INFORMATION	MODEL / ROUGH OPENING: 6'-4" X 8'-0" TYPE / OPERATION: FIXED / OPERABLE / DOOR QUANTITY: U VALUE: 0.24 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 3'-0" X 6'-2" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.24 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 3'-0" X 2'-1" TYPE / OPERATION: OPERABLE QUANTITY: U VALUE: 0.24 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05	OVERALL DIMENSIONS: 2'-6" X 8'-6" TYPE / OPERATION: FIXED QUANTITY: U VALUE: 0.24 SHADING / SHGC: 0.27 OITC: 31 HEAD/JAMB/SILL DETAIL #: TBD MANUFACTURER MODEL MATERIAL: PELLA / ALUMINIUM GLAZING INFO: SunDefense Low-E AIR INFILTRATION: 0.05

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

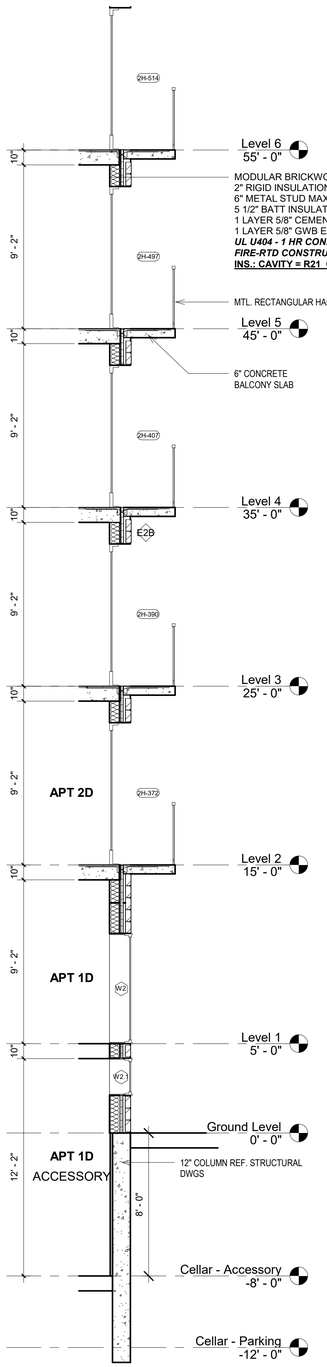
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

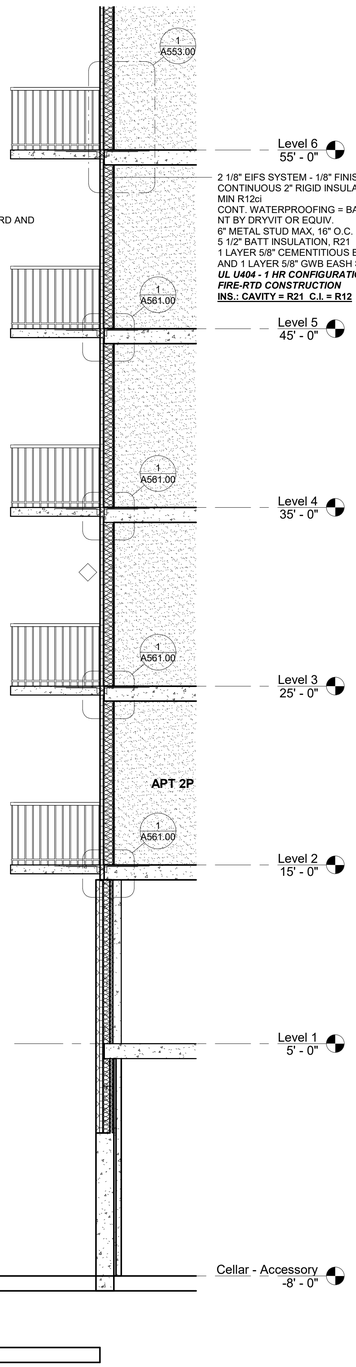
WINDOW & DOOR SCHEDULE

DRAWING No.

A004.00



1 WALL SECTION A
1/4" = 1'-0"



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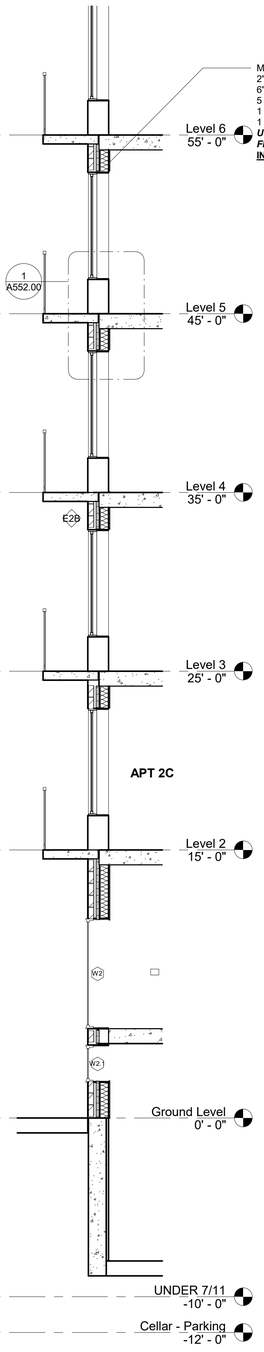
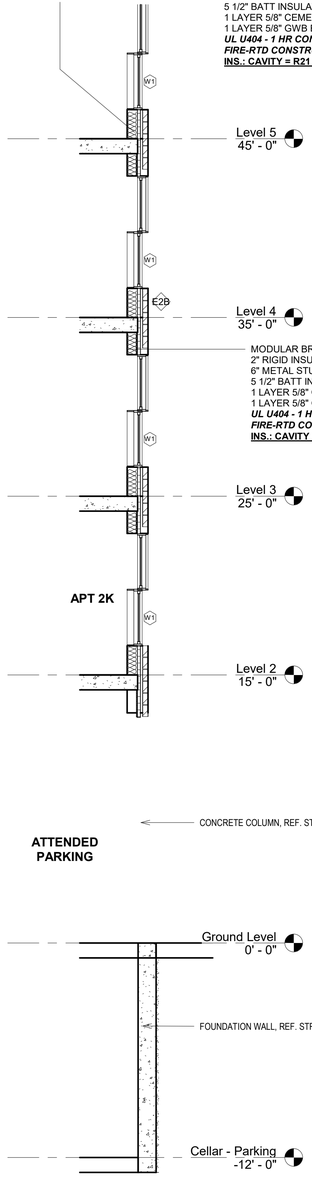
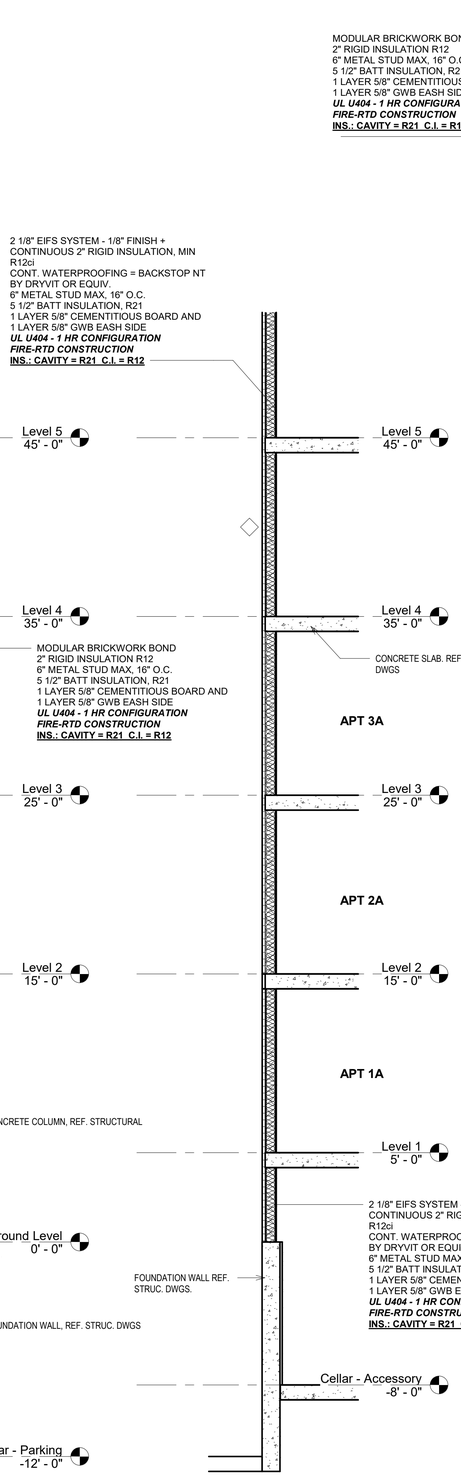
1/4" = 1'-0"



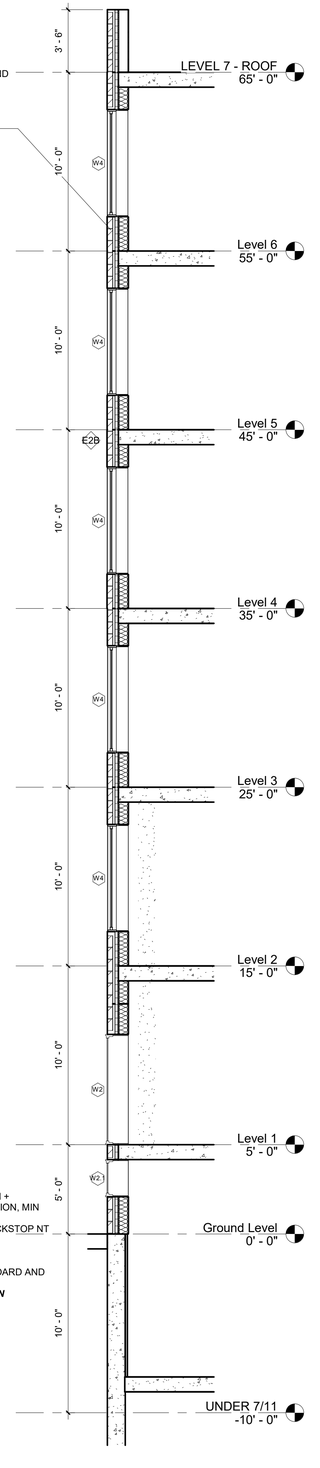
3 WALL SECTION C
1/4" = 1'-0"



4 WALL SECTION D
1/4" = 1'-0"



5 WALL SECTION E
1/4" = 1'-0"



6 WALL SECTION F
1/4" = 1'-0"

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REGISTERED ARCHITECT
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BLOCK: 5114, LOT: 1

#B00706931-I1

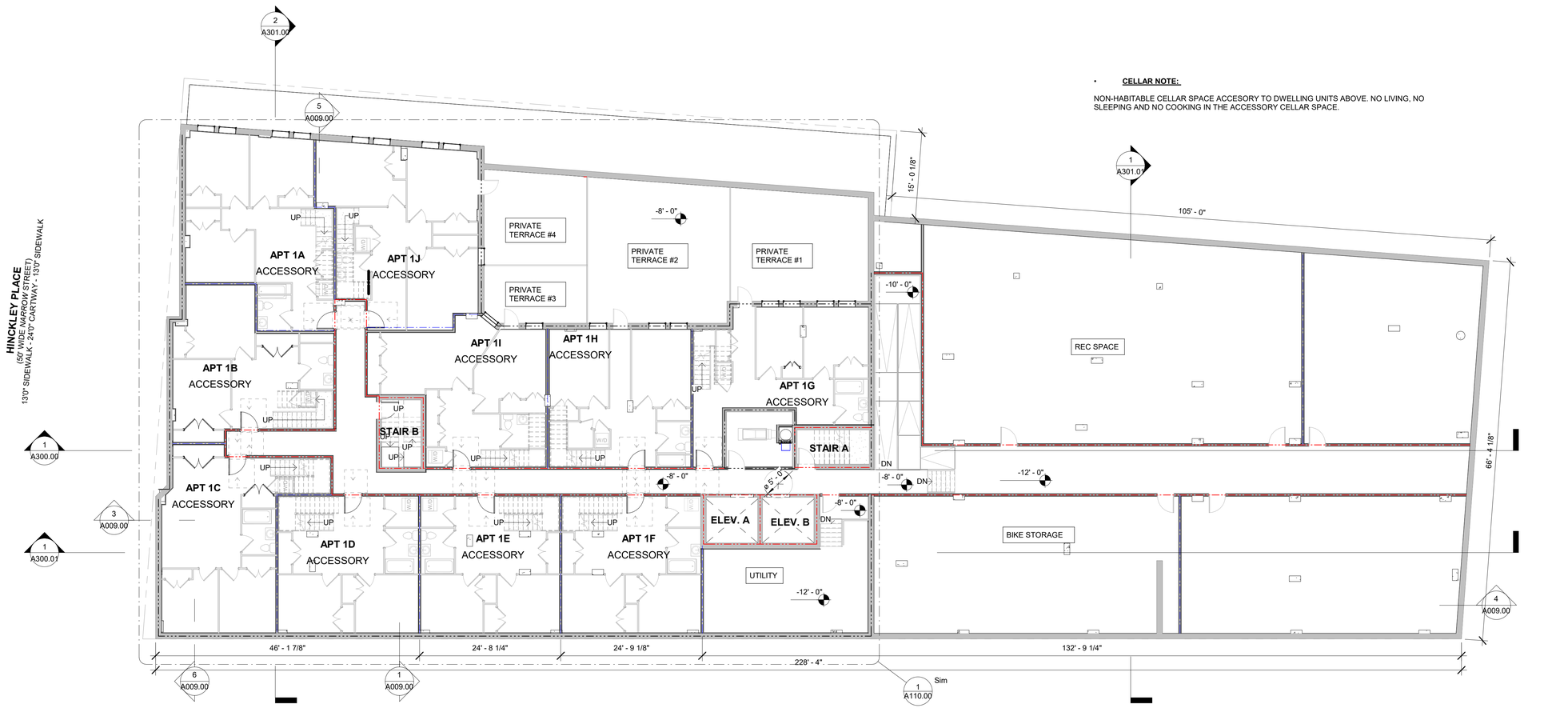
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

WALL SECTIONS

DRAWING No.

A009.00



1 FLOOR PLAN - CELLAR
1" = 10'-0"

0' 5' 10' 20' 30'

- **CELLAR NOTE:**

NON-HABITABLE CELLAR SPACE ACCESORY TO DWELLING UNITS ABOVE. NO LIVING, NO SLEEPING AND NO COOKING IN THE ACCESSORY CELLAR SPACE.

CONSTRUCTION GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE NEW YORK CITY BUILDING CODE.
2. THE ARCHITECT OF RECORD HAS NOT BEEN RETAINED FOR ANY FIELD SUPERVISION OR INSPECTION; THEIR RESPONSIBILITY IS LIMITED TO ACCURACY OF THE PLANS, UNLESS OTHERWISE INDICATED BY APPLICATIONS.
3. A SURVEY, BY A LICENSED SURVEYOR, SHOWING THE LOCATION OF THE BUILDINGS, PROPERTY LINES AND OTHER EXISTING SITE CONDITIONS SHALL BE FILED WITH THE DEPARTMENT OF BUILDINGS.
4. PRIOR TO START OF ANY CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO CHECK AND VERIFY ALL CONDITIONS AND DIMENSIONS AT JOB SITE AND DIMENSIONS OF PLANS. CONTRACTOR TO REPORT ANY DISCREPANCIES IN WRITING TO THE ARCHITECT OR ENGINEER BEFORE ANY ERECTION.
5. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF UTILITY LINES, LIGHT POLES, AND ALL STREET FIXTURES. CONTRACTOR SHALL MAKE PROPER TIE-INS, APPLY FOR PERMITS AS NECESSARY, REPORT TO THE ARCHITECT OR ENGINEER ANY CONDITION NOT CONSISTENT WITH THE DRAWINGS.
6. NO PLANS SHALL BE SCALED, PLAN DIMENSIONS SHOULD BE USED.
7. NOTICE OF START OF WORK SHALL BE GIVEN TO THE ARCHITECT.
8. A PERMIT SHALL BE ISSUED FOR EXCAVATING AND AFTER ESTABLISHING THE BEARING CAPACITY OF THE SOIL BY AN ARCHITECT OR ENGINEER OR THEIR REPRESENTATIVE AND SECURING APPROVAL THEREOF FROM THE DEPARTMENT OF BUILDINGS. THE PERMITS SHALL BE FOR THE ENTIRE CONSTRUCTION.
9. NO FIRE HYDRANT OR UTILITY POLE OR TREE SHALL BE WITHIN 5'-0" OF SPLAY OF ANY CURB CUT.
10. ANY ALTERED GRADE EXCEEDING 30 DEGREE SLOPE SHALL HAVE A RETAINING WALL FILED AS AN AMENDMENT AND APPROVED BY DEPARTMENT OF BUILDINGS BEFORE THE START OF SUCH A WALL.
11. THE STREET ON WHICH THIS BUILDING FRONTS IS OR WILL BE IMPROVED TO THE SATISFACTION OF THE DEPARTMENT OF HIGHWAYS. REQUIRED UTILITIES SHALL ALSO BE INSTALLED.
12. SIDEWALK AND ROADWAY CONSTRUCTION OFF SITE WILL CONFORM TO DEPARTMENT OF HIGHWAYS SPECIFICATIONS. A SEPARATE APPROVE FOR SIDEWALK CONSTRUCTION, INCLUDING WIDTH OF SIDEWALK, WILL BE OBTAINED FROM THAT DEPARTMENT BEFORE SUCH WORK IS COMMENCED.

CONSTRUCTION LEGEND:

CENTERLINE	NEW DOOR	101	DOOR TAG
CMU WALL	NEW GLAZED OPENING	ROOM #	ROOM TAG
1HR RATED WALL	FLOOR DRAIN / ROOF DRAIN		EXIT SIGN / EMERGENCY LIGHTING WITH GENERATOR BACK UP
2HR RATED WALL	SMOKE DETECTOR / CARBON DETECTOR		
FOUNDATION WALL	WALL TAG	#R @ 0' - 0" STAIR A	STAIR TAG
PROPERTY LINE	WINDOW TAG		
	KEY NOTE TAG		

LIFE & SAFETY COMPLIANCE:

- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS

DANIEL M. CONDATORE, RA
621 LAKE AVENUE / 3A
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NY LICENSE #038947
t: 732 800 1958
e: dcondatore@mode-arch.com

SEAL AND SIGNATURE:

REGISTERED ARCHITECT DANIEL M. CONDATORE 038947 STATE OF NEW YORK

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e: rachel@riversideny.com

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BUSINESS
ADDRESS

CONTACT
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e:

GEOTECHICAL:
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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

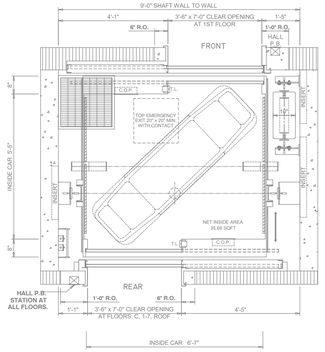
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

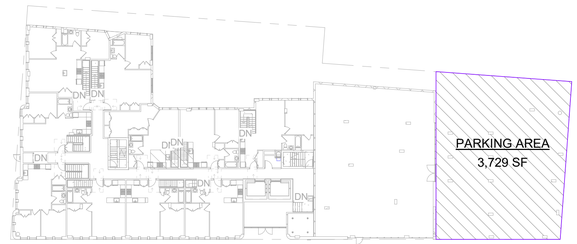
FLOOR PLAN - CELLAR

DRAWING No.

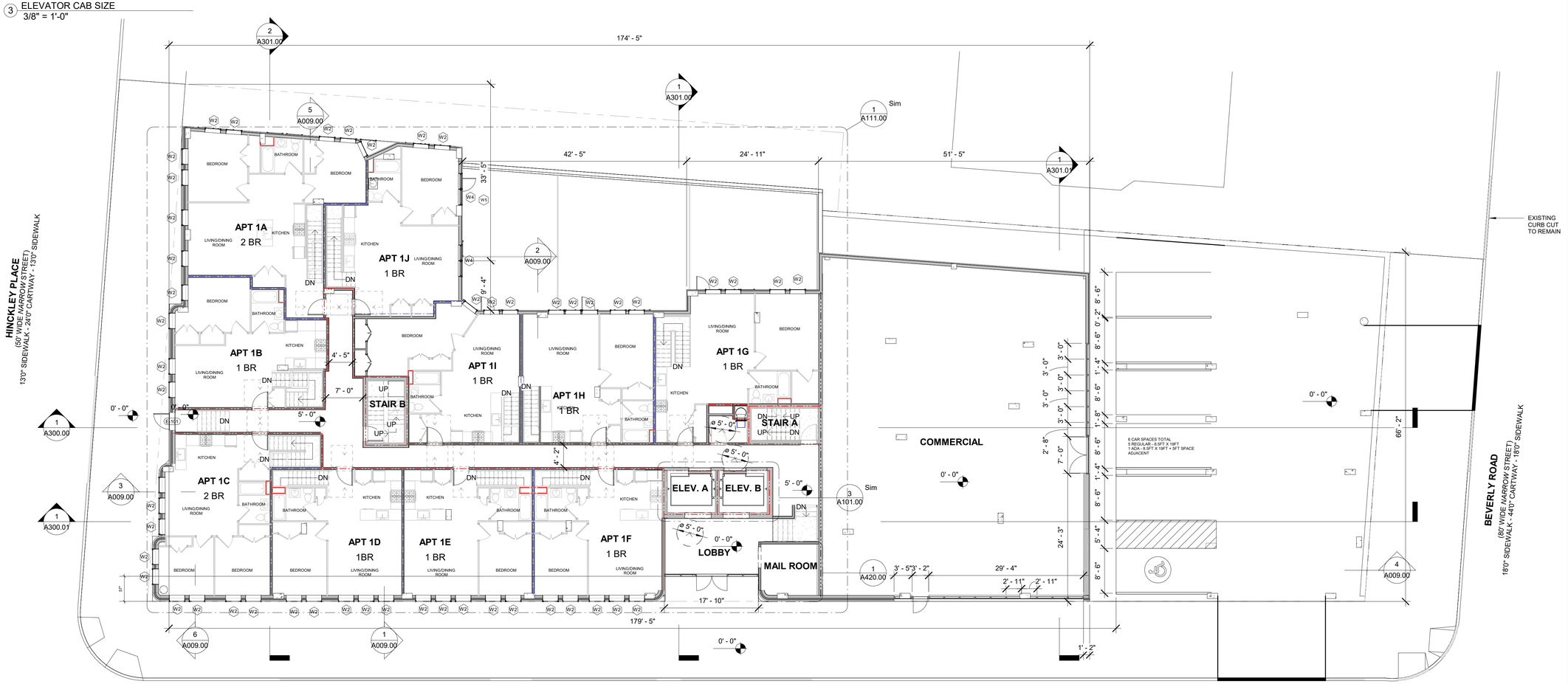
A100.00



3 ELEVATOR CAB SIZE
3/8" = 1'-0"



2 GROUND FLOOR PARKING
1" = 30'-0"



1 FLOOR PLAN - GROUND FLOOR
1" = 10'-0"

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	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

FLOOR PLAN - GROUND FLOOR

DRAWING No.
A101.00

CONSTRUCTION GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE NEW YORK CITY BUILDING CODE.
2. THE ARCHITECT OF RECORD HAS NOT BEEN RETAINED FOR ANY FIELD SUPERVISION OR INSPECTION; THEIR RESPONSIBILITY IS LIMITED TO ACCURACY OF THE PLANS, UNLESS OTHERWISE INDICATED BY APPLICATIONS.
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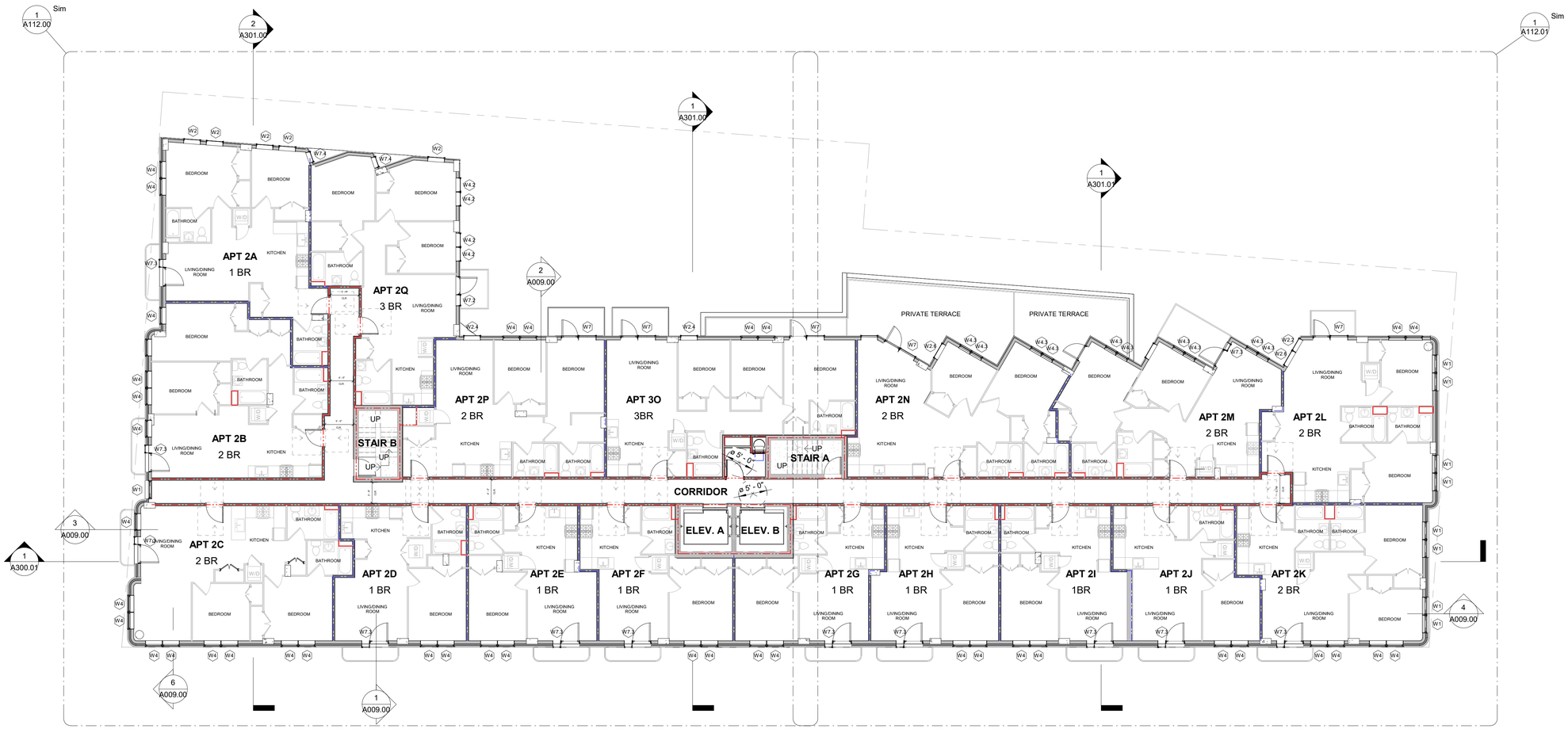
CONSTRUCTION LEGEND:

- CENTERLINE
- CMU WALL
- 1HR RATED WALL
- 2HR RATED WALL
- FOUNDATION WALL
- PROPERTY LINE
- NEW DOOR
- NEW GLAZED OPENING
- FD RD FLOOR DRAIN / ROOF DRAIN
- SD CO SMOKE DETECTOR / CARBON DETECTOR
- 1 WALL TAG
- 1 WINDOW TAG
- ? KEY NOTE TAG
- 101 DOOR TAG
- ROOM # ROOM TAG
- EXIT SIGN / EMERGENCY LIGHTING WITH GENERATOR BACK UP
- #R @ 0' - 0" STAIR A STAIR TAG

LIFE & SAFETY COMPLIANCE:

- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS



1 FLOOR PLAN - 2ND FLOOR
1" = 10'-0"

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CONSTRUCTION LEGEND:

- CENTERLINE (℄)
- CMU WALL
- 1HR RATED WALL
- 2HR RATED WALL
- FOUNDATION WALL
- PROPERTY LINE (PL)
- NEW DOOR
- NEW GLAZED OPENING
- FLOOR DRAIN / ROOF DRAIN (FD / RD)
- SMOKE DETECTOR / CARBON DETECTOR (SD / CO)
- WALL TAG (1)
- WINDOW TAG (1)
- KEY NOTE TAG (?)
- DOOR TAG (101)
- ROOM TAG (ROOM #)
- EXIT SIGN / EMERGENCY LIGHTING WITH GENERATOR BACK UP
- STAIR TAG (#R @ 0' - 0" STAIR A)

LIFE & SAFETY COMPLIANCE:

- 1-HR RATED WALLS
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- 3-HR RATED WALLS

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BLOCK: 5114, LOT: 1

#B00706931-I1

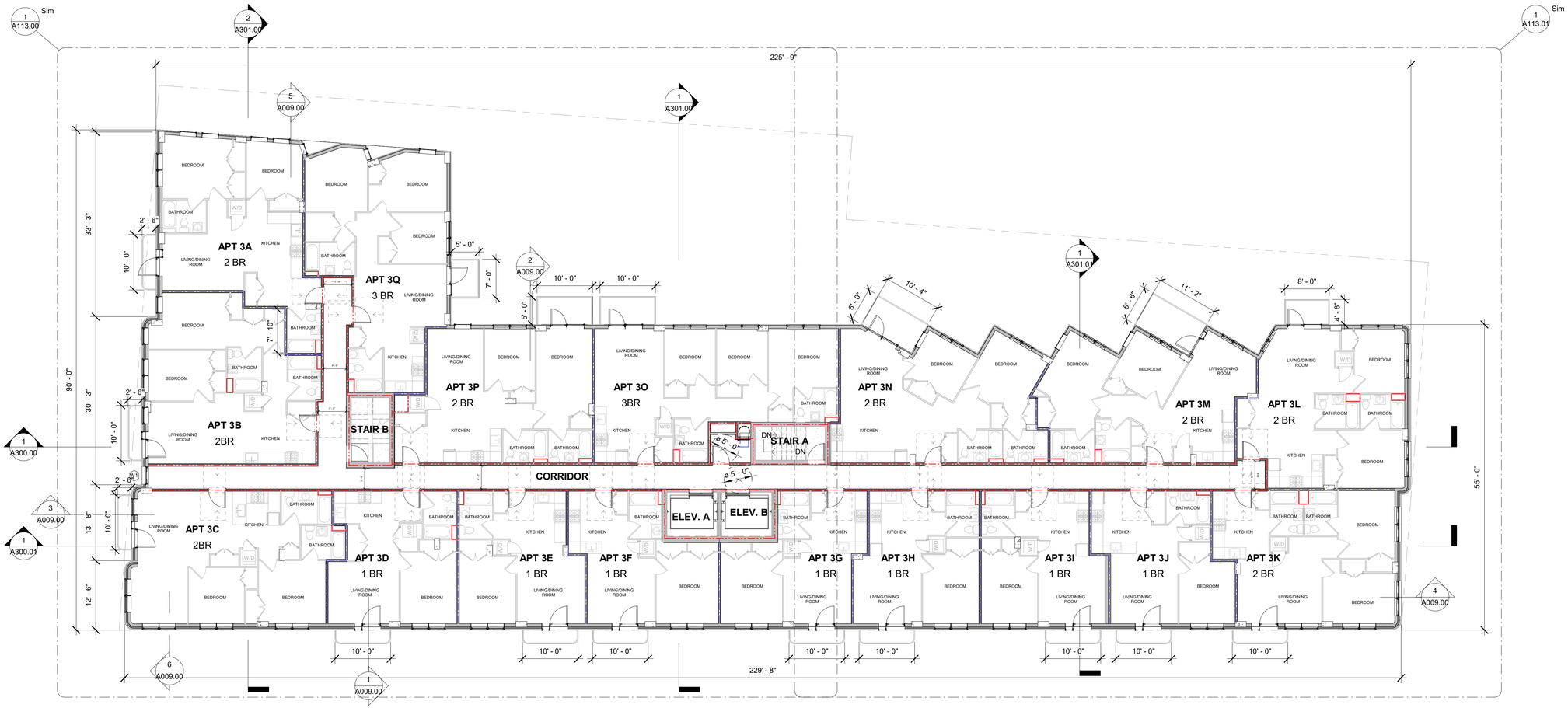
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

FLOOR PLAN - 2ND FLOOR

DRAWING No.

A102.00



1 FLOOR PLAN - 3RD-6TH FLOOR TYP.
1" = 10'-0"

0' 5' 10' 20' 30'

N

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CONSTRUCTION LEGEND:

- CL — CENTERLINE
- CMU WALL
- 1HR RATED WALL
- 2HR RATED WALL
- FOUNDATION WALL
- PL — PROPERTY LINE
- NEW DOOR
- NEW GLAZED OPENING
- FD RD FLOOR DRAIN / ROOF DRAIN
- SD CO SMOKE DETECTOR / CARBON DETECTOR
- 1i WALL TAG
- 1i WINDOW TAG
- ? KEY NOTE TAG
- 101 DOOR TAG
- ROOM # ROOM TAG
- EXIT SIGN / EMERGENCY LIGHTING WITH GENERATOR BACK UP
- #R @ 0' - 0" STAIR A STAIR TAG

LIFE & SAFETY COMPLIANCE:

- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS

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	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC

DRAWING TITLE:

FLOOR PLAN - 3RD FLOOR

DRAWING No.

A103.00

1 LEVEL 7 - ROOF
1" = 10'-0"

0' 5' 10' 20' 30'

N

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- NEW DOOR
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- 1 WALL TAG
- 11 WINDOW TAG
- ? KEY NOTE TAG
- 101 DOOR TAG
- ROOM # ROOM TAG
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	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
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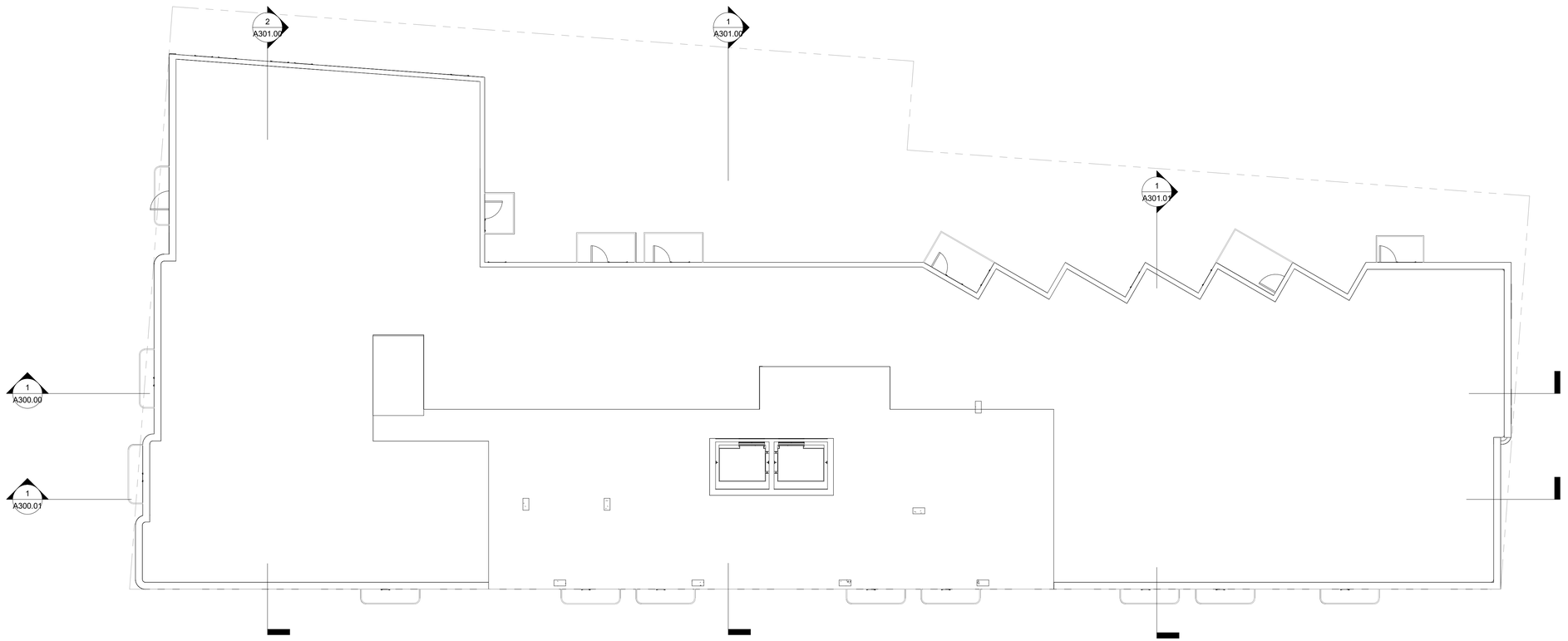
DRAWING TITLE:

FLOOR PLAN - 7TH FLOOR & ROOF

DRAWING No.

A107.00



1 Bulkhead Roof(1)
1" = 10'-0"

0' 5' 10' 20' 30'

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6. NO PLANS SHALL BE SCALED, PLAN DIMENSIONS SHOULD BE USED.
7. NOTICE OF START OF WORK SHALL BE GIVEN TO THE ARCHITECT.
8. A PERMIT SHALL BE ISSUED FOR EXCAVATING AND AFTER ESTABLISHING THE BEARING CAPACITY OF THE SOIL BY AN ARCHITECT OR ENGINEER OR THEIR REPRESENTATIVE AND SECURING APPROVAL THEREOF FROM THE DEPARTMENT OF BUILDINGS. THE PERMITS SHALL BE FOR THE ENTIRE CONSTRUCTION.
9. NO FIRE HYDRANT OR UTILITY POLE OR TREE SHALL BE WITHIN 5'-0" OF SPLAY OF ANY CURB CUT.
10. ANY ALTERED GRADE EXCEEDING 30 DEGREE SLOPE SHALL HAVE A RETAINING WALL FILED AS AN AMENDMENT AND APPROVED BY DEPARTMENT OF BUILDINGS BEFORE THE START OF SUCH A WALL.
11. THE STREET ON WHICH THIS BUILDING FRONTS IS OR WILL BE IMPROVED TO THE SATISFACTION OF THE DEPARTMENT OF HIGHWAYS. REQUIRED UTILITIES SHALL ALSO BE INSTALLED.
12. SIDEWALK AND ROADWAY CONSTRUCTION OFF SITE WILL CONFORM TO DEPARTMENT OF HIGHWAYS SPECIFICATIONS. A SEPARATE APPROVE FOR SIDEWALK CONSTRUCTION, INCLUDING WIDTH OF SIDEWALK, WILL BE OBTAINED FROM THAT DEPARTMENT BEFORE SUCH WORK IS COMMENCED.

CONSTRUCTION LEGEND:

- CENTERLINE
- CMU WALL
- 1HR RATED WALL
- 2HR RATED WALL
- FOUNDATION WALL
- PROPERTY LINE
- NEW DOOR
- NEW GLAZED OPENING
- FD RD FLOOR DRAIN / ROOF DRAIN
- SD CO SMOKE DETECTOR / CARBON DETECTOR
- 11 WALL TAG
- 11 WINDOW TAG
- ? KEY NOTE TAG
- 101 DOOR TAG
- ROOM # ROOM TAG
- EXIT SIGN / EMERGENCY LIGHTING WITH GENERATOR BACK UP
- #R @ 0' - 0" STAIR A STAIR TAG

LIFE & SAFETY COMPLIANCE:

- 1-HR RATED WALLS
- 2-HR RATED WALLS
- 3-HR RATED WALLS

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

FLOOR PLAN - BULKHEAD ROOF

DRAWING No.

A108.00

GENERAL NOTES

1. ALL RECESSED LIGHTING FIXTURES ARE LOCATED IN CONDITIONED SPACES. THEREFORE THEY COMPLY WITH THE EXCEPTION SPECIFIED AT ECC TABLE 402.4.2

2. PEMERNENT CERTIFICATE TO BE ATTACHED TO ELECTRICAL DISTRIBUTION PANEL AND TO COMPLY WITH ALL REQUIREMENTS LISTED AT NY ECC 401.3

3. TOTAL NO. OF FIXTURES = XXX NO. HIGH-EFFICICACY LAMPS=XX.X% OF TOTAL NO. OF FIXTURES. COMPLIES WITH REQUIRED 75% HIGH-EFFICACY OF NEWLY INSTALLED LAMPS AS PER ECC 404.1

CONTROL DESCRIPTIONS

VACANCY SENSOR CEILING MOUNTED OR BUILT-IN WALL SWITCH
CONTROL FUNCTION SHALL BE MANUAL ON AUTOMATICALLY TURN OFF LIGHTS WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE, SUCH SWITCHES, SENSORS, CONTROLS SHALL NOT HAVE AN OVERRIDE SWITCH THAT CONVERTS FROM MANUAL-ON TO AUTOMATIC-ON FUNCTION

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LOCAL AUTOMATIC CONTROL
MANUAL ON AND VACANCY SENSOR AUTOMATIC OFF

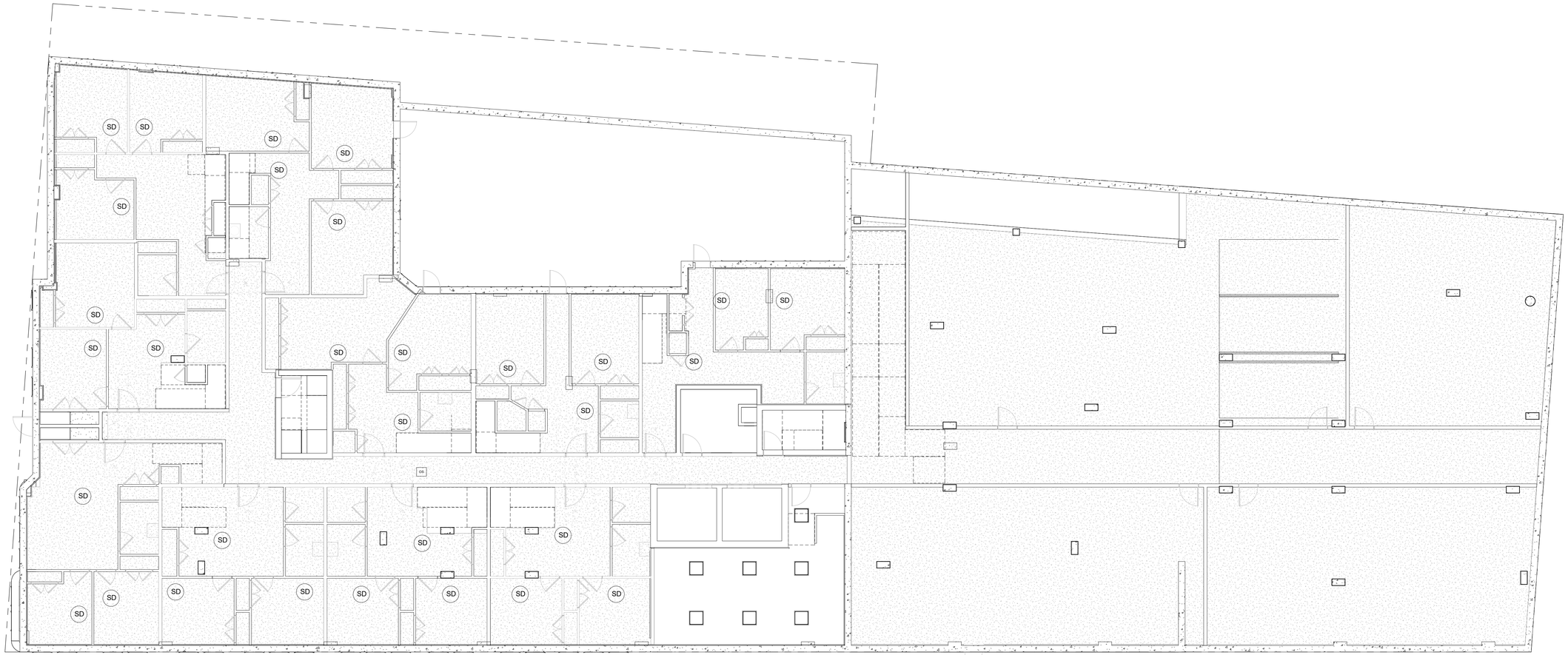
LOCAL MANUAL CONTROL AND LIGHT REDUCTION CONTROLS
WALL MOUNTED ON/OFF SWITCH WITH BUILT-IN VACANCY SENSOR OR WALL SWITCH CONTROLLED BY CEILING MOUNTED VACANCY SENSOR

LIGHTING FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	MOUNTING	WATTAGE	COUNT	LAMP
E	○	4" ROUND WALL WASH 1000LM, 3500K	CEILING, RECESSED	7 W	1172	LED
A	□	2X2 SURFACE, 2100 DELIVERED LUMENS, DIFFUSE, 010V DIMMING	WALL	14 W	97	LED
L	▭	WAL-LYTER LED RECESSED WALLWASH, 2'	WALL	12 W	22	LED
C	▭	EXTERNAL WALL LIGHT	WALL	40 W	2	LED

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
OS	CEILING MOUNTED OCCUPANCY SENSOR. LUTRON #LRF2-VCR2B-P-WH. WIRELESS, BATTERY POWERED, TO REDUCE LIGHT BY 100%



1 Cellar - Parking
1/8" = 1'-0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

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BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

RCP - CELLAR

DRAWING No.

A120.00

GENERAL NOTES

1. ALL RECESSED LIGHTING FIXTURES ARE LOCATED IN CONDITIONED SPACES. THEREFORE THEY COMPLY WITH THE EXCEPTION SPECIFIED AT ECC TABLE 402.4.2

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CONTROL DESCRIPTIONS

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LIGHTING FIXTURE SCHEDULE

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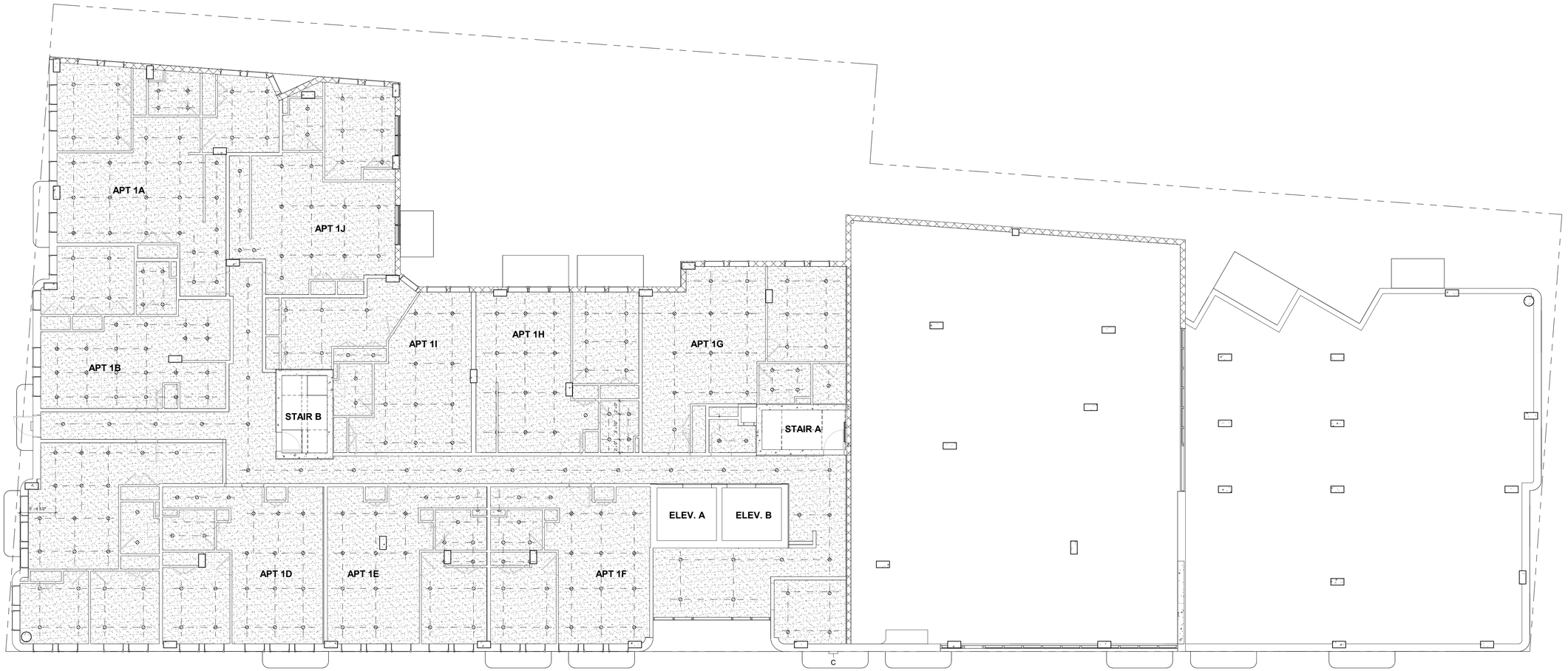
A	□	2X2 SURFACE, 2100 DELIVERED LUMENS, DIFFUSE, 010V DIMMING	WALL	14 W	97	LED
L	▭	WAL-LYTER LED RECESSED WALLWASH, 2'	WALL	12 W	22	LED
C	▭	EXTERNAL WALL LIGHT	WALL	40 W	2	LED

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
OS	CEILING MOUNTED OCCUPANCY SENSOR. LUTRON #LRF2-VCR2B-P-WH. WIRELESS, BATTERY POWERED, TO REDUCE LIGHT BY 100%



1 Ground Level
1/8" = 1'-0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

RCP - GROUND FLOOR

DRAWING No.
A121.00

GENERAL NOTES

1. ALL RECESSED LIGHTING FIXTURES ARE LOCATED IN CONDITIONED SPACES. THEREFORE THEY COMPLY WITH THE EXCEPTION SPECIFIED AT ECC TABLE 402.4.2

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C	▭	EXTERNAL WALL LIGHT	WALL	40 W	2	LED

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
OS	CEILING MOUNTED OCCUPANCY SENSOR. LUTRON #LRF2-VCR2B-P-WH. WIRELESS, BATTERY POWERED, TO REDUCE LIGHT BY 100%

1 Level 2
1/8" = 1'-0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

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BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC

DRAWING TITLE:

RCP - 2ND- 6TH TYP. FLOOR

DRAWING No.

A122.00

1 NORTH ELEVATION
1" = 10'-0"

2 WEST ELEVATION
1" = 10'-0"

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

BUILDING ELEVATION - NORTH & WEST

DRAWING No.

A200.00

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SEAL AND SIGNATURE:

2 EAST ELEVATION 1
1" = 10'-0"

OWNER:
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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

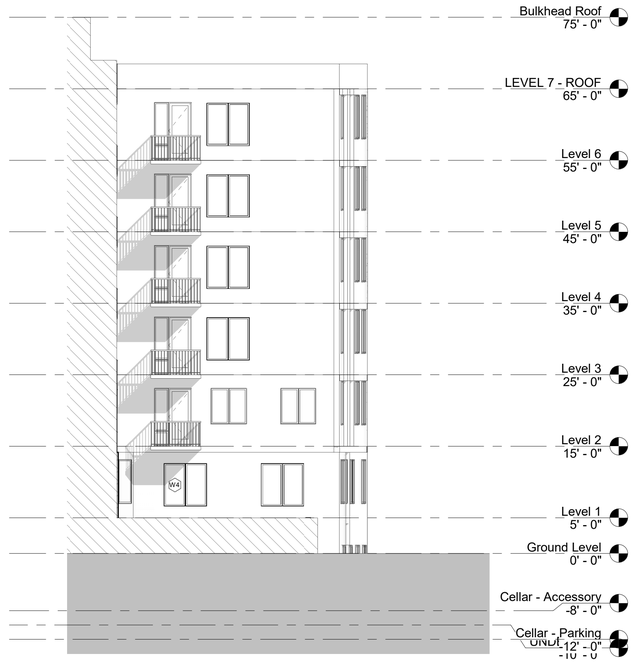
DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

BUILDING ELEVATION - EAST 1 & EAST 2

DRAWING No.

A201.00

1 SOUTH ELEVATION 1
1" = 10'-0"



2 SOUTH ELEVATION 2
1" = 10'-0"

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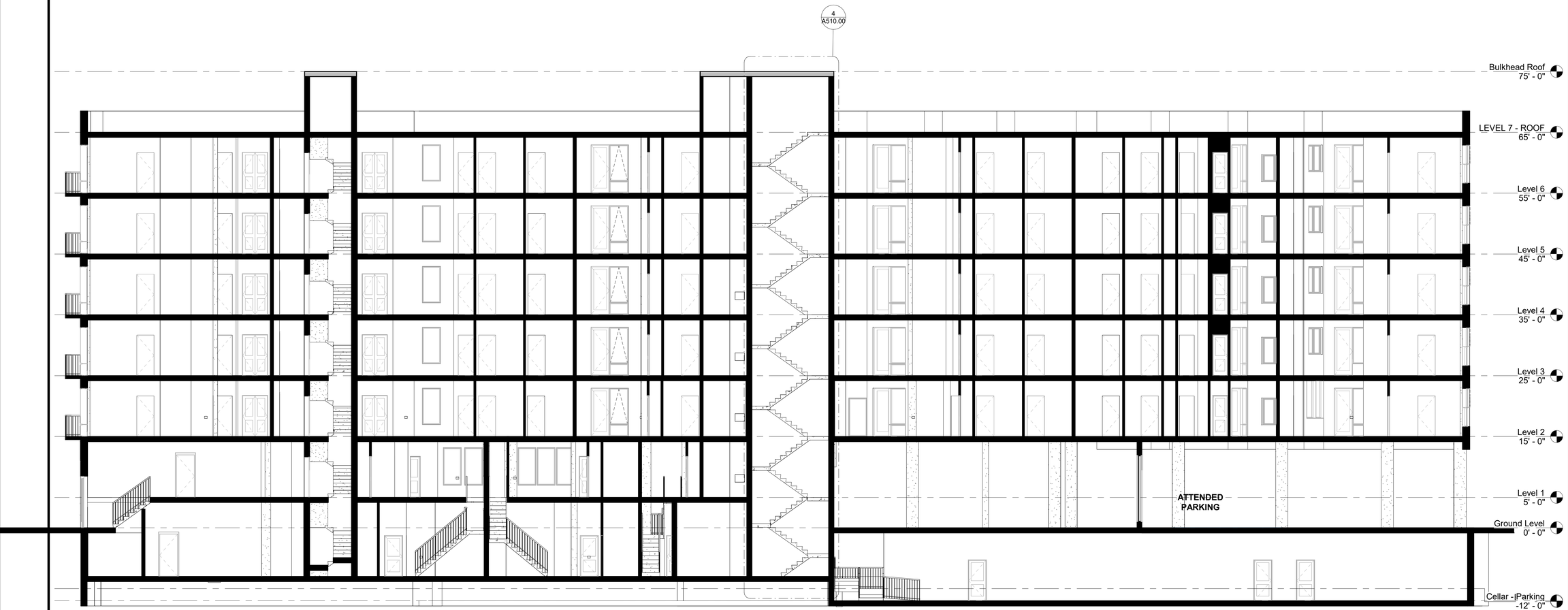
No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

BUILDING ELEVATION - SOUTH 1 & SOUTH 2

DRAWING No.

A202.00



1 LONGITUDINAL SECTION 1
1/8" = 1'-0"

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No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

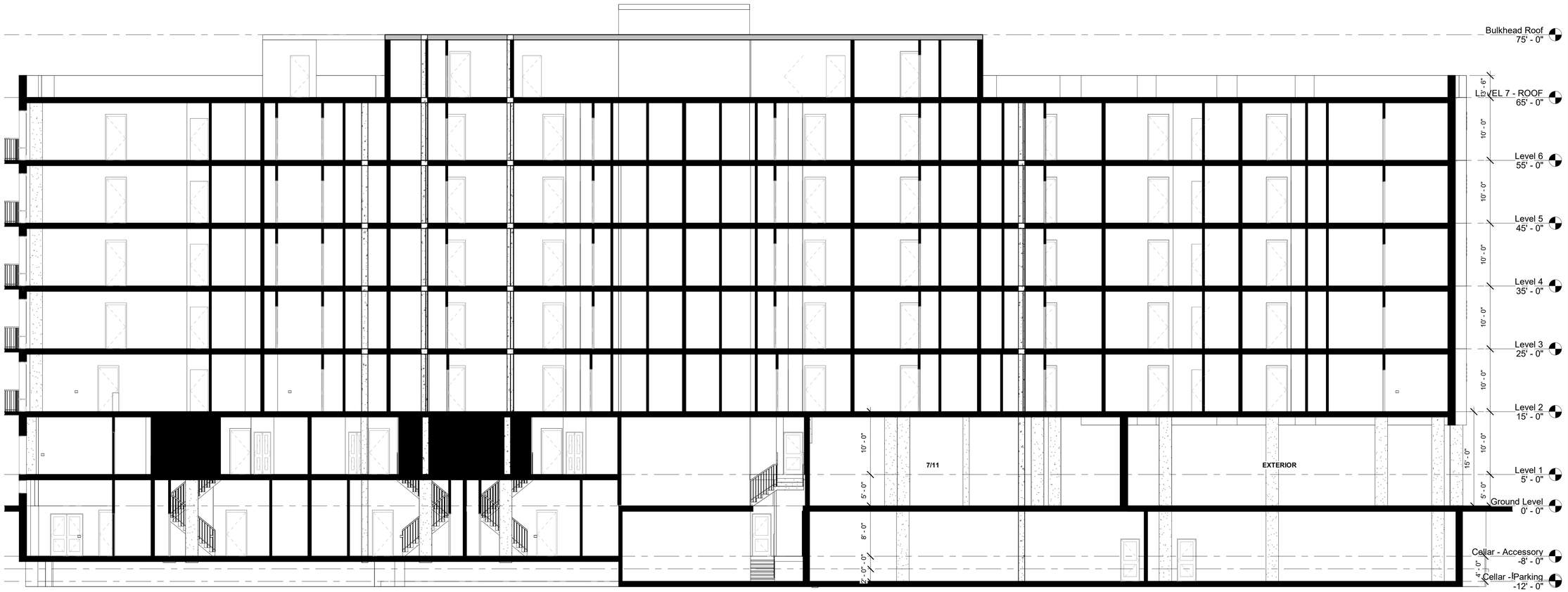
DRAWN BY:	CHECKED BY:
CW	DMC

DRAWING TITLE:

BUILDING SECTION -- LONGITUDINAL

DRAWING No.

A300.00



1 LONGITUDINAL SECTION 2
1/8" = 1'-0"

DANIEL M. CONDATORE, RA
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NY LICENSE #038947
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e: dcondatore@mode-arch.com

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e: rachel@riversideny.com

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
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DRAWN BY: CW
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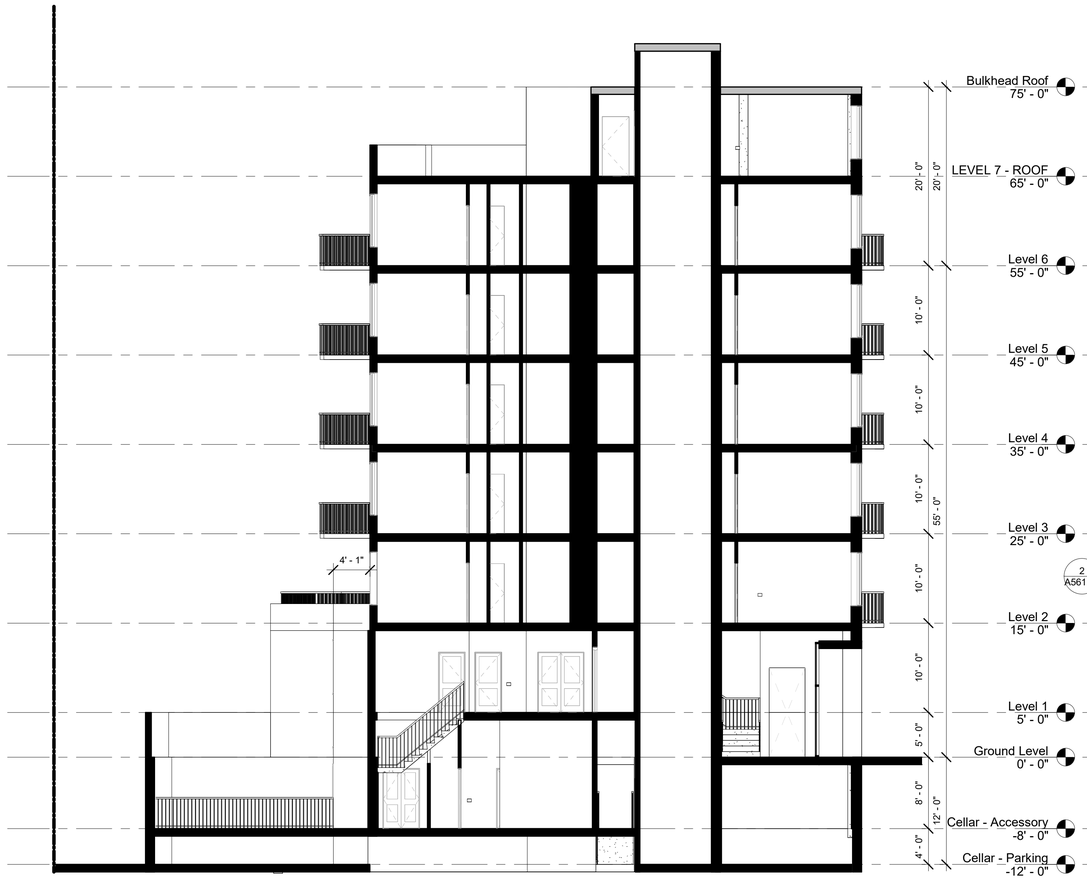
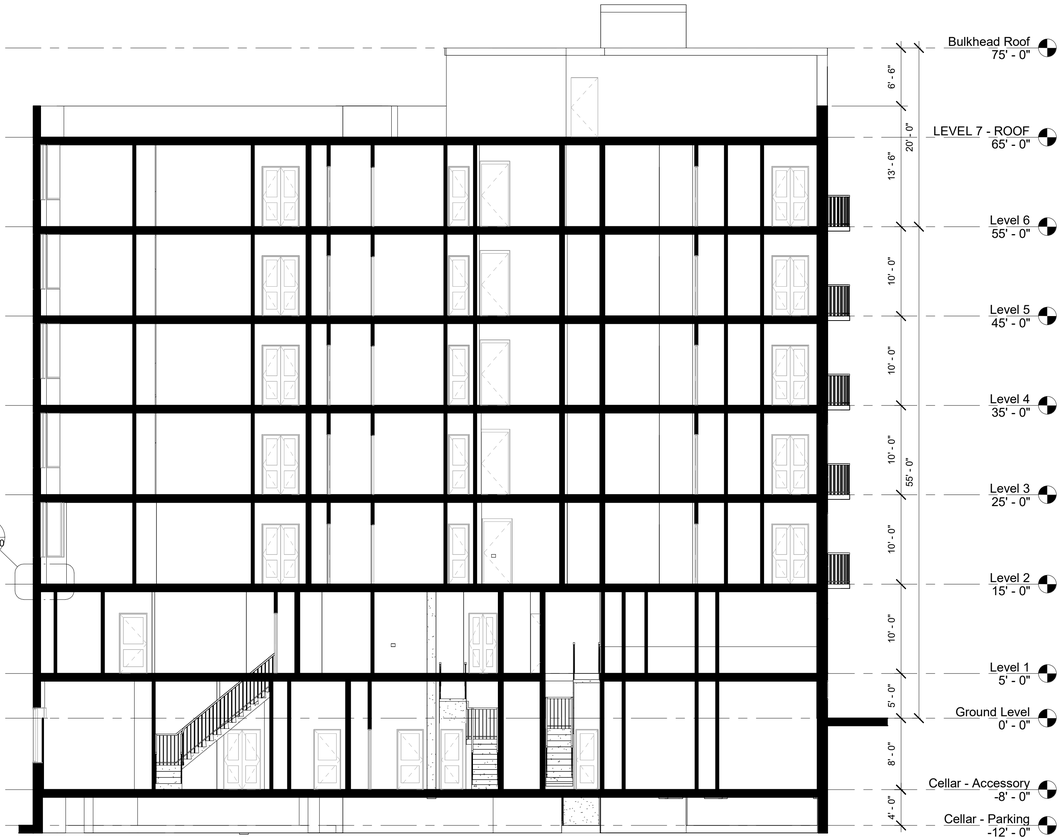
BUILDING SECTION -- LONGITUDINAL

DRAWING No.

A300.01



1 TRANSVERSE SECTION
1/8" = 1'-0"



2 TRANSVERSE 2
1/8" = 1'-0"

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DRAWN BY: CW
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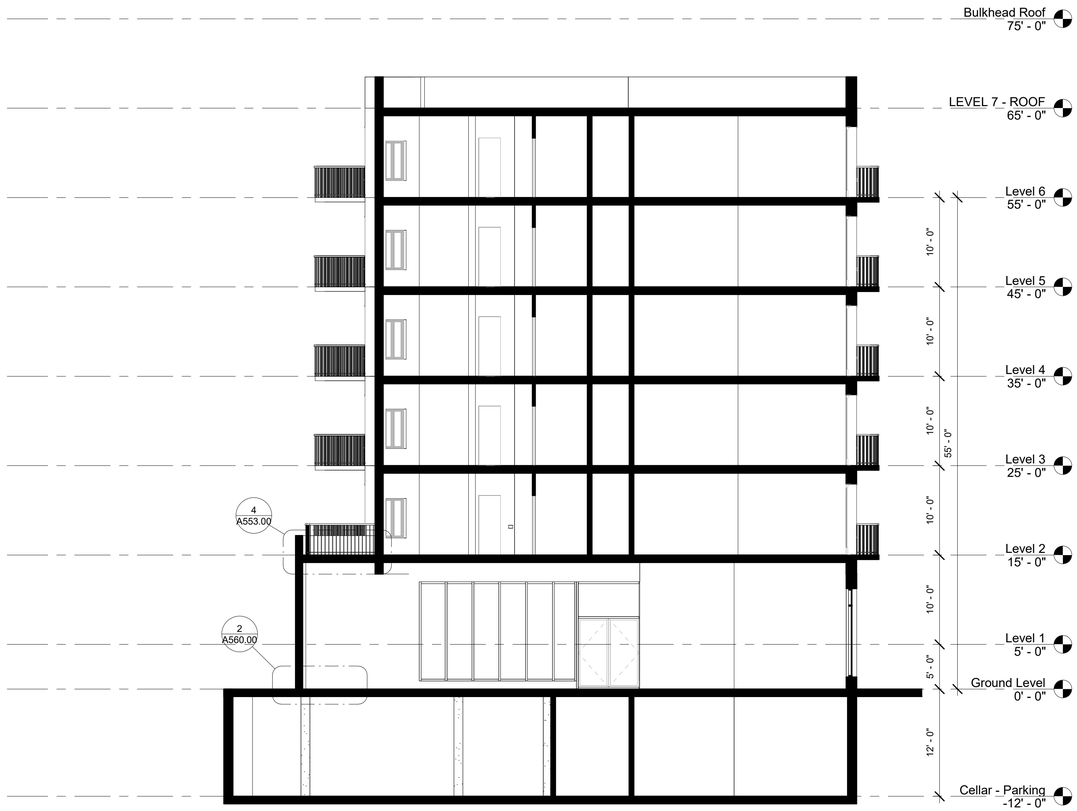
DRAWING TITLE:

BUILDING SECTION - TRANVERSE 1

DRAWING No.

A301.00



1 TRANSVERSE 3
1/8" = 1'-0"

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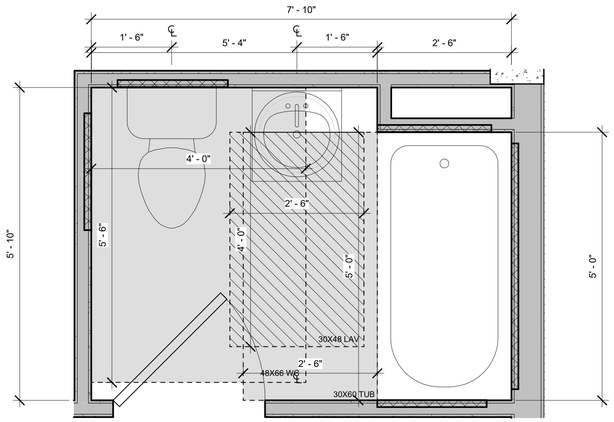
DRAWING TITLE:

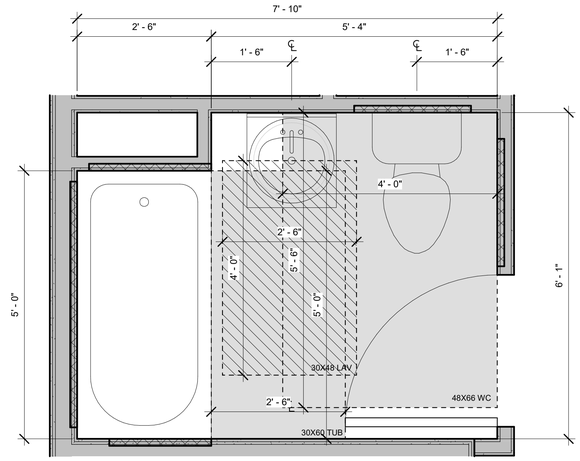
BUILDING SECTION - TRANVERSE 2

DRAWING No.

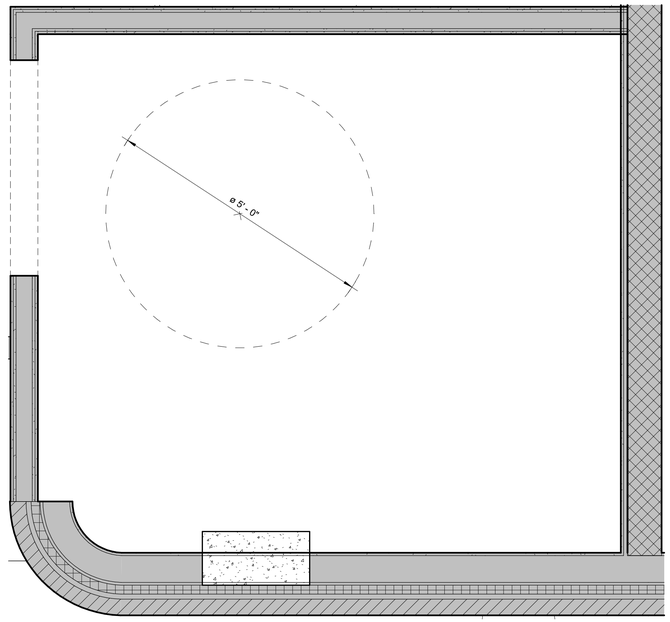
A301.01



11 ENLARGED PLAN - BATHROOM TYPE B-1a
3/4" = 1'-0"



5 ENLARGED PLAN - BATHROOM TYPE B-4a
3/4" = 1'-0"



1 MAIL ROOM ENLARGED PLAN
3/4" = 1'-0"

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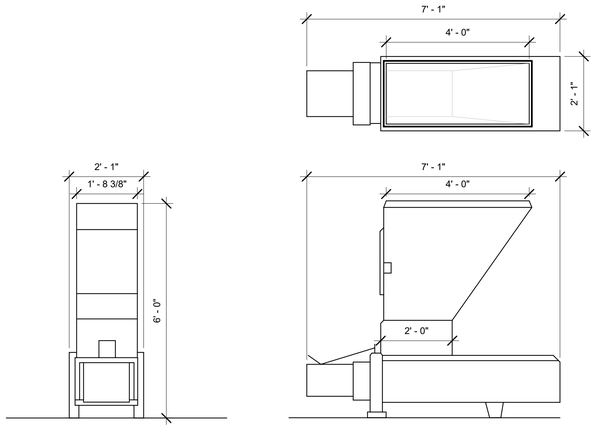
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

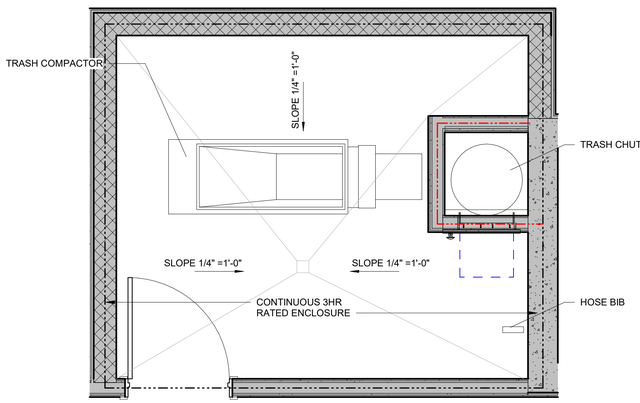
DETAILS - BATHROOM

DRAWING No.

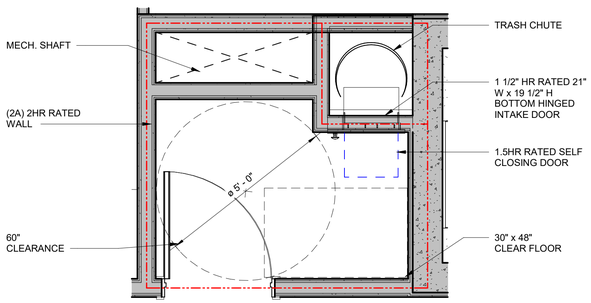
A420.00



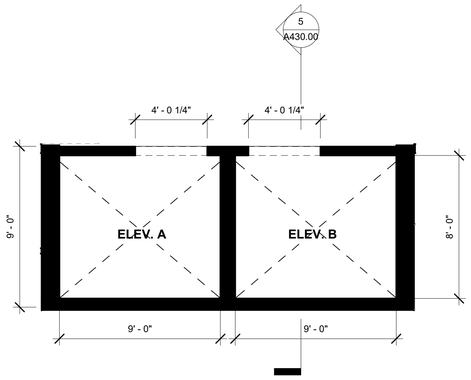
1 COMPACTOR DETAILS
1/2" = 1'-0"



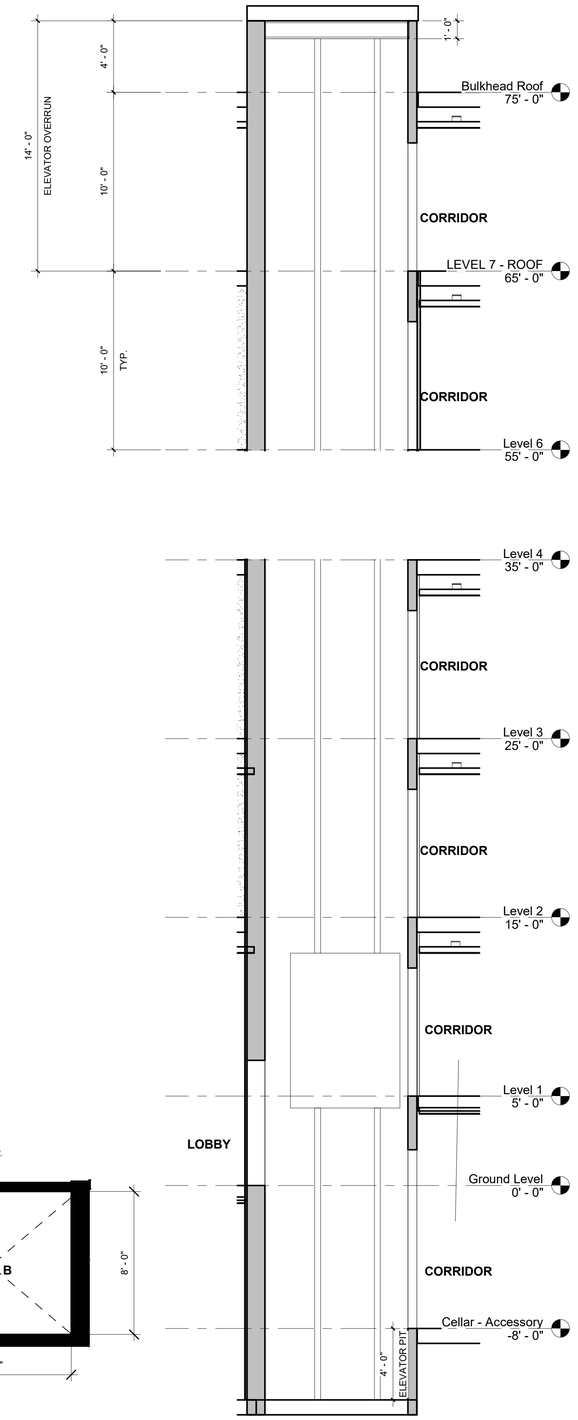
2 ENLARGED FLOOR PLAN - COMPACTOR ROOM DETAILS
1/2" = 1'-0"



3 ENLARGED FLOOR PLAN - TRASH ROOM
1/2" = 1'-0"



4 TYP. ENLARGED ELEVATOR PLAN
1/4" = 1'-0"



5 ELEVATOR SECTION
1/4" = 1'-0"

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CONEY ISLAND AVENUE

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BLOCK: 5114, LOT: 1

#B00706931-I1

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	DOB SUBMISSION 6	03/05/2025
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DRAWN BY: CW
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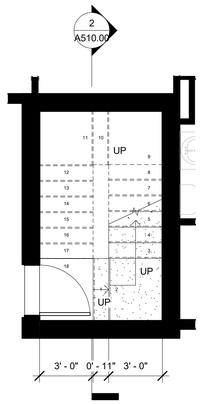
DRAWING TITLE:

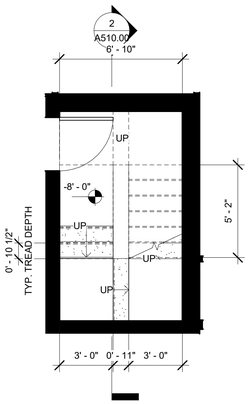
COMPACTOR ROOM & TRASH ROOM

DRAWING No.

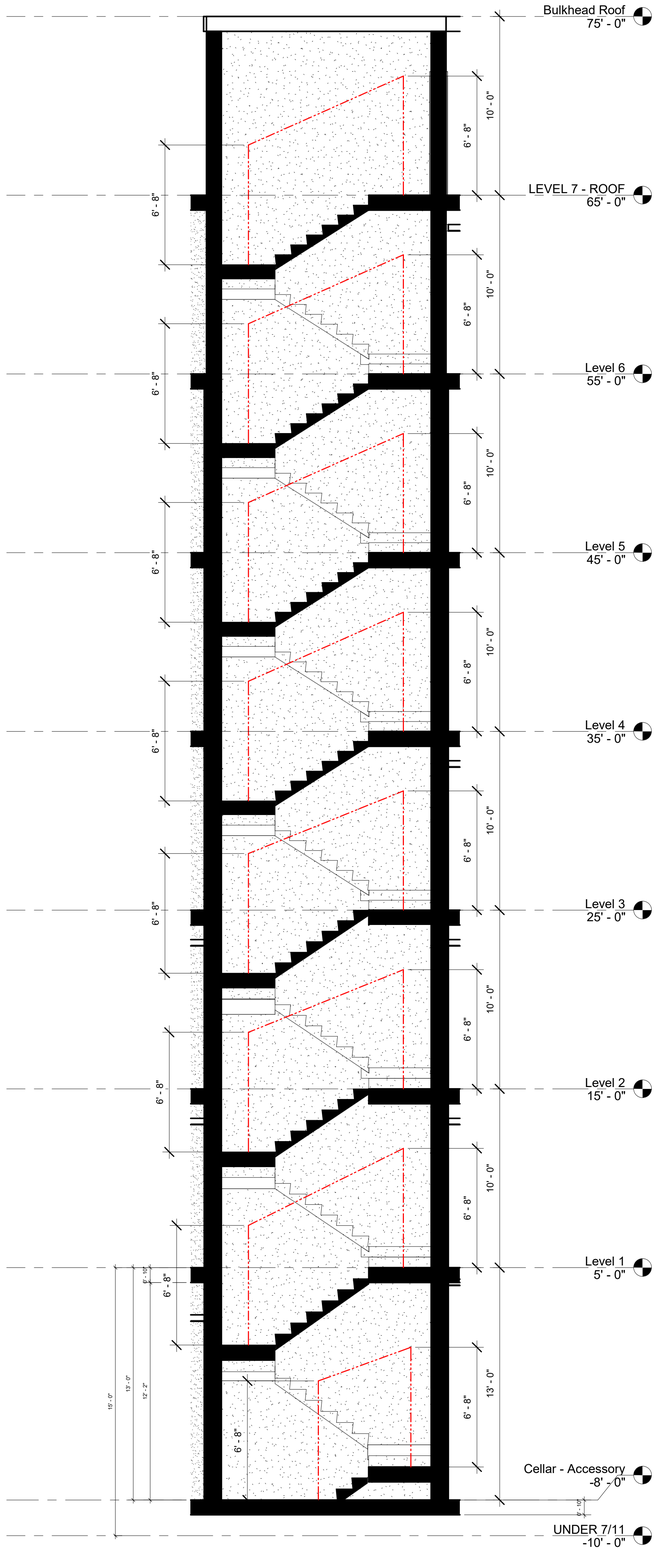
A430.00



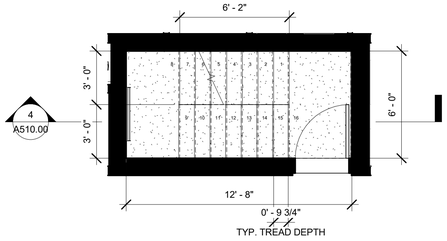
7 STAIR A PLAN - TYP.
1/4" = 1'-0"



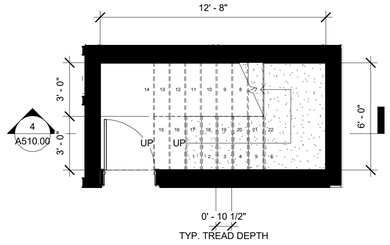
1 STAIR A PLAN - CELLAR
1/4" = 1'-0"



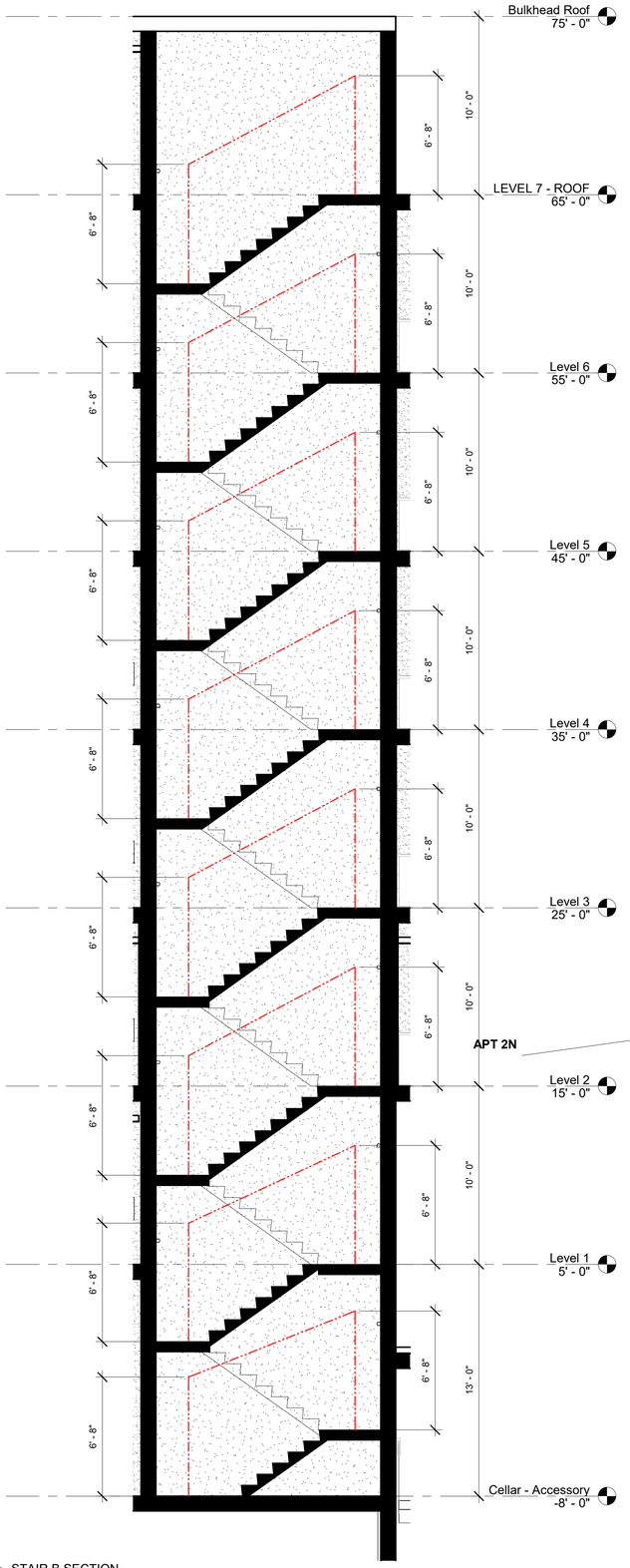
2 STAIR A SECTION
1/4" = 1'-0"



6 STAIR B - LEVEL GROUND TO 7TH FLOOR TYP.
1/4" = 1'-0"



3 ENLARGED STAIR B - CELLAR
1/4" = 1'-0"



4 STAIR B SECTION
1/4" = 1'-0"

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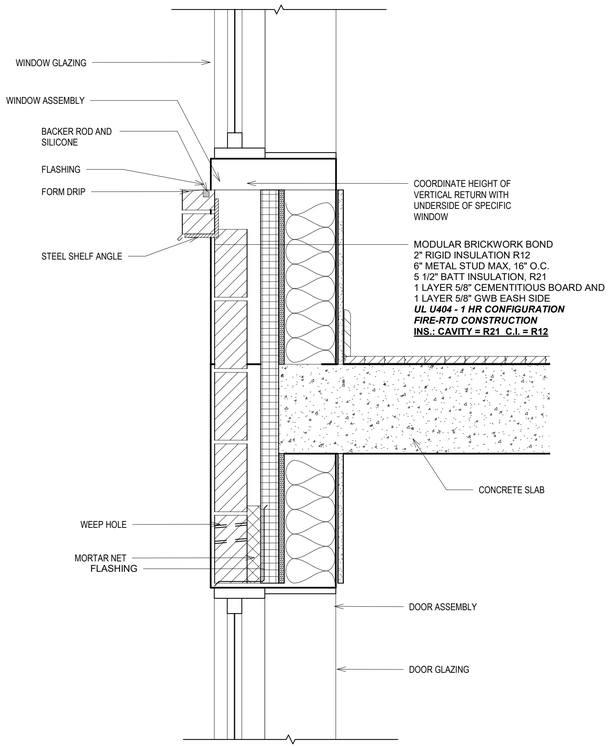
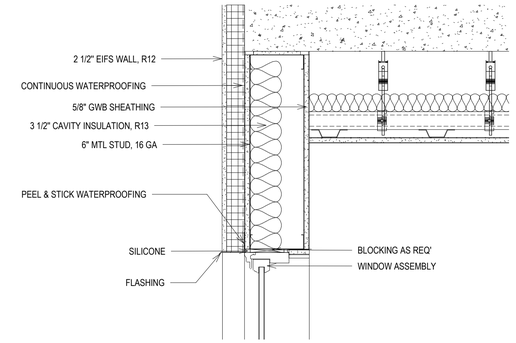
CORE DETAILS - STAIRWAY A & B

DRAWING No.

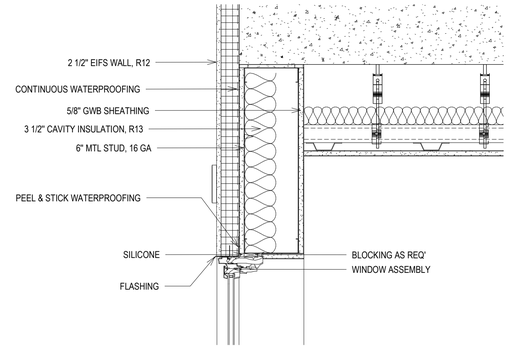
A510.00



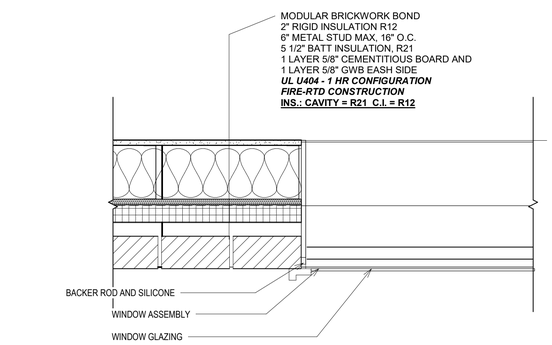
1 WALL DETAIL - DOOR HEAD & WINDOW SILL
1 1/2" = 1'-0"



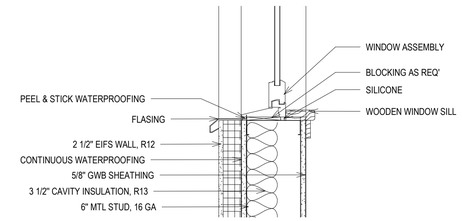
3 SLIDING WINDOW HEAD
1 1/2" = 1'-0"



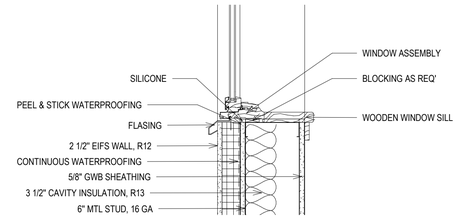
5 CASEMENT WINDOW HEAD
1 1/2" = 1'-0"



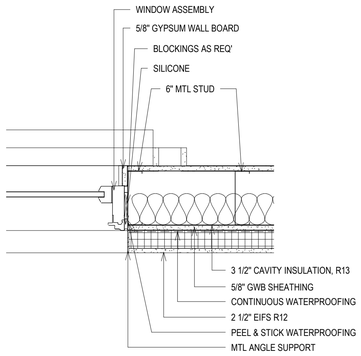
2 WALL DETAIL WINDOW JAMB
1 1/2" = 1'-0"



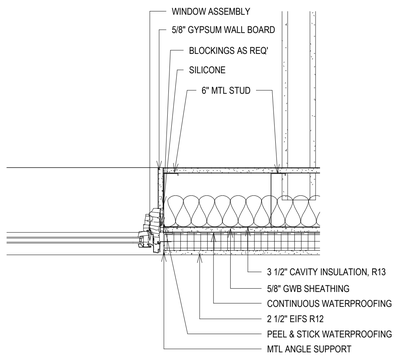
4 SLIDING WINDOW SILL
1 1/2" = 1'-0"



6 CASEMENT WIDOW SILL
1 1/2" = 1'-0"



8 TYPICAL DETAILS-EIFS-SLIDING WINDOW-JAMB
1 1/2" = 1'-0"



7 TYPICAL DETAILS-EIFS-CASEMENT WINDOW-JAMB
1 1/2" = 1'-0"

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CONEY ISLAND AVENUE

NEW RESIDENTIAL DEVELOPMENT

545 CONEY ISLAND AVENUE
BROOKLYN, NY 11218
BLOCK: 5114, LOT: 1

#B00706931-I1

No.	REVISIONS / ISSUES	DATE
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

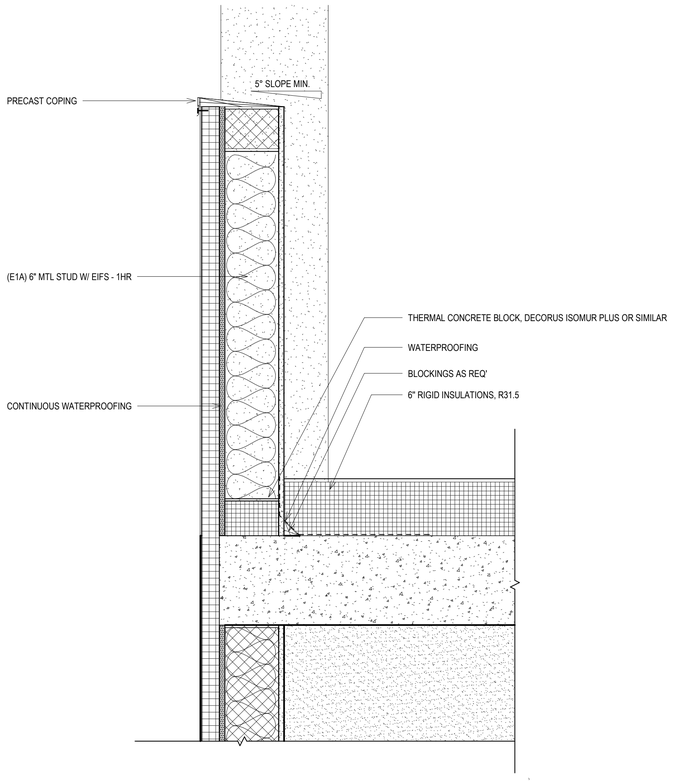
DRAWN BY:	CHECKED BY:
CW	DMC

DRAWING TITLE:

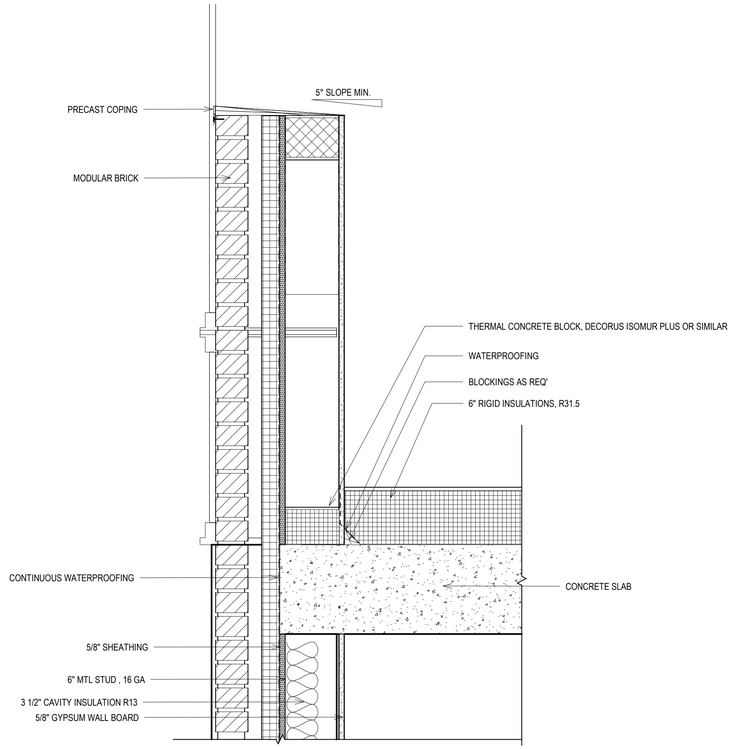
TYPICAL DETAILS - BUILDING ENVELOPE WINDOWS

DRAWING No.

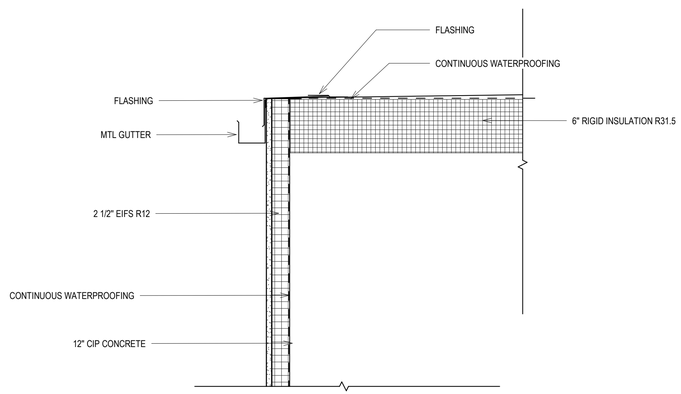
A552.00



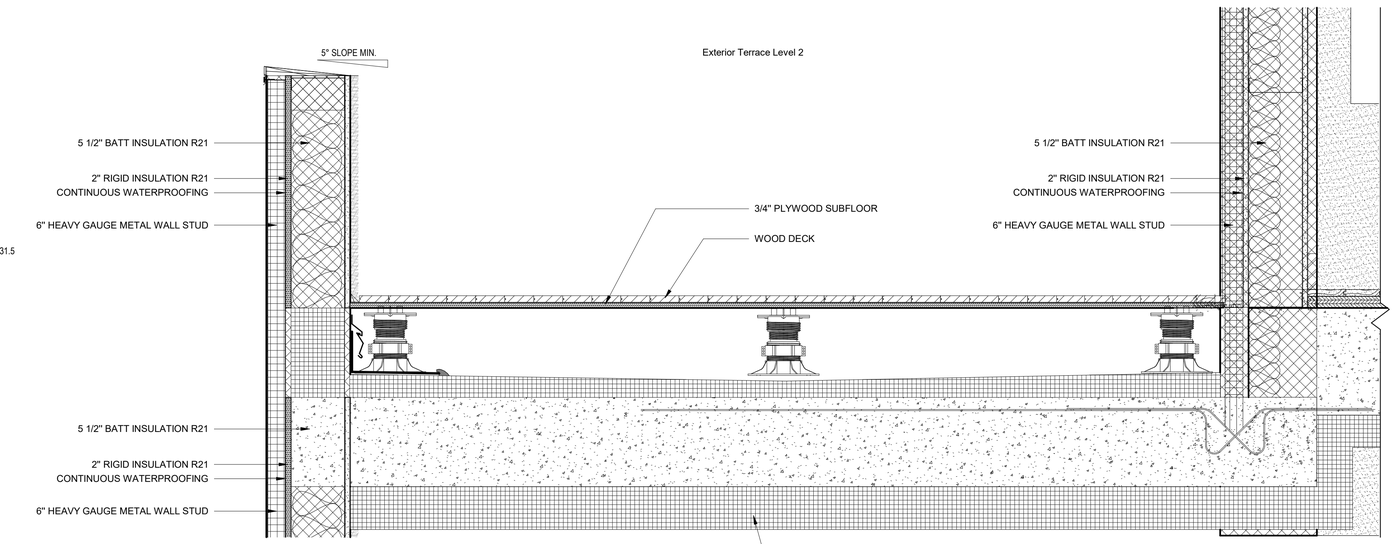
1 WALL DETAIL - PARAPET - CONCRETE ROOF DECK
1 1/2" = 1'-0"



2 DETAILED SECTION PARAPET BRICK
1 1/2" = 1'-0"



3 DETAILED SECTION BULKHEAD ROOF
1 1/2" = 1'-0"



4 OPAQUE ENVELOPE COMPONENTS. DETAIL 1
1 1/2" = 1'-0"

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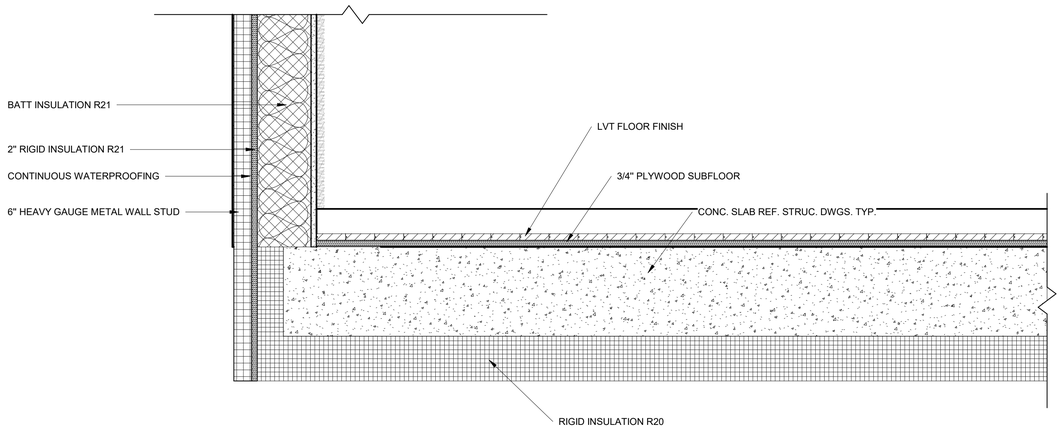
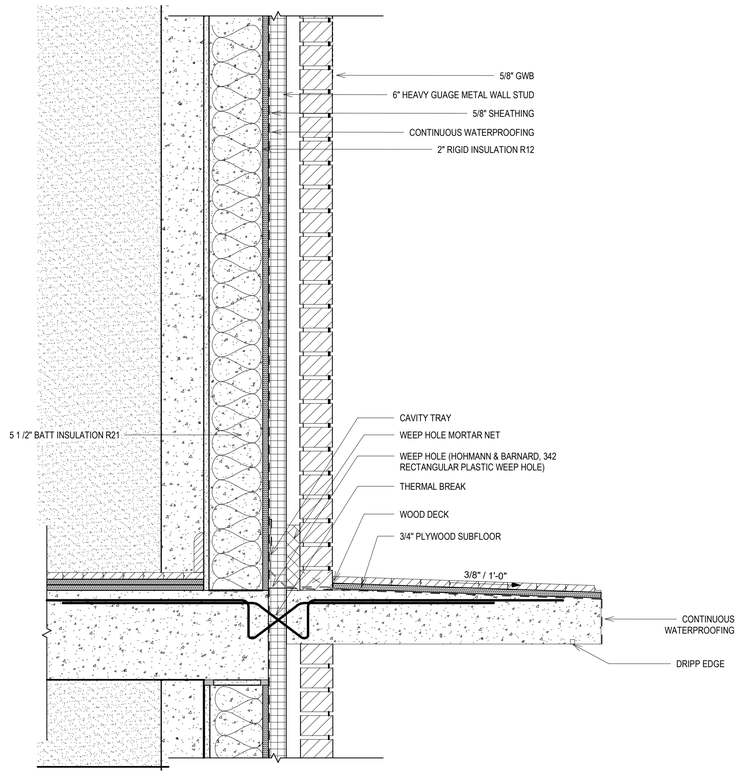
TYPICAL DETAILS - BUILDING ENVELOPE - PARAPETS

DRAWING No.

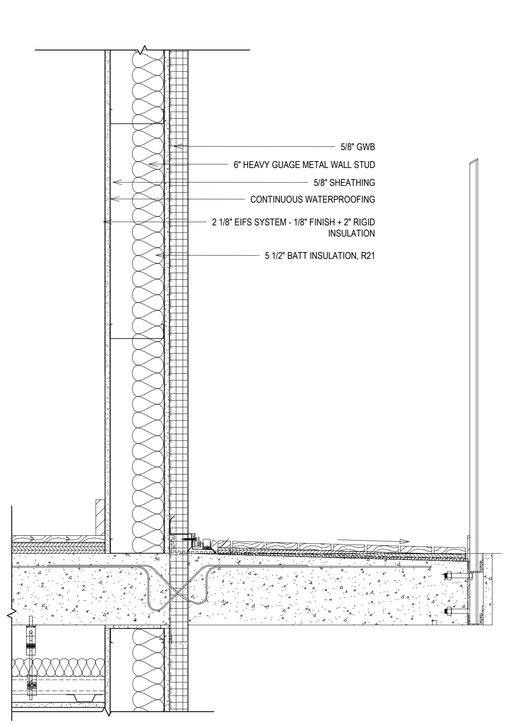
A553.00



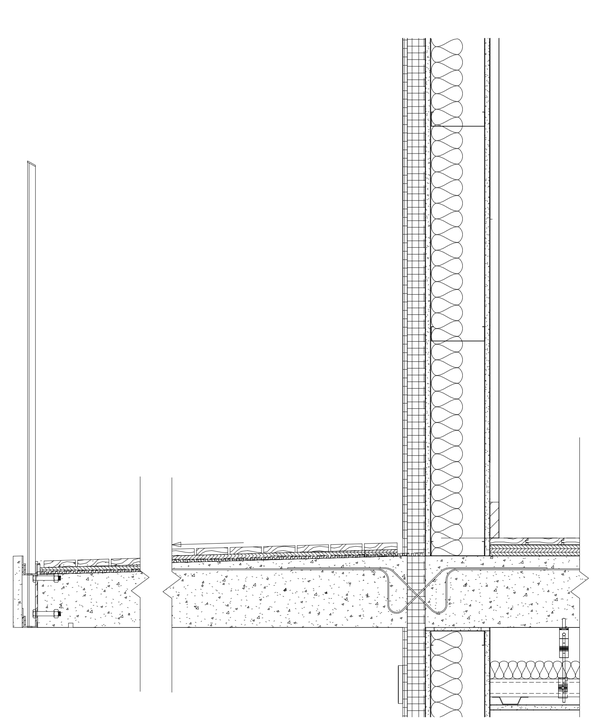
2 OPAQUE ENVELOPE COMPONENTS. DETAIL 2
1 1/2" = 1'-0"



1 BRICK WALL TYP. BALCONY DETAIL
1 1/2" = 1'-0"



3 METAL PANEL WALL BALCONY DETAIL
1 1/2" = 1'-0"



4 EIFS WALL BALCONY DETAIL
1 1/2" = 1'-0"

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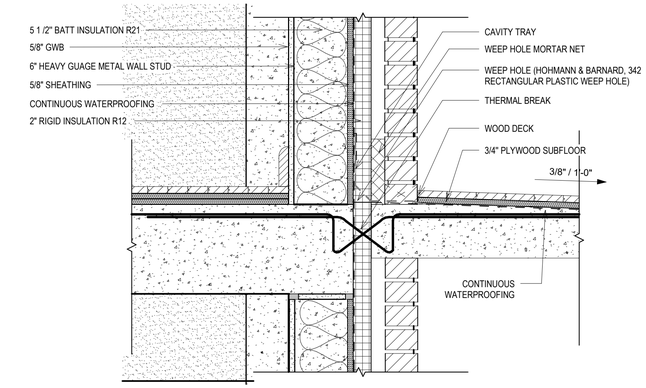
	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

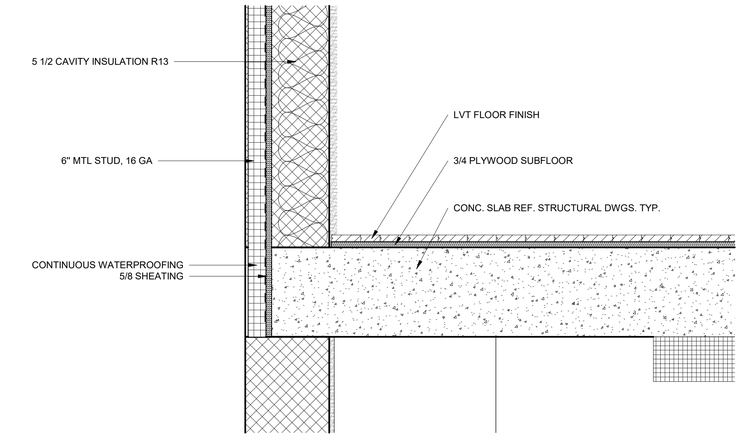
TYPICAL DETAILS - BUILDING ENVELOPE - BALCONIES

DRAWING No.

A560.00



1 WALL SECTION DETAIL 1
1 1/2" = 1'-0"



2 OPAQUE ENVELOPE COMPONENTS. DETAIL 4
1 1/2" = 1'-0"

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	DOB SUBMISSION 6	03/05/2025
	DOB SUBMISSION 7 COY	-

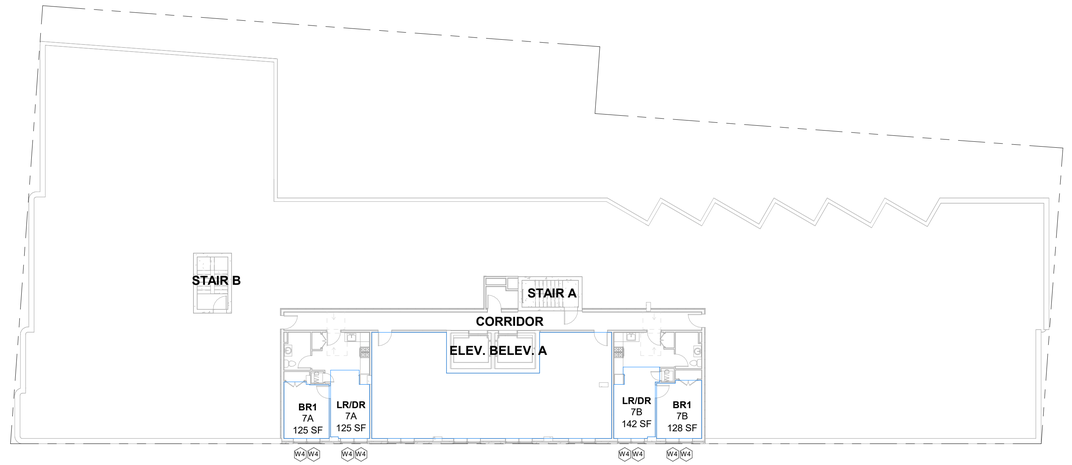
DRAWN BY: CW
CHECKED BY: DMC
DRAWING TITLE:

TYPICAL DETAILS - BUILDING ENVELOPE - WALL SECTION

DRAWING No.

A561.00

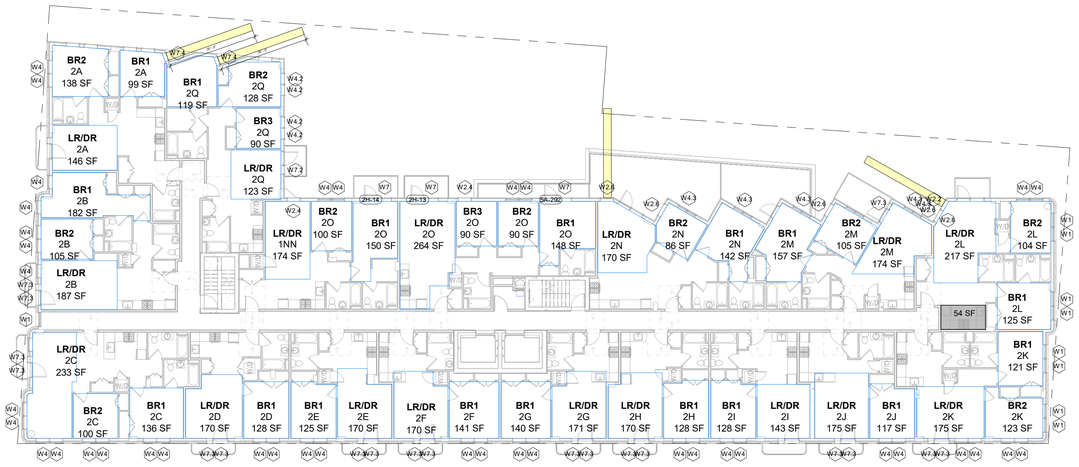
LIGHT & AIR Level 5 & 6						
Unit	Room Name	Area	Light Req'd	Provided Light	Air Req'd	Provided Air
LEVEL 7 - ROOF						
7A	BR1	125 SF	12.5 SF	36.00 SF	6.2 SF	18.00 SF
7A	LR/DR	125 SF	12.5 SF	36.00 SF	6.3 SF	18.00 SF
7B	BR1	128 SF	12.8 SF	36.00 SF	6.4 SF	18.00 SF
7B	LR/DR	142 SF	14.2 SF	36.00 SF	7.1 SF	18.00 SF



3 LEVEL 7 - ROOF
1/16" = 1'-0"

LIGHT & AIR Level 2,3 & 4						
Unit	Room Name	Area	Light Req'd	Provided Light	Air Req'd	Provided Air
Level 2						
1NN	LR/DR	174 SF	17.4 SF	18.00 SF	8.7 SF	18.00 SF
2A	BR1	99 SF	9.9 SF	12.00 SF	5.0 SF	6.00 SF
2A	BR2	138 SF	13.8 SF	36.00 SF	6.9 SF	18.00 SF
2A	LR/DR	146 SF	14.6 SF	35.38 SF	7.3 SF	8.90 SF
2B	BR1	182 SF	18.2 SF	36.00 SF	9.1 SF	18.00 SF
2B	BR2	105 SF	10.5 SF	36.00 SF	5.2 SF	18.00 SF
2B	LR/DR	187 SF	18.7 SF	53.38 SF	9.4 SF	26.90 SF
2C	BR1	136 SF	13.6 SF	36.00 SF	6.8 SF	18.00 SF
2C	BR2	100 SF	10.0 SF	36.00 SF	5.0 SF	18.00 SF
2C	LR/DR	233 SF	23.3 SF	53.38 SF	11.6 SF	26.90 SF
2D	BR1	128 SF	12.8 SF	36.00 SF	6.4 SF	18.00 SF
2D	LR/DR	170 SF	17.0 SF	35.38 SF	8.5 SF	8.90 SF
2E	BR1	125 SF	12.5 SF	36.00 SF	6.3 SF	18.00 SF
2E	LR/DR	170 SF	17.0 SF	35.38 SF	8.5 SF	8.90 SF
2F	BR1	141 SF	14.1 SF	36.00 SF	7.0 SF	18.00 SF
2F	LR/DR	170 SF	17.0 SF	35.38 SF	8.5 SF	8.90 SF
2G	BR1	140 SF	14.0 SF	36.00 SF	7.0 SF	18.00 SF
2G	LR/DR	171 SF	17.1 SF	35.38 SF	8.5 SF	8.90 SF
2H	BR1	128 SF	12.8 SF	36.00 SF	6.4 SF	18.00 SF
2H	LR/DR	170 SF	17.0 SF	35.38 SF	8.5 SF	8.90 SF
2I	BR1	128 SF	12.8 SF	36.00 SF	6.4 SF	18.00 SF
2I	LR/DR	143 SF	14.3 SF	35.38 SF	7.2 SF	8.90 SF
2J	BR1	117 SF	11.7 SF	36.00 SF	5.9 SF	18.00 SF

LIGHT & AIR Level 2,3 & 4						
Unit	Room Name	Area	Light Req'd	Provided Light	Air Req'd	Provided Air
2J	LR/DR	175 SF	17.5 SF	35.38 SF	8.7 SF	8.90 SF
2K	BR1	121 SF	12.1 SF	39.93 SF	6.1 SF	19.92 SF
2K	BR2	123 SF	12.3 SF	75.93 SF	6.2 SF	55.92 SF
2K	LR/DR	175 SF	17.5 SF	71.38 SF	8.7 SF	44.90 SF
2L	BR1	125 SF	12.5 SF	39.93 SF	6.3 SF	19.92 SF
2L	BR2	104 SF	10.4 SF	75.93 SF	5.2 SF	55.92 SF
2L	LR/DR	217 SF	21.7 SF	40.84 SF	10.9 SF	19.5 SF
2M	BR1	157 SF	15.7 SF	19.5 SF	7.9 SF	19.5 SF
2M	BR2	105 SF	10.5 SF	19.5 SF	5.3 SF	19.5 SF
2M	LR/DR	174 SF	17.4 SF	35.38 SF	8.7 SF	8.90 SF
2N	BR1	142 SF	14.2 SF	19.5 SF	7.1 SF	19.5 SF
2N	BR2	86 SF	8.6 SF	19.5 SF	4.3 SF	19.5 SF
2N	LR/DR	170 SF	17.0 SF	19.5 SF	8.5 SF	19.5 SF
2O	BR1	150 SF	15.0 SF	49.33 SF	7.5 SF	19.00 SF
2O	BR1	148 SF	14.8 SF	49.33 SF	7.4 SF	19.00 SF
2O	BR2	100 SF	10.0 SF	36.00 SF	5.0 SF	18.00 SF
2O	BR2	90 SF	9.0 SF	36.00 SF	4.5 SF	18.00 SF
2O	BR3	90 SF	9.0 SF	18.00 SF	4.5 SF	18.00 SF
2O	LR/DR	264 SF	26.4 SF	49.33 SF	13.2 SF	19.00 SF
2Q	BR1	119 SF	11.9 SF	12.00 SF	5.9 SF	6.00 SF
2Q	BR2	128 SF	12.8 SF	25.00 SF	6.4 SF	12.50 SF
2Q	BR3	90 SF	9.0 SF	25.00 SF	4.5 SF	12.50 SF
2Q	LR/DR	123 SF	12.3 SF	40.06 SF	6.2 SF	12.00 SF



2 LIGHT & AIR - 2ND- 6TH TYP. FLOOR
1/16" = 1'-0"

LIGHT & AIR						
Unit	Room Name	Area	Light Req'd	Provided Light	Air Req'd	Provided Air
Level 1						
1A	1BR	117 SF	11.7 SF	18.00 SF	5.8 SF	18.00 SF
1A	2BR	145 SF	14.5 SF	36.00 SF	7.2 SF	36.00 SF
1A	LR/DR	302 SF	30.2 SF	36.00 SF	15.1 SF	36.00 SF
1B	BR	131 SF	13.1 SF	36.00 SF	6.5 SF	36.00 SF
1B	LR/DR	152 SF	15.2 SF	36.00 SF	7.6 SF	36.00 SF
1C	BR	114 SF	11.4 SF	36.00 SF	5.7 SF	36.00 SF
1C	BR	102 SF	10.2 SF	72.00 SF	5.1 SF	72.00 SF
1C	LR/DR	248 SF	24.8 SF	54.00 SF	12.4 SF	54.00 SF
1D	BR	126 SF	12.6 SF	36.00 SF	6.3 SF	36.00 SF
1D	LR/DR	263 SF	26.3 SF	54.00 SF	13.1 SF	54.00 SF
1E	BR	122 SF	12.2 SF	36.00 SF	6.1 SF	36.00 SF
1E	LR/DR	263 SF	26.3 SF	54.00 SF	13.1 SF	54.00 SF
1F	BR	123 SF	12.3 SF	36.00 SF	6.1 SF	36.00 SF
1F	LR/DR	261 SF	26.1 SF	54.00 SF	13.0 SF	54.00 SF
1G	BR	171 SF	17.1 SF	36.00 SF	8.6 SF	36.00 SF
1G	LR/DR	241 SF	24.1 SF	36.00 SF	12.1 SF	36.00 SF
1H	BR	136 SF	13.6 SF	36.00 SF	6.8 SF	36.00 SF
1H	LR/DR	290 SF	29.0 SF	54.00 SF	14.5 SF	54.00 SF
1I	BR	175 SF	17.5 SF	18.00 SF	8.8 SF	18.00 SF
1I	LR/DR	257 SF	25.7 SF	36.00 SF	12.8 SF	36.00 SF
1J	BR	143 SF	14.3 SF	36.00 SF	7.2 SF	18.00SF
1J	LR/DR	276 SF	27.6 SF	36.00 SF	13.8 SF	18.00 SF

1 LIGHT & AIR - GROUND FLOOR
1/16" = 1'-0"

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DRAWN BY: OW
CHECKED BY: DMC

DRAWING TITLE:

LIGHT & AIR - GROUND-7TH FLOOR

DRAWING No.

A600.00

APPENDIX N
Significant Threat Notice

Act Now to Continue Receiving Information About This Site!

DEC's Division of Environmental Remediation (DER) now distributes information about contaminated sites *electronically by email*.

If you would like to continue to receive information about the contaminated site featured in this fact sheet:

You must sign up for the DER email listserv:

https://dec.ny.gov/environmental-protection/site-cleanup/regional-remediation-project-information/environmental-cleanup-email-newsletters

DER cannot register your email address - only the email address owner can do so. If you already have signed up for the listserv for the county in which the site is located, you need do nothing.

Why You Should Go "Paperless":

- ☑ Get site information faster and share it easily;
- ☑ Receive information about all sites in a chosen county - read what you want, delete the rest;
- ☑ It helps the environment and stretches your tax dollars.

If "paperless" is not an option for you, call or write to the DER project manager identified in this fact sheet. Indicate that you need to receive paper copies of fact sheets through the Postal Service. Include the site name in your correspondence. The option to receive paper is available to individuals only. Groups, organizations, businesses, and government entities are assumed to have email access.

Former New City Link Auto Repair Site

Brownfield Cleanup Program
Site No. C224407
547 Coney Island Avenue and 50 Hinckley Place
Brooklyn, NY 11218 August 2025

Report Recommends Cleanup of Brownfield Site Contamination

The New York State Department of Environmental Conservation (NYSDEC) is reviewing the Remedial Investigation Report for the Former New City Link Auto Repair site ("site") located at 547 Coney Island Avenue and 50 Hinckley Place, Brooklyn, Kings County. Please see the map for the site location.

Remedial Investigation Report

The Remedial Investigation Report (RIR) describes the results of the site investigation and recommends development of a cleanup plan to address the contamination that was found. The RIR was submitted by 545 Coney Island LLC ("applicant").

- Access the RIR and other project documents online through the DECinfo Locator: https://extapps.dec.ny.gov/data/DecDocs/C224407/.
- Documents also are available at the location(s) identified under "Where to Find Information."

Based on the findings of the investigation, NYSDEC, in consultation with the New York State Department of Health (NYSDOH), has determined that the site poses a significant threat to public health or the environment. This decision is based on the soil vapor data collected during the remedial investigation that could negatively affect public health.

Highlights of the Remedial Investigation Report

Petroleum-related volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were found in subsurface soils at concentrations above the restricted residential soil clean-up objectives. Petroleum VOCs were detected in groundwater above groundwater quality standards. Elevated levels of petroleum VOCs and chlorinated VOCs, such as tetrachloroethylene (PCE) were detected in soil vapor. Petroleum contamination is likely due to historic site use as a gasoline station and automobile repair facility on the northern portion of the site. The PCE contamination in soil vapor is likely due to historic use of the southern portion of the site as a drycleaner.

Next Steps

NYSDEC will complete its review, make any necessary revisions and, if appropriate, approve the investigation report. The approved report will be made available to the public (see “Where to Find Information”). The applicants will then develop a cleanup plan, called a "Remedial Action Work Plan." This plan describes how contamination will be addressed, with NYSDEC and NYSDOH overseeing the work. NYSDEC will present the draft cleanup plan to the public for its review and comment during a 45-day comment period. NYSDEC will keep the public informed throughout the investigation and cleanup of the site. Due to the positive significant threat determination, the NYSDEC will conduct off-site soil vapor testing under the State Superfund Program.

Site Description

The Site is located in the Prospect Park South neighborhood of Brooklyn and is identified as Block 5114, Lots 1, 3, and 29 on the New York City tax map. The Site is approximately 19,090 sq ft (0.44 acres), is currently vacant. Lot 3 was formerly improved with a vacant two-story warehouse occupied most recently by Delt Hardware, a construction and plumbing goods supplier. Delt Hardware formerly utilized the northern half of Lot 1 as a loading/parking area. The southern half of Lot 1 was formerly improved with a vacant one-story garage formerly used for auto painting and repair operated by “New City Link Auto Repair.” There was formerly a partial cellar located in the northern part of the garage on Lot 1. Lot 29 was formerly operated as a 7-Eleven convenience store and associated parking lot. All on-Site buildings were demolished in anticipation of conducting the cleanup.

Although the future development plans are in preliminary design phases, the proposed development will consist of constructing a new mixed-use (residential and commercial), mixed income building that will provide new affordable residential rental units. The building will include one cellar level with a bottom excavation to a depth of approximately 15 feet bgs.

Additional site details, including environmental and health assessment summaries, are available on NYSDEC's Environmental Site Remediation Database (by entering the site ID, C224407) at:

https://appfactory.dec.ny.gov/DERExternalSearch/ERDSearch

Brownfield Cleanup Program

New York's Brownfield Cleanup Program (BCP) encourages the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and redeveloped. These uses may include recreation, housing, business or other uses. A brownfield site is any real property where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance adopted by DEC that are applicable based on the reasonably anticipated use of the property, in accordance with applicable regulations.

For more information about the BCP, visit:

https://dec.ny.gov/environmental-protection/site-cleanup/brownfield-and-state-superfund-programs/brownfield

Stay Informed with DEC Delivers

We encourage you to share this fact sheet with neighbors and tenants, and/or post this fact sheet in a prominent area of your building for others to see.

Sign up to receive site updates by email:

https://dec.ny.gov/environmental-protection/site-cleanup/regional-remediation-project-information/environmental-cleanup-email-newsletters

Note: Please disregard if you already have signed up and received this fact sheet electronically.

DECinfo Locator

Interactive map to access DEC documents and public data about the environmental quality of specific sites: https://dec.ny.gov/maps/interactive-maps/decinfo-locator

CONTACT INFORMATION

Project-Related Questions

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Project-Related Health Questions

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Albany, NY 12237
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beei@health.ny.gov

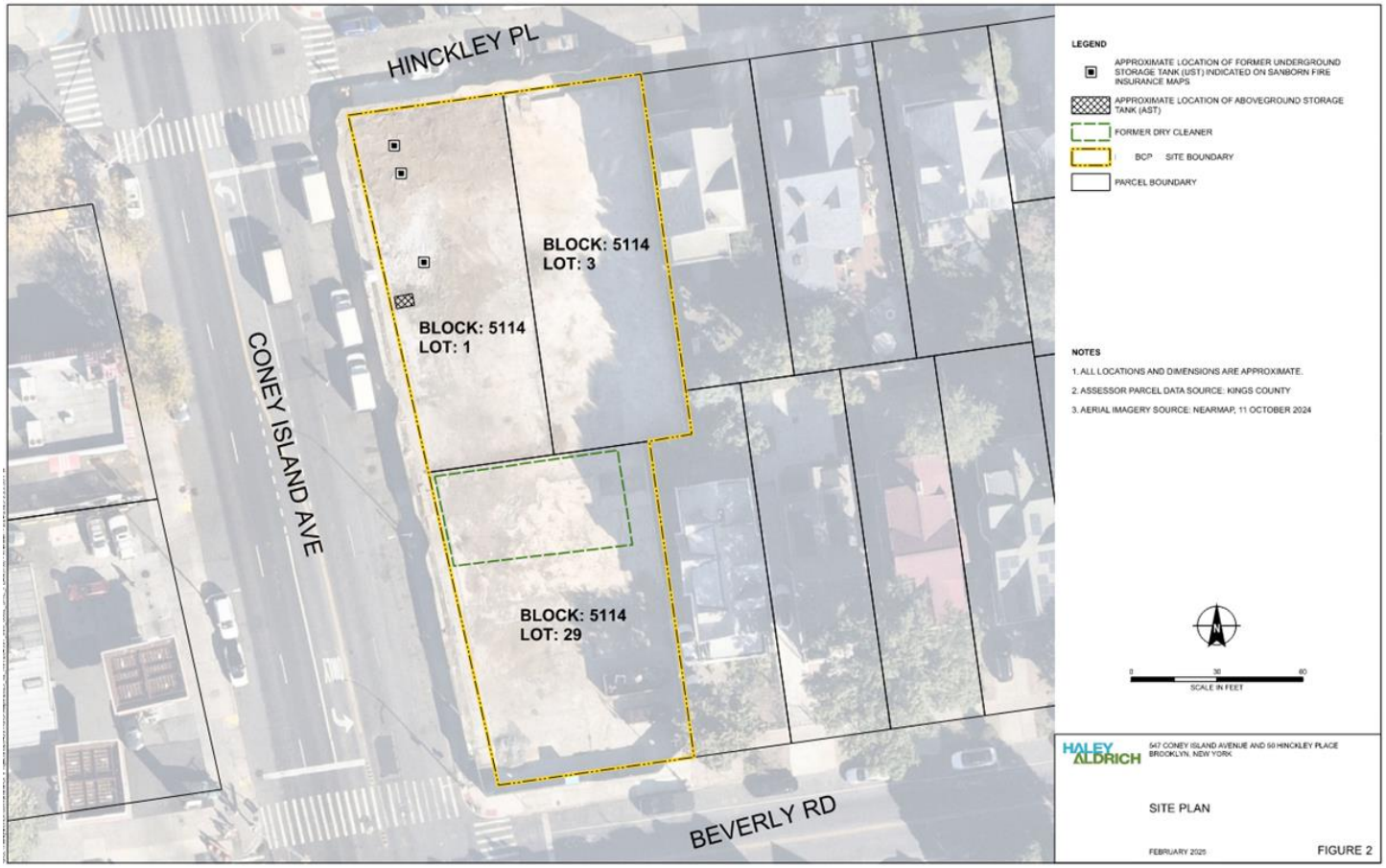
WHERE TO FIND INFORMATION

Access project documents through the DECinfo Locator and at these location(s):
https://extapps.dec.ny.gov/data/DecDocs/C224407/.

Brooklyn Community Board 14
810 East 16th Street
Brooklyn, NY 11230
Attn: Karl-Henry, Chairperson
Email: info@cb14brooklyn.com
Phone: 718-859-6357

Brooklyn Public Library - Cortelyou Branch
1305 Cortelyou Road at Argyle Road
Brooklyn, NY 11226
Attn: Antonia Bramble, Supervising Librarian
Email: abramble@bklynlibrary.org
Phone: 718-693-7763
Key project documents and project summary also are available on the NYSDEC website at:
https://extapps.dec.ny.gov/data/DecDocs/C224407/.

Site Location



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