HALEY ALDRICH

www.haleyaldrich.com

# REMEDIAL ACTION WORK PLAN
# 291 WALLABOUT STREET SITE
# 291 WALLABOUT STREET
# BROOKLYN, NEW YORK
# NYSDEC BCP SITE NO. C224416

DRAFT

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

for
291 Wallabout Realty LLC
Brooklyn, New York

File No. 0211139
July 2025

H & A OF NEW YORK ENGINEERING
AND GEOLOGY, LLP
213 W 35TH STREET
7TH FLOOR
NEW YORK, NY 10001
646.277.5685

## SIGNATURE PAGE FOR

**REMEDIAL ACTION WORK PLAN**
291 WALLABOUT STREET SITE
291 WALLABOUT STREET
BROOKLYN, NEW YORK
BCP SITE NO. C224416

**PREPARED FOR**
291 WALLABOUT REALTY LLC
BROOKLYN, NEW YORK

PREPARED BY:

_____
Zhan Shu, P.E., Ph.D.
Senior Project Manager
H & A of New York Engineering and Geology, LLP

REVIEWED AND APPROVED BY:

_____
Suzanne M. Bell, P.E.
Senior Associate
H & A of New York Engineering and Geology, LLP

_____
Amy K. Murphy
Senior Associate
H & A of New York Engineering and Geology, LLP

DRAFT

## Table of Contents


| | | Page |
|---|---|---|
| **List of Tables** | | **v** |
| **List of Figures** | | **v** |
| **List of Appendices** | | **vi** |
| **List of Acronyms and Abbreviations** | | **vii** |
| **Certification** | | **xi** |
| **Executive Summary** | | |
| **1.** | **Introduction** | **1** |
| 1.1 | SITE LOCATION AND DESCRIPTION | 1 |
| 1.2 | REDEVELOPMENT PLAN | 1 |
| 1.3 | DESCRIPTION OF SURROUNDING PROPERTY | 2 |
| 1.4 | SITE HISTORY | 2 |
| 1.5 | PREVIOUS ENVIRONMENTAL REPORTS | 2 |
| **2.** | **Description of Remedial Investigation Findings** | **3** |
| 2.1 | SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED | 3 |
| 2.1.1 | Groundwater Investigation | 3 |
| 2.1.2 | Soil Vapor Investigation | 4 |
| 2.1.3 | Soil Investigation | 4 |
| 2.2 | SAMPLES COLLECTED | 4 |
| 2.3 | CHEMICAL ANALYSIS | 5 |
| 2.4 | REMEDIAL INVESTIGATION FINDINGS SUMMARY | 6 |
| 2.4.1 | Soil Sampling Results | 6 |
| 2.4.2 | Groundwater Sampling Results | 7 |
| 2.4.3 | Soil Vapor Sampling Results | 9 |
| 2.5 | SIGNIFICANT THREAT | 9 |
| 2.6 | GEOLOGY AND HYDROLOGY | 9 |
| 2.6.1 | Contaminated Fill Material | 9 |
| 2.6.2 | Native Soil | 10 |
| 2.6.3 | Bedrock | 10 |
| 2.6.4 | Hydrogeology | 10 |
| 2.7 | CONTAMINANT CONDITIONS | 10 |
| 2.7.1 | Conceptual Site Model | 10 |
| 2.7.2 | Qualitative Human Health Exposure Assessment | 11 |
| 2.8 | FISH & WILDLIFE REMEDIAL IMPACT ANALYSIS | 14 |
| 2.9 | REMEDIAL ACTION OBJECTIVES | 14 |
| 2.9.1 | Groundwater | 14 |
| 2.9.2 | Soil | 15 |
| 2.9.3 | Soil Vapor | 15 |
| **3.** | **Summary of Remedial Action** | **16** |


DRAFT

3.1 ALTERNATIVE I – TECHNICAL DESCRIPTION 16
3.2 ALTERNATIVE II – TECHNICAL DESCRIPTION 19
3.3 EVALUATION OF THE PREFERRED REMEDY 21
3.3.1 Protection of Human Health and the Environment 21
3.3.2 Compliance with Standards, Criteria, and Guidance 22
3.3.3 Short-Term Effectiveness and Impacts 22
3.3.4 Long-Term Effectiveness and Performance 23
3.3.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material 23
3.3.6 Implementability 23
3.3.7 Cost-Effectiveness 23
3.3.8 Community Acceptance 24
3.3.9 Green and Sustainable Remediation 24
3.3.10 Land Use 24
3.4 SELECTION OF THE PREFERRED REMEDY 24
3.4.1 Zoning 24
3.4.2 Surrounding Property Uses 25
3.4.3 Environmental Justice Concerns 25
3.4.4 Land Use Designations 25
3.4.5 Population Growth Patterns 25
3.4.6 Accessibility to Existing Infrastructure 25
3.4.7 Proximity to Cultural Resources 25
3.4.8 Proximity to Natural Resources 25
3.4.9 Off-Site Groundwater Impacts 25
3.4.10 Proximity to Floodplains 25
3.4.11 Geography and Geology of the Site 25
3.4.12 Current Institutional Controls 26
3.5 SUMMARY OF SELECTED REMEDIAL ACTIONS 26

**4. Remedial Action Program 27**

4.1 GOVERNING DOCUMENTS 27
4.1.1 Standards, Criteria, and Guidance 27
4.1.2 Site-Specific Construction Health & Safety Plan 28
4.1.3 Quality Assurance Project Plan 28
4.1.4 Construction Quality Assurance Plan 29
4.1.5 Soil/Materials Management Plan 29
4.1.6 Storm-Water Pollution Prevention Plan 29
4.1.7 Community Air Monitoring Plan 29
4.1.8 Contractors' Site Operations Plan 29
4.1.9 Citizen Participation Plan 30
4.2 GREEN AND SUSTAINABLE REMEDIATION AND CLIMATE RESILIENCY 31
4.2.1 Best Practices and Techniques 31
4.2.2 Reporting 32
4.3 GENERAL REMEDIAL CONSTRUCTION INFORMATION 32
4.3.1 Project Organization 32
4.3.2 Remedial Engineer 33
4.3.3 Remedial Action Construction Schedule 33

DRAFT

4.3.4 Work Hours 33
4.3.5 Site Security 33
4.3.6 Traffic Control 34
4.3.7 Contingency Plan 34
4.3.8 Discovery of Additional Contaminated Soil 34
4.3.9 UST Discovery 34
4.3.10 Worker Training and Monitoring 35
4.3.11 Agency Approvals 35
4.3.12 Pre-Construction Meeting with NYSDEC 35
4.3.13 Emergency Contact Information 35
4.3.14 Remedial Action Costs 35
4.4 SITE PREPARATION 35
4.4.1 Mobilization 35
4.4.2 Monitoring Well Decommissioning 36
4.4.3 Erosion and Sedimentation Controls 36
4.4.4 Temporary Stabilized Construction Entrance(s) 36
4.4.5 Utility Marker and Easements Layout 36
4.4.6 Excavation Support 36
4.4.7 Equipment and Material Staging 37
4.4.8 Truck-Inspection Station 37
4.4.9 Site Fencing 37
4.4.10 Demobilization 37
4.5 REPORTING 37
4.5.1 Daily Reports 38
4.5.2 Monthly Reports 38
4.5.3 Photographs 38
4.5.4 Complaint Management Plan 39
4.5.5 Deviations from the RAWP 39

**5. Remedial Action: Material Removal from Site 40**

5.1 SOIL CLEANUP OBJECTIVES 40
5.2 REMEDIAL PERFORMANCE EVALUATION (CONFIRMATION SAMPLING) 40
5.2.1 Soil Sampling Frequency 40
5.2.2 Methodology 40
5.2.3 QA/QC 40
5.2.4 Data Validation 41
5.2.5 Reporting 41
5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES 41
5.4 SOIL/MATERIALS MANAGEMENT PLAN 41
5.4.1 Soil Screening Methods 41
5.4.2 Stockpile Methods 41
5.4.3 Materials Excavation and Load Out 42
5.4.4 Materials Transport Off Site 43
5.4.5 Materials Disposal Off Site 43
5.4.6 Materials Reuse On Site 44
5.4.7 Fluids Management 44

DRAFT

5.4.8 Backfill from Off-Site Sources 45
5.4.9 Stormwater Pollution Prevention 45
5.4.10 Contingency Plan 46
5.4.11 Community Air Monitoring Plan 46
5.4.12 Odor, Dust, and Nuisance Control Plan 47

**6. Residual Contamination to Remain on the Site 49**

**7. Engineering Controls 50**

**8. Institutional Controls 51**

**9. Final Engineering Report 52**

9.1 CERTIFICATIONS 52

**10. Schedule 54**

**References 55**

DRAFT

## List of Tables


| Table No. | Title |
|---|---|
| 1 | Alternative I Remedial Cost Estimate |
| 2 | Alternative II Remedial Cost Estimate |
| 3 | Track 1 Soil Cleanup Objectives |


## 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 | Soil Vapor Results Summary Map |
| 8 | Alternative I and Alternative II Excavation Plan |
| 9 | Confirmation Sample Location Plan |
| 10 | Truck Route Map |


DRAFT

# List of Appendices


| Appendix | Title |
|---|---|
| A | Survey Map |
| B | Zoning Map |
| C | Proposed Development Plans |
| D | Construction Health and Safety Plan |
| E | NYSDEC Request to Import/Reuse Form |
| F | Citizen Participation Plan |
| G | Environmental Footprint Analysis and Climate Screening Checklist |
| H | Project Personnel Resumes |
| I | Quality Assurance Project Plan |
| J | Proposed Remedial Action Project Schedule |


DRAFT

# 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** | |
| AOC | Area of Concern |
| ASP | Analytical Services Protocol |
| AWQS | Ambient Water Quality Standards |
| **B** | |
| BCA | Brownfield Cleanup Agreement |
| BCP | Brownfield Cleanup Program |
| bgs | below ground surface |
| BTEX | Benzene, toluene, ethylbenzene, xylenes |
| btoc | below top of casing |
| **C** | |
| CAMP | Community Air Monitoring Plan |
| CFR | Code of Federal Regulations |
| CHASP | Construction Health & Safety Plan |
| COCs | Contaminants of Concern |
| CP-51 | Commissioners Policy-51 *(specifically "October 2010 NYSDEC Commissioners Policy 51")* |
| CP-43 | Commissioners Policy-43 (specifically "Groundwater Monitoring Well Decommissioning Policy") |
| CPP | Citizen Participation Plan |
| CQAP | Construction Quality Assurance Plan |
| CSM | Conceptual Site Model |
| cu yd | cubic yard |
| 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 |

DRAFT

## List of Acronyms and Abbreviations (Continued)

| Acronym | Definition |
|---|---|
| **E** | |
| EC | Engineering Controls |
| ECL | Environmental Conservation Law |
| EDD | Electronic Data Deliverable |
| EE | Environmental Easement |
| ELAP | Environmental Laboratory Approval Program |
| EPA | U.S. Environmental Protection Agency |
| ESA | Environmental Site Assessment |
| ESI | Environmental Site Investigation |
| **F** | |
| FER | Final Engineering Report |
| ft | feet/foot |
| FWRIA | Fish and Wildlife Resource Impact Analysis |
| **G** | |
| GV | Guidance Value |
| **H** | |
| Haley & Aldrich of New York | H & A of New York Engineering and Geology, LLP |
| HASP | Health and Safety Plan |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| **I** | |
| IC | Institutional Control |
| IDW | investigation-derived waste |
| in. | inches |
| **L** | |
| Lakewood | Lakewood Environmental Services, Corp. |
| LSDF | low-sulfur diesel fuel |
| **M** | |
| mg/kg | milligrams per kilogram |
| MMBtu | million metric British thermal units |
| MTA | Metropolitan Transportation Authority |
| MW | Monitoring Well |

DRAFT

## List of Acronyms and Abbreviations (continued)

| Acronym | Definition |
|---|---|
| **N** | |
| ND | non-detect |
| ng/L | nanograms per liter |
| NYCDEP | New York City Department of Environmental Protection |
| NYCDOB | New York City Department of Buildings |
| NYCDOT | New York City Department of Transportation |
| 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** | |
| Pace/Alpha | Pace Analytical Services, LLC/Alpha Analytical Laboratories, Inc. |
| PAH | polycyclic aromatic hydrocarbon |
| PBS | Petroleum Bulk Storage |
| PCB | polychlorinated biphenyl |
| PFAS | per- and polyfluoroalkyl substances |
| PFOA | perfluorooctanoic acid |
| PFOS | perfluorooctane sulfonate |
| PGWSCOs | Protection of Groundwater Soil Cleanup Objectives |
| PID | photoionization detector |
| PM-10 | particles with diameters generally less than 10 micrometers and smaller |
| PPE | personal protective equipment |
| ppm | parts per million |
| ppt | parts per trillion |
| PVC | polyvinyl chloride |
| **Q** | |
| QA/QC | Quality Assurance/Quality Control |
| QAPP | Quality Assurance Project Plan |
| QEP | Qualified Environmental Professional |
| QHHEA | Qualitative Human Health Exposure Assessment |

DRAFT

## List of Acronyms and Abbreviations (continued)

| Acronym | Definition |
|---|---|
| **R** | |
| RAO | Remedial Action Objective |
| RAWP | Remedial Action Work Plan |
| RCA | recycled concrete aggregate |
| RCRA | Resource Conservation and Recovery Act |
| RE | Remedial Engineer |
| RI | Remedial Investigation |
| RIR | Remedial Investigation Report |
| RIWP | Remedial Investigation Work Plan |
| RRSCO | Restricted Residential Soil Cleanup Objective |
| **S** | |
| SCG | Standards, Criteria, and Guidelines |
| SCO | Soil Cleanup Objective |
| SDS | safety data sheet |
| Site | 291 Wallabout Street Brooklyn, New York |
| S/MMP | Soil/Materials Management Plan |
| SMP | Site Management Plan |
| SOE | support-of-excavation |
| SPDES | State Pollutant Discharge Elimination System |
| sq ft | square feet |
| SVI | soil vapor intrusion |
| SVOC | semi-volatile organic compound |
| SWPPP | Stormwater Pollution Prevention Plan |
| **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** | |
| UST | underground storage tank |
| UUSCO | Unrestricted Use Soil Cleanup Objective |
| **V** | |
| VOC | volatile organic compound |
| Volunteer | 291 Wallabout Realty LLC |

DRAFT

## 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 Division of Environmental Remediation 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 | Date | Signature |
|---|---|---|

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

DRAFT

# 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 291 Wallabout Realty LLC for the 291 Wallabout Street Site, located at 291 Wallabout Street, Brooklyn, New York (the "Site"). 291 Wallabout Realty 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 NYSDEC and 291 Wallabout Realty LLC (the "Volunteer") on December 12, 2024 (BCP Site No. C224416).

This RAWP summarizes the nature and extent of contamination on the Site as determined from data gathered during the Remedial Investigation (RI) performed by Haley & Aldrich of New York in March 2025. It provides an evaluation of a Track 1 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 AND SITE HISTORY

The Site is identified as Block 2250, Lot 46 on the New York City tax map. The Site is approximately 5,000 square feet (sq ft) (0.11 acres) and is currently vacant. The Site is bounded to the north by a one-story industrial warehouse building, to the east by a multi-family residential building, to the south by Wallabout Street, followed by residential buildings, and to the west by a vacant lot. The Site location is shown on Figure 1. A Site plan is shown on Figure 2. A Site survey map is provided in Appendix A.

The Site is located within a residential (R7A) zoning district and is surrounded by residential, commercial, industrial, and manufacturing use properties. The Metropolitan Transportation Authority (MTA) subway G line is located approximately 0.2 miles southwest of the Site. Sternberg Park is located approximately 0.3 miles north of the Site. The Volunteer plans to redevelop the Site for residential purposes consistent with current zoning.

Based on the findings of the Phase I Environmental Site Assessment (ESA) completed by Haley & Aldrich of New York in July 2024, the Site was developed in 1918 with a warehouse labeled as "Wheelwright" on the 1918 Sanborn Fire Insurance Map. The Site remained relatively unchanged until the late 1940s, when the building became occupied by "John Koerners Sons Inc. Truck Body Building" with woodworking operations conducted on the Site. These operations extended north to the southern side of Walton Street. The Site remained relatively unchanged until the mid-1980s, when the property appeared vacant and remained developed with the warehouse. The 2014, 2017, and 2020 City Directories indicate that the Site was occupied by "AZ Plastic." The buildings were demolished in order to facilitate completion of the RI, and the Site is currently vacant.

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

1) Bais Ruchel High School – 177 Harrison Avenue, Brooklyn, New York 11206, listed as a school.

DRAFT

2) I.S. 318 Eugenio Maria De Hostos – 101 Walton Street, Brooklyn, New York 11206, listed as a school.

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

## SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

The RI was completed in accordance with Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375, DER-10, the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 and subsequent updates), and the February 2025 Remedial Investigation Work Plan (RIWP), prepared by Haley & Aldrich of New York. The RI was performed from March 18, 2025, through March 28, 2025.

The RI consisted of the following:

- Advancement of 10 soil borings to various depths ranging from 5 to 15 ft below ground surface (bgs) with samples collected from surface soil (0 to 2 ft bgs), the bottom 2-ft interval of fill material ranging from 3 to 5 ft bgs, and from the 8 to 10 ft bgs interval. A total of 42 soil samples were collected (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.
- Installation of six 2-inch (in.) diameter groundwater monitoring wells to approximately 15 ft bgs and collection of six groundwater samples (plus QA/QC samples).
- Installation of five soil vapor probes to depths of approximately 4.5 ft bgs, or approximately 2 ft above the water table, and collection of seven soil vapor samples.

A summary of environmental findings of the RI includes the following:

- The Site is underlain by a layer of fill consisting of mainly brown fine to coarse sand with varying amounts of silt and fragments of brick, concrete, and glass. The depth of fill material varies across the Site, extending to a maximum depth of approximately 5 ft bgs. The fill is underlain by a fine sand with varying amounts of fine- and coarse-grained sediments, followed by brown fine to coarse sand grading to a light brown to dark brown fine sand with varying amounts of medium and coarse sand with fine to coarse gravels and cobbles extending up to the terminus depth in each boring of approximately 15 to 20 ft bgs.
- Groundwater was encountered at depths ranging from approximately 6.0 to 7.8 ft below top of casing (btoc) during the RI, and groundwater beneath the Site generally flows from northwest to southeast as shown 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 were compared to the UUSCO, RRSCO, and PGWSCO guidance values (GVs) outlined in the April 2023 Per- and Polyfluoroalkyl Substances (PFAS) Guidance. Soil analytical results are summarized below and shown on Figure 5.

DRAFT

*Volatile Organic Compounds (VOCs)*

Two soil samples exhibited VOC exceedances. Acetone (2.4 milligrams per kilogram [mg/kg]) and 2-butonone (0.13 mg/kg) were detected above the UUSCOs and PGWSCOs in soil sample B-07_8-10'. Acetone (1.0 mg/kg), benzene (0.086 mg/kg), toluene (0.78 mg/kg), trichloroethene (TCE; 1.4 mg/kg), and total xylene (1.8 mg/kg) were detected above the UUSCOs and PGWSCOs in soil sample DB-03_3-5'.

VOCs were compared to PGWSCOs for compounds detected above the NYSDEC Ambient Water Quality Standards (AWQS) in groundwater samples. Only TCE was detected above the NYSDEC AWQS in groundwater samples from the groundwater sampling event and was found to exceed the PGWSCOs.

No other VOCs were detected in any soil samples above the UUSCOs, RRSCOs, and/or PGWSCOs in the soil samples collected at the Site.

*Semi-Volatile Organic Compounds (SVOCs)*

Seven SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), were detected in multiple shallow soil samples at concentrations above the UUSCOs, RRSCOs, and/or PGWSCOs; all detected at maximum concentrations in soil sample B-04_3-5': benzo(a)anthracene (4.6 mg/kg), benzo(a)pyrene (3.8 mg/kg), benzo(b)fluoranthene (4.6 mg/kg), benzo(k)fluoranthene (1.4 mg/kg), chrysene (4.9 mg/kg), dibenz(a,h)anthracene (0.62 mg/kg), and indeno(1,2,3-cd)pyrene (2.1 mg/kg).

In addition, SVOCs were compared to PGWSCOs for compounds detected above NYSDEC AWQS in groundwater samples. SVOCs, including benzo(a)anthracene and benzo(b)fluoranthene, were detected above NYSDEC AWQS in groundwater samples collected during the groundwater sampling event and were found to exceed the PGWSCOs. It is noted that all the groundwater SVOCs exceedances were reported at estimated concentrations. The estimates are biased high due to contaminants in the laboratory's method detection blank, which provides a conservative conceptual site model for soil contamination impacting the groundwater.

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

*Metals*

Seven metals were detected in multiple shallow soil samples at concentrations above the UUSCOs, RRSCOs, and/or PGWSCOs, with maximum concentrations observed in soil sample B-05_3-5': arsenic (32.7 mg/kg), barium (848 mg/kg), cadmium (7.72 mg/kg), copper (194 mg/kg), lead (6,060 mg/kg), nickel (50.5 mg/kg), and zinc (3,900 mg/kg). In addition, mercury was detected in several shallow soil samples (maximum concentration of 156 mg/kg in B-09_0-2').

DRAFT

Metals were compared to PGWSCOs for compounds detected above NYSDEC AWQS in groundwater samples. Total lead was detected above NYSDEC AWQS in groundwater samples and was found to exceed the PGWSCO. It is noted that dissolved lead did not exceed NYSDEC AWQS.

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

*Polychlorinated Biphenyls (PCBs)*

No PCBs were detected above the UUSCOs, RRSCOs, and/or PGWSCOs in the soil samples collected at the Site.

*Pesticides*

Two pesticides were detected in multiple shallow soil samples at concentrations above the UUSCOs, all detected at maximum concentrations in soil sample B-04_3-5': 4,4'-DDE (0.00483 mg/kg) and 4,4'-DDT (0.0154 mg/kg).

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

*Emerging Contaminants*

1,4-dioxane was not detected above the laboratory detection limit in any of the soil samples collected at the Site.

PFOS was detected below the applicable GVs. PFOA was detected in one soil sample (B-06_0-2') above the Unrestricted Use GV at a concentration of 0.000741 mg/kg.

Groundwater analytical results were compared to 6 NYCRR Part 703.5 NYSDEC Technical and Operational Guidance Series 1.1.1 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 Figure 6.

*Volatile Organic Compounds*

One VOC, TCE, was detected at a concentration of 5.8 micrograms per liter (µg/L) above its AWQS of 5 µg/L in one of the permanent wells, MW-03.

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

DRAFT

*Semi-Volatile Organic Compounds*

Four SVOCS were detected in groundwater samples above the AWQS: benzo(a)anthracene (maximum of 0.04 µg/L in MW-02 and MW-06), benzo(b)fluoranthene (maximum of 0.03 µg/L in MW-01, MW-02, and MW-06), indeno(1,2,3-cd)pyrene (maximum of 0.03 µg/L in MW-06), and hexachlorobenzene (maximum of 0.06 µg/L in MW-06). It is noted that all these detections were reported at estimated concentrations. The estimates are biased high due to contaminants in the laboratory's method detection blank, which provides a conservative conceptual site model for soil contamination impacting the groundwater.

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

*Polychlorinated Biphenyls*

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

*Dissolved Metals*

Four dissolved metals were detected in groundwater samples above the AWQS: magnesium (with a maximum concentration of 60,500 µg/L in MW-06), manganese (maximum of 605.5 µg/L in MW-02), selenium (maximum of 70.7 µg/L in MW-06), and sodium (maximum of 120,000 µg/L in MW-03). It is noted that dissolved lead did not exceed NYSDEC AWQS.

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

*Total Metals*

Six total metals were detected in groundwater samples above the AWQS: iron (maximum of 2,440 µg/L in MW-02), lead (maximum of 25.71 µg/L in MW-05), magnesium (maximum of 57,400 µg/L in MW-06), manganese (maximum of 663.7 µg/L in MW-02), selenium (maximum of 69.1 µg/L in MW-06), and sodium (maximum of 123,000 µg/L in MW-03).

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

*Pesticides*

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

*Emerging Contaminants*

1,4-dioxane was not detected above the laboratory detection limit in any of the groundwater samples collected at the Site.

PFOS was detected in three groundwater samples above the AWQS with a concentration of 0.0076 µg/L (7.6 nanograms per liter [ng/L]) in MW-02, 0.00364 µg/L (3.64 ng/L) in MW-03, and 0.00273 µg/L (2.73 ng/L) in MW-06.

DRAFT

PFOA was detected in groundwater samples above the AWQS with a maximum concentration of 0.121 µg/L (121 ng/L) in MW-01.

No standard currently exists for soil vapor samples in New York State. Soil vapor analytical results are summarized below and shown on Figure 7.

Total VOC concentrations in soil vapor samples ranged from 62.32 micrograms per cubic meter (µg/$m^3$) in SVMP-04 to 5,000.37 µg/$m^3$ in SVMP-05. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations ranged from 6.50 µg/$m^3$ in SVMP-03 to 2,866.27 µg/$m^3$ in SVMP-05. Total chlorinated volatile organic compound (CVOC) concentrations ranged from non-detect (ND) in SVMP-05 to 21.80 µg/$m^3$ in SVMP-04.

TCE was detected in five of six samples and ranged in concentration from 1.41 µg/$m^3$ to 21.8 µg/$m^3$. No other CVOCs were detected above laboratory detection limits in any soil vapor sample collected at the Site.

Several petroleum-related VOCs were detected above laboratory reporting limits in all the soil vapor samples. The maximum concentrations were detected in SVMP-05, including acetone (27.1 µg/$m^3$), ethylbenzene (751 µg/$m^3$), m,p-xylene (1,600 µg/$m^3$), o-xylene (508 µg/$m^3$), toluene (7.27 µg/$m^3$), and xylene total (2,110 µg/$m^3$).

## 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 VOCs, SVOCs, pesticides, and metals in soil related to fill and historical Site operations. Under current conditions, the likelihood of exposure to soil or groundwater is limited, as the Site is affixed with a perimeter fence secured with a lock. Site access is only granted to personnel associated with the planned development. Potable water for New York County will continue to be sourced from reservoirs in the Catskill and Delaware watersheds. All intrusive work on the Site is conducted 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 all elements during this 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 donning of 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.

DRAFT

Future Use Scenario

Under the proposed future condition (after construction/remediation), residual contaminants may remain on the Site depending on the remedy achieved. The remaining contaminants would include those listed in the current conditions. If contaminants remain on the Site after construction/remediation, the route of exposure will be mitigated by proper installation of 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.

## SUMMARY OF THE REMEDY

Alternative I, a Track 1 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 1 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover and miscellaneous debris on the Site.
- Decommissioning of existing on-Site monitoring wells, as necessary, in accordance with NYSDEC Commissioner Policy (CP)-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 1,425 cubic yards (cu yd) of contaminated fill material Site-wide that exceeds UUSCOs as defined by 6 NYCRR Part 375-6.8. This includes a Site-wide excavation to a depth of 7.5 ft bgs. If encountered, removal, decommissioning, and off-Site disposal of any underground storage tanks (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.
- Screening for indications of contamination (by visual means, odor, and monitoring with photoionization detectors [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.
- Collection of dewatering influent samples to document groundwater quality at the Site during remediation.

DRAFT

- 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), recycled concrete aggregate (RCA), or virgin, native crushed stone.
- Collection and analysis of confirmation soil samples from the excavation base in accordance with DER-10, to document post-excavation conditions to confirm a Track 1 remedy was achieved.
- Completion of a soil vapor intrusion (SVI) Evaluation in accordance with DER-10 and NYSDOH Final Guidance on Soil Vapor Intrusion following remedial activities and prior to occupancy.
- If the SVI Evaluation is not completed prior to the issuance of a Certificate of Completion, contingent Site management elements will be implemented, including establishing a Site Management Plan (SMP) and recording of an Environmental Easement (EE). Until the SVI investigation is completed and the findings are reviewed by NYSDEC and NYSDOH, the Site may proceed under a Conditional Track 1 designation. This designation may be converted to Track 1 once all applicable Track 1 criteria are met

DRAFT

# 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 291 Wallabout Realty LLC for the proposed development located at 291 Wallabout Street (Block 2250, Lot 46) within the Broadway Triangle neighborhood of Brooklyn, New York (the Site).

In December 2024, the project was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP; Site No. C224416), and a countersigned Brownfield Cleanup Agreement (BCA) was issued with 291 Wallabout Realty LLC classified as a "Volunteer." The Volunteer proposes to remediate the Site for residential use.

This RAWP summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI) completed by Haley & Aldrich of New York at the Site in March 2025. The RAWP provides an evaluation of Track 1 cleanup and other applicable remedial alternatives, their associated costs, and the recommended and preferred remedy. 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) and complies with all applicable standards, criteria, and guidance (SCG). The remedy described in this document also complies with all applicable federal, state, and local laws, regulations, and requirements.

## 1.1 SITE LOCATION AND DESCRIPTION

The Site is located in the Broadway Triangle neighborhood of Brooklyn and is identified as Block 2250, Lot 46 on the New York City tax map. The Site is approximately 5,000 square feet (sq ft) (0.11 acres) and is bound to the north by a one-story industrial warehouse building, to the east by a multi-family residential building, to the south by Wallabout Street, followed by residential buildings, and to the west by a vacant lot. The Site location is shown on Figure 1. A Site plan is shown on Figure 2. A Site survey map is provided in Appendix A.

The Site is located within a residential (R7A) zoning district and is surrounded by residential, commercial, industrial, and manufacturing use properties. The Metropolitan Transportation Authority (MTA) subway G line is located approximately 0.2 miles southwest of the Site. Sternberg Park is located approximately 0.3 miles north of the Site. The Volunteer plans to redevelop the Site for residential purposes consistent with current zoning. A copy of the zoning map is included in Appendix B.

## 1.2 REDEVELOPMENT PLAN

The project will consist of two new six-story residential buildings with a one-level cellar encompassing the entire Site footprint and extending approximately 7.5 feet (ft) below current grade. A copy of the proposed development plans is included in Appendix C.

DRAFT

## 1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located on Wallabout Street in an urban area identified as the Broadway Triangle in the borough of Brooklyn. There are two sensitive receptors that are within a 500-ft radius of the Site:

1) Bais Ruchel High School – 177 Harrison Avenue, Brooklyn, New York 11206, listed as a school.
2) I.S. 318 Eugenio Maria De Hostos – 101 Walton Street, Brooklyn, New York 11206, listed as a school.

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

| Direction | Adjoining Properties | Surrounding Properties |
|---|---|---|
| North | A one-story industrial warehouse building. | Residential and commercial buildings |
| South | Wallabout Street, followed by a six-story residential building. | Residential and commercial buildings |
| East | A multi-family residential building. | Residential and commercial buildings |
| West | Vacant undeveloped property. | Residential and commercial buildings |

## 1.4 SITE HISTORY

Based on the findings of the Phase I Environmental Site Assessment (ESA) completed by Haley & Aldrich of New York in July 2024, the Site was developed in 1918 with a warehouse labeled as "Wheelwright" on the 1918 Sanborn Fire Insurance Map. The Site remained relatively unchanged until the late 1940s, when the building became occupied by "John Koerners Sons Inc. Truck Body Building" with woodworking operations conducted on the subject property. These operations extend north to the southern side of Walton Street. The Site remained relatively unchanged until the mid-1980s, when the property appeared vacant and remained developed with the warehouse. The 2014, 2017, and 2020 City Directories indicate that the Site was occupied by "AZ Plastic." The buildings were demolished in order to facilitate completion of the RI, and the Site is currently vacant.

## 1.5 PREVIOUS ENVIRONMENTAL REPORTS

The following reports were prepared for the Site prior to submission of the 2025 Remedial Investigation Report (RIR):

- *Phase I ESA Report*, prepared by Haley & Aldrich of New York, July 2024.
- *Limited Phase II Environmental Site Investigation (ESI) Report*, prepared by Haley & Aldrich of New York, July 2024

Previous investigation findings are included in Section 3 of the RIR dated April 2025, prepared by Haley & Aldrich of New York.

DRAFT

# 2. Description of Remedial Investigation Findings

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation Work Plan (RIWP) dated February 2025. The 2025 RI investigation was conducted from March 18, 2025, through March 28, 2025. The draft RIR was submitted to NYSDEC on April 25, 2025.

## 2.1 SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED

The RI consisted of the following:

- Advancement of 10 soil borings to various depths ranging from 5 to 15 ft below ground surface (bgs) with samples collected from surface soil (0 to 2 ft bgs), the bottom 2-ft interval of fill material ranging from 3 to 5 ft bgs, and from the 8 to 10 ft bgs interval. There were 5-ft step-out borings conducted in the northwest corner of the Site in each direction of soil boring B-10, with samples collected from 0 to 1 ft bgs, 1 to 3 ft bgs, and 3 to 5 ft bgs.
- A total of 42 soil samples were collected (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.
- Installation of six 2-inch (in.) diameter groundwater monitoring wells to approximately 15 ft bgs and collection of six groundwater samples (plus QA/QC samples).
- Installation of five soil vapor probes to depths of approximately 4.5 ft bgs, or approximately 2 ft above the water table, and collection of seven soil vapor samples.

All soil, groundwater, and soil vapor samples were relinquished under standard chain-of-custody protocol and delivered via courier to Pace Analytical Services, LLC/Alpha Analytical Laboratories, Inc. (Pace/Alpha) of Westborough, Massachusetts, a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory, for analysis. Air monitoring was conducted during all ground-intrusive activities.

### 2.1.1 Groundwater Investigation

Six 2-in. diameter permanent monitoring wells were installed to 15 ft bgs using a track-mounted direct-push drill rig operated by a licensed operator provided by Lakewood Environmental Services Corp. (Lakewood). Each monitoring well was constructed using a 2-in. diameter polyvinyl chloride (PVC) riser pipe with 10-ft-long, 10-slot (0.01-in.) slotted screens from 5 to 15 ft bgs. Each monitoring well was constructed within a 2-in. annular space backfilled with #0 certified clean sand fill, followed by bentonite plugs. Monitoring well screens were installed to straddle the water table. During a monitoring well gauging event concurrent with the well survey on March 27, 2025, groundwater was encountered at depths ranging from approximately 6.0 to 7.8 ft bgs. Based on data collected during the RI, groundwater generally flows from northwest to southeast within the Site. Well construction logs are provided in Appendix C of the RIR. A groundwater contour map and groundwater elevation data are provided on Figure 4.

DRAFT

### 2.1.2 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. Five soil vapor probes were installed to assess soil vapor conditions.

Five soil vapor probes were installed by Lakewood using a direct-push drilling rig to advance the stainless-steel probes to approximately 4.5 ft bgs, or approximately 2 ft above the water table. The 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.

### 2.1.3 Soil Investigation

Ten soil borings were advanced to various depths ranging from 5 to 15 ft bgs using a track-mounted direct-push drill rig (Geoprobe® model 6610DT) operated by a licensed operator provided by Lakewood. 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 Burmister 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 11 locations widely distributed across the Site, as shown on Figure 3. Three soil samples were collected at each boring, including from surface soil (0 to 2 in. bgs), the bottom 2-ft interval of fill material ranging from 4 to 15 ft bgs, and from the 2-ft interval above the groundwater interface.

## 2.2 SAMPLES COLLECTED

During the RI, 30 soil samples (plus QA/QC samples) were collected from surface soil (0 to 2 ft bgs), from an intermediate depth between 3 to 5 ft bgs, and from beneath the groundwater table between 8 to 10 ft bgs. Additionally, 12 delineation soil samples for VOCs were collected in the northwest corner of the Site at B-10 (former Phase II ESI soil boring location SB-4). There were 5-ft step-out borings performed in each direction with samples collected from 0 to 1 ft bgs, 1 to 3 ft bgs, and 3 to 5 ft bgs. Samples were collected using laboratory-provided clean bottle ware, and VOC grab samples were collected using Terra Cores®.

A total of six groundwater samples, one from each monitoring well, were collected for laboratory analysis, along with 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.

DRAFT

A total of five soil vapor samples were collected for laboratory analysis, one from each 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.

## 2.3 CHEMICAL ANALYSIS

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

Soil samples were analyzed for the following parameters:

- Target Compound List (TCL) VOCs using U.S. Environmental Protection Agency (EPA) Method 8260B;
- TCL semi-volatile organic compounds (SVOCs) using EPA Method 8270C;
- Total Analyte List (TAL) Metals using EPA Method 6010;
- Polychlorinated biphenyls (PCBs) using EPA Method 8082;
- TCL Pesticides using EPA Method 8081B;
- Per- and polyfluoroalkyl substances (PFAS) using EPA Method 1633;
- 1,4-dioxane using EPA Method 8270;
- Mercury using EPA Method 7471B;
- Cyanide using EPA Methods 9010C/9012B; and,
- Hexavalent chromium using EPA Method 7196A.

Soil delineation samples were only analyzed for VOCs using EPA Method 8260B.

Groundwater samples collected were analyzed for the following parameters:

- TCL VOCs using EPA Method 8260B;
- TCL SVOCs using EPA Method 8270C;
- Total Metals using EPA Methods 6010/7471;
- Dissolved Metals using EPA Methods 6010/7471;
- PCBs using EPA Method 8082;
- TCL Pesticides using EPA Method 8081B;
- PFAS using EPA Method 1633;
- 1,4-dioxane using EPA Method 8270 SIM;
- Mercury using EPA Method 7470A;
- Cyanide using EPA Method 335.4; and
- Hexavalent chromium using EPA Method 7199.

DRAFT

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

## 2.4 REMEDIAL INVESTIGATION FINDINGS SUMMARY

Below is a summary of the RI findings.

### 2.4.1 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 Objectives (RRSCOs), and Protection of Groundwater Soil Cleanup Objectives (PGWSCOs). Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) soil sample results were compared to the unrestricted use, restricted residential, and protection of groundwater guidance values (GVs) outlined in the April 2023 PFAS Guidance. Soil analytical results are summarized below and shown on Figure 5.

*Volatile Organic Compounds*

Two soil samples exhibited VOC exceedances. Acetone (2.4 milligrams per kilogram [mg/kg]) and 2-butonone (0.13 mg/kg) were detected above the UUSCOs and PGWSCOs in soil sample B-07_8-10'. Acetone (1.0 mg/kg), benzene (0.086 mg/kg), toluene (0.78 mg/kg), trichloroethylene (TCE; 1.4 mg/kg), and total xylene (1.8 mg/kg) were detected above the UUSCOs and PGWSCOs in soil sample DB-03_3-5'.

VOCs were compared to PGWSCOs for compounds detected above the NYSDEC AWQS in groundwater samples. Only TCE was detected above the NYSDEC Ambient Water Quality Standards (AWQS) in groundwater samples from the groundwater sampling event and was found to exceed the PGWSCOs.

No other VOCs were detected in any soil samples above the UUSCOs, RRSCOs, and/or PGWSCOs in the soil samples collected at the Site.

*Semi-Volatile Organic Compounds*

Seven SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), were detected in multiple shallow soil samples at concentrations above the UUSCOs, RRSCOs, and/or PGWSCOs, all detected at maximum concentrations in soil sample B-04_3-5': benzo(a)anthracene (4.6 mg/kg), benzo(a)pyrene (3.8 mg/kg), benzo(b)fluoranthene (4.6 mg/kg), benzo(k)fluoranthene (1.4 mg/kg), chrysene (4.9 mg/kg), dibenz(a,h)anthracene (0.62 mg/kg), and indeno(1,2,3-cd)pyrene (2.1 mg/kg).

In addition, SVOCs were compared to PGWSCOs for compounds detected above NYSDEC AWQS in groundwater samples. SVOCs, including benzo(a)anthracene and benzo(b)fluoranthene, were detected above NYSDEC AWQS in groundwater samples collected during the groundwater sampling event and were found to exceed the PGWSCOs. It is noted that all the groundwater SVOCs exceedances were reported at estimated concentrations. The estimates are biased high due to contaminants in the laboratory's method detection blank, which provides a conservative conceptual site model for groundwater impacts.

DRAFT

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

*Metals*

Seven metals were detected in multiple shallow soil samples at concentrations above the UUSCOs, RRSCOs, and/or PGWSCOs, with maximum concentrations observed in soil sample B-05_3-5': arsenic (32.7 mg/kg), barium (848 mg/kg), cadmium (7.72 mg/kg), copper (194 mg/kg), lead (6,060 mg/kg), nickel (50.5 mg/kg), and zinc (3,900 mg/kg). In addition, mercury was detected in several shallow soil samples (maximum concentration of 156 mg/kg in B-09_0-2).

Metals were compared to PGWSCOs for compounds detected above NYSDEC AWQS in groundwater samples. Total lead was detected above NYSDEC AWQS in groundwater samples collected during the 2025 groundwater sampling event and was found to exceed the PGWSCOs. It is noted that dissolved lead did not exceed NYSDEC AWQS.

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

*Polychlorinated Biphenyls*

No PCBs were detected above the UUSCOs, RRSCOs, and/or PGWSCOs in the soil samples collected at the Site.

*Pesticides*

Two pesticides were detected in multiple shallow soil samples at concentrations above the UUSCOs, all detected at maximum concentrations in soil sample B-04_3-5': 4,4'-DDE (0.00483 mg/kg) and 4,4'-DDT (0.0154 mg/kg).

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

*Emerging Contaminants*

1,4-dioxane was not detected above the laboratory detection limit in any of the soil samples collected at the Site.

PFOS was detected below the applicable GVs. PFOA was detected in one soil sample (B-06_0-2') above the Unrestricted Use GV at a concentration of 0.000741 mg/kg.

### 2.4.2 Groundwater Sampling Results

Groundwater analytical results were compared to 6 NYCRR Part 703.5 NYSDEC Technical and Operational Guidance Series 1.1.1 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

DRAFT

1,4-dioxane was compared to the GV as set by NYSDEC in March 2023. Groundwater analytical results are summarized below and shown on Figure 6.

*Volatile Organic Compounds*

Only one VOC, TCE, was detected at a concentration of 5.8 micrograms per liter (µg/L) above its AWQS of 5 µg/L in one of the permanent wells, MW-03.

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

*Semi-Volatile Organic Compounds*

Four SVOCS were detected in groundwater samples above the AWQS: benzo(a)anthracene (maximum of 0.04 µg/L in MW-02 and MW-06), benzo(b)fluoranthene (maximum of 0.03 µg/L in MW-01, MW-02, and MW-06), indeno(1,2,3-cd)pyrene (maximum of 0.03 µg/L in MW-06), and hexachlorobenzene (maximum of 0.06 µg/L in MW-06). It is noted that all these detections were reported at estimated concentrations. The estimates are biased high due to contaminants in the laboratory's method detection blank, which provides a conservative conceptual site model for groundwater impacts.

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

*Polychlorinated Biphenyls*

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

*Dissolved Metals*

Four dissolved metals were detected in groundwater samples above the AWQS: magnesium (with a maximum concentration of 60,500 µg/L in MW-06), manganese (maximum of 605.5 µg/L in MW-02), selenium (maximum of 70.7 µg/L in MW-06), and sodium (maximum of 120,000 µg/L in MW-03). It is noted that dissolved lead did not exceed NYSDEC AWQS.

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

*Total Metals*

Six total metals were detected in groundwater samples above the AWQS: iron (maximum of 2,440 µg/L in MW-02), lead (maximum of 25.71 µg/L in MW-05), magnesium (maximum of 57,400 µg/L in MW-06), manganese (maximum of 663.7 µg/L in MW-02), selenium (maximum of 69.1 µg/L in MW-06), and sodium (maximum of 123,000 µg/L in MW-03).

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

*Pesticides*

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

DRAFT

*Emerging Contaminants*

Concentrations of emerging contaminants PFOA and PFOS were compared to the NYSDEC GVs of 6.7 parts per trillion (ppt) (6.7 nanograms per liter [ng/L]) for PFOA and 2.7 ppt (2.7 ng/L) for PFOS. PFOS was detected in one groundwater sample above the AWQS with a concentration of 0.0076 µg/L (7.6 ng/L) in MW-02, 0.00364 µg/L (3.64 ng/L) in MW-03, and 0.00273 µg/L (2.73 ng/L) in MW-06. PFOA was detected in groundwater samples above the AWQS with a maximum concentration of 0.121 µg/L (121 ng/L) in MW-01.

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

### 2.4.3 Soil Vapor Sampling Results

Total VOC concentrations in soil vapor samples ranged from 62.32 micrograms per cubic meter (µg/$m^3$) in SVMP-04 to 5,000.37 µg/$m^3$ in SVMP-05. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations ranged from 6.50 µg/$m^3$ in SVMP-03 to 2,866.27 µg/$m^3$ in SVMP-05. Total chlorinated volatile organic compound (CVOC) concentrations ranged from non-detect (ND) in SVMP-05 to 21.80 µg/$m^3$ in SVMP-04.

TCE was detected in four of five samples and ranged in concentration from 1.41 µg/$m^3$ to 21.8 µg/$m^3$. No other CVOCs were detected above laboratory detection limits in any soil vapor sample collected at the Site.

Several petroleum-related VOCs were detected above laboratory reporting limits in all the soil vapor samples. The maximum concentrations were detected in SVMP-05, including acetone (27.1 µg/$m^3$), ethylbenzene (751 µg/$m^3$), m,p-xylene (1,600 µg/$m^3$), o-xylene (508 µg/$m^3$), toluene (7.27µg/$m^3$), and xylene total (2,110 µg/$m^3$).

Figure 7 provides the soil vapor sampling locations as well as a summary of soil vapor data from the sampling event.

## 2.5 SIGNIFICANT THREAT

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

## 2.6 GEOLOGY AND HYDROLOGY

### 2.6.1 Contaminated Fill Material

Based on field observations from the RI, the Site is underlain by a layer of fill material consisting of mainly brown fine to coarse sand with varying amounts of silt and fragments of brick, concrete, and glass. The depth of fill material varies across the Site, extending to a maximum depth of approximately 5 ft bgs.

DRAFT

### 2.6.2 Native Soil

The native layer consists of fine sand with varying amounts of fine- and coarse-grained sediments, followed by brown fine to coarse sand grading to a light brown to dark brown fine sand with varying amounts of medium and coarse sand with fine to coarse gravels and cobbles.

### 2.6.3 Bedrock

The bedrock underlying the Site is part of the Raritan Formation, which is characterized by Cretaceous-aged coastal plains deposits and is approximately 150 to 200 ft bgs.

### 2.6.4 Hydrogeology

Groundwater was encountered at depths ranging from approximately 6.0 to 7.8 ft bgs during the RI. Groundwater beneath the Site generally flows northwest to southeast. A groundwater contour map is provided as Figure 4.

## 2.7 CONTAMINANT CONDITIONS

### 2.7.1 Conceptual Site Model

A conceptual site model (CSM) was developed based on the findings of the RI. 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.

#### *2.7.1.1 Potential Sources of Contamination*

Subsurface soils are impacted with elevated concentrations of metals, VOCs, SVOCs, and pesticides, consistent with characteristics of contaminated fill found throughout the New York City area. Contaminated fill material varies throughout the Site extending up to 5 ft bgs. Groundwater is impacted with metals, PFAS, SVOCs, and one VOC (specifically TCE) which was detected in one monitoring well slightly above the AWQS. There have been no historical Site operations that would have indicated the use of PFAS.

#### *2.7.1.2 Description of Areas of Concern*

Based on Site observations, Site development history, and the findings of the previous environmental reports, three Areas of Concern (AOCs) were identified.

AOC 1 – Site-Wide Contaminated Fill in Subsurface Soils

Subsurface soils are impacted with VOCs, SVOCs (specifically PAHs), and heavy metals. Contaminated fill material varies throughout the Site, extending to depths up to 5 ft bgs.

DRAFT

AOC 2 – Site-Wide Contaminated Groundwater

Groundwater is impacted by SVOCs (specifically PAHs) and heavy metals. SVOC and metal impacts to groundwater are likely attributed to the fill material.

Petroleum-related VOCs were not observed in groundwater on the Site.

AOC 3 – Soil Vapor Impacts

A significant concentration of BTEX (specifically xylenes) was detected in SVMP-05. BTEX was observed in one soil sample (DB-03) but not groundwater samples collected at the Site. This indicates that the source of BTEX is likely attributed to the soil.

### 2.7.2 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.

#### *2.7.2.1 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 undeveloped. 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 two residential buildings, consistent with surrounding property use and zoning. Exposed receptors under the future use scenario may comprise residents of the future building, indoor employees and outdoor employees (e.g., groundskeepers or maintenance staff), and construction workers who may be employed at or perform work on the property. Site visitors

DRAFT

may also be considered receptors; however, their exposure would be similar to that of the indoor employees, but at a lesser frequency and duration.

#### *2.7.2.2 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 2.0 discusses the contaminants of concern (COCs) present in the Site media at elevated concentrations above background levels. In general, these are metals, VOCs, SVOCs, pesticides, and PFAS in soil; and SVOCs, one CVOC, PFAS, and total/dissolved metals in groundwater.

#### *2.7.2.3 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. For VOCs present in soil vapor, the potential exists for exposure through pathways associated with soil vapor intrusion (SVI), including the indoor vapor intrusion pathway. 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.

#### *2.7.2.4 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 RRSCOs for metals and SVOCs and exceedances of UUSCOs for pesticides and PFAS in soil, the exceedance of AWQS for metals, VOCs, SVOCs, and PFAS in groundwater, and CVOCs and BTEX above laboratory detection limits in soil vapor, 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, 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>

The Site is currently vacant, covered with a concrete slab, and secured with a perimeter fence. There is potential for exposure to the contaminated surface soil on the Site; however, Site access is restricted by the perimeter fencing. 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

DRAFT

Construction/Remediation Scenario

In the continued absence of engineering controls (ECs) and institutional controls (ICs), there will be continued exposure pathways during construction/remediation, specifically related to surface soil. Planned construction/remedial activities include breaking up the concrete slab, removal of underground storage tanks (USTs; if present), excavation and off-Site disposal of soil, and dewatering of impacted groundwater (if required) to facilitate the construction of the foundation elements. Release and transport mechanisms include disturbed and exposed soil during excavation, contaminated soil transported as dust, contaminated groundwater flow (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 future use as two new residential buildings will include a cellar extending to approximately 7.5 ft bgs. In the absence of remedial removal of impacted material, remaining contaminant release and transport would include potential migration of contaminated groundwater and volatilization of contaminants from soil and/or groundwater into the vapor phase. 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

SVI is a relevant transport mechanism under the current and future use scenarios. Concerning skin contact, inhalation, and incidental ingestion of volatile organics present in soil and groundwater, the potential is low for exposure to VOCs for construction workers involved in subsurface activities where volatiles are present at elevated concentrations, given the results of the 2025 RI.

#### *2.7.2.5 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 contamination includes metals, VOCs, SVOCs, pesticides, and PFAS in soil related to fill and the historical Site operations. Under current conditions, the likelihood of exposure to soil or groundwater is limited, as the Site is affixed with a perimeter fence secured with a lock. Site access is only granted to personnel associated with the planned development. Potable water for New York County will continue to be sourced from reservoirs in the Catskill and Delaware watersheds. All intrusive work on the Site is done in accordance with a Site-Specific Health and Safety Plan (HASP) and the donning of personal protective equipment (PPE).

DRAFT

Construction/Remediation Scenario

The exposure element exists for all elements during this 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 donning of 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 the Site depending on the remedy achieved. The remaining contaminants would include those listed in the current conditions. If contaminants remain on the Site after construction/remediation, the route of exposure will be mitigated by proper installation of ECs, such as a Site capping system foundation, implementation of ICs, such as land use and groundwater use restrictions, and implementation of a Site Management Plan (SMP) to manage referenced controls.

## 2.8 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 was developed as early as the late 1800s and has been utilized mainly for commercial purposes until the mid-2010s. The Site is located in the Broadway Triangle neighborhood of Brooklyn, New York. The Site provides little or no wildlife habitat or food value and/or access to the detected subsurface contamination. No natural waterways are present on or adjacent to the Site. The proposed future use of the Site is for residential and commercial purposes. As such, no unacceptable ecological risks are expected under the current and future use scenarios.

## 2.9 REMEDIAL ACTION OBJECTIVES

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

### 2.9.1 Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.

DRAFT

- Remove the source of groundwater contamination.

### 2.9.2 Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

### 2.9.3 Soil Vapor

RAOs for Public Health Protection:

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

DRAFT

# 3. Summary of Remedial Action

This section presents an analysis of the proposed remedial alternatives that could potentially be achieved under the BCP. The proposed Soil Cleanup Objectives (SCOs) under Alternative I would be Part 375 UUSCOs, consistent with a Track 1 remedy, and would include excavation to a depth of 7.5 ft bgs. The proposed SCOs for Alternative II would be Part 375 RRSCOs, consistent with a Track 2 remedy. Alternative II is provided as a contingency in the event that Track 1 SCOs cannot be achieved. Both alternatives would achieve the RAOs outlined in Section 2.10. Following evaluation, Alternative I was selected as the preferred remedy.

## 3.1 ALTERNATIVE I – TECHNICAL DESCRIPTION

Alternative I, a Track 1 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 1 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover and miscellaneous debris on the Site.
- Decommissioning of existing on-Site monitoring wells, as necessary, in accordance with NYSDEC Commissioner Policy (CP)-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 1,425 cubic yards (cu yd) of contaminated fill material Site-wide that exceeds UUSCOs as defined by 6 NYCRR Part 375-6.8. This includes a Site-wide excavation to a depth of 7.5 ft bgs. 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.
- 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.
- Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
- 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.

DRAFT

- Backfilling of excavated areas, as necessary for development, with certified-clean material (i.e., meeting UUSCOs), recycled concrete aggregate (RCA), or virgin, native crushed stone.
- Collection and analysis of confirmation soil samples from the excavation base in accordance with DER-10, to document post-excavation conditions to confirm a Track 1 remedy was achieved.
- Completion of an SVI Evaluation in accordance with DER-10 and NYSDOH Final Guidance on Soil Vapor Intrusion following remedial activities and prior to occupancy.
- If the SVI Evaluation is not completed prior to the issuance of a Certificate of Completion contingent Site management elements will be implemented, including establishing an SMP and recording of an Environmental Easement (EE). Until the SVI investigation is completed and the findings are reviewed by NYSDEC and NYSDOH, the Site may proceed under a Conditional Track 1 designation. This designation may be converted to Track 1 once all applicable Track 1 criteria are met.

The Alternative I remediation extent is shown on Figure 8 and is based on data presented in the RIR and the proposed development plans. The requirements for each of the Alternative I tasks are described below.

DRAFT

On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP is appended to this RAWP (Appendix D) and will be implemented during excavation and foundation construction to protect on-Site workers from accidents and acute and chronic exposures to the identified contaminated media. Public health will be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP will include continuous perimeter monitoring of dust and organic vapor using 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 that exceeds Track 1 UUSCOs, an SOE system will be required. Excavations are anticipated to be completed into 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 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

Metals, SVOCs, and, in some areas, pesticides and PCBs were detected in contaminated fill material at concentrations that exceed the UUSCOs. To achieve Track 1, soil removal and disposal will extend from surface grade to 7.5 ft bgs across the Site footprint. The Alternative I excavation plan is shown on Figure 8.

The estimated volume of material requiring removal and off-Site disposal for a Track 1 cleanup is approximately 1,425 cu yd. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts. Excavation is expected to extend below the water table during remedial excavation and construction; therefore, installation of a dewatering system is anticipated to achieve remedial depth.

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, 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 the Site at a permitted disposal facility in accordance with applicable regulations. Closure documentation, such as contractor affidavits, bills of lading for sludge disposal, and tank disposal receipts, would be provided as appendices in the Final Engineering Report (FER).

Excavation Backfill

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

Fluids Management

Liquids removed from the Site, including dewatering fluids, would be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. Fluids will not be recharged back to the land surface or subsurface. 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.

DRAFT

Based on the depth to water, dewatering is anticipated to facilitate the construction of foundation components. Dewatering fluids discharged into the New York City sewer system will be addressed through approval by the New York City Department of Environmental Protection (NYCDEP). No dewatering discharge will commence prior to NYCDEP approval.

Confirmation Soil Sampling

Per NYSDEC DER-10, confirmation soil samples will be collected from the bottom of the proposed remedial excavation at a frequency of one sample per 900 sq ft to confirm Track 1 UUSCOs were achieved. An estimated six 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 on Figure 9.

Post-Remedy Soil Vapor Intrusion Evaluation

Elevated BTEX soil vapor concentrations were detected across the entire Site. Following Remedial Actions and prior to occupancy, an SVI Evaluation will be conducted at the Site and submitted to NYSDEC and NYSDOH. Should the SVI Evaluation indicate soil vapor intrusion, a potential remedial alternative/element would be proposed.

Site Management Plan

If the SVI Evaluation is not completed prior to the issuance of a Certificate of Completion, contingent Site management elements will be implemented, including establishing an SMP and recording of an Environmental EE. This includes development, implementation, and management of Institutional Controls in the form of an Environmental Easement and submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC. Until the SVI investigation is completed and the findings are reviewed by NYSDEC and NYSDOH, the Site may proceed under a Conditional Track 1 designation. This designation may be converted to Track 1 once all applicable Track 1 criteria are met.

## 3.2 ALTERNATIVE II – TECHNICAL DESCRIPTION

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

- The soil, groundwater, and soil vapor remedy in **Alternative 2** will be the same as in **Alternative 1**. This alternative is provided as a contingency in the event that Track 1 SCOs cannot be met. The proposed SCOs for Alternative II would be Part 375 RRSCOs.
- Construction of a composite cover system consisting of 4 in. of subbase overlain by a 6-in. concrete slab and a Site-wide cover consisting of hardscape and 2 ft of clean soil outside of the building footprint. In addition to the composite cover, a waterproofing/vapor barrier (20-mil thick) would be installed to mitigate the potential for a soil vapor exposure pathway under the buildings and a Site-wide cover consisting of hardscape and 2 ft of clean soil outside of the building footprint. It is noted that the vapor barrier is not a remedial element or EC for the Site.
- Collection and analysis of confirmation soil samples from the excavation base in accordance with DER-10, to document post-excavation conditions to confirm RRSCOs were achieved. If a

DRAFT

Track 2 Restricted Residential cleanup is achieved, ECs will not be a required element of the remedy, and NYSDEC will issue a Track 2 Certificate of Completion.

- 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 8 and is based on data presented in the RIR and the proposed development plans. The requirements for each of the Alternative II tasks are the same as Alternative I tasks, as outlined below: On-Site Worker, Public Health, and Environmental Protection, Support of Excavation, Waste Characterization, Fill and Soil Removal, UST Removal, Excavation Backfill, Fluids Management, and Confirmation Soil Sampling.

Composite Cover System

As part of the construction, a composite cover system would be installed, consisting of 4 in. of subbase overlain by a 6-in. concrete slab. In addition to the composite cover, a waterproofing/vapor barrier (20-mil thick) would be installed to act as the sealing layer to mitigate the potential for a soil vapor exposure pathway. It is noted that the vapor barrier is not a remedial element or EC for the Site.

Under the Track 2 remedy, assuming the documentation sampling results meet RRSCOs, the composite cover system would not function as an EC. Should Track 2 not be achieved and a Track 4 remedy completed, the composite cover (excluding the waterproofing/vapor barrier) would function as an EC to be monitored under Site management.

Site Management Plan and Environmental Easement

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

The 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 management of future excavations in areas of remaining contamination;

DRAFT

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 SVI for any buildings developed on the Site, including provision for implementing actions recommended to address exposures related to SVI;
4. Provision for the management and inspection of the identified ECs;
5. Maintaining Site access controls and NYSDEC notification; and
6. The steps necessary for the periodic reviews and certification of the ICs and ECs.

## 3.3 EVALUATION OF THE PREFERRED REMEDY

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 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

### 3.3.1 Protection of Human Health and the Environment

Alternative I – The remedy would significantly reduce the potential for each of the identified pathways of exposure to on-Site contaminated media. Remediating the Site to Track 1 standards would result in the elimination of Site soil that exceeds UUSCOs. USTs, if encountered, would be decommissioned, removed, and disposed of off Site. Dewatering would be required for the proposed development. The RAOs for public health and environmental protection would be met through the removal of contaminated media at the Site to meet UUSCOs and AWQS, which would significantly reduce the potential for exposure pathways via possible ingestion, inhalation, or dermal contact.

Since no ECs or ICs will be required for this remedy to maintain the Site in the future, this remedy is protective of human health and the environment.

Alternative II – The Track 2 remedy will provide similar overall protection to public health and the environment as Alternative I. Remediating the Site to Track 2 standards will result in the removal of Site

DRAFT

soil that exceeds RRSCOs. USTs, if encountered, would be decommissioned, removed, and disposed of off Site. Dewatering would be required for the proposed development. The RAOs for public health and environmental protection would be met through the removal of contaminated media at the Site to meet RRSCOs and AWQS, which would significantly reduce the potential for exposure pathways via possible ingestion, inhalation, or dermal contact.

Construction of a composite cover system consisting of 4 in. of subbase overlain by a 6-in. concrete slab and installation of a waterproofing/vapor barrier that will exceed the performance expectations of a 20-mil vapor barrier to mitigate the SVI exposure pathway. With the cover system, this remedy is protective of human health and the environment.

Public health will be protected during remediation under both alternatives by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures when needed.

### 3.3.2 Compliance with Standards, Criteria, and Guidance

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

### 3.3.3 Short-Term Effectiveness and Impacts

Alternative I – The most significant short-term adverse impacts and risks to the community will be the potential complications and risks involved with designing and constructing the SOE and underpinning for the building and structures adjoining the Site. Potential impositions on roadway and pedestrian traffic associated with construction may result from the remedial excavation to achieve Track 1 cleanup. Increased truck traffic in Alternative I, relative to Alternative II, would be necessary to haul out the additional soil that exceeds UUSCOs to achieve Track 1 standards.

Under Alternative I, the excavated soil and fill would require up to approximately 72, 20-cu-yd truck trips for disposal. Implementing Alternative I would require approximately two to four months of effort (assuming normal work hours). Truck traffic will be routed on the most direct course using major thoroughfares where possible and appropriate (see Section 5.4.4 for a full discussion of truck routing), and flaggers will be used to protect pedestrians at Site entrances and exits. Waiting times associated with the analysis of confirmation sampling and resampling may delay construction, leaving soil exposed for a longer time, resulting in a potential increase in dust, odors, and/or organic vapor from the excavation and construction-related noise. The effects of these potential adverse impacts on the community, workers, and the environment will be minimized by implementing the respective control plans.

Alternative II – Alternative II will result in similar, short-term adverse impacts and risks to the community.

Under both 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

DRAFT

stopped according to the action levels defined in the CAMP. Therefore, short-term impacts are similar for both alternatives.

### 3.3.4 Long-Term Effectiveness and Performance

Alternative I will remove contaminated soil from the Site exceeding UUSCOs while Alternative II will remove contaminated soil from the Site exceeding RRSCOs and will be documented in post-excavation confirmation soil sampling.

### 3.3.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

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

### 3.3.6 Implementability

Alternative I – Implementing a Track 1 remedy will be technically challenging because of SOE requirements associated with the protection of the neighboring buildings and streets; however, the SOE requirements will be comparable to those required for construction. This remedy 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. The excavation and SOE are not expected to require schedule extensions or additional costs. And if deeper contamination above UUSCOs is encountered requiring unanticipated over-excavation, the cost will be marginal compared to the benefit of achieving an unrestricted use remediation and avoiding long-term ECs and ICs. Additional coordination between trades may be required. This alternative is considered feasible.

Alternative II – The technical feasibility of implementing the Alternative II remedy is similar to Alternative I, and SOE will be required to achieve the Track 2 RRSCOs. This alternative 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. This alternative is considered feasible.

### 3.3.7 Cost-Effectiveness

Alternative I – Based on the assumptions detailed for Alternative I, the estimated remediation cost of a Track 1 cleanup is approximately $2,967,000. A detailed cost estimate for a Track 1 cleanup is provided in Table 1.

Alternative II – Based on the assumptions detailed for Alternative II, the estimated remediation cost of a Track 2 cleanup is approximately $4,143,000. Alternative I is more cost effective in the long term as Alternative II may require long-term operation, maintenance, and monitoring for Site management if Track 1 UUSCOs are not achieved. A detailed cost estimate for a Track 2 cleanup is provided in Table 2.

DRAFT

### 3.3.8 Community Acceptance

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

### 3.3.9 Green and Sustainable Remediation

An environmental footprint analysis was conducted for both remedial alternatives. Alternative I, a Track 1 remedy, and Alternative II, a Track 2 remedy, would export the same volume (up to approximately 1,425 cu yd) of non-hazardous waste to a recycling facility. Alternative II will have a higher energy use, by about 500 million metric British thermal units (MMBtus) or 33 percent, due to the addition of a cover system and the associated maintenance and inspections of the cover system. Both Alternative I and Alternative II will require dewatering as part of the remedy and construction.

### 3.3.10 Land Use

The current, intended, and reasonably anticipated future residential land use of the Site and its surroundings are compatible with both remedial alternatives. The proposed development will include the construction of two new residential buildings with cellars extending approximately 7.5 ft bgs. High-rise residential and commercial use buildings are present in the surrounding neighborhood.

## 3.4 SELECTION OF THE PREFERRED REMEDY

Both 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. The excavation depths for both remedial alternatives are the same. Alternative I is more effective in the long term because the Site achieves unrestricted use. Alternative II is expected to incur higher costs if Track 1 cleanup objectives cannot be achieved and long-term operation and maintenance are required. Alternative I is preferred over Alternative II if it can be feasibly and practically implemented at a lower cost while providing greater overall protection to human health and the environment. Therefore, Alternative I is the recommended remedial alternative for this Site. However, if Alternative I is not achievable, Alternative II is similarly protective of human health and the environment.

Figure 8 depicts the Alternative I (Track 1) and Alternative II (Track 2) soil cleanup plan. The Alternative I and II remediation extents are based on data presented in the RIR (Haley & Aldrich of New York, 2025).

### 3.4.1 Zoning

The Site is currently zoned R7A for commercial use. The Site is located in an urban area characterized by low-rise commercial buildings, multi-story residential apartment buildings, and one- and two-family homes.

DRAFT

### 3.4.2 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 new residential buildings conforms to recent development patterns in the area and current zoning.

### 3.4.3 Environmental Justice Concerns

Per the "Potential Environmental Justice Areas in New York County, New York," the Site is in a potential Environmental Justice area, identified as Census Block Group 15000US360470507001, with 53.16 percent of the population below the poverty level and a minority population of 26.44 percent. The NYSDEC's Office of Environmental Justice acts as an advocate on behalf of these areas, which are disproportionately affected by environmental burdens. The proposed remedy will best reduce the environmental burden on the surrounding area.

### 3.4.4 Land Use Designations

There are no federal or state land use designations.

### 3.4.5 Population Growth Patterns

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

### 3.4.6 Accessibility to Existing Infrastructure

The Site is accessible via existing infrastructure.

### 3.4.7 Proximity to Cultural Resources

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

### 3.4.8 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.

### 3.4.9 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.

### 3.4.10 Proximity to Floodplains

The Site is not located in a floodplain.

### 3.4.11 Geography and Geology of the Site

The Site geology is described in Section 2.6.

DRAFT

### 3.4.12 Current Institutional Controls

There are currently no ICs being implemented at the Site.

## 3.5 SUMMARY OF SELECTED REMEDIAL ACTIONS

The selected Track 1 (Alternative I) 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 1 remediation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing concrete cover and miscellaneous debris on the Site.
- Decommissioning of existing on-Site monitoring wells, as necessary, in accordance with NYSDEC CP-43.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 1,425 cu yd of contaminated fill material Site-wide that exceeds UUSCOs as defined by 6 NYCRR Part 375-6.8. This includes a Site-wide excavation to a depth of 7.5 ft bgs. 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.
- Collection of dewatering influent samples to document groundwater quality at the Site during remediation.
- 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 excavation base in accordance with DER-10, to document post-excavation conditions to confirm a Track 1 remedy was achieved.

DRAFT

# 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

- 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 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 – AWQS and GVs and Groundwater Effluent Limitations

DRAFT

- Screening and Assessment of Contaminated Sediment (Division of Fish, Wildlife and Marine Resources, June 2014)

### 4.1.2 Site-Specific Construction Health & Safety Plan

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

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

DRAFT

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

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

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

### 4.1.4 Construction Quality Assurance Plan

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

### 4.1.5 Soil/Materials Management Plan

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

### 4.1.6 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 the Site from the outset of remediation to the completion of development. Stormwater pollution prevention will be implemented as described below in Section 5.4.10. A Stormwater Pollution Prevention Plan (SWPPP) is not necessary because the project will disturb less than 1 acre, and stormwater discharge will be to a combined sewer in accordance with the New York City generic SPDES permit.

### 4.1.7 Community Air Monitoring Plan

Details of the CAMP are discussed in section 5.4.12.

### 4.1.8 Contractors' Site Operations Plan

The Remedial Engineer (RE) will review plans and submittals for this remedial project, 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 all 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

DRAFT

the 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 1
   Attn: Ms. Johana Pulgarin, District Manager; Dealice Fuller, Chairperson; Stephen Chesler, Chairperson - Environmental Protection Committee
   435 Graham Avenue
   Brooklyn, New York 11211
   Phone: 719.389.0009
   Email: bk01@cb.nyc.gov

2. Bushwick Public Library
   Attn: Marc Waldron, Managing Librarian;
   340 Bushwick Avenue
   Brooklyn, New York 11206
   Phone: 718.602.1348
   HSE@bklynlibrary.org Hours: Monday, Wednesday, Friday – 10 a.m. to 6 p.m.
   Tuesday – 1 p.m. to 8 p.m.
   Saturday – 10 a.m. to 5 p.m.
   Friday to 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 appointment

In addition, an electronic repository can be accessed via DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/C224416/.

A certification of mailing will be sent by the Volunteer to the NYSDEC Project 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 written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

DRAFT

## 4.2 GREEN AND SUSTAINABLE REMEDIATION AND CLIMATE RESILIENCY

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 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 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;

DRAFT

2. If necessary, any soil cover placed on the Site will meet 6 NYCRR Part 375 residential use soil standards 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 H.

| | |
|---|---|
| NYSDEC Case Manager | Meghan Medwid |
| NYSDOH Case Manager | Megan Rivera |
| Remedial Engineer | Suzanne M. Bell, P.E. |
| Principal/Qualified Environmental Professional (QEP) | Amy K. Murphy |
| Project Manager | Zhan Shu |
| Haley & Aldrich of New York Health & Safety Director | Brian Fitzpatrick, CHMM |
| Health & Safety Officer | Brian Ferguson |
| Field Team Leader/Quality Assurance Officer | Matthew Forshay |

Haley & Aldrich of New York personnel, under the direct supervision of the QEP and the RE, will be on the Site during the 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

DRAFT

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 the 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 10.0 and included in Appendix J. 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. The NYSDEC will be notified by the Volunteer of any variances issued by the NYCDOB. The NYSDEC reserves the right to deny alternate remedial construction hours.

### 4.3.5 Site Security

Site access will be controlled by gate entrances to the property. The Site perimeter will be secured with gated and signed plywood fencing with restricted points of entry in accordance with the NYCDOB and

DRAFT

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 Wallabout Street. 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 Project Manager. These findings will be detailed in the monthly report.

### 4.3.9 UST Discovery

Previous investigations did not identify the presence of USTs on the Site. 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 Project Manager will be promptly notified, and pertinent information will be included in the monthly report.

DRAFT

### 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

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

### 4.3.12 Pre-Construction Meeting with NYSDEC

Prior to the start of remedial construction, a meeting will be held among the NYSDEC, RE, the Volunteer, the 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 Track 1 and Track 2 remedies are included in Tables 1 and 2, 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 entrance(s) consisting of non-hazardous material at or near the Site exit, which takes into consideration the Site setting and Site perimeter;
- Constructing an equipment decontamination pad for trucks, equipment, and personnel that come into contact with impacted materials during remediation; and/or,
- Mark-out excavation hotspot areas (if identified during the RI or preliminary waste characterization sampling event).

DRAFT

### 4.4.2 Monitoring Well Decommissioning

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

### 4.4.3 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 implemented to minimize erosion and sedimentation off the Site.

### 4.4.4 Temporary Stabilized Construction Entrance(s)

Temporary stabilized construction entrances will be installed at the existing curb cuts along Wallabout Street. A truck wash pad will be constructed on the Site and will be covered with NYSDEC-approved gravel or RCA, on a durable liner, and sloped towards the Site so that runoff wash water and debris can be collected and managed as investigation-derived waste (IDW). Vehicles exiting construction areas will be cleaned using clean water or dry brushing, as needed, to remove Site soil from the tires and undercarriages. Debris and wash water will be captured and disposed of off the Site as IDW. The contractor will protect and maintain the existing sidewalks and roadways at both Site access points.

### 4.4.5 Utility Marker and Easements Layout

291 Wallabout Realty 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 the performance of the work under this RAWP. 291 Wallabout Realty LLC and its contractors are solely responsible for the safe execution of the work performed under this RAWP. 291 Wallabout Realty 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.

### 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 291 Wallabout Realty LLC and its contractors. 291 Wallabout Realty LLC and its contractors are solely responsible for the safe execution of the work performed under this RAWP. 291 Wallabout Realty 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, 291 Wallabout Realty 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.

DRAFT

### 4.4.7 Equipment and Material Staging

The contractor will notify the RE and 291 Wallabout Realty 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 the Site and returning the soil to the Site. The truck wash pad will be covered with NYSDEC-approved gravel or RCA, on a durable liner, and sloped towards the Site, so debris and wash water can be captured and disposed of off Site as IDW.

### 4.4.9 Site Fencing

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

### 4.4.10 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.

DRAFT

### 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 Project Managers by noon the following business day. 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 were to occur, they would be included in the daily reports. Emergency conditions and changes to the RAWP will be directly communicated to the NYSDEC Project 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;
- 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.

### 4.5.3 Photographs

Photographs of the remedial activities will be taken and included in the Daily Reports and FER, with descriptions of the representative photographs provided.

DRAFT

### 4.5.4 Complaint Management Plan

Complaints from the public regarding nuisance or other Site conditions will be addressed by notifying the NYSDEC of the complaint and investigating the cause/source of the issue. Records will be 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. The resolution will be documented and submitted to the NYSDEC. A representative of the Volunteer will reply within two weeks of receipt to the complaint provider to ensure resolution.

### 4.5.5 Deviations from the RAWP

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

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

DRAFT

# 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 1,425 cu yd of contaminated fill/native material that exceed UUSCOs, as defined by 6 NYCRR Part 375-6.8, will be required. Excavation of material that exceeds UUSCOs is estimated to extend to approximately 7.5 ft bgs Site-wide. The soil will be screened for visual, olfactory, and instrumental evidence of environmental impacts.

## 5.1 SOIL CLEANUP OBJECTIVES

SCOs for the Site will be the Track 1 UUSCO concentrations listed in Table 3. Soil and materials management will be conducted in accordance with the S/MMP as described below. Soil sample locations and results that exceed the UUSCOs are shown on Figure 5. UST closures will, at a minimum, conform to the criteria defined in DER-10.

## 5.2 REMEDIAL PERFORMANCE EVALUATION (CONFIRMATION SAMPLING)

### 5.2.1 Soil Sampling Frequency

One endpoint soil sample will be collected for every 900 sq ft of excavation base Site-wide in accordance with NYSDEC DER-10, or at an alternative frequency approved by NYSDEC. Endpoint samples will be collected to confirm that UUSCOs have been achieved. A total of six confirmation soil samples, plus QA/QC samples, will be collected from the remedial excavation base. The proposed endpoint sample locations are shown on Figure 9.

### 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® samplers. 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, an unknown environmental condition through visual evidence of a remaining source, or over-excavation of a failed confirmation sample), confirmation sampling will be conducted in accordance with NYSDEC DER-10.

### 5.2.3 QA/QC

QA/QC procedures for confirmation soil sampling are included in the QAPP (refer to Appendix I). 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 QA/QC samples. The laboratory will provide sample bottles, which will

DRAFT

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 the implementation of this RAWP. Data Usability Summary Reports (DUSRs) will be prepared by a qualified data validator, and the findings will be reported in the FER.

### 5.2.5 Reporting

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

## 5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

The preferred Alternative I remedy includes the excavation, stockpiling, off-Site transport, and disposal of 1,425 cu yd of contaminated fill material.

## 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, selecting samples for waste characterization, if necessary, and determining the proper off-Site disposal facility. Separate stockpile areas will be constructed as needed for the various materials to be excavated or generated to avoid commingling impacted with non-impacted soil.

### 5.4.1 Soil Screening Methods

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

### 5.4.2 Stockpile Methods

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

- Excavated soil will be placed onto a minimum thickness of 6-mil low-permeability liner of sufficient strength and thickness to prevent puncture during use; separate stockpiles will be

DRAFT

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.
- Stockpiles will be inspected at a minimum of once daily and after every storm event.
- If hazardous material is encountered, stockpiling on the Site will be avoided to the extent possible, in favor of live-loading into trucks permitted to transport hazardous waste.

### 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 contaminated 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 the Site.

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

DRAFT

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 properly placarded. Trucks heading to disposal facilities will travel west on Wallabout Street, west over the Williamsburg Bridge, and north on West Street (or other NYSDEC-approved routes). Truck routes are shown on Figure 10.

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

### 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 Project Manager prior to off-Site transport and disposal of excavated material. About 1,425 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 are subject to the EPA and the OSHA HAZWOPER regulations. As such, the handling, transport, and disposal of this fill material are subject to the 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;

DRAFT

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 of 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 that acceptance of the material is approved.

### 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. Materials will not be reused on-site without permission from NYSDEC. It is noted that only soils meeting the requirements in this section may be reused with permission from NYSDEC. 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 to be removed from the Site, including dewatering fluids, will be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by NYCDEP. Based on the depth to water, dewatering is anticipated to facilitate the excavation of material that exceeds the UUSCOs and

DRAFT

the 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.

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

### 5.4.8 Backfill from Off-Site Sources

Materials proposed for import onto the Site are anticipated for the Track 1 remedy. 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 UUSCOs. 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.

### 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 to replace the silt fence

DRAFT

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, and metals. 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 Project Manager. These findings will also be detailed in the monthly BCP progress report.

### 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 parts per million (ppm) above background for the 15-minute

DRAFT

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.

### 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

DRAFT

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.

DRAFT

# 6. Residual Contamination to Remain on the Site

Residual contaminated soil will not exist beneath the development footprint after the Track 1 remedy is complete; therefore, ECs and ICs will not be required to protect human health and the environment. If the SVI Evaluation is not completed prior to the issuance of the Certificate of Completion, the following contingent Site management elements will be implemented:

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

DRAFT

# 7. Engineering Controls

If the SVI Evaluation is not completed prior to the issuance of the Certificate of Completion, contingent Site management elements will be implemented, including establishing an SMP and recording of an EE. Until the SVI investigation is completed and the findings are reviewed by NYSDEC and NYSDOH, the Site may proceed under a Conditional Track 1 designation. This designation may be converted to Track 1 once all applicable Track 1 criteria are met.

If Track 1 SCOs cannot be achieved and a Track 2 remedy is implemented, a Site cover will be required and included in the SMP.

The cover will consist of structures, such as buildings, pavement, and sidewalks, comprising the Site development. Where a soil cover is required, it will be a minimum of 1 ft (for commercial use) or 2 ft (for restricted residential use) of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). The soil cover will be placed over a demarcation layer, with the upper 6 in. of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the Site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d). An S/MMP will be included in the SMP and will outline the procedures to be followed in the event that the soil cover system and underlying residual contamination are disturbed after the Remedial Action is complete. Maintenance of the soil cover system will be described in the SMP in the FER.

DRAFT

# 8. Institutional Controls

Following the completion of the Track 1 UUSCO remedy, ICs will not be required as part of the Remedial Action. In the event that a Track 2 Cleanup (Restricted-Residential) is required (if a Track 1 cleanup cannot be achieved) or if the SVI Evaluation is not completed prior to the issuance of the Certificate of Completion, implementation of ICs may be required, such as:

- 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; and
- Recording an EE to ensure future owners of the Site continue to maintain ECs/ICs as required.

DRAFT

# 9. Final Engineering Report

An FER will be submitted to the NYSDEC following the 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, 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 confirmation sampling results to show that remaining soil left on the Site meets the Track 1 UUSCOs.
- 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 Executive Summary of the FER. The certification will be signed by the RE, Suzanne M. Bell, 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 for the 291 Wallabout Street Redevelopment Site (NYSDEC BCA Index No. C224416-11-24 Site No.C224416).*

DRAFT

*I certify that the Site description presented in this FER is identical to the Site descriptions presented in the Environmental Easement, the Site Management Plan, and the Brownfield Cleanup Agreement for the 291 Wallabout Street Site and related amendments.*

*I certify that the Remedial Action Work Plan dated [month day year] and Stipulations [if any] in a letter dated [month day year] and approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with.*

*I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved.*

*I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the Site are contained in an Environmental Easement created and recorded pursuant to ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. A Site Management Plan has been submitted by the [Applicant / Volunteer / Participant] 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 the NYSDEC.*

*I certify that the export of all contaminated soil, fill, water, or other material from the property was performed in accordance with the Remedial Action Work Plan, and was taken to facilities licensed to accept this material in full compliance with all Federal, State, and local laws.*

*I certify that all import of soils from off-Site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.*

*I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remedial Action Work Plan.*

*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.*

*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*.

DRAFT

# 10. Schedule

Mobilization for implementation of the RAWP is expected to take about one to two weeks. 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 two to four months to complete. After completion of the remedy, an FER will be drafted and subsequently submitted to the NYSDEC for review and approval. A proposed project schedule is included in Appendix J.

DRAFT

# References

1. H&A of New York Engineering and Geology, LLP, Brownfield Cleanup Program Application. 291 Wallabout Street Site. 291 Wallabout Street, Brooklyn, New York. Prepared for 291 Wallabout Realty for submission to the New York State Department of Environmental Conservation. June 2024.

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

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

4. New York State Department of Health, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 (February 2024 matrices).

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

6. H&A of New York Engineering and Geology, LLP, Phase I Environmental Site Assessment-291 Wallabout Street, Brooklyn, New York. Prepared for 291 Wallabout Realty, LLC, July 2024.

7. H&A of New York Engineering and Geology, LLP, Phase II Environmental Site Assessment-291 Wallabout Street, Brooklyn, New York. Prepared for 291 Wallabout Realty, LLC, July 2024.

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

9. Remedial Investigation Report – 291 Wallabout Street, Brooklyn, New York. Prepared by H & A of New York Engineering and Geology LLP, prepared for 291 Wallabout Realty LLC, April 2025.

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



DRAFT

# TABLES

DRAFT

**TABLE 1**
**ALTERNATIVE I REMEDIAL COST ESTIMATE**
291 WALLABOUT REDEVELOPMENT SITE
BROOKLYN, NEW YORK
BCP PROJECT C224416

| **Consulting/Engineering Costs** | | | | | |
|---|---|---|---|---|---|
| **Task** | **Description** | **Unit** | **Unit Cost** | **Quantity** | **Total Cost** |
| **1** | Waste Characterization Sampling and Analysis | Lump Sum | $ 100,000 | 1 | $ 100,000 |
| **2** | Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.) | Month | $ 5,000 | 6 | $ 30,000 |
| **3** | Remedial Oversight | Month | $ 34,000 | 4 | $ 136,000 |
| **4** | Confirmation Sampling | Sample | $ 2,000 | 10 | $ 20,000 |
| **5** | Soil Vapor Intrusion Evaluation | Lump Sum | $ 5,500 | 1 | $ 5,500 |
| **6** | Soil Vapor Intrusion Reporting | Lump Sum | $ 9,500 | 1 | $ 9,500 |
| **7** | Final Engineering Report and COC Coordination | Allowance | $ 75,000 | 1 | $ 75,000 |
| | | | | Consulting/Engineering Subtotal | $ 376,000 |
| **Contractor Costs** | | | | | |
| **Task** | **Description** | **Unit** | **Unit Cost** | **Quantity** | **Total Cost** |
| **1** | Mobilization/Demobilization, Site Maintenance, Security, etc. | Allowance | $ 350,000 | 1 | $ 350,000 |
| **2** | Waste Characterization Drilling | Lump Sum | $ 50,000 | 1 | $ 50,000 |
| **3** | Truck Wash Station | Month | $ 25,000 | 4 | $ 100,000 |
| **4** | Side-wide Dewatering and Sampling | Lump Sum | $ 500,000 | 1 | $ 500,000 |
| **5** | Management/Handling Contaminated Material | Cubic Yard | $ 40 | 1,425 | $ 57,000 |
| **6** | Support of Excavation ($4,000/Linear Foot X Site Perimeter 305 ft = $1,220,000) | Percentage | $ 1,220,000 | 0.75 | $ 915,000 |
| **7** | Clean UST System, dispose of residuals (assume 3,000 gallons wastewater), PBS closure paperwork | Lump Sum | $ 25,000 | 0 | $ - |
| **8** | Transport and Disposal of Urban Fill | Ton | $ 46 | 2,138 | $ 98,325 |
| **9** | Transport and Disposal of Non-Hazardous Petroleum Impacted Fill Material | Ton | $ 55 | 0 | $ - |
| **10** | Transport and Disposal of Hazardous Material (F Listed and/or Lead) | Ton | $ 275 | 214 | $ 58,781 |
| **11** | Underground Storage Tank (Contingency Budget) | Allowance | $ 75,000 | 1 | $ 75,000 |
| | | | | Contractor Subtotal | $ 2,204,106 |
| | | | | **Total** | $ 2,580,106 |
| | | | | **15% Contingency** | $ 387,016 |
| | | | | **Estimated Total (Rounded to the nearest $1,000)** | $ 2,967,000 |

***Notes:***

*1. Assumes a Track 1 Remedy.*
*2. Assumes density of 1.5 tons per cubic yard of fill/soil.*
*3. Assumes residual soil will meet Track 1 Unrestricted Use Soil Cleanup Objectives.*
*4. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks; costs calculated by average cost per linear ft then multiplied by percentage of SOE accounting for remedy (Track 1 ~60%).*
*5. Costs are estimated and subject to change. Costs do not include new building construction.*
*6. RAWP implementation is assumed to take 4 months.*
*7. USTs are not anticipated.*
*8. This cost estimate was prepared to compare various remedial alternatives and was based on available information at the time of preparation. The estimate may be +/- 30-50% of the actual cost. This estimate was not prepared for financial or legal consulting purposes and was not intended for use regarding compliance with financial reporting requirements or liability services.*
*9. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.*

DRAFT

**TABLE 2**
**ALTERNATIVE II REMEDIAL COST ESTIMATE**
291 WALLABOUT REDEVELOPMENT SITE
BROOKLYN, NEW YORK
BCP PROJECT C224416

| **Consulting/Engineering Costs** | | | | | |
|---|---|---|---|---|---|
| **Task** | **Description** | **Unit** | **Unit Cost** | **Quantity** | **Total Cost** |
| **1** | Waste Characterization Sampling and Analysis | Lump Sum | $ 100,000 | 1 | $ 100,000 |
| **2** | Program Management (NYSDEC/NYSDOH Correspondence, Daily/Weekly/Monthly Reporting, etc.) | Month | $ 5,000 | 6 | $ 30,000 |
| **3** | Remedial Oversight | Month | $ 34,000 | 4 | $ 136,000 |
| **4** | Confirmation Sampling | Sample | $ 2,000 | 10 | $ 20,000 |
| **5** | Soil Vapor Intrusion Evaluation | Lump Sum | $ 5,500 | 1 | $ 5,500 |
| **6** | Soil Vapor Intrusion Reporting | Lump Sum | $ 9,500 | 1 | $ 9,500 |
| **7** | Final Engineering Report and COC Coordination | Allowance | $ 75,000 | 1 | $ 75,000 |
| **8** | Annual Site Management (engineering control monitoring, reporting) | Year | $ 5,000 | 5 | $ 25,000 |
| | | | | Consulting/Engineering Subtotal | $ 401,000 |
| **Contractor Costs** | | | | | |
| **Task** | **Description** | **Unit** | **Unit Cost** | **Quantity** | **Total Cost** |
| **1** | Mobilization/Demobilization, Site Maintenance, Security, etc. | Allowance | $ 350,000 | 1 | $ 350,000 |
| **2** | Waste Characterization Drilling | Lump Sum | $ 50,000 | 1 | $ 50,000 |
| **3** | Truck Wash Station | Month | $ 25,000 | 4 | $ 100,000 |
| **4** | Side-wide Dewatering and Sampling | Lump Sum | $ 500,000 | 1 | $ 500,000 |
| **5** | Management/Handling Contaminated Material | Cubic Yard | $ 40 | 1,425 | $ 57,000 |
| **6** | Support of Excavation ($4,000/Linear Foot X Site Perimeter 305 ft = $1,220,000) | Percentage | $ 1,220,000 | 0.75 | $ 915,000 |
| **7** | Clean UST System, dispose of residuals (assume 3,000 gallons wastewater), PBS closure paperwork | Lump Sum | $ 25,000 | 0 | $ - |
| **8** | Transport and Disposal of Urban Fill | Ton | $ 46 | 2,138 | $ 98,325 |
| **9** | Transport and Disposal of Non-Hazardous Petroleum Impacted Fill Material | Ton | $ 55 | 0 | $ - |
| **10** | Transport and Disposal of Hazardous Material (F Listed and/or Lead) | Ton | $ 275 | 214 | $ 58,781 |
| **11** | Backfill Procurement, Placement and Compaction | Cubic Yard | $ 185 | 3,500 | $ 647,500 |
| **12** | Underground Storage Tank (Contingency Budget) | Allowance | $ 75,000 | 1 | $ 75,000 |
| **13** | Composite Cover System (inc. vapor barrier/waterproofing membrane) | Allowance | $ 350,000 | 1 | $ 350,000 |
| | | | | Contractor Subtotal | $ 3,201,606 |
| | | | | **Total** | $ 3,602,606 |
| | | | | **15% Contingency** | $ 540,391 |
| | | | | **Estimated Total (Rounded to the nearest $1,000)** | $ 4,143,000 |

***Notes:***

*1. Assumes a Track 2 Remedy with site management*
*2. Assumes density of 1.5 tons per cubic yard of fill/soil.*
*3. Assumes residual soil will meet Track 2 Restricted Residential Use Soil Cleanup Objectives.*
*4. SOE Costs are based on a conventional soldier pile and timber lagging system with lateral bracing provided by either steel rakers or tiebacks; costs calculated by average cost per linear ft then multiplied by percentage of SOE accounting for remedy (Track 2 ~60%).*
*5. Costs are estimated and subject to change. Costs do not include new building construction.*
*6. RAWP implementation is assumed to take 4 months.*
*7. USTs are not anticipated.*
*8. This cost estimate was prepared to compare various remedial alternatives as was based on available information at the time of preparation. The estimate may be +/- 30-50% of the actual cost. This estimate was not prepared for financial or legal consulting purposes and was not intended for use regarding compliance with financial reporting requirements or liability services.*
*9. This estimate does not include legal fees associated with attorneys involved in the project, insurance fees or outside consulting fees.*

DRAFT

**TABLE 3**
**SOIL CLEANUP OBJECTIVES (SCOs) FOR THE PROJECT**
291 WALLABOUT REDEVELOPMENT SITE
291 WALLABOUT, BROOKLYN, NEW YORK

| Pesticides (mg/kg) | |
|---|---|
| 4,4'-DDD | 0.0033 |
| 4,4'-DDE | 0.0033 |
| 4,4'-DDT | 0.0033 |
| Aldrin | 0.005 |
| Alpha-BHC | 0.02 |
| alpha-Chlordane | 0.094 |
| Beta-BHC | 0.036 |
| Delta-BHC | 0.04 |
| Dieldrin | 0.005 |
| Endosulfan I | 2.4 |
| Endosulfan II | 2.4 |
| Endosulfan sulfate | 2.4 |
| Endrin | 0.014 |
| gamma-BHC (Lindane) | 0.1 |
| Heptachlor | 0.042 |

| Volatile Organic Compounds (mg/kg) | |
|---|---|
| 1,1,1-Trichloroethane | 0.68 |
| 1,1-Dichloroethane | 0.27 |
| 1,1-Dichloroethene | 0.33 |
| 1,2,4-Trimethylbenzene | 3.6 |
| 1,2-Dichlorobenzene | 1.1 |
| 1,2-Dichloroethane | 0.02 |
| 1,3,5-Trimethylbenzene | 8.4 |
| 1,3-Dichlorobenzene | 2.4 |
| 1,4-Dichlorobenzene | 1.8 |
| 1,4-Dioxane | 0.1 |
| 2-Butanone (Methyl Ethyl Ketone) | 0.12 |
| 2-Phenylbutane (sec-Butylbenzene) | 11 |
| Acetone | 0.05 |
| Benzene | 0.06 |
| Carbon tetrachloride | 0.76 |
| Chlorobenzene | 1.1 |
| Chloroform (Trichloromethane) | 0.37 |
| cis-1,2-Dichloroethene | 0.25 |
| Ethylbenzene | 1 |
| Methyl tert butyl ether (MTBE) | 0.93 |
| Methylene chloride (Dichloromethane) | 0.05 |
| Naphthalene | 12 |
| n-Butylbenzene | 12 |
| n-Propylbenzene | 3.9 |
| tert-Butylbenzene | 5.9 |
| Tetrachloroethene | 1.3 |
| Toluene | 0.7 |
| trans-1,2-Dichloroethene | 0.19 |
| Trichloroethene | 0.47 |
| Vinyl chloride | 0.02 |
| Xylenes, Total | 0.26 |

| Semivolatile Organic Compounds (mg/kg) | |
|---|---|
| 1,2-Dichlorobenzene | 1.1 |
| 1,3-Dichlorobenzene | 2.4 |
| 1,4-Dichlorobenzene | 1.8 |
| 1,4-Dioxane | 0.1 |
| 2-Methylphenol | 0.33 |
| Acenaphthene | 20 |
| Acenaphthylene | 100 |
| Anthracene | 100 |
| Benzo(a)anthracene | 1 |
| Benzo(a)pyrene | 1 |
| Benzo(b)fluoranthene | 1 |
| Benzo(ghi)perylene | 100 |
| Benzo(k)fluoranthene | 0.8 |
| Chrysene | 1 |
| Dibenzo(a,h)anthracene | 0.33 |
| Dibenzofuran | 7 |
| Fluoranthene | 100 |
| Fluorene | 30 |
| Hexachlorobenzene | 0.33 |
| Indeno(1,2,3-cd)pyrene | 0.5 |
| Naphthalene | 12 |
| Pentachlorophenol | 0.8 |
| Phenanthrene | 100 |
| Phenol | 0.33 |
| Pyrene | 100 |

| Metals (mg/kg) | |
|---|---|
| Arsenic, Total | 13 |
| Barium, Total | 350 |
| Beryllium, Total | 7.2 |
| Cadmium, Total | 2.5 |
| Chromium VI (Hexavalent), Total | 1 |
| Copper, Total | 50 |
| Lead, Total | 63 |
| Manganese, Total | 1600 |
| Mercury, Total | 0.18 |
| Nickel, Total | 30 |
| Selenium, Total | 3.9 |
| Silver, Total | 2 |
| Zinc, Total | 109 |

| Per- and Polyfluoroalkyl Substances (PFAS) (mg/kg) | |
|---|---|
| Perfluorooctanoic acid (PFOA) | 0.00066 |
| Perfluorooctanesulfonic acid (PFOS) | 0.00088 |

***Notes:***

*1. Criteria are 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives*

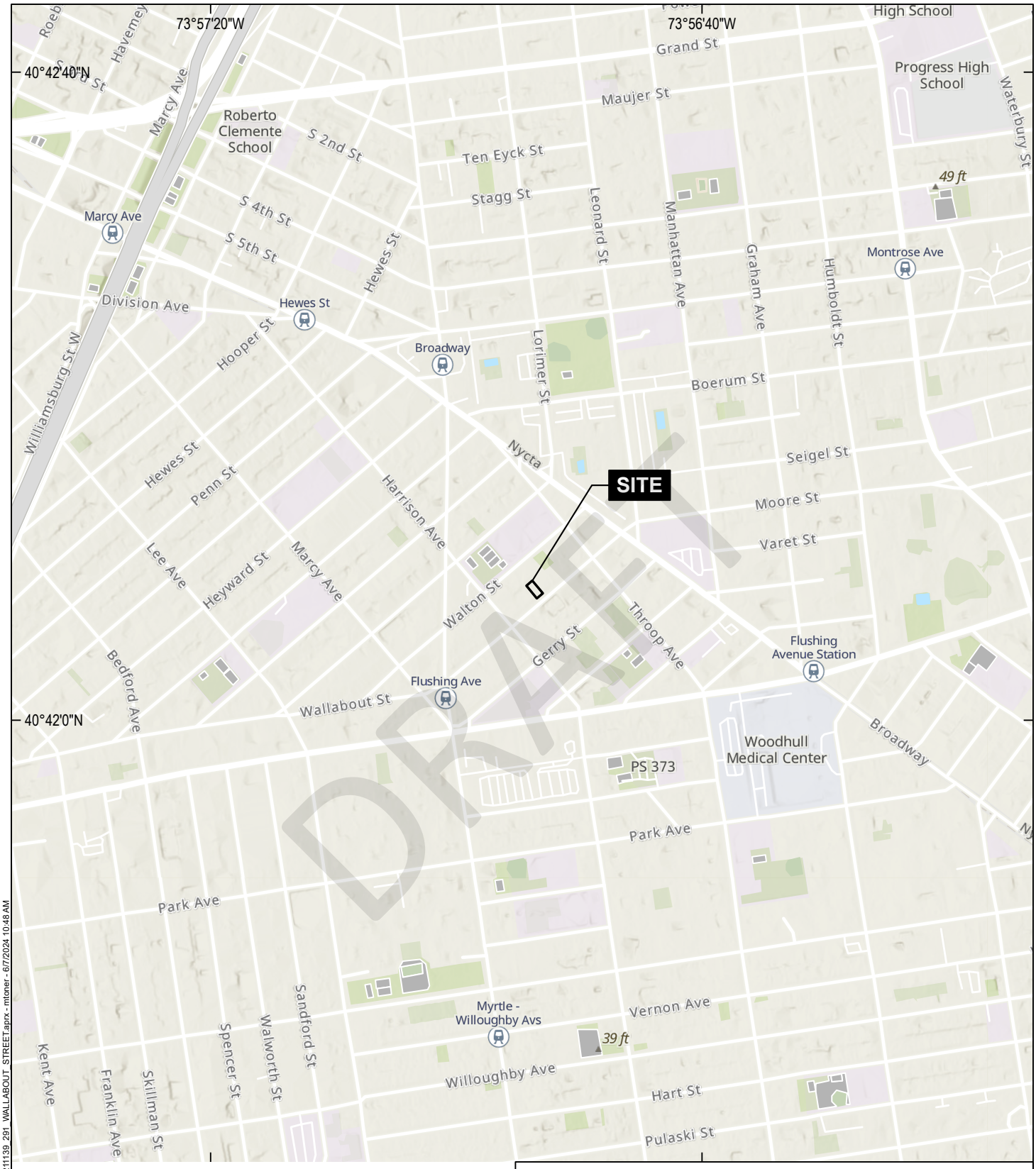
*2. Proposed Sampling, Analysis, and Assessment of PFAS Guidance, November 2023*

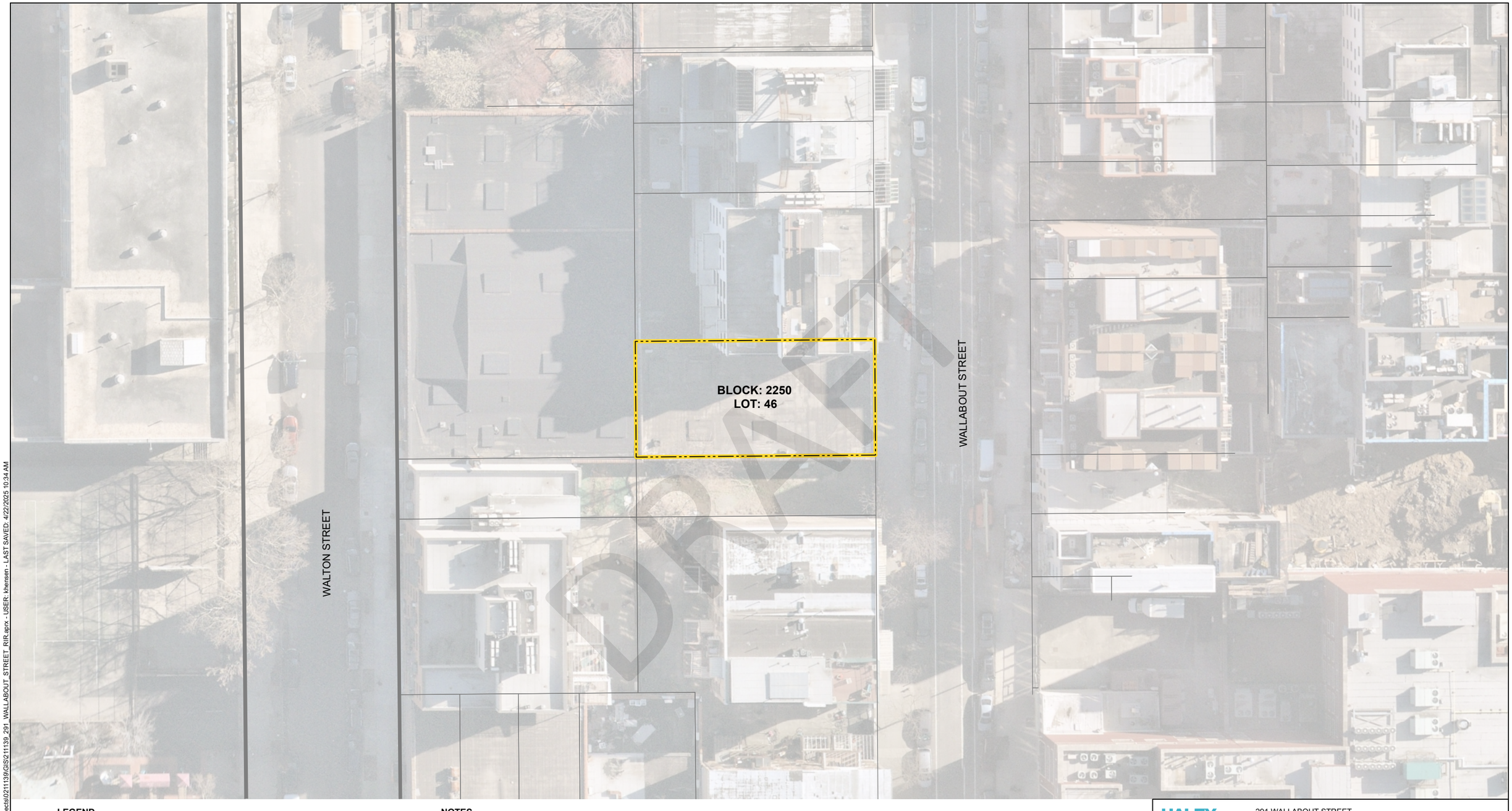
*3. mg/kg: milligram per kilogram*

DRAFT

# FIGURES

DRAFT


73°57'20"W
73°56'40"W
40°42'40"N
40°42'0"N
SITE
Roberto Clemente School
Marcy Ave
S 2nd St
S 4th St
S 5th St
Division Ave
Hewes St
Hooper St
Williamsburg St W
Broadway
Lorimer St
Nycta
Penn St
Harrison Ave
Lee Ave
Heyward St
Walton St
Gerry St
Throop Ave
Flushing Ave
Wallabout St
Bedford Ave
Grand St
Maujer St
Ten Eyck St
Stagg St
Leonard St
Manhattan Ave
Graham Ave
Humboldt St
Montrose Ave
Boerum St
Seigel St
Moore St
Varet St
Flushing Avenue Station
Woodhull Medical Center
PS 373
Park Ave
Myrtle - Willoughby Avs
Willoughby Ave
Vernon Ave
Hart St
Pulaski St
Kent Ave
Franklin Ave
Skillman St
Spencer St
Walworth St
Sandford St
Progress High School
High School
Waterbury St
49 ft
39 ft
DRAFT
NY
N
MAP SOURCE: ESRI
SITE COORDINATES: 40°42'08"N, 73°56'54"W
HALEY ALDRICH
291 WALLABOUT STREET
BROOKLYN, NEW YORK
PROJECT LOCUS
APPROXIMATE SCALE: 1 IN = 0.5 MI
May 2025
FIGURE 1
GIS: \\haleyaldrich\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET.aprx - mtoner - 6/7/2024 10:48 AM




**LEGEND**

- SITE BOUNDARY
- PARCEL BOUNDARY
- StreetSegment

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 08 MARCH 2024

0 40 80
SCALE IN FEET

HALEY ALDRICH

291 WALLABOUT STREET
BROOKLYN, NEW YORK

SITE MAP

May 2025

FIGURE 2

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET_RIR.aprx - USER: khensen - LAST SAVED: 4/22/2025 10:34 AM

DRAFT

**LEGEND**

- 5-FT STEP-OUT DELINEATION SOIL BORING
- SOIL BORING
- SOIL BORING/PERMANENT GROUNDWATER MONITORING WELL
- SOIL VAPOR PROBE
- SITE BOUNDARY
- PARCEL BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

HALEY ALDRICH

291 WALLABOUT STREET
BROOKLYN, NEW YORK

# SAMPLE LOCATION MAP

APRIL 2025

FIGURE 3

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET_RIR.aprx - USER: khensen - LAST SAVED: 4/14/2025 8:37 AM

DRAFT

**LEGEND**

- GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR, IN FEET, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- SITE BOUNDARY
- PARCEL BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

0 10 20
SCALE IN FEET

HALEY ALDRICH

291 WALLABOUT STREET
BROOKLYN, NEW YORK

# GROUNDWATER ELEVATION CONTOUR MAP

May 2025

FIGURE 4

GIS FILE PATH: \\haleyaldrich.com\share\CP\Projects\0211139\GIS\211139_291_WALLABOUT_STREET_RIR.aprx - USER: khensen - LAST SAVED: 4/22/2025 10:33 AM

| B-04 | 03/18/2025<br>L2515592-07<br>B-04_0-2_031825<br>0 - 2 (ft) | 03/18/2025<br>L2515592-08<br>B-04_3-5_031825<br>3 - 5 (ft) | 03/18/2025<br>L2515592-09<br>B-04_8-10_031825<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Copper | 53.4 | 104 | 8.13 |
| Lead | 361 | 440 | 3.11 J |
| Mercury | ***1.28*** | ***2*** | ND (0.083) |
| Zinc | 330 | 356 | 21.9 |
| Pesticides (mg/kg) | | | |
| 4,4'-DDE | 0.00254 | 0.00483 | ND (0.00173) |
| 4,4'-DDT | 0.0107 | 0.0154 | ND (0.00173) |
| Semi-Volatile Organic Compounds (mg/kg) | | | |
| Benzo(a)anthracene | ***2.6*** | ***4.6*** | ND (0.11) |
| Benzo(a)pyrene | 2.2 | 3.8 | ND (0.15) |
| Benzo(b)fluoranthene | ***2.8*** | ***4.6*** | ND (0.11) |
| Benzo(k)fluoranthene | 0.77 | 1.4 | ND (0.11) |
| Chrysene | ***2.7*** | ***4.9*** | ND (0.11) |
| Dibenz(a,h)anthracene | 0.35 | 0.62 | ND (0.11) |
| Indeno(1,2,3-cd)pyrene | 1.3 | 2.1 | ND (0.15) |

| B-06 | 03/19/2025<br>L2516066-13<br>B-06_0-2_031925<br>0 - 2 (ft) | 03/19/2025<br>L2516066-14<br>B-06_3-5_031925<br>3 - 5 (ft) | 03/19/2025<br>L2516066-15<br>B-06_8-10_031925<br>8 - 10 (ft) | 03/19/2025<br>L2516066-18<br>DUP-03_031925<br>8 - 10 (ft) |
|---|---|---|---|---|
| Total Metals (mg/kg) | | | | |
| Lead | ***501*** | ***908*** | 5.33 | 4.44 J |
| Mercury | ***4.61*** | ***10.9*** | ND (0.087) | ND (0.096) |
| Zinc | 359 | 664 | 40.3 | 33.5 |
| Pesticides (mg/kg) | | | | |
| 4,4'-DDT | 0.00465 | ND (0.00187) | ND (0.00194) | ND (0.00187) |
| Semi-Volatile Organic Compounds (mg/kg) | | | | |
| Benzo(a)anthracene | ***3.2*** | 0.26 | ND (0.12) | ND (0.12) |
| Benzo(a)pyrene | 2.3 | 0.45 | ND (0.16) | ND (0.16) |
| Benzo(b)fluoranthene | ***3.2*** | 0.42 | ND (0.12) | ND (0.12) |
| Chrysene | ***3.1*** | 0.25 | ND (0.12) | ND (0.12) |
| Dibenz(a,h)anthracene | 0.41 | 0.071 J | ND (0.12) | ND (0.12) |
| Indeno(1,2,3-cd)pyrene | 1.2 | 0.26 | ND (0.16) | ND (0.16) |
| PFAS (ug/kg) | | | | |
| Perfluorooctanoic acid (PFOA) | 0.741 | 0.05 J | 0.034 J | 0.035 J |

| B-05 | 03/19/2025<br>L2516066-01<br>B-05_0-2_031925<br>0 - 2 (ft) | 03/19/2025<br>L2516066-02<br>B-05_3-5_031925<br>3 - 5 (ft) | 03/19/2025<br>L2516066-03<br>B-05_8-10_031925<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Arsenic | 5.95 | ***32.7*** | 3.25 |
| Barium | 40.5 | ***848*** | 18 |
| Cadmium | ND (0.84) | ***7.72*** | ND (0.852) |
| Copper | 50.2 | 194 | 8.42 |
| Lead | 56.6 | ***6060*** | 6.27 |
| Mercury | 0.123 | 0.3 | ND (0.075) |
| Nickel | 6.42 | 50.5 | 7.4 |
| Zinc | 56 | ***3900*** | 19.7 |
| Pesticides (mg/kg) | | | |
| 4,4'-DDT | 0.00407 | ND (0.00194) | ND (0.00177) |

| B-03 | 03/18/2025<br>L2515592-04<br>B-03_0-2_031825<br>0 - 2 (ft) | 03/18/2025<br>L2515592-05<br>B-03_3-5_031825<br>3 - 5 (ft) | 03/18/2025<br>L2515592-06<br>B-03_8-10_031825<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Copper | 36.7 | 64 | 6.2 |
| Lead | 412 | 147 | 2.56 J |
| Mercury | ***1.64*** | ***3.35*** | ND (0.087) |
| Zinc | 296 | 693 | 13.7 |
| Semi-Volatile Organic Compounds (mg/kg) | | | |
| Chrysene | ***1.1*** | 0.12 J | ND (0.12) |

| DB-03 | 03/20/2025<br>L2516423-11<br>DB-03_0-1_032025<br>0 - 1 (ft) | 03/20/2025<br>L2516423-12<br>DB-03_1-3_032025<br>1 - 3 (ft) | 03/20/2025<br>L2516423-13<br>DB-03_3-5_032025<br>3 - 5 (ft) | 03/20/2025<br>L2516423-13R2<br>DB-03_3-5_032025<br>3 - 5 (ft) |
|---|---|---|---|---|
| Volatile Organic Compounds (mg/kg) | | | | |
| Acetone | 0.014 | 0.049 | ***1*** | ND (0.011) |
| Benzene | ND (0.00051) | ND (0.00082) | ***0.086*** | ND (0.00053) |
| Toluene | ND (0.001) | ND (0.0016) | ***0.78*** | ND (0.0011) |
| Trichloroethene | 0.00024 J | ND (0.00082) | ***1.4*** | 0.00024 J |
| Xylene (Total) | ND (0.001) | ND (0.0016) | ***1.8*** | ND (0.0011) |

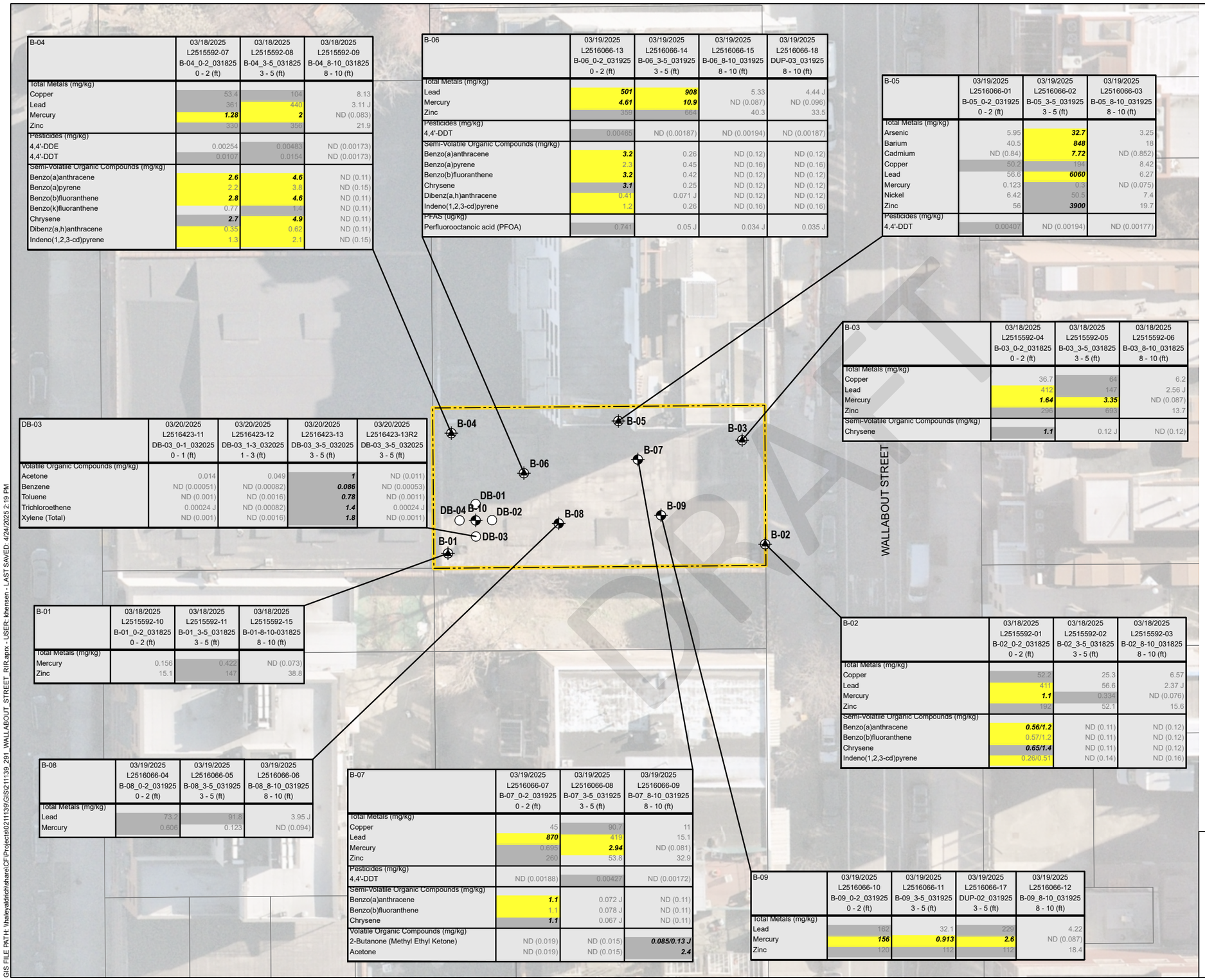
| B-01 | 03/18/2025<br>L2515592-10<br>B-01_0-2_031825<br>0 - 2 (ft) | 03/18/2025<br>L2515592-11<br>B-01_3-5_031825<br>3 - 5 (ft) | 03/18/2025<br>L2515592-15<br>B-01-8-10-031825<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Mercury | 0.156 | 0.422 | ND (0.073) |
| Zinc | 15.1 | 147 | 38.8 |

| B-02 | 03/18/2025<br>L2515592-01<br>B-02_0-2_031825<br>0 - 2 (ft) | 03/18/2025<br>L2515592-02<br>B-02_3-5_031825<br>3 - 5 (ft) | 03/18/2025<br>L2515592-03<br>B-02_8-10_031825<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Copper | 52.2 | 25.3 | 6.57 |
| Lead | 411 | 56.6 | 2.37 J |
| Mercury | ***1.1*** | 0.334 | ND (0.076) |
| Zinc | 192 | 52.1 | 15.6 |
| Semi-Volatile Organic Compounds (mg/kg) | | | |
| Benzo(a)anthracene | ***0.56/1.2*** | ND (0.11) | ND (0.12) |
| Benzo(b)fluoranthene | 0.57/1.2 | ND (0.11) | ND (0.12) |
| Chrysene | ***0.65/1.4*** | ND (0.11) | ND (0.12) |
| Indeno(1,2,3-cd)pyrene | 0.26/0.51 | ND (0.14) | ND (0.16) |

| B-08 | 03/19/2025<br>L2516066-04<br>B-08_0-2_031925<br>0 - 2 (ft) | 03/19/2025<br>L2516066-05<br>B-08_3-5_031925<br>3 - 5 (ft) | 03/19/2025<br>L2516066-06<br>B-08_8-10_031925<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Lead | 73.2 | 91.8 | 3.95 J |
| Mercury | 0.606 | 0.123 | ND (0.094) |

| B-07 | 03/19/2025<br>L2516066-07<br>B-07_0-2_031925<br>0 - 2 (ft) | 03/19/2025<br>L2516066-08<br>B-07_3-5_031925<br>3 - 5 (ft) | 03/19/2025<br>L2516066-09<br>B-07_8-10_031925<br>8 - 10 (ft) |
|---|---|---|---|
| Total Metals (mg/kg) | | | |
| Copper | 45 | 90.7 | 11 |
| Lead | ***870*** | 419 | 15.1 |
| Mercury | 0.695 | ***2.94*** | ND (0.081) |
| Zinc | 260 | 53.8 | 32.9 |
| Pesticides (mg/kg) | | | |
| 4,4'-DDT | ND (0.00188) | 0.00427 | ND (0.00172) |
| Semi-Volatile Organic Compounds (mg/kg) | | | |
| Benzo(a)anthracene | ***1.1*** | 0.072 J | ND (0.11) |
| Benzo(b)fluoranthene | 1.1 | 0.078 J | ND (0.11) |
| Chrysene | ***1.1*** | 0.067 J | ND (0.11) |
| Volatile Organic Compounds (mg/kg) | | | |
| 2-Butanone (Methyl Ethyl Ketone) | ND (0.019) | ND (0.015) | ***0.085/0.13 J*** |
| Acetone | ND (0.019) | ND (0.015) | ***2.4*** |

| B-09 | 03/19/2025<br>L2516066-10<br>B-09_0-2_031925<br>0 - 2 (ft) | 03/19/2025<br>L2516066-11<br>B-09_3-5_031925<br>3 - 5 (ft) | 03/19/2025<br>L2516066-17<br>DUP-02_031925<br>3 - 5 (ft) | 03/19/2025<br>L2516066-12<br>B-09_8-10_031925<br>8 - 10 (ft) |
|---|---|---|---|---|
| Total Metals (mg/kg) | | | | |
| Lead | 162 | 32.1 | 229 | 4.22 |
| Mercury | ***156*** | ***0.913*** | ***2.6*** | ND (0.087) |
| Zinc | 120 | 112 | 112 | 18.4 |




**LEGEND**

- 5-FT STEP-OUT DELINEATION SOIL BORING
- SOIL BORING
- SOIL BORING/PERMANENT GROUNDWTER MONITORING WELL
- SITE BOUNDARY
- PARCEL BOUNDARY

| | ***NY-PGW*** | NY-RESR | NY-UNRES |
|---|---|---|---|
| **Total Metals (mg/kg)** | | | |
| Arsenic | 16 | 16 | 13 |
| Barium | 820 | 400 | 350 |
| Cadmium | 7.5 | 4.3 | 2.5 |
| Copper | 1720 | 270 | 50 |
| Lead | 450 | 400 | 63 |
| Mercury | 0.73 | 0.81 | 0.18 |
| Nickel | 130 | 310 | 30 |
| Zinc | 2480 | 10000 | 109 |
| **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)** | | | |
| 2-Butanone (Methyl Ethyl Ketone) | 0.12 | 100 | 0.12 |
| Acetone | 0.05 | 100 | 0.05 |
| Benzene | 0.06 | 4.8 | 0.06 |
| Toluene | 0.7 | 100 | 0.7 |
| Trichloroethene | 0.47 | 21 | 0.47 |
| Xylene (Total) | 1.6 | 100 | 0.26 |
| **PFAS (ug/kg)** | | | |
| Perfluorooctanoic acid (PFOA) | 0.8 | 33 | 0.66 |

**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-RESRR SCOS ARE SHADED YELLOW
8. EXCEEDANCES OF THE NY-PGW ARE SHOWN IN BLACK TEXT AND IN ITALICS
9. RESULTS ARE DISPLAYED IN MILLIGRAMS PER KILOGRAM (mg/kg). PFAS RESULTS ARE DISPLAYED IN MICROGRAMS PER KILOGRAM (µg/kg).
10. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

0 30 60
SCALE IN FEET

HALEY ALDRICH

291 WALLABOUT STREET
BROOKLYN, NEW YORK

# SOIL RESULTS MAP

May 2025

FIGURE 5

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET_RIR.aprx - USER: khensen - LAST SAVED: 4/24/2025 2:19 PM

| MW-04 | 03/27/2025 L2518360-04 |
|---|---|
| Metals (ug/L) | |
| Iron, Total | 444 |
| Manganese, Dissolved | 400.2 |
| Manganese, Total | 371.5 |
| Selenium, Dissolved | 25.3 |
| Selenium, Total | 27.4 |
| Sodium, Dissolved | 58500 |
| Sodium, Total | 64800 |
| PFAS (ng/L) | |
| Perfluorooctanoic acid (PFOA) | 75 |

| MW-05 | 03/28/2025 L2518879-02 |
|---|---|
| Metals (ug/L) | |
| Iron, Total | 520 |
| Lead, Total | 25.71 |
| Selenium, Dissolved | 31.5 |
| Selenium, Total | 31.6 |
| Sodium, Dissolved | 98800 |
| Sodium, Total | 100000 |
| PFAS (ng/L) | |
| Perfluorooctanoic acid (PFOA) | 50.3 |

| MW-03 | 03/28/2025 L2518879-03 |
|---|---|
| Metals (ug/L) | |
| Selenium, Dissolved | 16.9 |
| Selenium, Total | 15.9 |
| Sodium, Dissolved | 120000 |
| Sodium, Total | 123000 |
| Volatile Organic Compounds (ug/L) | |
| Trichloroethene | 5.8 |
| PFAS (ng/L) | |
| Perfluorooctanesulfonic acid (PFOS) | 3.64 |
| Perfluorooctanoic acid (PFOA) | 17.2 |

MW-04
MW-05
MW-03
MW-06
MW-01
MW-02

WALLABOUT STREET

| MW-01 | 03/27/2025 L2518360-01 |
|---|---|
| Metals (ug/L) | |
| Iron, Total | 2080 |
| Selenium, Dissolved | 16.5 |
| Selenium, Total | 16.8 |
| Sodium, Dissolved | 60800 |
| Sodium, Total | 60600 |
| Semi-Volatile Organic Compounds (ug/L) | |
| Benzo(b)fluoranthene | 0.03 J |
| PFAS (ng/L) | |
| Perfluorooctanoic acid (PFOA) | 121 |

| MW-06 | 03/27/2025 L2518360-02 | 03/27/2025 L2518360-03 |
|---|---|---|
| Metals (ug/L) | | |
| Iron, Total | 639 | 636 |
| Magnesium, Dissolved | 60500 | 59700 |
| Magnesium, Total | 57400 | 56500 |
| Selenium, Dissolved | 70.3 | 70.7 |
| Selenium, Total | 66.3 | 69.1 |
| Sodium, Dissolved | 100000 | 100000 |
| Sodium, Total | 95500 | 94100 |
| Semi-Volatile Organic Compounds (ug/L) | | |
| Benzo(a)anthracene | ND (0.1) | 0.04 J |
| Benzo(b)fluoranthene | ND (0.1) | 0.03 J |
| Hexachlorobenzene | ND (0.8) | 0.06 J |
| Indeno(1,2,3-cd)pyrene | ND (0.1) | 0.03 J |
| PFAS (ng/L) | | |
| Perfluorooctanesulfonic acid (PFOS) | 2.73 | 2.72 |
| Perfluorooctanoic acid (PFOA) | 120 | 118 |

| MW-02 | 03/28/2025 L2518879-04 |
|---|---|
| Metals (ug/L) | |
| Iron, Total | 2440 |
| Manganese, Dissolved | 605.5 |
| Manganese, Total | 663.7 |
| Selenium, Dissolved | 18.3 |
| Selenium, Total | 19.4 |
| Sodium, Dissolved | 35500 |
| Sodium, Total | 36500 |
| Semi-Volatile Organic Compounds (ug/L) | |
| Benzo(a)anthracene | 0.04 J |
| Benzo(b)fluoranthene | 0.03 J |
| PFAS (ng/L) | |
| Perfluorooctanesulfonic acid (PFOS) | 7.6 |
| Perfluorooctanoic acid (PFOA) | 42.5 |

**LEGEND**

- SOIL BORING/PERMANENT GROUNDWATER MONITORING WELL
- SITE BOUNDARY
- PARCEL BOUNDARY

| | AWQS |
|---|---|
| **Metals (ug/L)** | |
| Iron, Total | 300 |
| Lead, Total | 25 |
| Magnesium, Dissolved & Total | 35000 |
| Manganese, Dissolved & Total | 300 |
| Sodium, Dissolved & Total | 20000 |
| Selenium, Dissolved & Total | 10 |
| **Semi-Volatile Organic Compounds (ug/L)** | |
| Hexachlorbenzene | 0.04 |
| Indeno(1,2,3-cd)pyrene | 0.002 |
| Benzo(b)fluoranthene | 0.002 |
| Benzo(a)anthracene | 0.002 |
| **Volatile Organic Compounds (ug/L)** | |
| Trichloroethene | 5 |
| **PFAS (ng/L)** | |
| Perfluorooctanesulfonic acid (PFOS) | 2.7 |
| Perfluorooctanoic acid (PFOA) | 6.7 |

**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) AND THE 2023 PFAS GUIDANCE VALUES.
3. EXCEEDANCES OF THE NYSDEC AWQS AND/OR 2023 GUIDANCE VALUES ARE SHOWN IN GRAY.
4. RESULTS ARE DISPLAYED IN MICROGRAMS PER LITER (µg/L).
5. PFAS RESULTS ARE SHOWN IN NANOGRAMS PER LITER (ng/L).
5. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
6. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

0 30 60
SCALE IN FEET

HALEY ALDRICH

291 WALLABOUT STREET
BROOKLYN, NEW YORK

# GROUNDWATER RESULTS MAP

May 2025

FIGURE 6

DRAFT

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET_R1R.aprx - USER: khensen - LAST SAVED: 4/24/2025 2:19 PM

| SVMP-04 | 03/21/2025 L2517016-04 |
|---|---|
| VOCs | |
| 1,2,4-Trimethylbenzene | 3.14 |
| Acetone | 7.41 |
| Dichlorodifluoromethane (CFC-12) | 2.34 |
| Ethylbenzene | 1.41 |
| Hexane | 1.27 |
| Isopropyl Alcohol (2-Propanol) | 5.73 |
| m,p-Xylenes | 4.95 |
| o-Xylene | 2.73 |
| Toluene | 2.69 |
| Trichloroethene | 21.8 |
| Trichlorofluoromethane (CFC-11) | 1.16 |
| Xylene (Total) | 7.69 |
| Calculated Totals | |
| Total BTEXs | 19.47 |
| Total CVOCs | 21.8 |
| Total VOCs | 62.32 |

| SVMP-05 | 03/21/2025 L2517016-05 |
|---|---|
| VOCs | |
| Acetone | 27.1 |
| Ethylbenzene | 751 |
| m,p-Xylenes | 1600 |
| o-Xylene | 508 |
| Toluene | 7.27 |
| Xylene (Total) | 2110 |
| Calculated Totals | |
| Total BTEXs | 4976.27 |
| Total CVOCs | ND |
| Total VOCs | 5003.37 |

| SVMP-03 | 03/21/2025 L2517016-03 |
|---|---|
| VOCs | |
| 1,2,4-Trimethylbenzene | 1.96 |
| 2-Butanone (Methyl Ethyl Ketone) | 2.17 |
| Acetone | 19.1 |
| Chloromethane (Methyl Chloride) | 1.03 |
| Dichlorodifluoromethane (CFC-12) | 2.31 |
| Hexane | 3.77 |
| Isopropyl Alcohol (2-Propanol) | 32.4 |
| m,p-Xylenes | 3.21 |
| o-Xylene | 1.56 |
| Toluene | 1.73 |
| Trichloroethene | 1.41 |
| Trichlorofluoromethane (CFC-11) | 1.17 |
| Xylene (Total) | 4.78 |
| Calculated Totals | |
| Total BTEXs | 11.28 |
| Total CVOCs | 1.41 |
| Total VOCs | 76.6 |

SVMP-04

SVMP-05

SVMP-03

SVMP-01

SVMP-02

WALLABOUT STREET

| SVMP-01 | 03/21/2025 L2517016-01 |
|---|---|
| VOCs | |
| 1,2,4-Trimethylbenzene | 3.11 |
| Acetone | 7.27 |
| Chloroform (Trichloromethane) | 2.87 |
| Dichlorodifluoromethane (CFC-12) | 2.35 |
| Ethylbenzene | 1.14 |
| Hexane | 0.969 |
| Isopropyl Alcohol (2-Propanol) | 4.23 |
| m,p-Xylenes | 3.83 |
| o-Xylene | 2.26 |
| Tetrahydrofuran | 4.63 |
| Toluene | 2.04 |
| Trichloroethene | 20.9 |
| Trichlorofluoromethane (CFC-11) | 1.2 |
| Xylene (Total) | 6.08 |
| Calculated Totals | |
| Total BTEXs | 15.35 |
| Total CVOCs | 20.9 |
| Total VOCs | 62.879 |

| SVMP-02 | 03/21/2025 L2517016-02 | 03/21/2025 L2517016-06 |
|---|---|---|
| VOCs | | |
| 1,2,4-Trimethylbenzene | 1.62 | 1.89 |
| 2-Butanone (Methyl Ethyl Ketone) | 2.89 | 3.42 |
| Acetone | 33 | 30.4 |
| Benzene | 0.917 | 0.879 |
| Carbon disulfide | 5.17 | 4.98 |
| Chloroform (Trichloromethane) | 1.48 | 1.38 |
| Cyclohexane | 0.888 | 0.922 |
| Dichlorodifluoromethane (CFC-12) | 2.42 | 2.19 |
| Ethylbenzene | 1.59 | 1.94 |
| Hexane | 18.9 | 18.1 |
| Isopropyl Alcohol (2-Propanol) | 4.72 J | 29.7 J |
| m,p-Xylenes | 5.3 | 6.43 |
| N-Heptane | 5.16 | 5 |
| o-Xylene | 2.21 | 2.56 |
| Tert-Butyl Alcohol (tert-Butanol) | 2.2 | 2.26 |
| Tetrahydrofuran | ND (1.47) J | 5.22 J |
| Toluene | 2.89 | 3.2 |
| Trichloroethene | 2.02 | 1.79 |
| Trichlorofluoromethane (CFC-11) | 4.84 | 4.5 |
| Xylene (Total) | 7.51 | 8.99 |
| Calculated Totals | | |
| Total BTEXs | 20.417 | 23.999 |
| Total CVOCs | 2.02 | 1.79 |
| Total VOCs | 105.725 | 135.751 |

DRAFT

**LEGEND**

- SOIL VAPOR PROBE
- SITE BOUNDARY
- PARCEL BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ALL DETECTED ANYLTES SHOWN ON FIGURE.
3. SOIL VAPOR ANALYSIS - VOLATILE ORGANIC COMPOUNDS (VOCs)
4. RESULTS ARE DISPLAYED IN MICROGRAMS PER CUBIC METER ($\mu g/m^3$)
5. TOTAL DETECTED CONCENTRATION OF BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES (BTEX).
6. TOTAL CVOCS CONCENTRATON IS THE SUM OF CARBON TETRACHLORIDE, 1,1-DICHLOROETHENE, CIS-1,2-DICHLOROETHENE, TRICHLOROETHENE, METHYLENE CHLORIDE, TETRACHLOROETHENE, 1,1,1-TRICHLOROETHANE AND VINYL CHLORIDE.
7. TOTAL VOCs IS THE SUM OF ALL THE DECTECTED CONCENTRATIONS.
8. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

0 20 40
SCALE IN FEET

HALEY ALDRICH

291 WALLABOUT STREET
BROOKLYN, NEW YORK

# SOIL VAPOR RESULTS MAP

May 2025

FIGURE 7

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211139(GIS)\211139_291_WALLABOUT_STREET_RIR.aprx - USER: khensen - LAST SAVED: 4/17/2025 8:06 AM

**LEGEND**

- SITE BOUNDARY
- PARCEL BOUNDARY
- EXCAVATION DEPTH, 7.5 FEET BELOW GROUND SURFACE (BGS)

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

HALEY ALDRICH

REMEDIAL ACTION WORK PLAN
291 WALLABOUT ST
BROOKLYN, NEW YORK

# ALTERNATIVE I AND ALTERNATIVE II EXCAVATION PLAN

MAY 2025

FIGURE 8

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET.aprx - USER: dfm - LAST SAVED: 5/1/2025 9:41 AM

**LEGEND**

- CONFIRMATION SAMPLE LOCATION
- SITE BOUNDARY
- PARCEL BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

HALEY ALDRICH

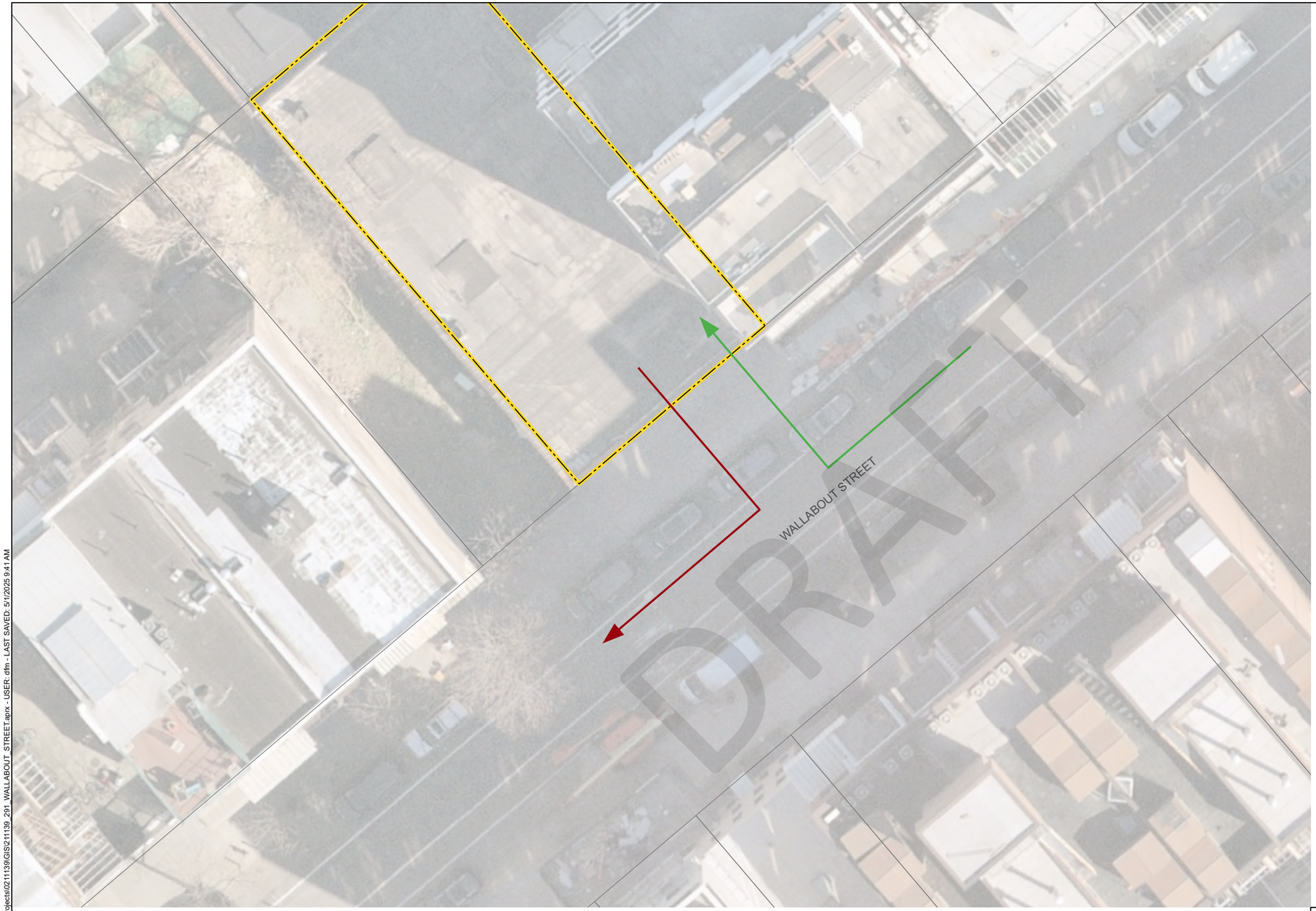
REMEDIAL ACTION WORK PLAN
291 WALLABOUT ST
BROOKLYN, NEW YORK

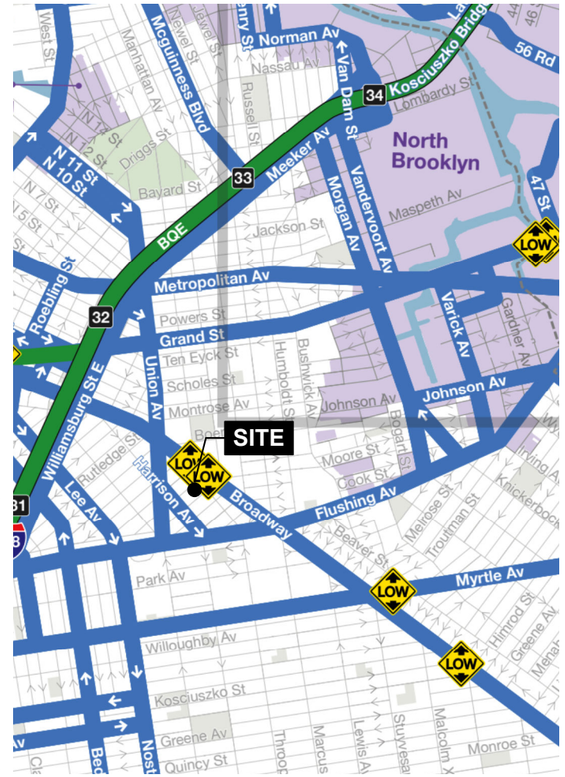
# CONFIRMATION SAMPLE LOCATION PLAN

MAY 2025

FIGURE 9

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0211139\GIS\211139_291_WALLABOUT_STREET.aprx - USER: dfm - LAST SAVED: 5/1/2025 9:41 AM




## Legend

**Truck Routes**

- **Local Truck Route** — Trucks with an origin or destination for the purpose of delivery, loading or servicing within the respective Borough, shall only operate on designated local routes, except that an operator may operate on a non-designated street for the purpose of arriving at their destination. This shall be accomplished by leaving a designated truck route at the intersection that is nearest to their destination, proceeding by the most direct route, and then returning to the nearest designated truck route by the most direct route. If the operator has additional destinations in the same general area, they may proceed by the most direct route to their next destination without returning to a designated truck route, provided that the operator's next destination does not require that they cross a designated truck route.
- **Through Truck Route** — Trucks having neither an origin nor a destination within the respective Borough shall restrict the operation of such vehicles to those street segments designated as Through Truck Routes.
- **Through Truck Route on Expressway**
- **53 FT Trailer Exception**
- **Connecting Road Outside NYC**

**Restricted Routes**

- **No Commercial Vehicles**

**Hazards**

- Alert: see additional information
- Low Vertical Clearance (14 feet and under)

**Navigation / Landmarks**

- Highway Exit
- Major Highway
- Industrial Business Zone
- Parks and Open Spaces
- Limited Truck Zone

**LEGEND**

- TRUCK EGRESS
- TRUCK INGRESS
- SITE BOUNDARY
- PARCEL BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. TRUCK ROUTE MAP SOURCE: NEW YORK DEPARTMENT OF TRANSPORTATION, 2022
3. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
4. AERIAL IMAGERY SOURCE: NEARMAP, 8 MARCH 2024

N

0 20 40
SCALE IN FEET

HALEY ALDRICH

REMEDIAL ACTION WORK PLAN
291 WALLABOUT ST
BROOKLYN, NEW YORK

# TRUCK ROUTE MAP

MAY 2025

FIGURE 10

GIS FILE PATH: \\haleyaldrich.com\share\CFLProjects\0211139\GIS\211139_291_WALLABOUT_STREET.aprx - USER: dfm - LAST SAVED: 5/1/2025 9:41 AM

DRAFT

# APPENDIX A
## Survey Map

# GEOPHYSICAL ENGINEERING SURVEY REPORT

291 Wallabout Street,
Brooklyn, New York 11206

**NOVA PROJECT NUMBER:**
24-4219

**DATED:**
June 10, 2024

**PREPARED FOR:**

HALEY ALDRICH

237 West 35th Street, 16th Floor
New York, NY 10123
www.haleyaldrich.com

DRAFT

**PREPARED BY:**

NOVA
GEOPHYSICAL
ENGINEERING
Subsurface Mapping Solutions
56-01 Marathon Parkway # 765
Douglaston, New York 11362
347-556-7787 (PHONE)
718-261-1527(FAX)
www.nova-gsi.com

# NOVA GEOPHYSICAL SERVICES

Subsurface Mapping Solutions
56-01 Marathon Parkway, # 765, Douglaston, NY 11362
Ph. 347-556-7787 Fax. 718-261-1527
www.novagsi.com


June 10, 2024


**Sebastian Sotomayor**
Project Environmental Engineer
**H & A of New York Engineering and Geology, LLP**
213 West 35th Street,
New York, New York 10001
M: 646.532.9079 E: ssotomayor@haleyaldrich.com


DRAFT

Re: Geophysical Engineering Survey (GES) Report
291 Wallabout Street,
Brooklyn, New York 11206

Dear Mr. Levy.

Nova Geophysical Services (NOVA) is pleased to provide the findings of the geophysical engineering survey (GES) at the above referenced project site: 291 Wallabout Street, Brooklyn, New York (the "Site").

## INTRODUCTION TO GEOPHYSICAL ENGINEERING SURVEY (GES)

NOVA performed a geophysical engineering survey (GES) consisting of a Ground Penetrating Radar (GPR) and Electromagnetic (EM) survey at the site. The purpose of this survey is to locate and identify utilities, underground storage tanks (USTs) and other substructures in the vicinity of proposed boring locations on June 4th, 2024.

The equipment selected for this investigation was a Sensors and Software Noggin 250 MHz ground penetrating radar (GPR) with a shielded antenna and a RadioDetection RD7100 Electromagnetic utility locator. A GPR system consists of a radar control unit, control cable, and transducer (antenna). The control unit transmits a trigger pulse at a normal repetition rate of 250 MHz. The trigger pulse is sent to the transmitter electronics in the transducer via the control cable. The transmitter electronics amplify the trigger

pulse into bipolar pulses that are radiated to the surface. The transformed pulses vary in shape and frequency according to the transducer used. In the subsurface, variations of the signal occur at boundaries where there is a dielectric contrast (void, steel, soil type, etc.). Signal reflections travel back to the control unit and are represented as color graphic images for interpolation.

A typical electromagnetic (EM) utility locating system consists of a transmitter unit and a receiver unit. The receiver unit can be used independently of the transmitter unit in order to detect utility lines with an inherent EM signature (electric utility lines, water lines, etc.). If needed a current at a specific frequency can also be placed on a utility that is being located. This can be done via the transmitter unit by either direct connection or induction via an EM field varying at specific frequency. The receiver unit is then set to the selected frequency and the electromagnetic field created by the current running through the utility can be located allowing the utility to be marked.

## GEOPHYSICAL METHODS

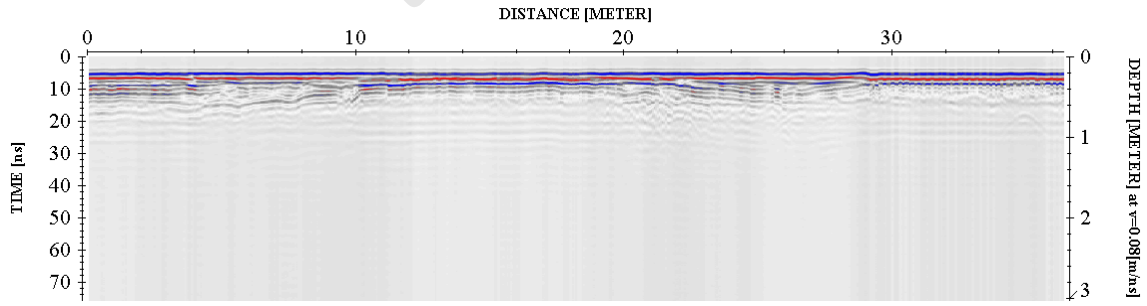
The project site was screened using GPR to search the specified area and inspected for reflections, which could be indicative of substructures and utilities within the subsurface. An EM utility locator was used to help determine the locations of utilities within the survey area.

EM data was collected and interpreted on site and suspected utilities marked as needed. GPR data profiles were collected for the areas of the Site specified by the client and processed as specified below.

## DATA PROCESSING

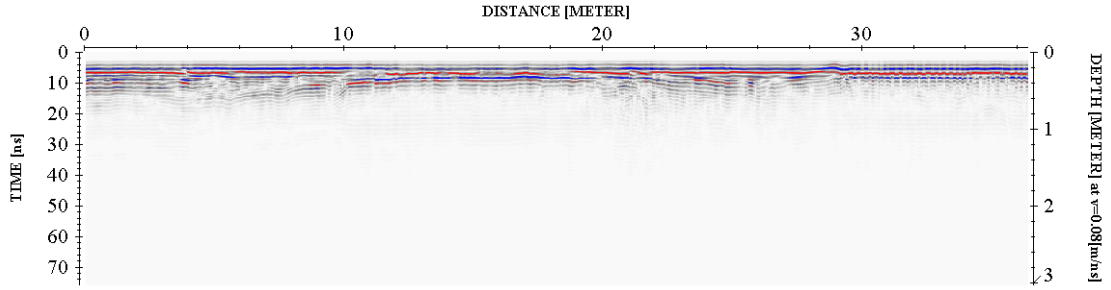
To improve the quality of the results and to better identify anomalies NOVA processed the collected data. The processing workflow is briefly described in this section.

**Step 1.** Import Raw RAMAC data to standard processing format

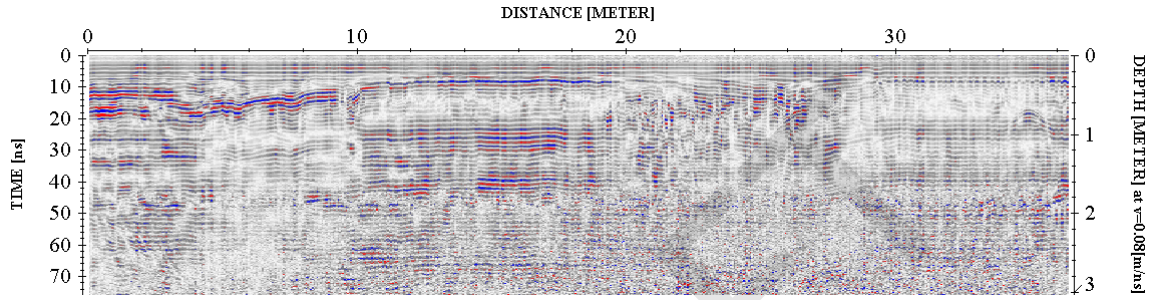



DRAFT

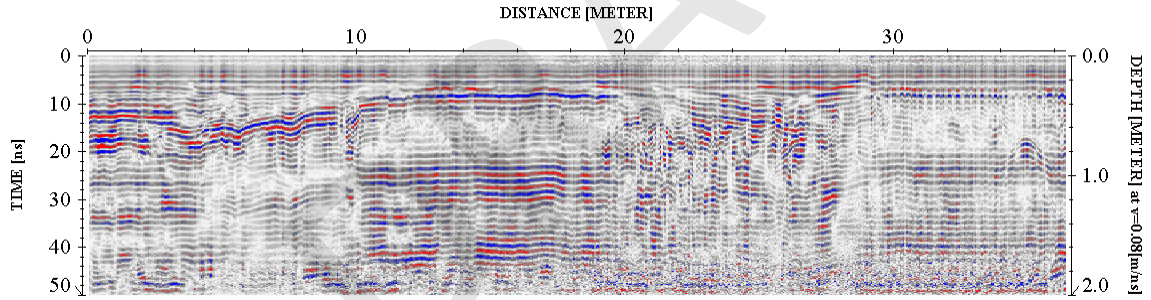
**Step 2.** Remove instrument noise *(dewow)*



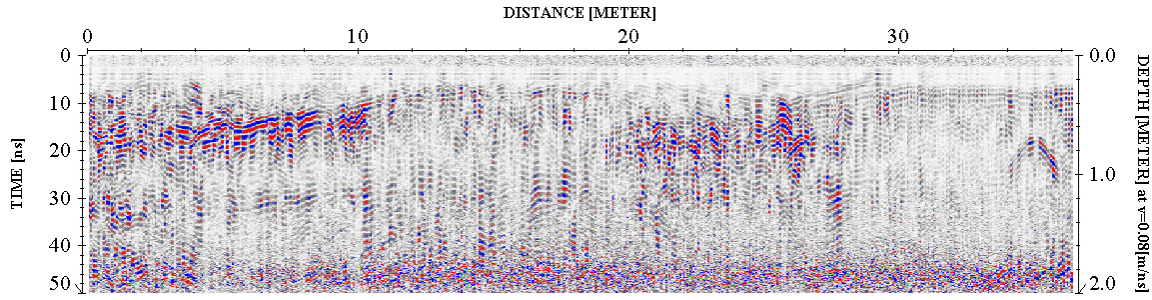

**Step 3.** Correct for attenuation losses *(energy decay function)*




**Step 4.** Remove static from bottom of profile *(time cut)*




**Step 5.** Mute horizontal ringing/noise *(subtracting average)*




The above example shows the significance of data processing. The last image (step 5) has higher resolution than the starting image (raw data – step 1) and represents the subsurface anomalies much more accurately.

## PHYSICAL SETTINGS

NOVA observed the following physical conditions at the time of the survey.

**Weather:** Sunny

**Temperature:** 75° F

**Surface:** Concrete

**Survey Parameters:** A GPR grid scan was conducted within the survey areas as shown on the survey plan. The approximate line spacing of the grid survey was approximately 5'. Additional GPR data was collected over features of interest.

**Limitations:** The geophysical noise level (GNL) at the site was high due to being in an urban environment and other unknown anthropogenic noise sources.

## RESULTS

The results of the geophysical engineering survey (GES) identified the following at the project site:

- Anomalies resembling potential subsurface utilities (such as electric, water, telecom, gas, and sewer) were identified within the survey area. The approximate locations are shown in the survey plan.
- The GES did not identify any major anomalies consistent with any underground storage tanks (USTs) at the project area.
- Then GES confirmed that all identified floor drains are interconnected with their final destination to the public sewer located on Wallabout Street.
- NOVA cleared and marked all proposed boring locations.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

**NOVA Geophysical Services**

Levent Eskicakit, P.G., E.P.
Project Manager

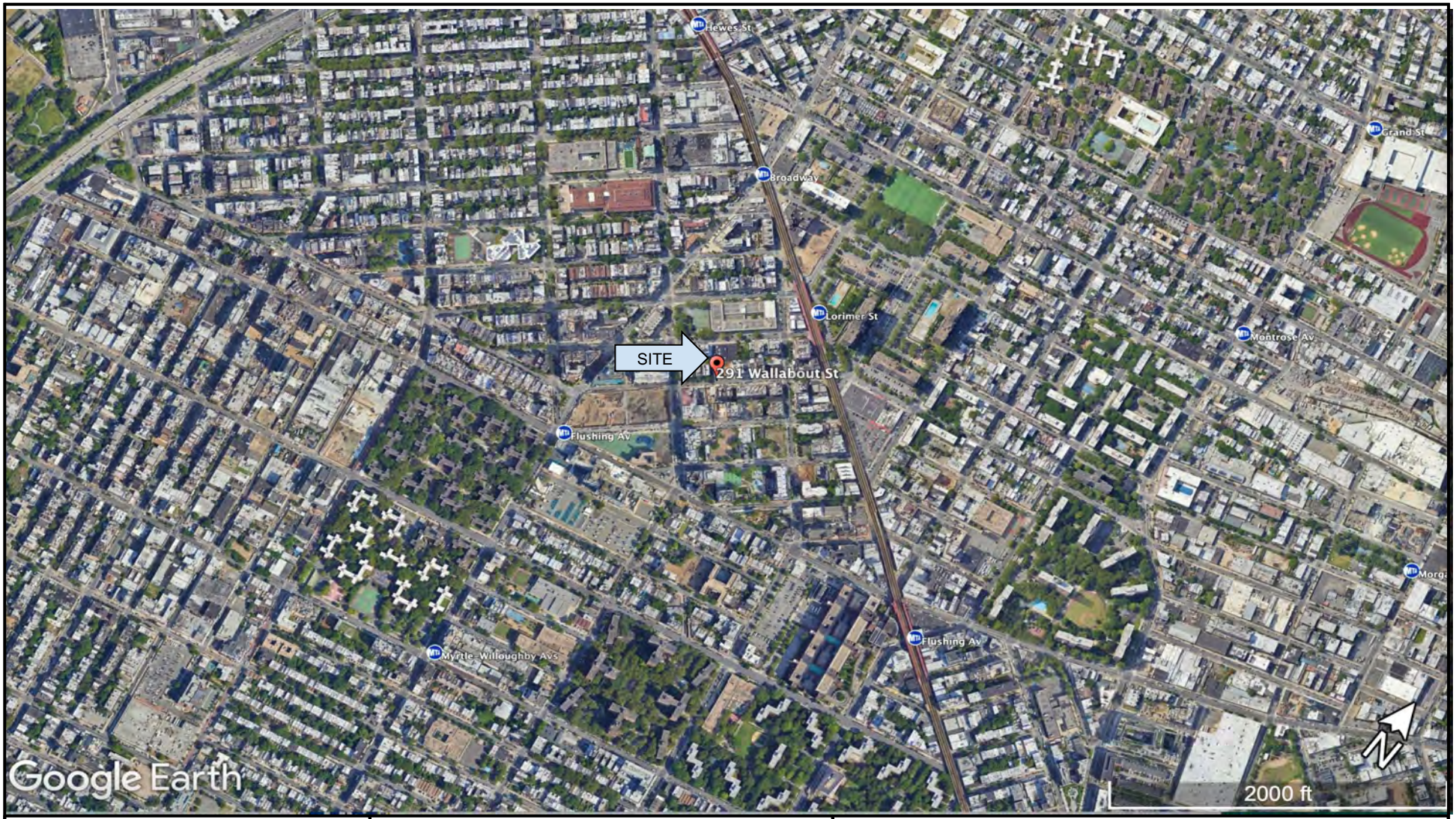
**Attachments:**

Location Map
Survey Plan
Geophysical Images

DRAFT

SITE FIGURES AND IMAGES

DRAFT

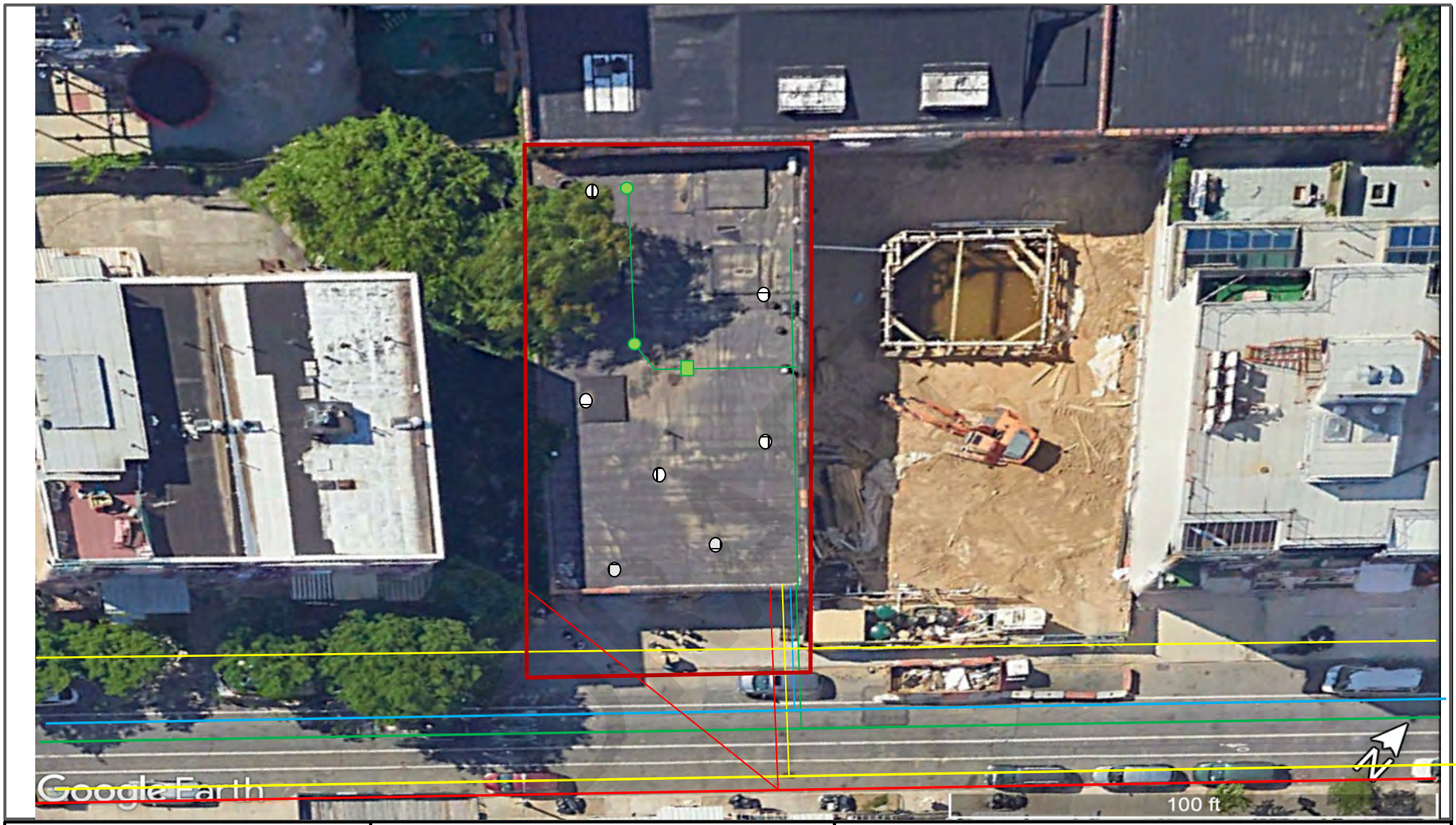



**NOVA**
Geophysical Services
**Subsurface Mapping Solutions**
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

## Location Map

| | |
|---|---|
| SITE: | **Commercial Property**<br>291 Wallabout Street,<br>Brooklyn, NY, 11206 |
| CLIENT: | Haley & Aldrich |
| DATE: | June 5, 2024 |
| AUTH: | Jason Staunton |

## LEGEND




**NOVA**
Geophysical Services
**Subsurface Mapping Solutions**
56-01 Marathon Parkway, # 765
Douglaston, New York 11362
Phone (347) 556-7787 * Fax (718) 261-1527
www.novagsi.com

## SURVEY PLAN

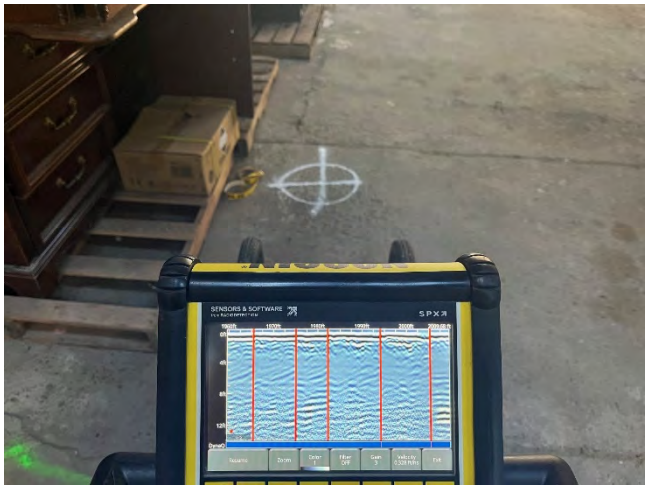
| | |
|---|---|
| SITE: | **Commercial Property**<br>291 Wallabout Street<br>Brooklyn, New York 11373 |
| DATE: | June 5, 2024 |
| AUTH: | Jason Staunton |

## LEGEND

- Survey Area
- Water
- Electric
- Sewer
- Gas
- Floor Drain
- Roof Drain
- Proposed Boring Location

GEOPHYSICAL IMAGES

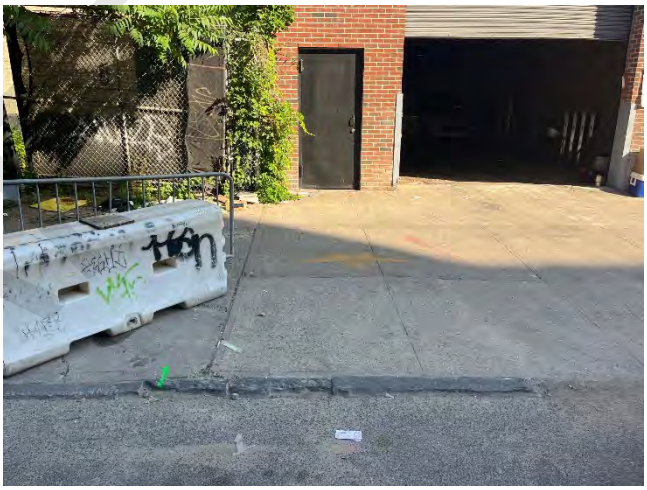
291 Wallabout Street Brooklyn,
New York, 11206, June 4th, 2024


SENSORS & SOFTWARE
SPX

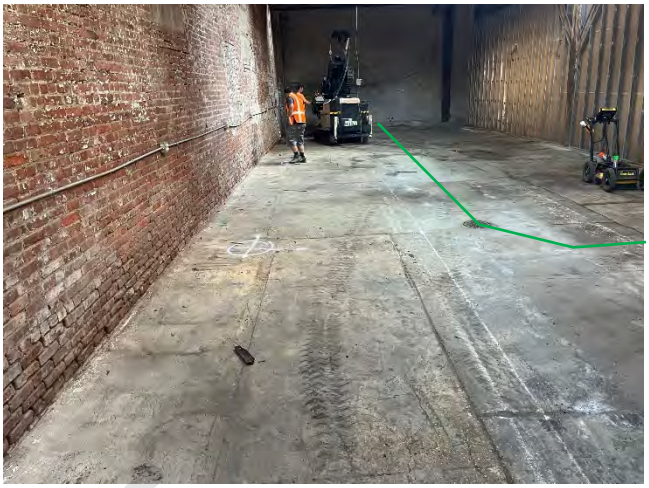
SENSORS & SOFTWARE
SPX

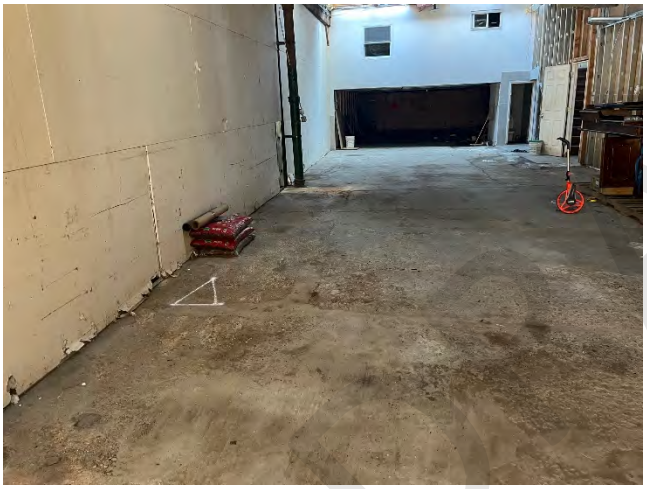
SENSORS & SOFTWARE
SPX

DRAFT

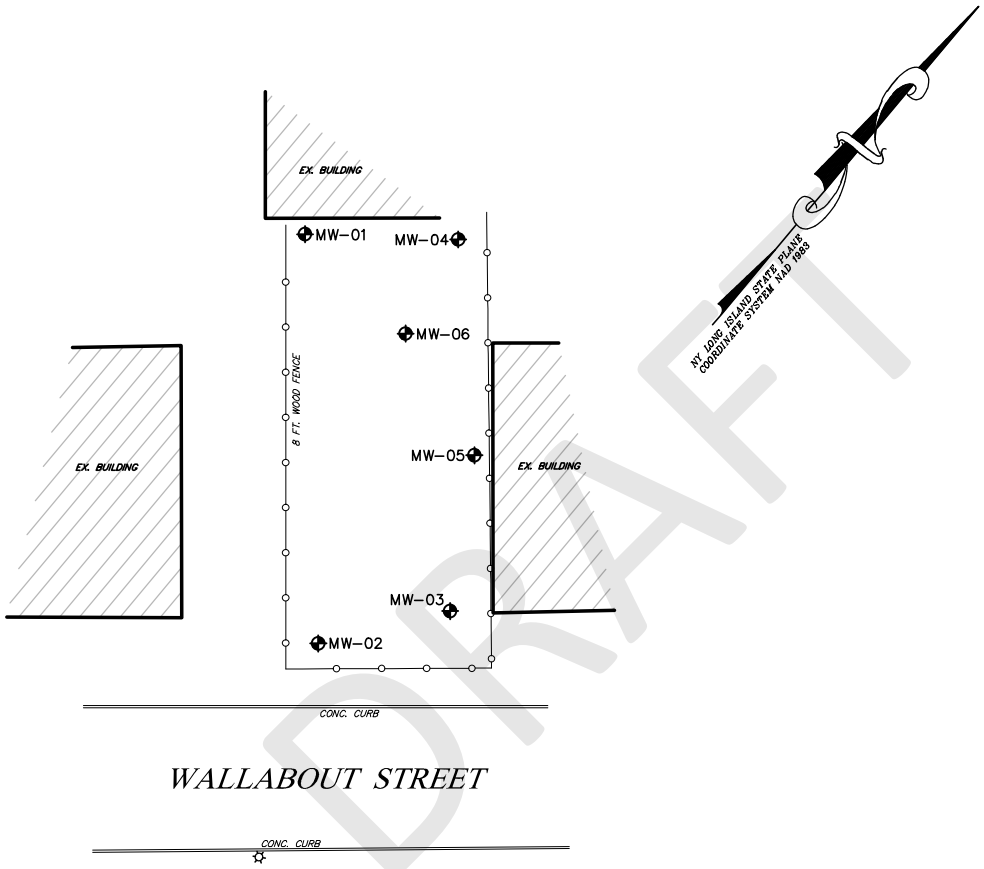


DRAFT





DRAFT




DRAFT

| MONITORING WELLS | GROUND | PVC |
|---|---|---|
| MW-01 | 11.91 CONC | 15.16 RISER |
| MW-02 | 12.09 CONC | 15.49 RISER |
| MW-03 | 11.97 CONC | 16.57 RISER |
| MW-04 | 12.09 CONC | 16.23 RISER |
| MW-05 | 12.14 CONC | 17.08 RISER |
| MW-06 | 12.14 CONC | 16.17 RISER |

NOTE: NO OUTER CASING (RIM) OBSERVED AT THE TIME OF THE FIELD SURVEY.

NOTES:

1. FIELD WORK PERFORMED ON MARCH 27, 2025.
2. ELEVATION DATUM NAVD 1988 DERIVED USING RTK/KEYNET. NYBR BROOKLYN PIER CORS ARP ELEV.=42.13'(NAVD 88)

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.

GRAPHIC SCALE

30 0 15 30

( IN FEET )
1 inch = 30 ft.

STATE OF NEW YORK
JAMES J. HEISER
LICENSED LAND SURVEYOR
20934

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

DATE 03/28/2025

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

| Date: 03/28/2025 | Dr.: R.M. | Chk.: C.S. | SCALE: 1" = 30' | JOB No. 25-10589 | Dwg: 25-10589 MW00 |
|---|---|---|---|---|---|

DPK LAND SURVEYING
DPK LAND SURVEYING, LLC
200 METROPLEX DRIVE - STE. 285, EDISON, NJ 08817
P: 732-764-0188 F: 732-764-0990
NEW YORK CERTIFICATE OF AUTHORIZATION NO. 0012585

# MONITORING WELL LOCATION MAP

FOR:
HALEY & ALDRICH, INC.

SITE:
291 WALLABOUT STREET
BROOKLYN, NEW YORK

S:_Projects\2025\25-10589\CAD\25-10589 MW00.dwg Apr 01, 2025 - 9:48am BY:(RogerMaandal)

**DPK LAND SURVEYING**
**200 Metroplex Drive Suite-285 Edison, New Jersey 08817**
**Telephone: 732.764.0100 Fax: 732.764.0990 Email: Jheiser@dpkconsulting.net**

**For: HALEY & ALDRICH, INC.**
**Site: 291 WALLABOUT STREET, BROOKLYN, NEW YORK**

**Date of Survey: MARCH 27, 2025**

**Project #25-10589** **March 28, 2025**

**Horizontal Datum: N.Y. LONG ISLAND STATE PLANE COORDINATE SYSTEM (NAD 83)**
**Vertical Datum: NAVD 88**

**BENCHMARK: NYBR BROOKLYN PIER CORS ARP ELEV.=42.13' (NAVD 88)**

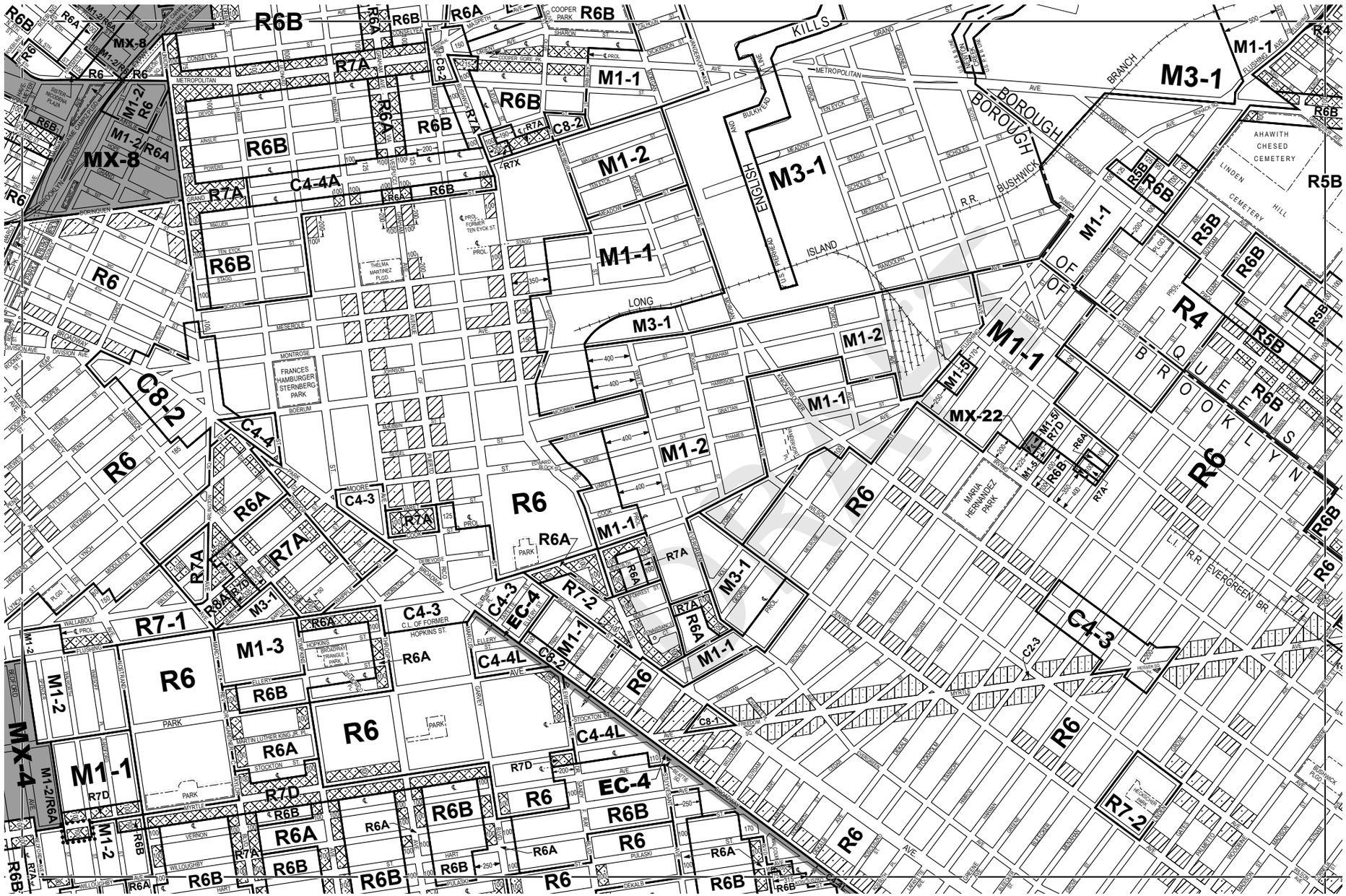
**Additional Information: NO OUTER CASING (RIM) OBSERVED AT THE TIME OF THE FIELD SURVEY.**

| | ELEVATIONS | | COORDINATES | | | |
|---|---|---|---|---|---|---|
| MONITORING WELLS | GROUND | PVC | NORTHING | EASTING | LATITUDE (N) | LONGITUDE (W) |
| MW-01 | 11.91 CONC | 15.16 RISER | 195145 | 998559 | 40°42'08.26" | 73°56'54.22" |
| MW-02 | 12.09 CONC | 15.49 RISER | 195072 | 998624 | 40°42'07.53" | 73°56'53.37" |
| MW-03 | 11.97 CONC | 16.57 RISER | 195098 | 998644 | 40°42'07.79" | 73°56'53.12" |
| MW-04 | 12.09 CONC | 16.23 RISER | 195168 | 998588 | 40°42'08.48" | 73°56'53.84" |
| MW-05 | 12.14 CONC | 17.08 RISER | 195131 | 998624 | 40°42'08.11" | 73°56'53.37" |
| MW-06 | 12.14 CONC | 16.17 RISER | 195143 | 998593 | 40°42'08.23" | 73°56'53.78" |

DRAFT

DRAFT

# APPENDIX B
## Zoning Map

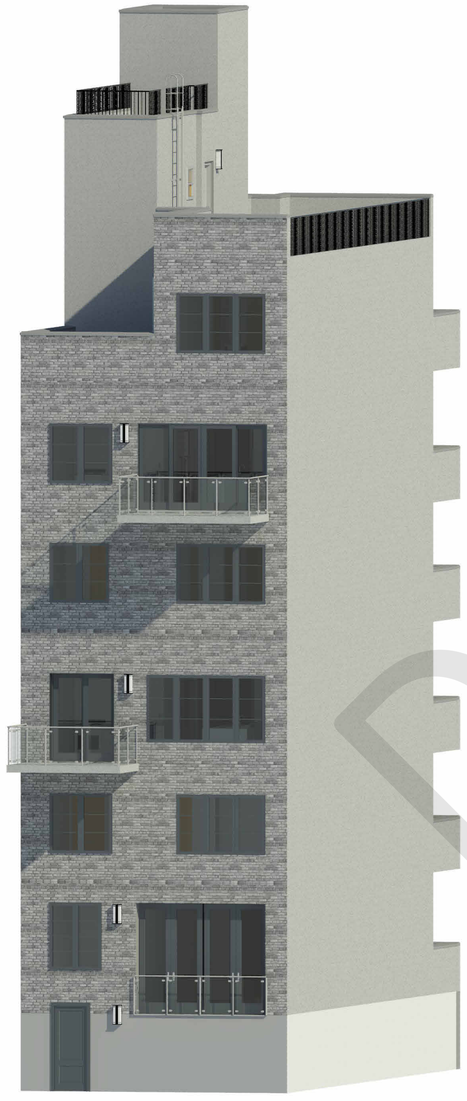

R6B
R6A
R6
MX-8
M1-2/R6
M1-2/R6A
R7A
C4-4A
R6B
R7X
C8-2
M1-1
M1-2
M3-1
R7-1
R8A/R7D
M3-1
C4-3
C4-3
C.L. OF FORMER HOPKINS ST.
EC-4
C4-4L
M1-3
M1-2
R6
R6A
R7D
R6B
R7A
EC-4
C8-2
C8-1
C2-3
C4-3
R7-2
MX-22
M1-5/R7D
M1-5/R6B
R4
R5B
R6B
M1-1
M3-1
R7-1
MX-4
M1-2/R6A
M1-1
R7D
M1-2
R6B
R6A
R7A
R6B
R6
R6A
R7A
R6B
R6
R6A
R6B
R6
R6B
R6
R6B
R6

# APPENDIX C
# Proposed Development Plans

DRAFT

# NB - 6 STORY & CELLAR RESIDENTIAL BUILDING

## 291 WALLABOUT STREET, BROOKLYN, NY



DRAFT

| SHEET LIST | | |
|---|---|---|
| 01 | T-001 | COVER SHEET |
| 02 | Z-001 | ZONING ANALYSIS |
| 03 | Z-002 | HEIGHT & SETBACK DIAGRAMS |
| 04 | Z-003 | HEIGHT & SETBACK DIAGRAMS CONT. |
| 05 | Z-004 | GROSS FLOOR AREA |
| 06 | Z-005 | DEDUCTION AREA DIAGRAMS |
| 07 | Z-006 | DEDUCTION AREA DIAGRAMS CONT. |
| 08 | Z-007 | FIRM FLOOD MAP |
| 09 | GN-001 | GENERAL NOTES |
| 10 | GN-002 | ADA COMPLIANCE DETAILS |
| 11 | GN-003 | ADA DETAILS CONTINUED |
| 12 | A-100 | CELLAR FLOOR PLAN |
| 13 | A-101 | FIRST FLOOR PLAN |
| 14 | A-102 | SECOND FLOOR PLAN |
| 15 | A-103 | THIRD FLOOR PLAN |
| 16 | A-104 | FOURTH FLOOR PLAN |
| 17 | A-105 | FIFTH FLOOR PLAN |
| 18 | A-106 | SIXTH FLOOR PLAN |
| 19 | A-107 | ROOF FLOOR PLAN |
| 20 | A-108 | TOP OF BUILDING PLAN |
| 21 | A-200 | EAST & WEST ELEVATION |
| 22 | A-201 | NORTH ELEVATION |
| 23 | A-202 | SOUTH ELEVATION |
| 24 | A-300 | LONGITUDINAL SECTION A |
| 25 | A-301 | LONGITUDINAL SECTION B |
| 26 | A-302 | CROSS SECTIONS |
| 27 | A-303 | 3D VIEWS |
| 28 | A-304 | SECTION DETAILS |
| 29 | A-305 | SECTION DETAILS CONT. |
| 30 | A-400 | WINDOW SCHEDULE |
| 31 | A-401 | DOOR SCHEDULE |
| 32 | A-500 | WALL TYPES & DETAILS |
| 33 | RCP-001 | REFLECTED CEILING PLANS |
| 34 | RCP-002 | REFLECTED CEILING PLANS CONT. |
| 35 | RCP-003 | R.C.P. NOTES |
| 36 | EN-001 | ENERGY INSPECTION COMPLIANCE |
| 37 | EN-002 | EAST FENESTRATION AREA |
| 38 | EN-003 | WEST FENESTRATION AREA |
| 39 | EN-004 | NORTH FENESTRATION AREA |
| 40 | EN-005 | SOUTH FENESTRATION AREA |
| 41 | EN-006 | EXPOSED AREA DIAGRAMS |
| 42 | EN-007 | COMCHECK ANALYSIS |
| 43 | EN-008 | COMCHECK COMPLIANCE |

| APPLICATION TO BE FILED SEPARATELY / SUBSEQUENTLY | | |
|---|---|---|
| 01 | STRUCTURAL | DOB # |
| 02 | FO/EA | DOB # |
| 03 | SOE | DOB # |
| 04 | FENCE | DOB # |
| 05 | MECHANICAL | DOB # |
| 06 | PLUMBING | DOB # |
| 07 | SPRINKLER | DOB # |
| 08 | FIRE ALARM | DOB # |
| 09 | BPP | DOB # |
| 10 | DEMOLITION | DOB # |

ITEMS SUBJECT TO CONTROLLED INSPECTION THE FOLLOWING PROCEDURES SHALL BE SUBJECT TO SPECIAL INSPECTIONS:

| SPECIAL INSPECTIONS | |
|---|---|
| ALTERNATIVE MATERIALS - OTCR BB 2015-15 | BC 1704.14 |
| FIRE-RESISTANT PENETRATION AND JOINTS | BC 1704.27 |

| PROGRESS INSPECTIONS | |
|---|---|
| ENERGY CODE COMPLIANCE INSPECTION TR8 | BC 110.3.5 |
| FIRE RESISTANCE RATED CONSTRUCTION | BC 110.3.4 |

| ENERGY CODE PROGRESS INSPECTION: TR-8 | |
|---|---|
| PROTECTION OF EXPOSED FOUNDATION INSULATION | (IIA1) |
| INSULATION PLACEMENT AND R VALUES | (IIA2) |
| FENESTRATION AND DOOR U-FACTOR AND PRODUCT RATINGS | (IIA3) |
| FENESTRATION AIR LEAKAGE | (IIA4) |
| FENESTRATION AREAS | (IIA5) |
| AIR BARRIER - VISUAL INSPECTION | (IIA6) |
| AIR BARRIER - TESTING | (IIA7) |
| METERING | (IIC1) |
| LIGHTING IN DWELLING UNITS | (IIC2) |
| INTERIOR LIGHTING POWER | (IIC3) |
| EXTERIOR LIGHTING POWER | (IIC4) |
| LIGHTING CONTROLS | (IIC5) |
| MAINTENANCE INFORMATION | (IID1) |

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:

B01127089-I1

DRAWING TITLE:

COVER SHEET

DRAWING NO.:

T-001.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 01 OF 43 |

# PROJECT INFORMATION: 291 WALLABOUT STREET, BROOKLYN, NY 11206

**BOROUGH:** BROOKLYN
**BLOCK:** 2250 **LOT:** 46
**ZONING:** R7A INCLUSION HOUSING ZONE
**COMMERCIAL OVERLAY:** NONE
**CONSTRUCTION CLASS:** I-B

**COMMUNITY BOARD:** 301
**USE GROUP:** 2
**ZONING MAP:** 16c
**OCCUPANCY GROUP:** R-2
**MULTIPLE DWELLING CLASS:** HAEA

**SCOPE OF WORK:**
PROPOSED 6 STORY & CELLAR RESIDENTIAL BUILDING.
TOTAL OF 3 DWELLING UNITS.

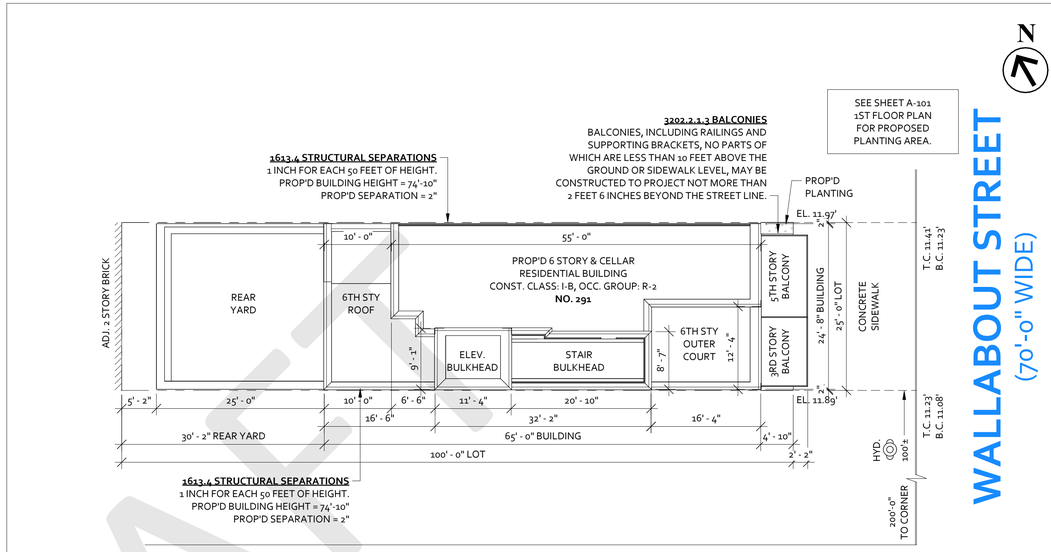
**LOT AREA:** 2,500 SF
**CONSTRUCTION GROSS FLOOR AREA:** 10,565.43 SF

| ZONING ANALYSIS | | | |
|---|---|---|---|
| | **ITEM** | **PERMITTED / REQUIRED** | **PROPOSED** |
| ZR 22-12 | USE PERMITTED | USE GROUP 2 | USE GROUP 2 |
| ZR 23-154 (b) | R7A FLOOR AREA RATIO INCLUSIONARY HOUSING | 3.45 FLOOR AREA RATIO (QUALITY HOUSING)<br>LOT AREA: 2,500 SF x 3.45 = 8,625 SF MAX ALLOWABLE FLOOR AREA<br>(SEE SHEET Z-002 FOR LOT AREA CALCULATIONS) | |

| | PROPOSED | DEDUCTED | NET AREA |
|---|---|---|---|
| CELLAR | 1,603.33 SF | 1,603.33 SF | 0.00 SF |
| 1ST FLOOR | 1,516.67 SF | 209.51 SF | 1,307.16 SF |
| 2ND FLOOR | 1,516.67 SF | 16.51 SF | 1,500.16 SF |
| 3RD FLOOR | 1,516.67 SF | 16.51 SF | 1,500.16 SF |
| 4TH FLOOR | 1,516.67 SF | 17.72 SF | 1,498.95 SF |
| 5TH FLOOR | 1,516.67 SF | 16.51 SF | 1,500.16 SF |
| 6TH FLOOR | 1,093.99 SF | 17.72 SF | 1,076.27 SF |
| BULKHEAD | 284.76 SF | 284.76 SF | 0.00 SF |
| TOTAL GROSS AREA = 10,565.43 SF | | | |
| TOTAL DEDUCTIONS = 2,182.57 SF | | | |
| TOTAL NET AREA = 8,382.86 SF | | | |
| LOT AREA = 2,500.00 SF | | | FAR = 3.35 |
| 3.35 < 3.45 PERMITTED FAR, THEREFORE OK | | | |

| | | | |
|---|---|---|---|
| ZR 23-153 | LOT COVERAGE | MAX LOT COVERAGE: 65%<br>0.65 x 2,500 = 1,625 SF | PROPOSED LOT COVERAGE: 1603.33 SF = 64.13%<br>64.13% < 65% PERMITTED THEREFORE OK.<br>SEE LOT COVERAGE DIAGRAM ON SHEET Z-002 |
| ZR 23-22 | DENSITY | 8,625 SF (FA) /680 (FACTOR) = 12.7 = 12 UNITS MAX | 3 D.U. PROPOSED THEREFORE OK |
| ZR 23-32 | MINIMUM LOT AREA | 1,700 SF | 2,500 SF > 1,700 SF THEREFORE OK |
| ZR 23-32 | MINIMUM LOT WIDTH | 18 FT | 25'-0" > 18'-0" THEREFORE OK |
| ZR 23-132 | BALCONIES | NOT PROJECT GREATER THAN SEVEN FEET FROM THE BUILDING WALL.<br>AT OR HIGHER THAN THE THIRD STORY OF A BUILDING OR AT LEAST 20 FEET ABOVE CURB.<br>BALCONY WIDTH NOT EXCEEDING 50 PERCENT OF THE BUILDING WALL | PROPOSED BUILDING WIDTH: 24'-8" / 2 = 12'-4" PERMITTED<br>PROPOSED BALCONIES WIDTH: 12'-4"<br>PROPOSED BALCONY PROJECTION: 7'-0", THEREFORE OK |
| **YARDS** | | | |
| ZR 23-45 | FRONT YARD | NO FRONT YARD REQUIRED | 4'-10" PROPOSED THEREFORE OK |
| ZR 23-462(c) | SIDE YARD | 0'-0" OR 8'-0" | NONE PROPOSED THEREFORE OK |
| ZR 23-47 | REAR YARD | 30'-0" | 30'-2" PROPOSED THEREFORE OK |
| ZR 23-841 (b) | NARROW OUTER COURT | IF AN OUTER COURT IS LESS THAN 30 FEET WIDE, THE WIDTH OF SUCH OUTER COURT SHALL BE AT LEAST EQUAL TO THE DEPTH OF SUCH OUTER COURT.<br>HOWEVER, THE DEPTH OF AN OUTER COURT MAY EXCEED ITS WIDTH IN A SMALL OUTER COURT, PROVIDED THAT: (1) NO LEGALLY REQUIRED WINDOWS SHALL FACE ONTO SUCH SMALL OUTER COURT. (2) SUCH SMALL OUTER COURT IS LOCATED ABOVE THE LEVEL OF THE FIRST STORY. (3) THE AREA OF SUCH SMALL OUTER COURT SHALL NOT BE LESS THAN 200 SQUARE FEET AND NO DIMENSION SHALL BE LESS THAN 10 FEET. | PROP'D OUTER COURTS:<br>AT 6TH STORY: 12'-4" WIDTH x 16'-4" DEPTH<br>(1) NO LEGALLY REQ. WINDOWS FACE ONTO OUTER COURT.<br>(2) OUTER COURT LOCATED AT 6TH STORY.<br>(3) AREA OF OUTER COURT 12'-4" x 16'-4" = 201 SF,<br>WITH NO DIMENSION LESS THAN 10 FEET.<br>THEREFORE OK, SEE PLOT PLAN ON THIS SHEET. |
| ZR 23-861 | LEGALLY REQ. WINDOWS | 30'-0" TO LOT LINE | 30'-2" PROPOSED THEREFORE OK |
| **HEIGHT AND SETBACK** | | | |
| ZR 23-661 (a) (1) | STREET WALL LOCATION | THE STREET WALL SHALL BE LOCATED NO CLOSER TO THE STREET LINE THAN THE CLOSEST STREET WALL, OR PORTION THEREOF, OF AN EXISTING ADJACENT BUILDING ON THE SAME OR AN ADJOINING ZONING LOT LOCATED ON THE SAME STREET FRONTAGE. | ADJACENT BUILDING 4'-10" FROM STREET LINE<br>PROPOSED 4'-10" FROM STREET LINE<br>THEREFORE OK |
| ZR 23-662 (a) | MINIMUM BASE HEIGHT | 40'-0" | 64'-1" PROPOSED THEREFORE OK |
| | MAXIMUM BASE HEIGHT | 65'-0" | 64'-1" PROPOSED THEREFORE OK |
| | MAXIMUM BUILDING HEIGHT | 80'-0" | 74'-10" PROPOSED THEREFORE OK |
| ZR 23-662 (c) (1) | SETBACK ABOVE MAXIMUM BASE HEIGHT (NARROW STREET) | 15'-0"<br>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 BE PROVIDED. | STREET WALL IS LOCATED 4'-10" BEYOND STREET LINE<br>15'-0" - 4'-10" = 10'-2" MIN. SETBACK REQUIRED<br>10'-2" PROPOSED SETBACK ABOVE MAX BASE HEIGHT<br>THEREFORE OK |
| ZR 23-621 (c) (1) | PERMITTED OBSTRUCTIONS DORMERS | 60% OF STREET WALL, FOR EACH FOOT OF HEIGHT ABOVE BASE HEIGHT, DORMER SHALL BE DECREASED BY 1% OF STREET WALL. | STREET WALL: 24'-8" x 60% = 14'-8"<br>9'-10" ABOVE BASE HEIGHT: 60% - 9.8% = 50.2% = 12'-4"<br>12'-4" MAX DORMER WIDTH, PROPOSED: 12'-4"<br>THEREFORE OK, SEE SHEET Z-002. |
| ZR 23-622 (c) | PERMITTED OBSTRUCTIONS ELEVATOR OR STAIR BULKHEADS AND ACCESSORY MECHANICAL EQUIPMENT (INCLUDING ENCLOSURES) | (1) SUCH OBSTRUCTIONS SHALL BE LOCATED NOT LESS THAN 10 FEET FROM THE STREET WALL OF A BUILDING. (2) AGGREGATE AREA DOES NOT EXCEED 50 PERCENT OF THE LOT COVERAGE OF THE BUILDING. (3) THE HEIGHT OF OBSTRUCTIONS WITHIN AN AGGREGATE AREA EQUIVALENT TO AT LEAST 20 PERCENT OF THE LOT COVERAGE OF THE BUILDING SHALL NOT EXCEED 15 FEET ABOVE THE MAXIMUM PERMITTED HEIGHT; (4) THE HEIGHT OF OBSTRUCTIONS WITHIN THE REMAINING LOT COVERAGE, NOT TO EXCEED 30 PERCENT OF THE BUILDING SHALL NOT EXCEED: A HEIGHT OF 35 FEET ABOVE THE MAXIMUM PERMITTED HEIGHT. (5) ALL MECHANICAL EQUIPMENT SHALL BE SCREENED ON ALL SIDES. | PROP'D BULKHEADS ARE 16'-2" FROM STREET WALL.<br>PROP'D MAX HEIGHT OF BULKHEAD IS 17'-9".<br>NO MECHANICALS PROPOSED ON BULKHEAD.<br>PROPOSED BULKHEAD LOT COVERAGE:<br>284.76 SF (SEE SHEET Z-004)<br>BUILDING L.C. 1,603.33 SF * .20% = 320.66 SF<br>284.76 < 320.66 SF THEREFORE OK |
| **PARKING REQUIREMENTS** | | | |
| ZR 25-025<br>ZR 25-241<br>ZR 28-40 | REDUCED PARKING REQUIREMENTS FOR SMALL ZONING LOTS | 30% OF DWELLING UNITS:<br>PROPOSED 3 UNITS X 30% = 1 PARKING SPACE REQUIRED | NONE PROPOSED, WAIVED PER SEC. 25-261 |
| ZR 25-811 | BICYCLE PARKING | 1 PER 2 DWELLING UNITS: 3 UNITS /2 = 1.5 = 2 BICYCLE PARKING REQUIRED | NONE PROPOSED, WAIVED PER SEC. 25-811 (a)<br>BUILDINGS CONTAINING 10 DWELLING UNITS OR LESS |
| ZR 25-03 | STREET TREE PLANTING | 1 PER 25' OF STREET FRONTAGE:<br>25' STREET FRONTAGE = 1 TREE REQUIRED | 1 REQUIRED. 1 TREE TO BE PAID INTO TREE FUND<br>TO BE PLANTED OFF-SITE. |

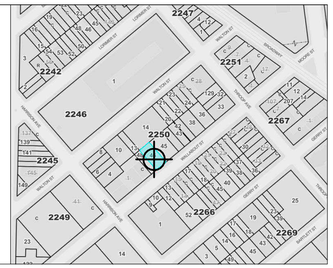
| ZR 28-00 QUALITY HOUSING REQUIREMENTS | | |
|---|---|---|
| | REGULATIONS | CONFORMING CONDITIONS |
| ZR 28-11 | ELEVATED GROUND FLOOR UNITS | PROPOSED 1ST FLOOR IS 7'-1" ABOVE CURB LEVEL, 500 SF MAY BE EXCLUDED FROM BUILDING FLOOR AREA. PROP'D 221.88 SF DEDUCTED FROM ENTRYWAY.<br>SEE DEDUCTION CALCULATION ON SHEET Z-005. |
| ZR 28-12 | REFUSE DISPOSAL ROOM - REQ'D FOR 9 UNIT AND MORE | PROP'D 3 UNITS, REFUSE STORAGE AND DISPOSAL ROOM NOT REQUIRED. |
| ZR 28-13 | LAUNDRY FACILITY 1 WASHING PER 20 UNITS, 1 DRYER PER 40 UNITS | PROP'D 3 UNITS, LAUNDRY FACILITY NOT REQUIRED. |
| ZR 28-14 | DAYLIGHT IN CORRIDORS | 50% OF THE SQUARE FOOTAGE OF A CORRIDOR MAY BE EXCLUDED FROM THE FLOOR AREA IF WINDOW IS PROVIDED. REFER TO DEDUCTION DIAGRAMS ON Z-005. |
| ZR 28-21 | REQUIRED RECREATION SPACE OF 3.3% OF RESIDENTIAL FLOOR AREA WITH 9 OR MORE DWELLING UNITS. | PROP'D 3 UNITS, RECREATION SPACE NOT REQUIRED. |
| ZR 28-23 | PLANTING AREA - BETWEEN STREET LINE AND STREET WALL | PLANTING AREA PROPOSED BETWEEN STREET LINE AND STREET WALL, SEE SHEET A-101. |
| ZR 28-31 | DENSITY PER CORRIDOR - 11 UNITS PER CORRIDOR<br>FIFTY PERCENT OF THE SQUARE FOOTAGE OF A CORRIDOR MAY BE EXCLUDED FROM F.A. IF NOT EXCEEDING THE MAX. | CORRIDORS ARE SERVING LESS THAN 11 UNITS PER FLOOR.<br>REFER TO DEDUCTION DIAGRAMS ON Z-005. |
| ZR 28-40 | PARKING FOR QUALITY HOUSING | NONE PROP'D, WAIVED PER SEC. 25-261 |



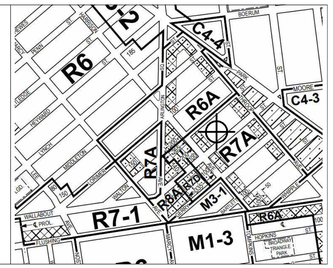

1 SITE PLAN
3/32" = 1'-0"

| |
|---|
| BASE PLANE: 11.89' + 11.97' = 23.86 /2 = 11.93' |
| 1 TREE TO BE PAID INTO TREE FUND AND TO BE PLANTED OFF SITE. |
| PROPOSED BUILDING HAS NO CONFLICT WITH SUBWAY LINES. |
| NO GAS PROPOSED IN BUILDING. |

TAX LOT MAP




ZONING MAP




| CONSTRUCTION CLASSIFICATION | TABLE 601<br>FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **BUILDING ELEMENT** | **TYPE I** | | **TYPE II** | | **TYPE III** | | **TYPE IV** | **TYPE V** | |
| | | **A** | **B** | **A** | **B** | **A** | **B** | **HT** | **A** | **B** |
| | PRIMARY STRUCTURAL FRAME (SEE SECTION 202) | 3 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| | BEARING WALLS<br>EXTERIOR<br>INTERIOR | 3<br>3 | 2<br>2 | 1<br>1 | 0<br>0 | 2<br>1 | 2<br>0 | 2<br>1/HT | 1<br>1 | 0<br>0 |
| | NONBEARING WALLS AND PARTITIONS EXTERIOR | TABLE 602 | | | | | | | | |
| | NONBEARING WALLS AND PARTITIONS INTERIOR | 0 | 0 | 0 | 0 | 0 | 0 | SEE SECTION 602.4.6 | 0 | 0 |
| | FLOOR CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202) | 2 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| | ROOF CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202) | 1 1/2 | 1 | 1 | 0 | 1 | 0 | HT | 1 | 0 |

2 CONST. CLASSIFICATION

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
ZONING ANALYSIS

DRAWING NO.:
Z-001.00

DATE: 4/3/2025
DRAWN BY: YR

SCALE: AS NOTED
SHEET NO.: 02 OF 43

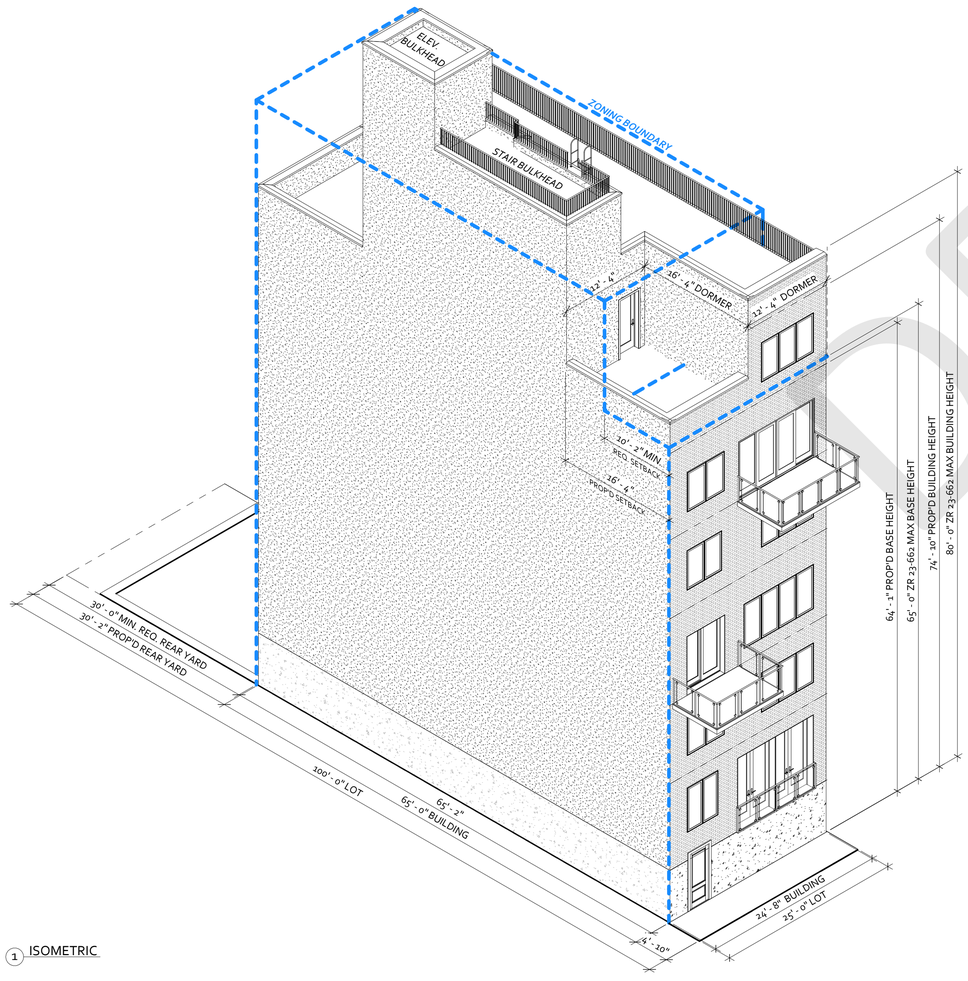
**23-62 PERMITTED OBSTRUCTIONS**
(g) ELEVATOR OR STAIR BULKHEADS
(3) SUCH OBSTRUCTIONS AND SCREENING ARE CONTAINED WITHIN A VOLUME THAT COMPLIES WITH ONE OF THE FOLLOWING: (ii) THE LOT COVERAGE OF ALL SUCH OBSTRUCTIONS DOES NOT EXCEED 20 PERCENT OF THE LOT COVERAGE OF THE BUILDING.
PROPOSED BUILDING LOT COVERAGE: 1,603.33 SF
PROPOSED BULKHEAD LOT COVERAGE: 284.76 SF
MAX ALLOWABLE: 1,603.33 X 20% = 320.67 SF
PROPOSED: 284.76 < 320.67 SF THEREFORE OK
(SEE SHEET Z-004 AREA DIAGRAM)

**DORMERS**
PROPOSED DORMER AS PER (ZR 23-621)
(c)(1) MAX WIDTH OF PROPOSED DORMER TO BE MAX 60% OF THE WIDTH OF STREET WALL OF THE HIGHEST STORY BELOW THE MAX BASE HEIGHT. FOR EACH FOOT OF DORMER HEIGHT ABOVE MAX BASE HEIGHT, THE AGGREGATE WIDTH OF ALL DORMERS SHALL BE DECREASED BY ONE PERCENT OF THE STREET WALL WIDTH OF THE HIGHEST STORY ENTIRELY BELOW THE MAX BASE HEIGHT.

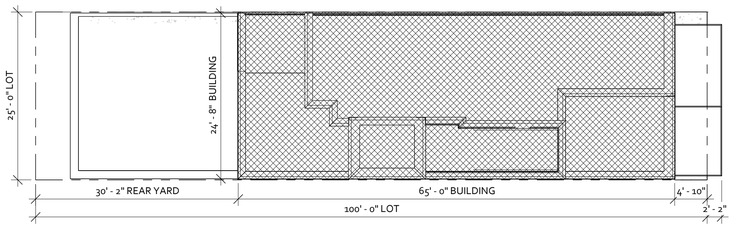
MAX BASE HEIGHT = 65'-0"
PROPOSED BUILDING HEIGHT = 74'-10"
WIDTH OF STREET WALL BELOW = 24'-8"
PROP'D DORMER HEIGHT ABOVE MAX BASE HEIGHT = 9'-10"

FOR EVERY FOOT OVER MAX BASE HEIGHT DEDUCT 1%:
9'-10" X 1% = 9.8%, 60% - 9.8% = 50.2%
THEN 24'-8" X 50.2% = 12'-4" (MAX DORMER WIDTH)

PROPOSED DORMER WIDTH: 12'-4"
12'-4" MAX PERMITTED, THEREFORE OK




1 ISOMETRIC




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

**ZR 23-153 MAXIMUM LOT COVERAGE**
R7A: 65% MAX LOT COVERAGE
**LOT AREA:** 25' x 100' = 2,500 SF
LOT: 2,500 SF x 65% = 1,625 SF
**LOT COVERAGE:** 65'-0" X 24'-8" = 1,603.33 SF
1,603.33 SF = 64.13% < 65% PERMITTED - OK

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

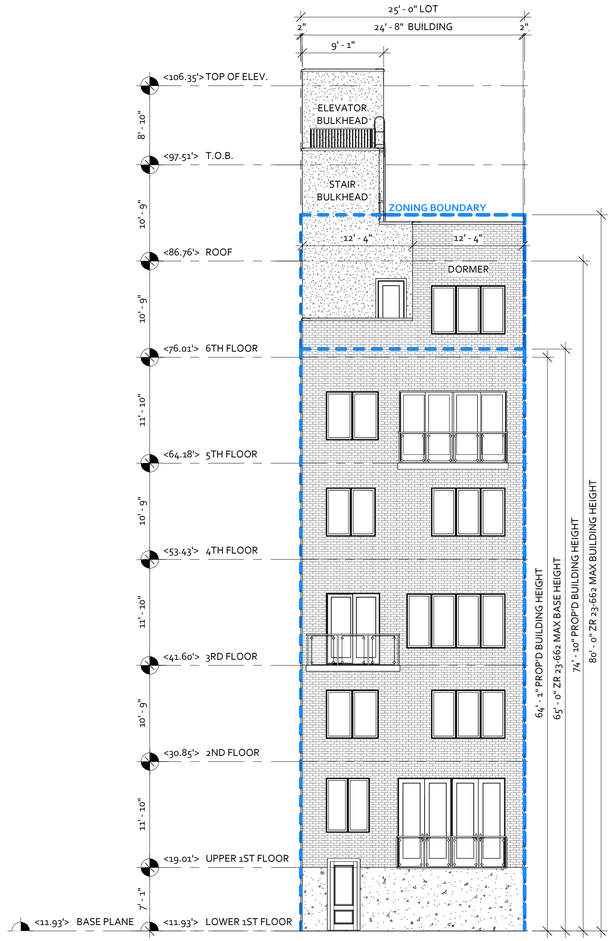
DRAWING TITLE:

## HEIGHT & SETBACK DIAGRAMS

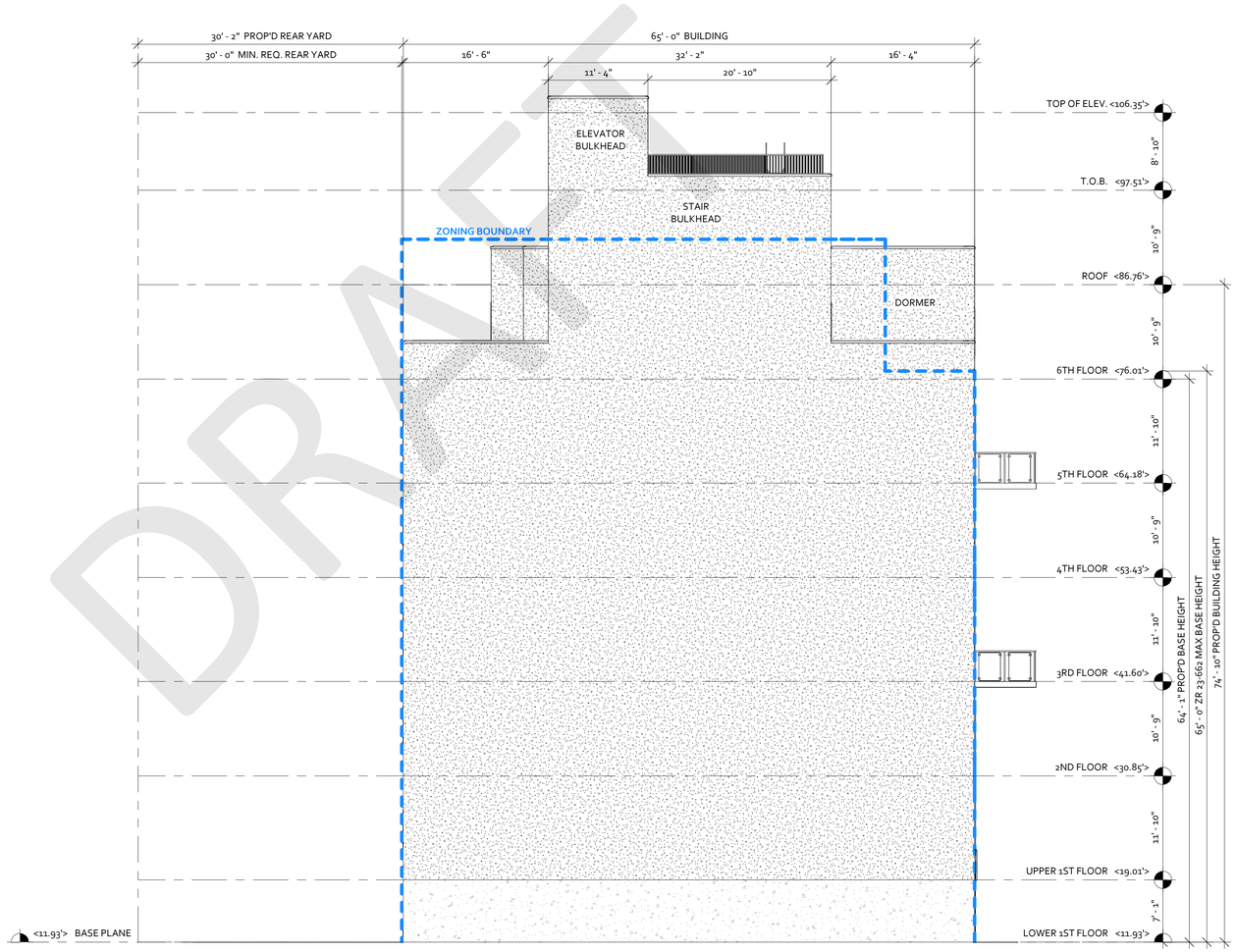
DRAWING NO.:
Z-002.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 03 OF 43 |




1 ZONING DIAGRAM FRONT




2 ZONING DIAGRAM SIDE

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:

B01127089-I1

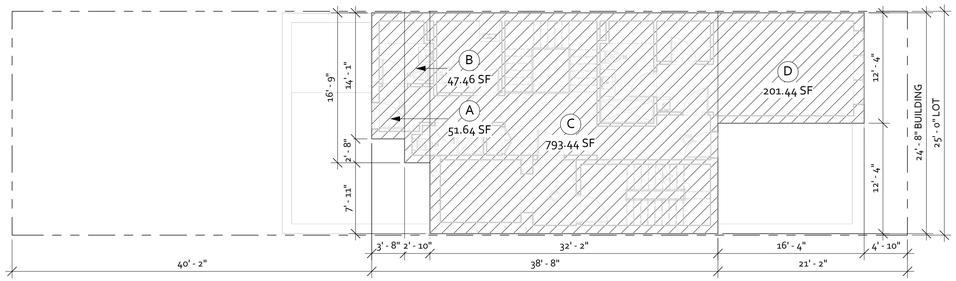
DRAWING TITLE:

# HEIGHT & SETBACK DIAGRAMS CONT.

DRAWING NO.:

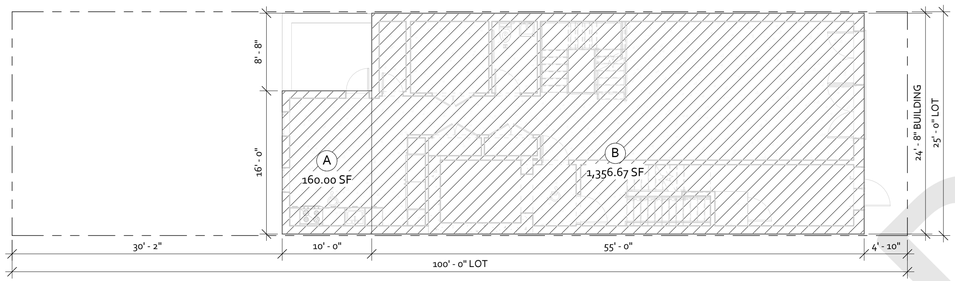
Z-003.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 04 OF 43 |



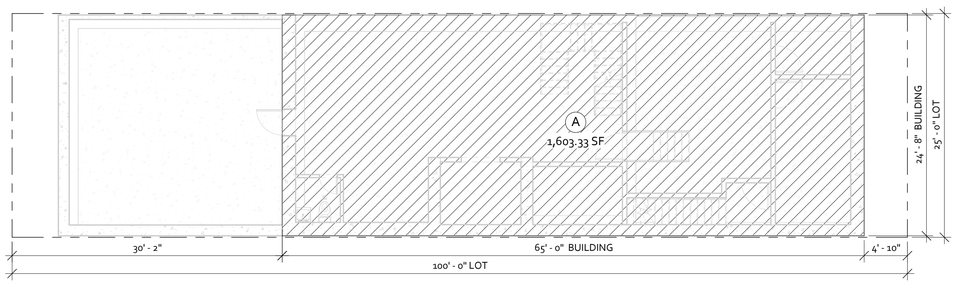

3 6TH GROSS FLOOR AREA
1/8" = 1'-0"

| 6TH GROSS FLOOR AREA | | |
|---|---|---|
| A | 3'-8" X 14'-1" | 51.64 SF |
| B | 2'-10" X 16'-9" | 47.46 SF |
| C | 32'-2" X 24'-8" | 793.44 SF |
| D | 16'-4" X 12'-4" | 201.44 SF |
| **TOTAL** | | **1,093.99 SF** |



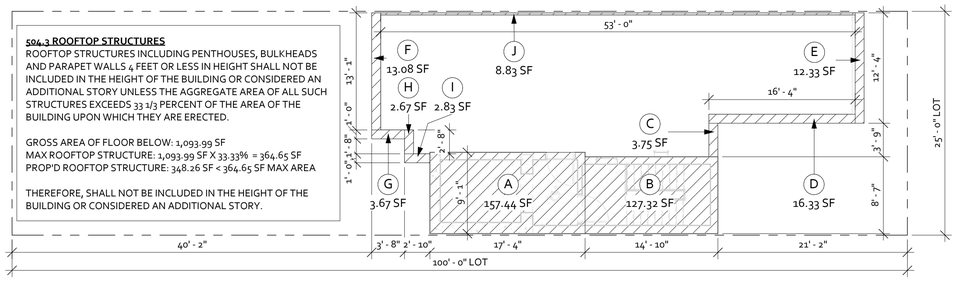

2 1ST THRU 5TH GROSS FLOOR AREA
1/8" = 1'-0"

| 1ST THRU 5TH GROSS FLOOR AREA | | |
|---|---|---|
| A | 10'-0" X 16'-0" | 160.00 SF |
| B | 55'-0" X 24'-8" | 1,356.67 SF |
| **TOTAL** | | **1,516.67 SF** |




1 CELLAR GROSS FLOOR AREA
1/8" = 1'-0"

| CELLAR GROSS FLOOR AREA | | |
|---|---|---|
| A | 65'-0" X 24'-8" | 1,603.33 SF |
| **TOTAL** | | **1,603.33 SF** |




**504.3 ROOFTOP STRUCTURES**
ROOFTOP STRUCTURES INCLUDING PENTHOUSES, BULKHEADS AND PARAPET WALLS 4 FEET OR LESS IN HEIGHT SHALL NOT BE INCLUDED IN THE HEIGHT OF THE BUILDING OR CONSIDERED AN ADDITIONAL STORY UNLESS THE AGGREGATE AREA OF ALL SUCH STRUCTURES EXCEEDS 33 1/3 PERCENT OF THE AREA OF THE BUILDING UPON WHICH THEY ARE ERECTED.

GROSS AREA OF FLOOR BELOW: 1,093.99 SF
MAX ROOFTOP STRUCTURE: 1,093.99 SF X 33.33% = 364.65 SF
PROP'D ROOFTOP STRUCTURE: 348.26 SF < 364.65 SF MAX AREA

THEREFORE, SHALL NOT BE INCLUDED IN THE HEIGHT OF THE BUILDING OR CONSIDERED AN ADDITIONAL STORY.

4 ROOF GROSS FLOOR AREA
1/8" = 1'-0"

| ROOFTOP STRUCTURES | | |
|---|---|---|
| A | 17'-4" X 9'-1" | 157.44 SF |
| B | 14'-10" X 8'-7" | 127.32 SF |
| C | 1'-0" X 13'-9" | 3.75 SF |
| D | 1'-0" X 16'-4" | 16.33 SF |
| E | 1'-0" X 12'-4" | 12.33 SF |
| F | 1'-0" X 13'-1" | 13.08 SF |
| G | 3'-8" X 1'-0" | 3.67 SF |
| H | 1'-0" X 2'-6" | 2.67 SF |
| I | 1'-0" X 2'-10" | 2.83 SF |
| J | 53'-0" X 2" | 8.83 SF |
| **TOTAL** | | **348.26 SF** |

| ROOF GROSS FLOOR AREA | | |
|---|---|---|
| A | 17'-4" X 9'-1" | 157.44 SF |
| B | 14'-10" X 8'-7" | 127.32 SF |
| **TOTAL** | | **284.76 SF** |

| TOTAL GROSS FLOOR AREA | |
|---|---|
| CELLAR | 1,603.33 SF |
| 1ST FLOOR )R | 1,516.67 SF |
| 2ND FLOOR | 1,516.67 SF |
| 3RD FLOOR | 1,516.67 SF |
| 4TH FLOOR | 1,516.67 SF |
| 5TH FLOOR | 1,516.67 SF |
| 6TH FLOOR | 1,093.99 SF |
| ROOF | 284.76 SF |
| **TOTAL** | **10,565.42 SF** |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

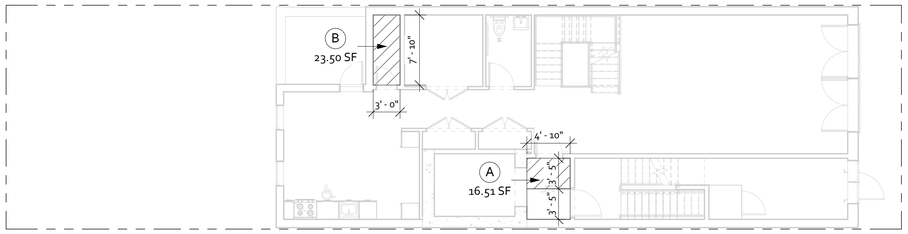
SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
GROSS FLOOR AREA

DRAWING NO.:
Z-004.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 05 OF 43

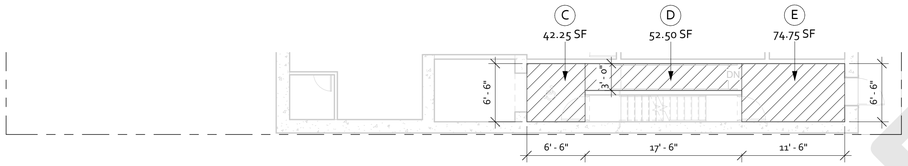



3 1ST FLOOR DEDUCTION AREA
1/8" = 1'-0"

| UPPER 1ST FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| B | MECHANICAL | 3'-0" X 7'-10" | 23.50 SF |
| **TOTAL** | | | **40.01 SF** |

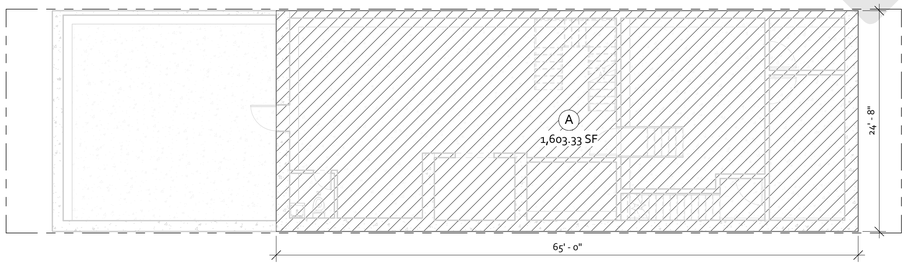
| LOWER 1ST FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| C | ENTRYWAYS | 6'-6" X 6'-6" | 42.25 SF |
| D | ENTRYWAYS | 17'-6" X 3'-0" | 52.50 SF |
| E | ENTRYWAYS | 11'-6" X 6'-6" | 74.75 SF |
| **TOTAL** | | | **169.50 SF** |

| TOTAL LOWER AND UPPER 1ST FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| B | MECHANICAL | 3'-0" X 7'-10" | 23.50 SF |
| C | ENTRYWAYS | 6'-6" X 6'-6" | 42.25 SF |
| D | ENTRYWAYS | 17'-6" X 3'-0" | 52.50 SF |
| E | ENTRYWAYS | 11'-6" X 6'-6" | 74.75 SF |
| **TOTAL** | | | **209.51 SF** |



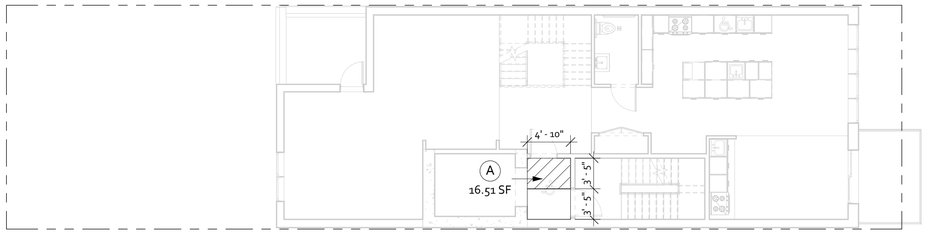

2 LOWER 1ST FLOOR DEDUCTION AREA
1/8" = 1'-0"

ZR 28-11 ELEVATED GROUND FLOOR UNITS
FOR ALL QUALITY HOUSING 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 EXCLUDED 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 MAY BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA FOR EACH BUILDING.
**PROPOSED 1ST FLOOR IS 7'-1" ABOVE CURB LEVEL, MAXIMUM OF 500 SF MAY BE EXCLUDED FROM BUILDING FLOOR AREA.**



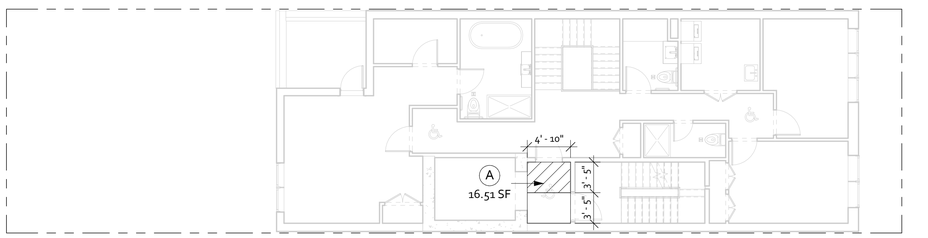

1 CELLAR DEDUCTION AREA
1/8" = 1'-0"

| CELLAR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CELLAR AREA | 65'-0" X 24'-8" | 1,603.33 SF |
| **TOTAL** | | | **1,603.33 SF** |




5 3RD FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 3RD FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| **TOTAL** | | | **16.51 SF** |




4 2ND FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 2ND FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| **TOTAL** | | | **16.51 SF** |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

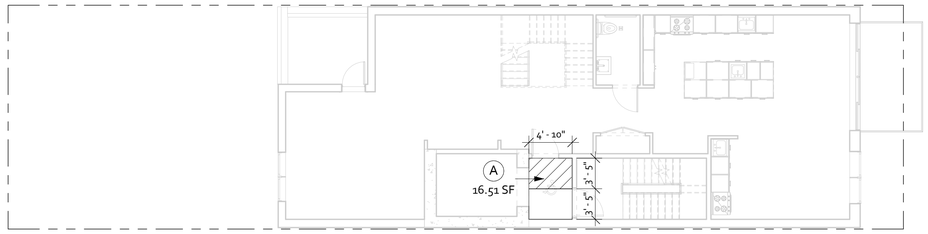
SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
DEDUCTION AREA DIAGRAMS

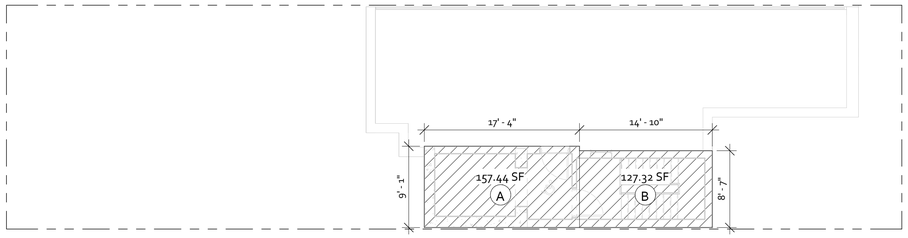
DRAWING NO.:
Z-005.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 06 OF 43



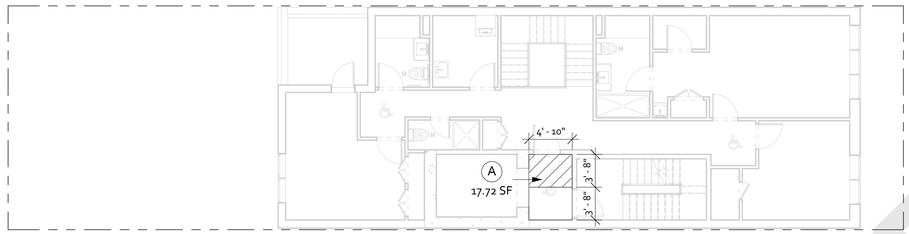

2 5TH FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 5TH FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| **TOTAL** | | | **16.51 SF** |



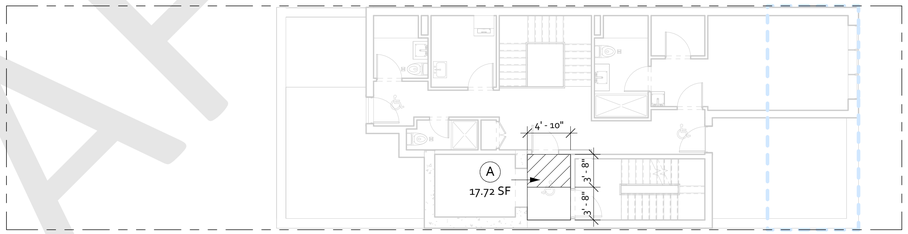

4 ROOF DEDUCTION AREA
1/8" = 1'-0"

| ROOF DEDUCTION AREA | | | |
|---|---|---|---|
| A | STAIR BULKHEAD | 17'-4" X 9'-1" | 157.44 SF |
| B | STAIR BULKHEAD | 14'-10" X 8'-7" | 127.32 SF |
| **TOTAL** | | | **284.76 SF** |




1 4TH FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 4TH FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-8" | 17.72 SF |
| **TOTAL** | | | **17.72 SF** |




3 6TH FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 6TH FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-8" | 17.72 SF |
| **TOTAL** | | | **17.72 SF** |

| TOTAL DEDUCTION AREA | |
|---|---|
| CELLAR | 1,603.33 SF |
| LOWER 1ST FLOOR | 169.50 SF |
| UPPER 1ST FLOOR | 40.01 SF |
| 2ND FLOOR | 16.51 SF |
| 3RD FLOOR | 16.51 SF |
| 4TH FLOOR | 17.72 SF |
| 5TH FLOOR | 16.51 SF |
| 6TH FLOOR | 17.72 SF |
| ROOF | 284.76 SF |
| **TOTAL DEDUCTION AREA** | **2,182.60 SF** |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:

DEDUCTION AREA
DIAGRAMS CONT.

DRAWING NO.:
Z-006.00

DATE: 4/3/2025
DRAWN BY: YR

SCALE: AS NOTED
SHEET NO.: 07 OF 43

## NOTES TO USERS

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

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

**Coastal Base Flood Elevations** (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the FIS report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was New York State Plane Long Island Zone FIPSZONE 3104. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3182
(301) 713-3242

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

**Base map** information shown on this FIRM was provided in digital format by the Department of Information Technology and Telecommunication, City of New York (DoITT). This information was derived from digital orthophotos produced at a scale of 1:1,200 with 2-foot pixel resolution from photography dated April 2006.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

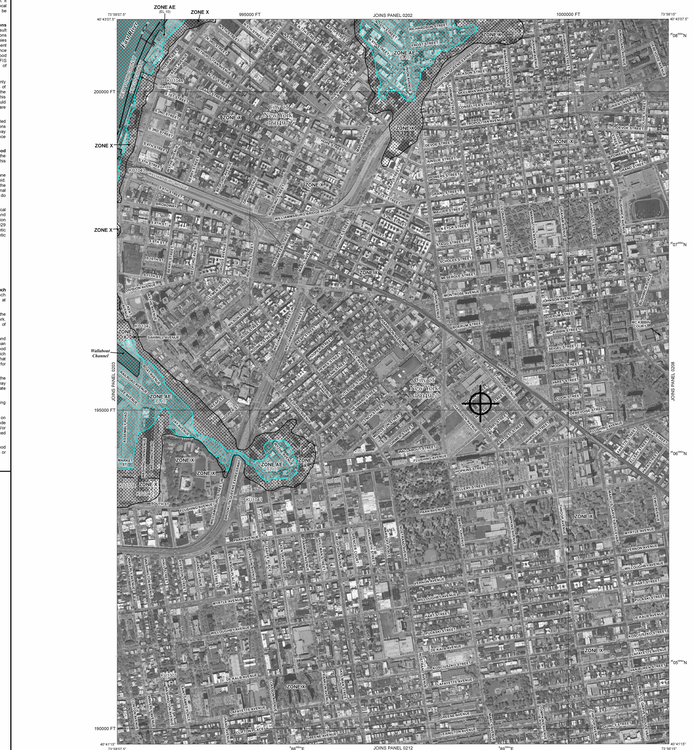
**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5 - foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.




## LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross-section line
- 87°07'45", 32°22'30" — Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 7°30'"N — 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT — 5000-foot grid ticks: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
June 29, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
June 11, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE
November 16, 1983

FLOOD INSURANCE RATE MAP REVISIONS
September 5, 2007 - to incorporate revised Flood Hazard Areas, and to reflect updated topographic information.

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

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

NFIP — NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0204F

# FIRM
## FLOOD INSURANCE RATE MAP

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

PANEL 204 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| NEW YORK, CITY OF | 360497 | 0204 | F |

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

MAP NUMBER
3604970204F

MAP REVISED
SEPTEMBER 5, 2007

Federal Emergency Management Agency


NOTES TO USERS

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

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

**Coastal Base Flood Elevations** (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the FIS report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was New York State Plane Long Island Zone FIPSZONE 3104. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3182
(301) 713-3242

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

**Base map** information shown on this FIRM was provided in digital format by the Department of Information Technology and Telecommunication, City of New York (DoITT). This information was derived from digital orthophotos produced at a scale of 1:1,200 with 2-foot pixel resolution from photography dated April 2006.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

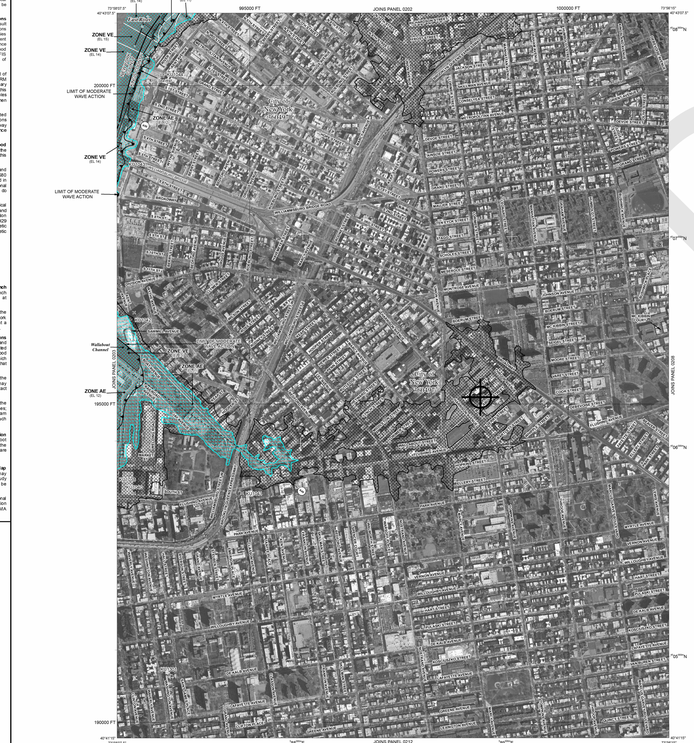
**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5 - foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross-section line
- 87°07'45", 32°22'30" — Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 7°30'"N — 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT — 5000-foot grid ticks: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
June 29, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
June 11, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE
November 16, 1983

FLOOD INSURANCE RATE MAP REVISIONS

For descriptions of revisions see Notice to Users page in the Flood Insurance Study report.

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

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


NFIP — NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0204G

# FIRM
## FLOOD INSURANCE RATE MAP

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

PANEL 204 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| NEW YORK, CITY OF | 360497 | 0204 | G |

PRELIMINARY
DECEMBER 5, 2013

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

MAP NUMBER
3604970204G

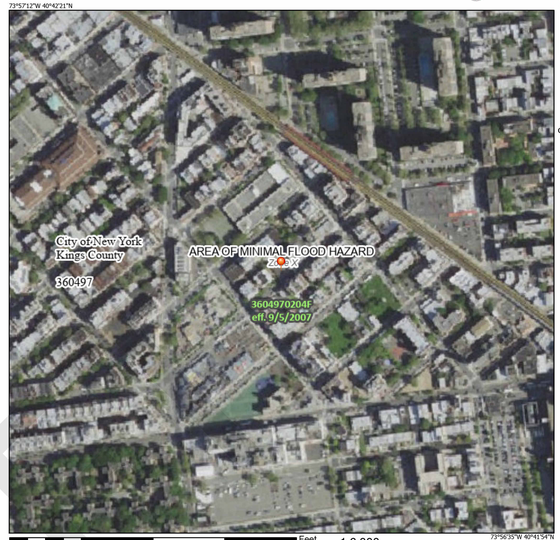
MAP REVISED

Federal Emergency Management Agency

# National Flood Hazard Layer FIRMette

FEMA

73°57'12"W 40°42'21"N




0 250 500 1,000 1,500 2,000 Feet 1:6,000

73°56'35"W 40°41'54"N

*Basemap Imagery Source: USGS National Map 2023*

## Legend

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

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) — *Zone A, V, A99*
  - With BFE or Depth — *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile — *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard — *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. — *Zone X*
  - Area with Flood Risk due to Levee — *Zone D*
- **OTHER AREAS**
  - NO SCREEN — Area of Minimal Flood Hazard — *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard — *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 — Cross Sections with 1% Annual Chance
  - 17.5 — Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

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

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

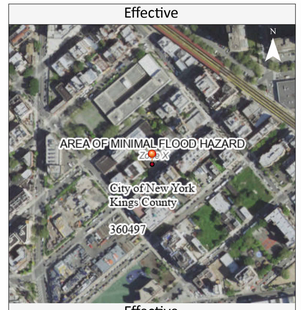
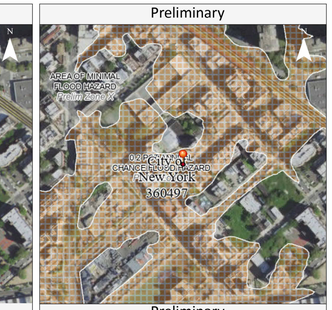
**The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/7/2024 at 6:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.**

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

# Comparison of Flood Hazard

Effective & Preliminary Flood Hazards

FEMA

| Effective | Preliminary |
|---|---|
|  |  |
| **Effective** | **Preliminary** |
| **POI Longitude/Latitude** 40.7021, -73.9481 | **POI Longitude/Latitude** 40.7021, -73.9481 |
| **Effective FIRM Panel** 3604970204F | **Preliminary FIRM Panel** 3604970204G |
| **Effective Date** 9/5/2007 | **Preliminary Issue Date** 1/30/2015 |
| **Flood Zone** X | **Flood Zone** X |
| **Static BFE*** Not Available | **Estimated Static BFE*** Not Available |
| **Flood Depth** Not Available | **Estimated Flood Depth** Not Available |
| **Vertical Datum** Not Available | **Vertical Datum** Not Available |

* A **Base Flood Elevation** is the expected elevation of flood water during the 1% annual chance storm event. Structures below the estimated water surface elevation may experience flooding during a base flood event.

| Hazard Level | Flood Hazard Zone |
|---|---|
| High Flood Hazard | **AE, A, AH, AO, VE and V Zones.** Properties in these flood zones have a 1% chance of flooding each year. This represents a 26% chance of flooding over the life of a 30-year mortgage. |
| Moderate Flood Hazard | **Shaded Zone X.** Properties in the moderate flood risk areas also have a chance of flooding from storm events that have a less than 1% chance of occuring each year. Moderate flood risk indicates an area that may be provided flood risk reduction due to a flood control system or an area that is prone to flooding during a 0.2% annual chance storm event. These areas may have been indicated as areas of shallow flooding by your community.<br><br>**Unshaded Zone X.** Properties on higher ground and away from local flooding sources have a reduced flood risk when compared to the Moderate and High Flood Risk categories. Structures in these areas may be affected by larger storm events, in excess of the 0.2% annual chance storm event. |
| Low Flood Hazard | **Insurance Note:** High Risk Areas are called 'Special Flood Hazard Areas' and flood insurance is mandatory for federally backed-mortgage holders. Properties in Moderate and Low Flood Risk areas may purchase flood insurance at a lower-cost rate, known as Preferred Risk Policies. See your local insurance agent or visit https://www.fema.gov/national-flood-insurance-program for more information. |

**Disclaimer:** *This report is for informational purposes only and is not authorized for official use. The positional accuracy may be compromised in some areas. Please contact your local floodplain administrator for more information or go to msc.fema.gov to view an official copy of the Flood Insurance Rate Maps.*

Service Layer Credits: USGS, USDA

7/7/2024 6:57 PM

REVISIONS

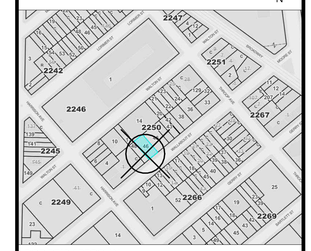
| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:

B01127089-I1

DRAWING TITLE:

FIRM FLOOD MAP

DRAWING NO.:

Z-007.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 08 OF 43 |

**GENERAL NOTES:**

1. THE PROPOSED WORK ON THIS PLAN SHALL COMPLY WITH NEW YORK CITY 2022 BUILDING CODE REQUIREMENTS.
2. THE GENERAL CONTRACTOR SHALL OBTAIN CONSTRUCTION PERMIT AND PAY ALL REQUIRED FEES TO THE D.O.B. BASED ON THE PROPOSED WORK OF THIS DRAWING FROM NEW YORK CITY BUILDING DEPARTMENT PRIOR TO START.
3. ALL ELECTRICAL WORK BEING PERFORMED SHALL BE BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH NEW YORK CITY ELECTRICAL CODE., AND SHALL BE REQUIRED TO OBTAIN ALL REQUIRED SIGN-OFFS AND CERTIFICATE OF COMPLETIONS FROM THE B.E.C.
4. ALL PLUMBING WORK SHALL BE PERFORMED BY A LICENSED PLUMBER IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE AND INSPECTION REQUIREMENTS. HE SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED PLUMBING SIGN-OFFS AND INSPECTIONS FROM THE DEPARTMENT OF BUILDING.
5. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL CONDITIONS AND DIMENSIONS ON THE SITE PRIOR TO START OF WORK. HE SHALL NOTIFY THE ARCHITECT/ENGINEER OF RECORD ANY DISCREPANCIES AND/OR CHANGE OF LAYOUT BETWEEN THE FIELD CONDITIONS AND THIS DRAWINGS IMMEDIATELY. FAILURE TO DO SO WILL INDICATE THE GENERAL CONTRACTOR'S ACCEPTANCE OF THIS DRAWING(S) AND WILL TAKE FULL RESPONSIBILITY FOR SAID WORK BEING PERFORMED.
6. THE ARCHITECT/ENGINEER OF RECORD HAS NOT BEEN RETAINED TO SUPERVISE THE CONSTRUCTION.
7. THE GENERAL CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED ARCHITECT/ENGINEER FOR ALL REQUIRED CONTROLLED INSPECTIONS.
8. THE GENERAL CONTRACTOR SHALL OBTAIN SIGN-OFF FROM THE DEPARTMENT OF BUILDING AFTER COMPLETION OF WORK.
9. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL BE KNOWLEDGEABLE OF CONDITIONS THEREON. HE SHALL INVESTIGATE, VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS OF THE PROJECT AND SHALL NOTIFY THE OWNER OF ANY CONDITIONS REQUIRING MODIFICATIONS BEFORE PROCEEDING WITH THE WORK.
10. NOTES APPEAR ON VARIOUS SHEETS FOR DIFFERENT SYSTEMS AND MATERIALS. SHEETS ARE TO BE REVIEWED AND NOTES ON ANY ONE SHEET ARE TO BE APPLIED ON RELATED DRAWINGS AND DETAILS.
11. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE DETAILED. WHERE SPECIFIED DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
12. STAIR OPENINGS SHALL BE CERTIFIED BY THE SUBCONTRACTOR PRIOR TO FORMING. REQUIRED MODIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR APPROVAL PRIOR TO FORMING.
13. CONTRACTOR TO COORDINATE ALL EQUIPMENT BASE AND HOUSEKEEPING PADS WITH MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTORS. EQUIPMENT BASES AND HOUSEKEEPING PADS TO BE A MINIMUM OF 4" HIGH UNLESS OTHERWISE NOTED. PROVIDE ONE LAYER OF WWF 6X6XW4 WELDED WIRE FABRIC MINIMUM, TO BE INSTALLED BENEATH THE FULL PROJECTED AREA OF EQUIPMENT.
14. CONC. PADS AND MOUNTINGS IN MECH. SPACES SHALL BE COORDINATED WITH ELECTRICAL AND PLUMBING CONTRACTORS.
15. CONTRACTOR TO COORDINATE ALL MECHANICAL AND ELECTRICAL FLOOR AND WALL SLEEVES AND ALL MECHANICAL SHAFTS WITH MECHANICAL, PLUMBING, FIRE-PROTECTION, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL DRAWINGS.
16. PROVIDE ACCESS PANELS AS APPLICABLE AND AS REQUIRED FOR MECHANICAL EQUIPMENT. ALL ACCESS PANELS SHALL BE CONCEALED, AND LOCATIONS SHALL BE REVIEWED WITH THE ARCHITECT PRIOR TO PROCEEDING.
17. ALL STRUCTURAL ELEMENTS WHICH DO NOT REQUIRE FIREPROOFING SHALL BE FIELD PAINTED
(STRUCTURAL DESIGN IS BY OTHERS).
18. ALL EXTERIOR DOORS SHALL PREVENT AIR LEAKAGE/INFILTRATION AROUND THEIR
19. ALL EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES, BETWEEN WALLS AND PERIMETER WHEN IN A CLOSED POSITION. FOUNDATIONS, BETWEEN WALLS AND ROOFS, AND BETWEEN WALLS AND PANELS AT PENETRATION OF UTILITIES THROUGH THE ENVELOPE SHALL BE SEALED, CAULKED OR WEATHER STRIPPED TO PREVENT AIR LEAKAGE/INFILTRATION.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CONDITIONS AND MATERIALS WITHIN THE PROPOSED CONSTRUCTION AREA. THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR ALL STRUCTURAL AND REMOVAL TASKS. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ANY DAMAGE OR INJURIES CAUSED BY OR DURING THE EXECUTION OF WORK.
21. THIS PROJECT DOES NOT INCLUDE MODULAR CONSTRUCTION.

**CHIMNEYS**

2113.1.6.1 RESPONSIBILITY OF OWNER OF TALLER BUILDING. WHENEVER A BUILDING IS ERECTED, ENLARGED, OR INCREASED IN HEIGHT SO THAT ANY PORTION OF SUCH BUILDING, EXCEPT CHIMNEYS OR VENTS, EXTENDS HIGHER THAN THE TOP OF ANY PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS WITHIN 100 FEET (30 480 MM), THE OWNER OF SUCH NEW OR ALTERED BUILDING SHALL HAVE THE RESPONSIBILITY OF ALTERING SUCH CHIMNEYS OR VENTS TO MAKE THEM CONFORM WITH THE REQUIREMENTS OF THIS CHAPTER. A CHIMNEY OR VENT THAT IS NO LONGER CONNECTED WITH A FIREPLACE OR COMBUSTION OR OTHER EQUIPMENT FOR WHICH A CHIMNEY OR VENT WAS REQUIRED, SHALL BE EXEMPT FROM THIS REQUIREMENT. SUCH ALTERATIONS SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MEANS OR A COMBINATION THEREOF:
1. CARRY UP THE PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS TO THE HEIGHT REQUIRED IN THIS CHAPTER.
2. OFFSET SUCH CHIMNEYS OR VENTS TO A DISTANCE BEYOND THAT REQUIRED IN THIS CHAPTER FROM THE NEW OR ALTERED BUILDING PROVIDED THAT THE NEW LOCATION OF THE OUTLET OF THE OFFSET CHIMNEY OR VENT SHALL OTHERWISE COMPLY WITH THE REQUIREMENTS OF THIS CHAPTER.
3. SUCH REQUIREMENTS SHALL NOT DISPENSE WITH OR MODIFY ANY ADDITIONAL REQUIREMENTS THAT MAY BE APPLICABLE PURSUANT TO RULES OF THE NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION.

2113.1.6.2 PROTECTION OF DRAFT. AFTER THE ALTERATION OF A CHIMNEY OR VENT AS REQUIRED BY THIS SECTION, IT SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE NEW OR ALTERED BUILDING TO PROVIDE ANY MECHANICAL EQUIPMENT OR DEVICES NECESSARY TO MAINTAIN THE PROPER DRAFT IN THE EQUIPMENT.

2113.1.6.3 WRITTEN NOTIFICATION. THE OWNER OF THE NEW OR ALTERED BUILDING SHALL NOTIFY THE OWNER OF THE BUILDING AFFECTED IN WRITING AT LEAST 45 DAYS BEFORE STARTING THE WORK REQUIRED AND REQUEST WRITTEN CONSENT TO DO SUCH WORK. SUCH NOTICE SHALL BE ACCOMPANIED BY PLANS INDICATING THE MANNER IN WHICH THE PROPOSED ALTERATIONS ARE TO BE MADE.

2113.1.6.4 APPROVAL. THE PLANS AND METHOD OF ALTERATION SHALL BE SUBJECT TO THE APPROVAL OF THE COMMISSIONER.

2113.1.6.5 REFUSAL OF CONSENT. IF CONSENT IS NOT GRANTED BY THE OWNER OF THE PREVIOUSLY CONSTRUCTED BUILDING TO DO THE ALTERATION WORK REQUIRED BY THIS SECTION, SUCH OWNER SHALL SIGNIFY HIS OR HER REFUSAL IN WRITING TO THE OWNER OF THE NEW OR ALTERED BUILDING AND TO THE COMMISSIONER, AND THE OWNER OF THE NEW OR ALTERED BUILDING HAVING SUBMITTED PLANS THAT CONFORM TO THE REQUIREMENTS OF THIS SECTION, SHALL THEREUPON BE RELEASED FROM ANY RESPONSIBILITY FOR THE PROPER OPERATION OF THE EQUIPMENT DUE TO LOSS OF DRAFT AND FOR ANY HEALTH HAZARD OR NUISANCE THAT MAY OCCUR AS A RESULT OF THE NEW OR ALTERED BUILDING. SUCH RESPONSIBILITIES SHALL THEN BE ASSUMED BY THE OWNER OF THE PREVIOUSLY CONSTRUCTED BUILDING. SIMILARLY, SHOULD SUCH OWNER FAIL TO GRANT CONSENT WITHIN 45 DAYS FROM THE DATE OF WRITTEN REQUEST OR FAIL TO SIGNIFY HIS OR HER REFUSAL, HE OR SHE SHALL THEN ASSUME ALL RESPONSIBILITIES AS PRESCRIBED ABOVE.

2113.1.6.6 PROCEDURE. IT SHALL BE THE OBLIGATION OF THE OWNER OF THE NEW OR ALTERED BUILDING TO:
1. SCHEDULE THIS WORK SO AS TO CREATE A MINIMUM OF DISTURBANCE TO THE OCCUPANTS OF THE AFFECTED BUILDING, AND
2. PROVIDE SUCH ESSENTIAL SERVICES AS ARE NORMALLY SUPPLIED BY THE EQUIPMENT WHILE IT IS OUT OF SERVICE; AND
3. WHERE NECESSARY, SUPPORT SUCH EXTENDED CHIMNEYS, VENTS AND EQUIPMENT FROM THIS BUILDING OR TO CARRY UP SUCH CHIMNEYS OR VENTS WITHIN HIS OR HER BUILDING; AND
4. PROVIDE FOR THE MAINTENANCE, REPAIR, AND/OR REPLACEMENT OF SUCH EXTENSIONS AND ADDED EQUIPMENT; AND
5. MAKE SUCH ALTERATIONS OF THE SAME MATERIAL AS THE ORIGINAL CHIMNEY OR VENT SO AS TO MAINTAIN THE SAME QUALITY AND APPEARANCE, EXCEPT WHERE THE AFFECTED OWNER OF THE CHIMNEY OR VENT SHALL GIVE HIS OR HER CONSENT TO DO OTHERWISE. ALL WORK SHALL BE DONE IN SUCH FASHION AS TO MAINTAIN THE ARCHITECTURAL AESTHETICS OF THE EXISTING BUILDING. WHERE THERE IS PRACTICAL DIFFICULTY IN COMPLYING STRICTLY WITH THE PROVISIONS OF THIS ITEM, THE COMMISSIONER MAY PERMIT AN EQUALLY SAFE ALTERNATIVE.

2113.1.6.7 EXISTING VIOLATIONS. ANY EXISTING VIOLATIONS ON THE PREVIOUSLY CONSTRUCTED EQUIPMENT SHALL BE CORRECTED BY THE OWNER OF THE EQUIPMENT BEFORE ANY EQUIPMENT IS ADDED OR ALTERATIONS MADE AT THE EXPENSE OF THE OWNER OF THE NEW OR ALTERED BUILDING.

2113.1.6.8 VARIANCE. THE COMMISSIONER MAY GRANT A VARIANCE IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE.

**1603.1.5 EARTHQUAKE DESIGN DATA.**

THE FOLLOWING INFORMATION RELATED TO SEISMIC LOADS SHALL BE SHOWN, REGARDLESS OF WHETHER SEISMIC LOADS GOVERN THE DESIGN OF THE LATERAL-FORCE-RESISTING SYSTEM OF THE BUILDING:
1. SEISMIC IMPORTANCE FACTOR, IE, AND SEISMIC USE GROUP.
2. MAPPED SPECTRAL RESPONSE ACCELERATIONS SS AND S1.
3. SITE CLASS.
4. SPECTRAL RESPONSE COEFFICIENTS SDS AND SD1.
5. SEISMIC DESIGN CATEGORY
6. BASIC SEISMIC-FORCE-RESISTING SYSTEM(S).
7. DESIGN BASE SHEAR.
8. SEISMIC RESPONSE COEFFICIENT(S), CS.
9. RESPONSE MODIFICATION FACTOR(S), R.
10. ANALYSIS PROCEDURE USED.

**MULTIPLE DWELLING & HOUSE MAINTENANCE NOTES**

1. PAINTING OF PUBLIC PARTS WITHIN DWELLING TO COMPLY WITH SEC. D26-12.01 H.M.C.
2. PAINTING OF WINDOW FRAMES AND FIRE ESCAPES TO COMPLY WITH SEC. D26-12.03 H.M.C.
3. WALLS OF COURTS AND SHAFTS TO BE OF A LIGHT COLORED SURFACE AS PER SEC. D26-12.05 H.M.C. AND SEC. 29 M.D.L.
4. PREMISES TO BE MAINTAINED AND KEPT FREE OF RODENT AND INSECT INFESTATION AS PER SEC. D26-13.03 AND D26-13.05 M.D.L.
5. RECEPTACLES FOR THE COLLECTION OF WASTE MATTER TO BE PROVIDED AS PER D26-14.03 AND D26-14.05 H.M.C. AND SEC. 81 M.D.L.
6. DRAINAGE OF ROOFS, COURTS AND YARDS TO COMPLY WITH SEC. D26-16.03 H.M.C. AND SEC. 77.
7. YEARLY INSPECTION OF CENTRAL HEATING PLANT BY QUALIFIED PERSON TO BE MADE AS PER SEC. D26-17.05 H.M.C. CENTRAL HEAT AND HOT WATER TO BE PROVIDED AS PER SEC. 29 SUBD.
8. PROPER ELECTRIC LIGHTING EQUIPMENT WITHIN DWELLING TO BE PROVIDED AND MAINTAINED AS PER SEC. D26-19.01, D26-19.03 AND D26-19.05 H.M.C.
9. PROPER ELECTRIC LIGHTS TO BE PROVIDED NEAR ENTRANCE WAYS, YARDS AND COURTS AS PER SEC. D26-19.07 H.M.C. ON SEPARATE CIRCUITS OR CONNECTED TO HOUSE LINE SERVICING PUBLIC HALLS, AND IN ACCORDANCE WITH REQUIREMENTS AND APPROVAL OF THE DEPARTMENT OF WATER SUPPLY, GAS AND ELECTRICITY AS PER SEC. 35 AND SEC. 26 SUBD 7A M.D.L. AND DEPARTMENT OF RULES AND REGULATIONS.
10. B.S.A. APPROVED PEEP HOLES APPROX. 5'-0" ABOVE FINISHED FLOOR TO BE PROVIDED IN ENTRANCE DOORS OF DWELLING UNITS AS PER SEC. D26-20.03 H.M.C. AND DEPARTMENT RULES AND REGULATIONS.
11. PROPERLY MOUNTED AND SECURED POLISHED METAL VIEWING MIRRORS TO BE PROVIDED WITHIN SELF SERVICE ELEVATORS (IF ANY) AS PER SEC. D26-20.03 H.M.C. AND DEPARTMENT RULES AND REGULATIONS.
12. KEY LOCKS IN THE ENTRANCE DOOR TO EACH DWELLING UNIT WITH AT LEAST ONE KEY TO BE PROVIDED BY OWNER AS PER SEC. D26-20.05 H.M.C. HEAVY DUTY LATCH SET DEAD BOLT THUMB TURN INSIDE.
13. APPROVED TYPE MAIL RECEPTACLES AND DIRECTORY OF PERSONS LIVING IN THE DWELLING TO BE PROVIDED AS PER SEC. D26-21.01 H.M.C. AND REGULATIONS OF POST OFFICE DEPARTMENT SEC. 57 M.D.L.
14. PROPER SIGNS TO BE PROVIDED IN THE PUBLIC HALLS NEAR STAIR AND ELEVATOR AND WITHIN STAIR ENCLOSURE AS PER SEC. D26-21.03 AND DEPARTMENT RULES AND REGULATIONS.
15. PROPER STREET NUMBERS TO BE PROVIDED IN FRONT OF DWELLING AS PER SEC. D26-21.05 H.M.C. AND RULES AND REGULATIONS OF BOROUGH PRESIDENT.
16. PROPER JANITORIAL SERVICES TO BE PROVIDED AS PER SEC. 26-22.03 AND D26-22.05 H.M.C.
17. EVERY KITCHEN AND KITCHENETTE TO BE PROVIDED WITH SINK HAVING MIN. 2" WASTE AND TRAP AS PER SEC. D26-32.01 H.M.C.
18. ALL COMBUSTIBLE MATERIAL WITHIN 1'(FT) OF COOKING APPARATUS TO BE PROPERLY FIRE RETARDED AND MIN. 2'(FT) CLEARANCE MAINTAINED ABOVE COOKING SURFACE. COMBUSTIBLE MATERIAL BETWEEN 2'(FT) AND 3'(FT) ABOVE EXPOSED SURFACE TO BE FIRE RETARDED. SEC. 26-32.05 H.M.C. AND DEPARTMENT RULES AND REGULATIONS SEC. 33 SUBD 3 M.D.L.
19. NO KITCHEN SHALL BE OCCUPIED FOR SLEEPING PURPOSES SEC. D26-33.05 H.M.C.
20. REGISTRATION STATEMENT TO BE FILED AS PER SEC. D26-41.01 AND D26-41.03 H.M.C.
21. REGISTRATION IDENTIFICATION SIGN CONTAINING SERIAL NUMBERS TO BE POSTED AS PER SEC. D26-41.15 H.M.C. 22. IDENTIFICATION OF MANAGING AGENT OR OWNER TO BE INDICATED ON TENANTS RENT RECEIPT AS PER SEC. D26-41.17 H.M.C.
23. ALL BATHROOMS, TOILETS AND BATHING COMPARTMENTS TO HAVE CERAMIC TILE FLOOR AND 6" MIN. CERAMIC TILE BASE. WALLS AND CEILING PLASTER AS PER SEC. 76 M.D.L. AND SEC. D26-31.03 H.M.C.
24. ALL DOORS LEADING TO PUBLIC HALLS SHALL BE SELF CLOSING. NO TRANSOM OR PLAIN GLASS PANELS.
25. BUILDING TO COMPLY WITH SEC. 64 M.D.L. GAS METER, GAS APPLIANCES AND ARTIFICIAL LIGHTING.
26. BUILDING TO COMPLY WITH LOCAL LAWS APPLICABLE TO ART. 6 WITH H.M.C. AND WITH DEPARTMENT RULES AND REGULATIONS.
27. ENTIRE BUILDING TO COMPLY WITH SEC. D26-33.03 H.M.C. MAXIMUM OCCUPANCY, MINIMUM ROOM AREA ART. 33 D26-33.01.
28. ALL NEWLY CREATED PARTITIONS IN HALLS TO BE FIRE RETARDED ON BOTH SIDES AND FIRE STOPPED AT TOP AND BOTTOM AS PER DEPARTMENT RULES AND REGULATIONS, RULE 1,2,10 AND RULE 1.7.
29. EVERY VESTIBULE ENTRANCE, PUBLIC AND STAIR HALL TO BE PROVIDED WITH MIN. OF 60 WATT LIGHT AS PER SEC. 37 SBOL M.D.L.

**SMOKE DETECTOR & CARBON MONOXIDE NOTES**

907.2.11 SMOKE ALARMS COMPLYING WITH UL 217 SHALL BE INSTALLED IN ACCORDANCE WITH SECTIONS 907.2.11.1 THROUGH 907.2.11.4 AND NFPA 72.

908.7 CARBON MONOXIDE ALARMS AND DETECTORS SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SECTIONS 908.7.1 THROUGH 908.7.4.

REQUIRED LOCATIONS WITHIN DWELLING UNITS AS PER 907.2.11.1 SMOKE ALARMS AND 908.7.1.1.1 CARBON MONOXIDE ALARMS:
1. ON THE CEILING OR WALL OUTSIDE OF EACH ROOM USED FOR SLEEPING PURPOSES WITHIN 15FT 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.

908.7.1.1.2 INSTALLATION REQUIREMENTS.
ALARMS OR DETECTORS SHALL COMPLY WITH THE POWER SOURCE, INTERCONNECTION, AND ACCEPTANCE TESTING REQUIREMENTS AS REQUIRED FOR SMOKE ALARMS IN ACCORDANCE WITH SECTIONS 907.2.11.2 THROUGH 907.2.11.3.

**SAFEGUARDS DURING CONSTRUCTION OR DEMOLITION**

1. CONTRACTORS, CONSTRUCTION MANAGERS, AND SUBCONTRACTORS ENGAGED CONSTRUCTION OR DEMOLITION OPERATIONS SHALL INSTITUTE AND MAINTAIN ALL SAFETY MEASURES REQUIRED BY CHAPTER 3301 AND PROVIDE ALL EQUIPMENT OR TEMPO-RARY CONSTRUCTION NECESSARY TO SAFEGUARD AND THE PUBLIC AND PROPERTY AFFECTED BY SUCH CONTRACTOR 'S OPERATIONS.
2. A SITE SAFETY MANAGER OR SITE SAFETY COORDINATOR MUST BE DESIGNATED AND PRESENT AT THE CONSTRUCTION OR DEMOLITION OF A MAJOR BUILDING.
3. STRUCTURES, TEMPORARY CONSTRUCTION, OPERATIONS, AND EQUIPMENT SHALL BE INSPECTED AS REQUIRED BY THIS CODE.
4. WHERE THIS CHAPTER REQUIRES CONSTRUCTION DOCUMENTS, DRAWINGS, INSPECTION REPORTS, LOGS,CHECKLISTS, SITE SAFETY PLANS, FIRE SAFETY AND EVACUATION PLANS, TENANT PROTECTION PLANS, OCCUPANT PROTECTION PLANS, OR MONITORING PLANS, COPIES OF SUCH SHALL BE MAINTAINED AT THE SITE FOR THE DURATION OF THE JOB AND MADE AVAILABLE TO THE COMMISSIONER UPON REQUEST.
5. THE DEPARTMENT SHALL BE NOTIFIED IMMEDIATELY BY THE PERMIT HOLDER, OR A DULY AUTHORIZED REPRESENTATIVE, OF AN ACCIDENT AT A CONSTRUCTION OR DEMOLITION SITE,
6. SIGNS SHALL BE POSTED AT A CONSTRUCTION OR DEMOLITION SITE IN ACCORDANCE WITH SECTIONS 3301.9.1 THROUGH 3301.9.5.
7. 3309.1 PROTECTION REQUIRED. ADJOINING PUBLIC AND PRIVATE PROPERTY, INCLUDING PERSONS THEREON,SHALL BE PROTECTED FROM DAMAGE AND INJURY DURING CONSTRUCTION OR DEMOLITION WORK IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 3309. PROTECTION MUST BE PROVIDED FOR FOOTINGS, FOUNDATIONS, PARTY WALLS, CHIMNEYS, SKYLIGHTS AND ROOFS. PROVISIONS SHALL BE MADE TO CONTROL WATER RUN-OFF AND EROSION DURING CONSTRUCTION OR DEMOLITION ACTIVITIES.
8. 3309.2 LICENSE TO ENTER ADJOINING PROPERTY.THE RESPONSIBILITY OF AFFORDING ANY LICENSE TO ENTER ADJOINING PROPERTY SHALL REST UPON THE OWNER OF THE ADJOINING PROPERTY INVOLVED; AND IN CASE ANY TENANT OF SUCH OWNER FAILS OR REFUSES TO PERMIT THE OWNER TO AFFORD SUCH LICENSE, SUCH FAILURE OR REFUSAL SHALL BE A CAUSE FOR THE OWNER TO DISPOSSESS SUCH TENANT THROUGH APPROPRIATE LEGAL PROCEEDINGS FOR RECOVERING POSSESSION OF REAL PROPERTY.NOTHING IN THIS CHAPTER SHALL BE CONSTRUED TO PROHIBIT THE OWNER OF THE PROPERTY UNDERTAKING CONSTRUCTION OR DEMOLITION WORK FROM PETITIONING FOR A SPECIAL PROCEEDING PURSUANT TO SECTION 881 OF THE REAL PROPERTY ACTIONS AND PROCEEDINGS LAW.
9. 3309.5 UNDERPINNING.WHENEVER UNDERPINNING IS REQUIRED TO PRESERVE AND PROTECT AN ADJACENT PROPERTY FROM CONSTRUCTION, DEMOLITION,OR EXCAVATION WORK, THE PERSON WHO CAUSES SUCH WORK SHALL, AT HIS OR HER OWN EXPENSE, UNDERPIN THE ADJACENT BUILDING PROVIDED SUCH PERSON IS AFFORDED A LICENSE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 3309.2 TO ENTER AND INSPECT THE ADJOINING BUILDINGS AND PROPERTY, AND TO PERFORM SUCH WORK THEREON AS MAY BE NECESSARY FOR SUCH PURPOSE. IF THE PERSON WHO CAUSES THE CONSTRUCTION, DEMOLITION,OR EXCAVATION WORK IS NOT AFFORDED A LICENSE, SUCH DUTY TO PRESERVE AND PROTECT THE ADJACENT PROPERTY SHALL DEVOLVE TO THE OWNER OF THE ADJOINING PROPERTY, WHO SHALL BE AFFORDED A SIMILAR LICENSE WITH RESPECT TO THE PROPERTY WHERE THE CONSTRUCTION, DEMOLITION, OR EXCAVATION IS TO BE PERFORMED

**3307.7 FENCES**

ALL SITES WHERE A NEW BUILDING IS BEING CONSTRUCTED, OR A BUILDING IS BEING DEMOLISHED TO GRADE, SHALL BE ENCLOSED WITH A FENCE.
FENCES SHALL BE AT LEAST 8 FEET (2438 MM) HIGH, BUILT SOLID FOR THEIR ENTIRE LENGTH, OUT OF WOOD OR OTHER SUITABLE MATERIAL, AND SHALL BE RETURNED AT THE ENDS TO THE EXTENT NECESSARY TO EFFECTIVELY CLOSE OFF THE SITE.
3307.7.1 LOCATION OF FENCE.
WHERE THE FENCE IS INSTALLED TO FULLY ENCLOSE A SITE, THE FENCE SHALL BE CONSTRUCTED ALONG THE INSIDE EDGE OF THE SIDEWALK OR WALKWAY AND ALONG THE EDGES OF THE PROPERTY LINE.
FENCES SHALL BE INSTALLED AND LOCATED SO TO NOT UNREASONABLY OBSTRUCT, EITHER VISUALLY OR PHYSICALLY, TRAFFIC, CURB CUTS, VEHICULAR ACCESS POINTS, STREET LIGHTING POLES, TRAFFIC LIGHTS OR SIGNS, FIRE HYDRANTS, FIRE DEPARTMENT CONNECTIONS, WATER SAMPLING STATIONS, BUS SHELTERS, OR OTHER STREET FURNITURE, TREES, OR MEANS OF INGRESS/EGRESS.
FENCES MAY ENCROACH ONTO THE SIDEWALK IN ACCORDANCE WITH DEPARTMENT OF TRANSPORTATION REQUIREMENTS.
3307.7.2 GATES.
GATES SHALL BE SLIDING OR SHALL SWING INTO AREAS NOT ACCESSIBLE TO THE PUBLIC, AND SHALL BE PROVIDED ONLY WHERE REQUIRED FOR ACCESS TO THE SITE OR TO FACILITATE THE WORK. GATES SHALL CONSIST OF THE SAME MATERIAL AND CONSTRUCTION AS THE REST OF THE FENCE. GATES SHALL BE KEPT CLOSED AT ALL TIMES EXCEPT DURING ACTUAL LOADING AND UNLOADING OPERATIONS, WHEN INDIVIDUALS OR VEHICLES ARE ACTIVELY ENTERING OR LEAVING THE SITE, OR AS NEEDED TO FACILITATE ACTIVE WORK AROUND THE GATE.
3307.7.3 VIEWING PANELS.
VIEWING PANELS SHALL BE PROVIDED IN SOLID FENCES AT A RATE ONE FOR EVERY 25 LINEAR FEET (7.6 M) PER FRONTAGE, WITH A MINIMUM OF ONE PER FRONTAGE. VIEWING PANELS SHALL BE 12 INCHES BY 12 INCHES(305 BY305 MM) IN SIZE AND SHALL BE BLOCKED WITH PLEXIGLASS OR AN EQUIVALENT NON FRANGIBLE MATERIAL. THE TOP OF THE VIEWING PANEL SHALL BE LOCATED NO MORE THAN 6 FEET (1829 MM) ABOVE THE LEVEL OF THE GROUND, AND THE BOTTOM OF THE VIEWING PANEL SHALL BE LOCATED NO LESS THAN 3 FEET (914 MM) ABOVE THE LEVEL OF THE GROUND.
3307.7.5 DESIGN OF FENCES.
FENCE INSTALLATIONS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL. THE EFFECT OF WIND ON THE FENCE SHALL BE CONSIDERED IN THE DESIGN IN ACCORDANCE WITH CHAPTER 16.EXCEPTIONS:1.FENCES INSTALLED IN CONNECTION WITH THE CONSTRUCTION OR DEMOLITION OF A ONE-,TWO-,OR THREE-FAMILY BUILDING.2.FENCES THAT CONFORM TO A STANDARD DESIGN APPROVED BY THE COMMISSIONER PROVIDED THE FENCE IS INSTALLED AT THE SITE IN ACCORDANCE WITH THE STANDARD DESIGN.
3307.7.6 INSTALLATION AND REMOVAL OF FENCES.
FENCES REQUIRED BY THIS SECTION SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORK. SUCH REQUIRED FENCES SHALL NOT BE REMOVED UNTIL THE SITE HAS BEEN FILLED AND GRADED AND ALL HAZARDS TO THE PUBLIC REMOVED AND THE FAÇADE HAS BEEN ENCLOSED, WITH ALL DOORS AND WINDOWS INSTALLED,
3307.7.7 CONDITION OF FENCES.
ALL FENCES SHALL BE INSTALLED, ADJUSTED, REPAIRED, AND MAINTAINED IN A SOUND CONDITION, FREE OF PROTRUDING OR LOOSE NAILS, WOOD, OR METAL, AND WITH POSTS IN AN UPRIGHT POSITION RESTRAINED TO PREVENT THE FENCE FROM LEANING OR OVERTURNING.
3307.7.8 COLOR.
FENCES ERECTED SHALL BE PAINTED HUNTER GREEN.
3307.8 MAINTAINING DEPARTMENT OF TRANSPORTATION PEDESTRIAN PROTECTION IN PLACE.
PEDESTRIAN PROTECTION REQUIRED BY THE DEPARTMENT OF TRANSPORTATION SHALL BE MAINTAINED IN PLACE AND KEPT IN GOOD ORDER FOR THE ENTIRE LENGTH OF TIME PEDESTRIANS MAY BE ENDANGERED.
3307.9 REMOVING PROTECTION AT CONCLUSION OF WORK.
PUBLIC PROPERTY SHALL BE LEFT IN AS GOOD A CONDITION FOLLOWING THE COMPLETION OF THE CONSTRUCTION OR DEMOLITION WORK AS IT WAS BEFORE SUCH WORK WAS COMMENCED. EXCEPT WHERE OTHERWISE REQUIRED BY THIS CODE, THE OWNER OR THE OWNER'S AGENT SHALL, UPON THE COMPLETION OF THE CONSTRUCTION OR DEMOLITION WORK, IMMEDIATELY REMOVE ALL SIDEWALK SHEDS, FENCES, GUARD RAILS, TEMPORARY WALKWAYS, MATERIAL, AND OTHER OBSTRUCTIONS IN OR ADJACENT TO THE PUBLIC WAY.

**ADA GENERAL NOTES**

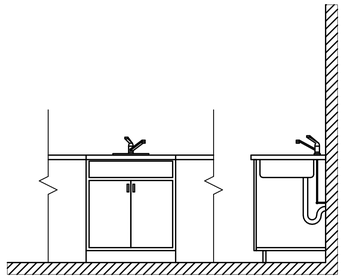
1. ONE LOWERABLE WORK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 2. ONE LOWERABLE SINK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 3. OVENS ARE ASSUMED TO BE SELF-CLEANING TYPE. IF OTHERWISE, PROVIDE A MINIMUM 30" ADJUSTABLE COUNTER SPACE WITH REMOVABLE BASE CABINETS NEXT TO OVEN. 4. A MINIMUM 36" TURNAROUND SPACE UNDER THE COUNTER WITH REMOVABLE BASE CABINETS SHALL BE PROVIDED IN DEEP CLOSED ENDED GALLEY KITCHENS AND OTHER U-SHAPED KITCHENS WHERE THE CLEARANCE BETWEEN CABINETS IS LESS THAN 5'-0". THE MINIMUM CLEARANCE BETWEEN CABINETS SHALL BE 40". 5. 48" A.F.F. WHEN CONVERTED TO ACCESSIBLE KITCHEN. PROVIDE REQUIRED WALL REINFORCEMENT FOR POSSIBLE FUTURE RELOCATION.

**ACCESSIBLE ROUTE**

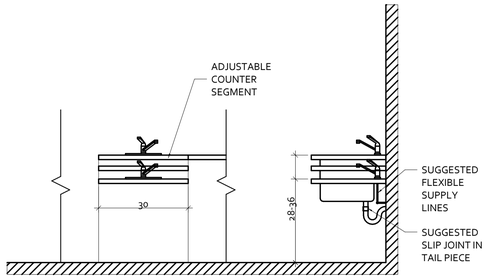
A CONTINUOUS UNOBSTRUCTED PATH CONNECTING ALL ACCESSIBLE SPACES AND ROOMS IN A BUILDING THAT CAN BE NEGOTIATED BY ALL CATEGORIES OF PEOPLE HAVING PHYSICAL DISABILITIES. PORTIONS OF ACCESSIBLE ROUTES WITH SLOPES OF MORE THAN 1:20 ARE RAMPS AND SHALL COMPLY WITH REQUIREMENTS FOR RAMPS. AN INTERIOR ACCESSIBLE ROUTE SHALL BE PROVIDED FROM THE ENTRANCE OF THE BUILDING TO ALL DWELLING UNITS IN THE BUILDING. ALL DWELLING UNITS ARE TO BE ADAPTABLE.

**ADAPTABLE DWELLING UNITS**

DWELLING UNITS WHICH ARE CONSTRUCTED ON AN ACCESSIBLE ROUTE AND EQUIPPED AS SET FORTH IN REFERENCE STANDARD RS 4-6 OF THE NYC BUILDING CODE SO THAT THEY CAN BE CONVERTED TO BE USED, WITH A MINIMUM OF STRUCTURAL CHANGE, BY ALL CATEGORIES OF PERSONS HAVING PHYSICAL DISABILITIES.
ALL DOORS TO BE PROVIDED WITH HANDICAP COMPLIANT HARDWARE AND SADDLES AS PER SEC. 4.13, ANSI A117.1. ADAPTABLE DWELLING UNITS SHALL BE EQUIPPED WITH DOOR WIDTHS AND CLEAR FLOOR SPACES FOR POSSIBLE OCCUPANTS WITH PHYSICAL DISABILITIES. ADAPTABLE SPACES WITHIN DWELLING UNITS SHALL INCLUDE KITCHENS AND BATHROOMS AND THEIR RESPECTIVE DOORWAYS. THE INFORMATION SHOWN ON THIS D



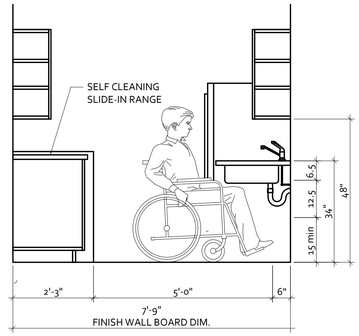
(A) BEFORE REMOVAL OF CABINETS AND BASE



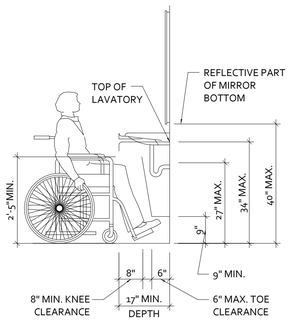

(B) CABINETS AND BASE REMOVED AND HEIGHT ALTERNATIVES

**KITCHEN SINK**

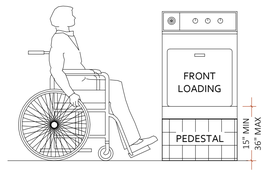
**ADAPTABLE KITCHENS (CAPABLE OF POSSIBLE FUTURE CONVERSION TO ACCESSIBLE KITCHENS)**



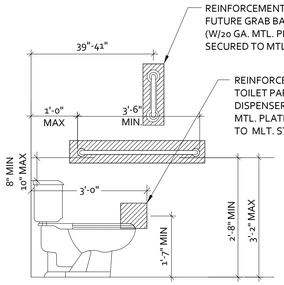

**KITCHEN CLEARANCE DIMENSIONS**



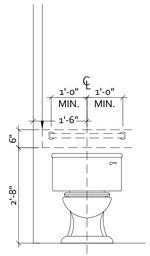

AS PER ANSI 611, WASHER DRYER COMBO MACHINES PROVIDED WITHIN TYPE B+NYC DWELLING UNITS SHALL COMPLY WITH SECTION 600 OF ICCA117.1 AND SHALL BE FRONT LOADING. ACCESSIBLE LAUNDRY EQUIPMENT SHALL BE IN COMMON-USE AREAS AS REQUIRED IN SECTION 107.3 AND SHALL COMPLY WITH SECTION 105.2.



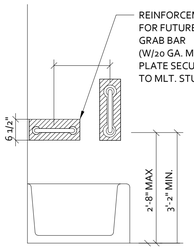

**WASHER/DRYER ELEVATION FORWARD APPROACH**



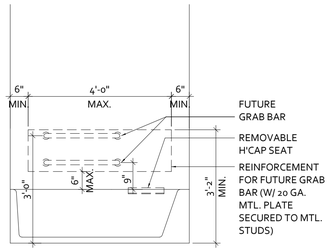

**ADAPTABLE TOILET**



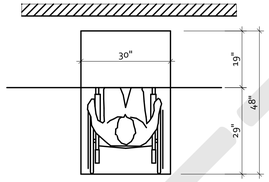

**ADAPTABLE TOILET**



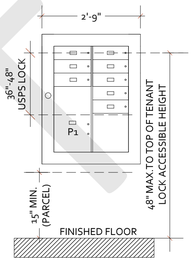

**HEAD END WALL**



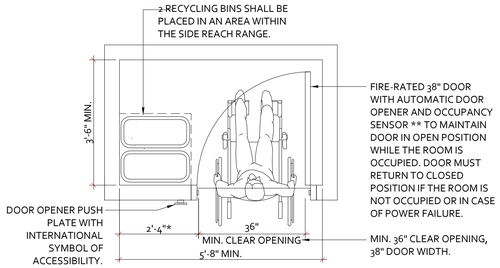

**ADAPTABLE BATHTUB**




**(C) CLEAR FLOOR SPACE UNDER WORK SURFACE**




**MAILBOX ELEVATION**




** THE OCCUPANCY SENSOR MAY BE:
1. WEIGHT SENSITIVE FLOOR MAT
2. INFRARED SENSOR
3. OTHER EQUIVALENT TECHNOLOGY

* VARIABLE DIMENSION. MUST BE OF SUFFICIENT SIZE TO ACCOMMODATE 2 DIFFERENT RECYCLING BINS AND BE WITHIN THE SIDE REACH RANGE.

**REFUSE DISPOSAL ROOM**

**GENERAL NOTES**

1. ONE LOWERABLE WORK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 2. ONE LOWERABLE SINK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 3. OVENS ARE ASSUMED TO BE SELF-CLEANING TYPE. IF OTHERWISE, PROVIDE A MINIMUM 30" ADJUSTABLE COUNTER SPACE WITH REMOVABLE BASE CABINETS NEXT TO OVEN . 4. A MINIMUM 36" TURNAROUND SPACE UNDER THE COUNTER WITH REMOVABLE BASE CABINETS SHALL BE PROVIDED IN DEEP CLOSED ENDED GALLEY KITCHENS AND OTHER U-SHAPED KITCHENS WHERE THE CLEARANCE BETWEEN CABINETS IS LESS THAN 5'-0". THE MINIMUM CLEARANCE BETWEEN CABINETS SHALL BE 40". 5. 48" A.F.F. WHEN CONVERTED TO ACCESSIBLE KITCHEN. PROVIDE REQUIRED WALL REINFORCEMENT FOR POSSIBLE FUTURE RELOCATION.

**ACCESSIBLE ROUTE**

A CONTINUOUS UNOBSTRUCTED PATH CONNECTING ALL ACCESSIBLE SPACES AND ROOMS IN A BUILDING THAT CAN BE NEGOTIATED BY ALL CATEGORIES OF PEOPLE HAVING PHYSICAL DISABILITIES. PORTIONS OF ACCESSIBLE ROUTES WITH SLOPES OF MORE THAN 1:20 ARE RAMPS AND SHALL COMPLY WITH REQUIREMENTS FOR RAMPS. AN INTERIOR ACCESSIBLE ROUTE SHALL BE PROVIDED FROM THE ENTRANCE OF THE BUILDING TO ALL DWELLING UNITS IN THE BUILDING. ALL DWELLING UNITS ARE TO BE ADAPTABLE.

**ADAPTABLE DWELLING UNITS**

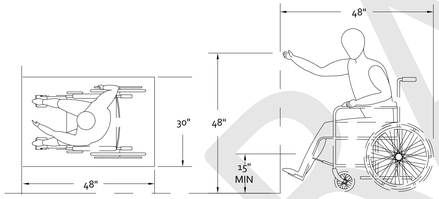
DWELLING UNITS WHICH ARE CONSTRUCTED ON AN ACCESSIBLE ROUTE AND EQUIPPED AS SET FORTH IN REFERENCE STANDARD RS 4-6 OF THE NYC BUILDING CODE SO THAT THEY CAN BE CONVERTED TO BE USED, WITH A MINIMUM OF STRUCTURAL CHANGE, BY ALL CATEGORIES OF PERSONS HAVING PHYSICAL DISABILITIES. ALL DOORS TO BE PROVIDED WITH HANDICAP COMPLIANT HARDWARE AND SADDLES AS PER SEC.4.13, ANSI A117.1. ADAPTABLE DWELLING UNITS SHALL BE EQUIPPED WITH DOOR WIDTHS AND CLEAR FLOOR SPACES FOR POSSIBLE OCCUPANTS WITH PHYSICAL DISABILITIES. ADAPTABLE SPACES WITHIN DWELLING UNITS SHALL INCLUDE KITCHENS AND BATHROOMS AND THEIR RESPECTIVE DOORWAYS. THE INFORMATION SHOWN ON THIS DRAWING IS FOR GUIDANCE PURPOSES ONLY AND OUTLINE THE MOST COMMON ACCESSIBILITY CRITERIA APPLICABLE TO THIS JOB. THEY DO NOT CONSTITUTE A COMPREHENSIVE DESCRIPTION OF ALL POSSIBLE CRITERIA WHICH ARE GIVEN IN RS 4-6 OF THE NYC BLDG. CODE AND ANSI A1117.1 - 1986 AS MODIFIED BY RS 4-6. THE GENERAL CONTRACTOR MUST DO ALL WORK IN ACCORDANCE WITH THESE REGULATIONS.

**OPERABLE PARTS**

309.1 GENERAL. OPERABLE PARTS REQUIRED TO BE ACCESSIBLE SHALL COMPLY WITH SECTION 309. 309.2 CLEAR FLOOR SPACE. A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 SHALL BE PROVIDED. 309.3 HEIGHT. OPERABLE PARTS SHALL BE PLACED WITHIN ONE OR MORE OF THE REACH RANGES SPECIFIED IN SECTION 308. 309.4 OPERATION. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5.0 POUNDS (22.2 N) MAXIMUM.

**REACH RANGES**

308.1 GENERAL. REACH RANGES SHALL COMPLY WITH SECTION 308. 308.2 FORWARD REACH. 308.2.1 UNOBSTRUCTED. WHERE A FORWARD REACH IS UNOBSTRUCTED, THE HIGH FORWARD REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM AND THE LOW FORWARD REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FLOOR. 308.2.2 OBSTRUCTED HIGH REACH. WHERE A HIGH FORWARD REACH IS OVER AN OBSTRUCTION, THE CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 SHALL EXTEND BENEATH THE ELEMENT FOR A DISTANCE NOT LESS THAN THE REQUIRED REACH DEPTH OVER THE OBSTRUCTION. THE HIGH FORWARD REACH SHALL BE 48 INCHES (1220MM) MAXIMUM ABOVE THE FLOOR WHERE THE REACH DEPTH IS 20 INCHES (510MM) MAXIMUM. WHERE THE REACH DEPTH EXCEEDS 20 INCHES (510 MM), THE HIGH FORWARD REACH SHALL BE 44 INCHES (1120 MM) MAXIMUM ABOVE THE FLOOR, AND THE REACH DEPTH SHALL BE 25 INCHES (635MM) MAXIMUM. 308.3 SIDE REACH. 308.3.1 UNOBSTRUCTED. WHERE A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE EDGE OF THE CLEAR FLOOR SPACE IS 10 INCHES (255 MM) MAXIMUM FROM THE ELEMENT, THE HIGH SIDE REACH SHALL BE 48 INCHES I (1220 MM) MAXIMUM AND THE LOW SIDE REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FLOOR. EXCEPTION: EXISTING ELEMENTS THAT ARE NOT ALTERED SHALL BE PERMITTED AT 54 INCHES (1370 MM) MAXIMUM ABOVE THE FLOOR. 308.3.2 OBSTRUCTED HIGH REACH. WHERE A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE HIGH SIDE REACH IS OVER AN OBSTRUCTION, THE HEIGHT OF THE OBSTRUCTION SHALL BE 34 INCHES (865 MM) MAXIMUM ABOVE THE FLOOR AND THE DEPTH OF THE OBSTRUCTION SHALL BE 24 INCHES (610 MM) MAXIMUM. THE HIGH SIDE REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM ABOVE THE FLOOR FOR A REACH DEPTH OF 10 INCHES (255 MM) MAXIMUM. WHERE THE REACH DEPTH EXCEEDS 10 INCHES (255 MM), THE HIGH SIDE REACH SHALL BE 46 INCHES (1170 MM) MAXIMUM ABOVE THE FLOOR FOR A REACH DEPTH OF 24 INCHES (610 MM) MAXIMUM. EXCEPTION: AT WASHING MACHINES AND CLOTHES DRYERS, THE HEIGHT OF THE OBSTRUCTION SHALL BE PERMITTED TO BE 36 INCHES (915 MM) MAXIMUM ABOVE THE FLOOR.

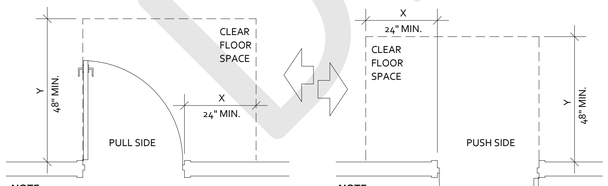



(a)

**HIGH FORWARD REACH LIMIT**

**FORWARD REACH**

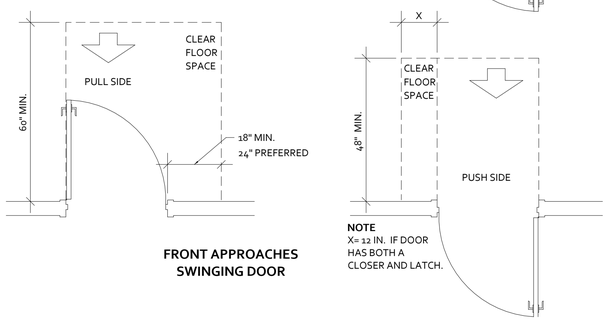
**FIG. 5**




**NOTE**
Y= 54 IN. MINIMUM IF DOOR HAS CLOSER.

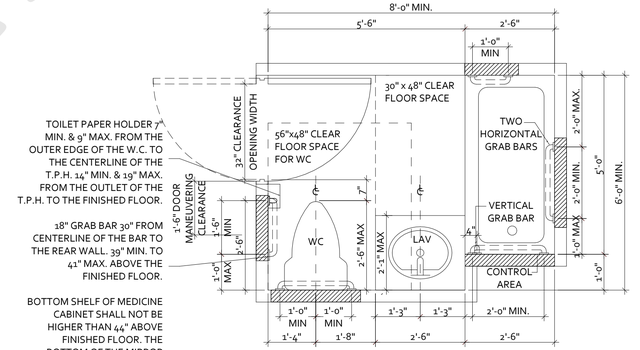
**NOTE**
Y= 48 IN. MINIMUM IF DOOR HAS CLOSER.

**LATCH-SIDE APPROACHES SWINGING DOOR**




**NOTE**
X= 12 IN. IF DOOR HAS BOTH A CLOSER AND LATCH.

**FRONT APPROACHES SWINGING DOOR**

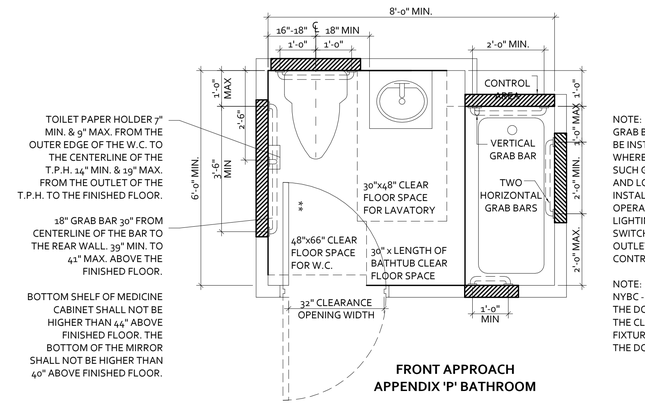



TOILET PAPER HOLDER 7" MIN. & 9" MAX. FROM THE OUTER EDGE OF THE W.C. TO THE CENTERLINE OF THE T.P.H. 14" MIN. & 19" MAX. FROM THE OUTLET OF THE T.P.H. TO THE FINISHED FLOOR.

18" GRAB BAR 30" FROM CENTERLINE OF THE BAR TO THE REAR WALL. 39" MIN. TO 41" MAX. ABOVE THE FINISHED FLOOR.

BOTTOM SHELF OF MEDICINE CABINET SHALL NOT BE HIGHER THAN 44" ABOVE FINISHED FLOOR. THE BOTTOM OF THE MIRROR SHALL NOT BE HIGHER THAN 40" ABOVE FINISHED FLOOR.

**SIDE APPROACH APPENDIX 'P' BATHROOM**




TOILET PAPER HOLDER 7" MIN. & 9" MAX. FROM THE OUTER EDGE OF THE W.C. TO THE CENTERLINE OF THE T.P.H. 14" MIN. & 19" MAX. FROM THE OUTLET OF THE T.P.H. TO THE FINISHED FLOOR.

18" GRAB BAR 30" FROM CENTERLINE OF THE BAR TO THE REAR WALL. 39" MIN. TO 41" MAX. ABOVE THE FINISHED FLOOR.

BOTTOM SHELF OF MEDICINE CABINET SHALL NOT BE HIGHER THAN 44" ABOVE FINISHED FLOOR. THE BOTTOM OF THE MIRROR SHALL NOT BE HIGHER THAN 40" ABOVE FINISHED FLOOR.

**FRONT APPROACH APPENDIX 'P' BATHROOM**

NOTE:
GRAB BARS ARE NOT REQUIRED TO BE INSTALLED WHERE REINFORCEMENT FOR SUCH GRAB BARS IS INSTALLED AND LOCATED TO PERMIT FUTURE INSTALLATION OF GRAB BARS. OPERABLE PARTS SUCH AS LIGHTING CONTROLS, ELECTRICAL SWITCHES AND RECEPTACLE OUTLETS, AND ENVIRONMENTAL CONTROLS SHALL BE ACCESSIBLE.

NOTE:
NYBC - P102.3 EXCEPTION 2 - THE DOOR MAY SWING INTO THE CLEAR FLOOR SPACE FOR FIXTURES IF FUTURE REVERSAL OF THE DOOR SWING IS PROVIDED.

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

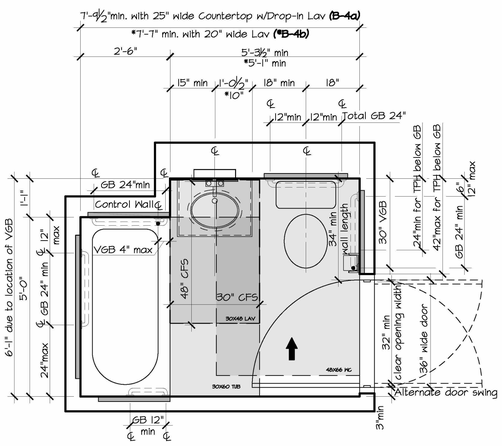
SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
ADA COMPLIANCE DETAILS

DRAWING NO.:
GN-002.00

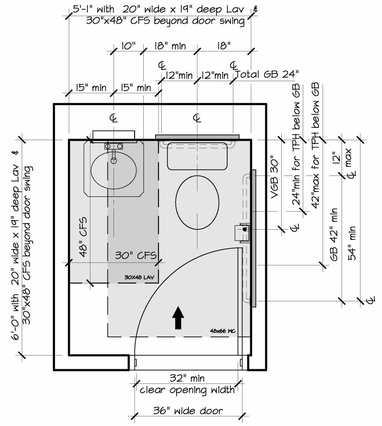
DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 10 OF 43




For this Layout Refer to:

| | |
|---|---|
| BR-6a(PD), 7a(PA), (PB), 8a(PB) | CFS @ Bathroom fixtures |
| BR-6b(PA), (EA) | GB & Reinforcement @ WC Rear Wall & Flush Control |
| BR-6d(PD), (ED) | GB & Reinforcement @ WC Side Wall |
| BR-6e(1A) | TPH |
| BR-7b | Lav Vanity, Mirror Medicine Cab |
| BR-8a(PC), 8b&8c | GB & Reinforcement @ Tub, Tub Control & Hand Shower |

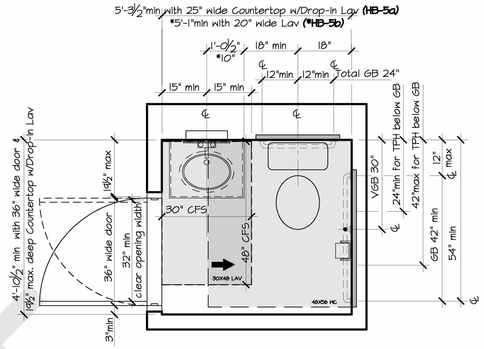
- DMC is required only outside of the bathroom




For this Layout Refer to:

| | |
|---|---|
| BR-6a(PD), 7a(PB) | CFS @ Bathroom fixtures |
| BR-6b(PA), (EA) | GB & Reinforcement @ WC Rear Wall |
| BR-6d(PE), (EE) | GB & Reinforcement @ WC Side Wall |
| B-R6d (1A) | TPH |
| B-R7b | Lav Vanity, Mirror & Medicine Cab |

- When TPH is Surface Mounted, it shall be installed so as not to limit full 90 degree door swing
- DMC is required only outside of the bathroom.




- *5'-1" relates to other dimensions with *

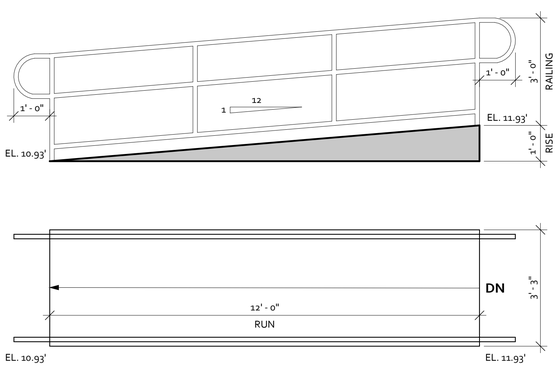
For this Layout Refer to:

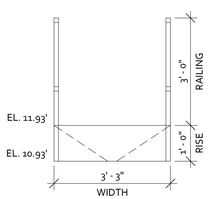
| | |
|---|---|
| BR-6a(PD), 7a(PA)or(PB) | CFS @ Bathroom fixtures |
| BR-6b(PA), (EA) | GB & Reinforcement @ WC Rear Wall |
| BR-6d(PE), (EE) | GB & Reinforcement @ WC Side Wall |
| B-R6d (1A) | TPH |
| B-R7b | Lav Vanity, Mirror & Medicine Cab |

- DMC is required only outside of the bathroom

| | COMPLIANCE | OVERALL DIMENSIONS | LAYOUT |
|---|---|---|---|
| Dwelling Unit Bathrooms | FHA / BC-Appendix "P" | 7'-9 1/2" x 6'-1" | B-4a |
| | | 7'-7" x 6'-1" | B-4b |
| Dwelling Unit Half-Baths | BC-Appendix "P" | 5'-1" x 6'-0" | HB-1b |
| Dwelling Unit Half-Baths | BC-Appendix "P" | 5'-3 1/2" x 4'-10 1/2" | HB-5a |
| | | 5'-1" x 4'-10 1/2" | HB-5b |

DRAFT




**BC 1010.2 SLOPE**

RAMPS USED AS PART OF A MEANS OF EGRESS OR PART OF AN ACCESSIBLE ROUTE SHALL HAVE A RUNNING SLOPE NOT STEEPER THAN ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL (8 PERCENT SLOPE). THE SLOPE OF OTHER PEDESTRIAN RAMPS SHALL NOT BE STEEPER THAN ONE UNIT VERTICAL IN EIGHT UNITS HORIZONTAL (12.5 PERCENT SLOPE).

RAMP SLOPE CALCULATION:
PROP'D VERTICAL RISE: 11.93' - 10.93' = 1.00'
PROP'D HORIZONTAL RUN: 12.00'
PROP'D SLOPE: (RISE) 1.00' / (RUN) 12.00' = 0.08 = 8%
PROP'D 8% = MAX PERMITTED 8%, THEREFORE OK

1 ADA RAMP DETAIL
1/2" = 1'-0"

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE'S APPROVAL:

DOB SCAN:

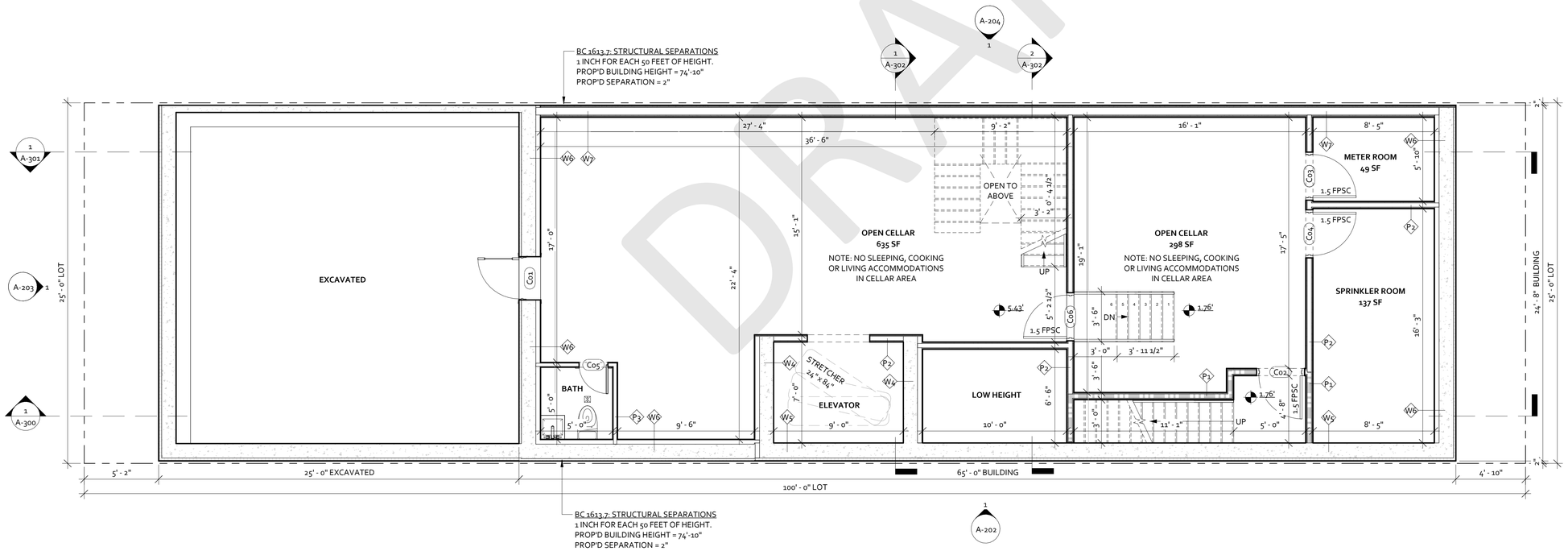
SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
ADA DETAILS CONTINUED

DRAWING NO.:
GN-003.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 11 OF 43




1 CELLAR
1/4" = 1'-0"

## LEGEND

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN
  (AD)AREA DRAIN
  (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
  150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

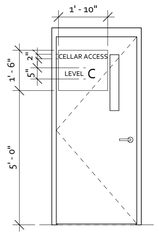
DRAWING TITLE:

# CELLAR FLOOR PLAN

DRAWING NO.:
A-100.00

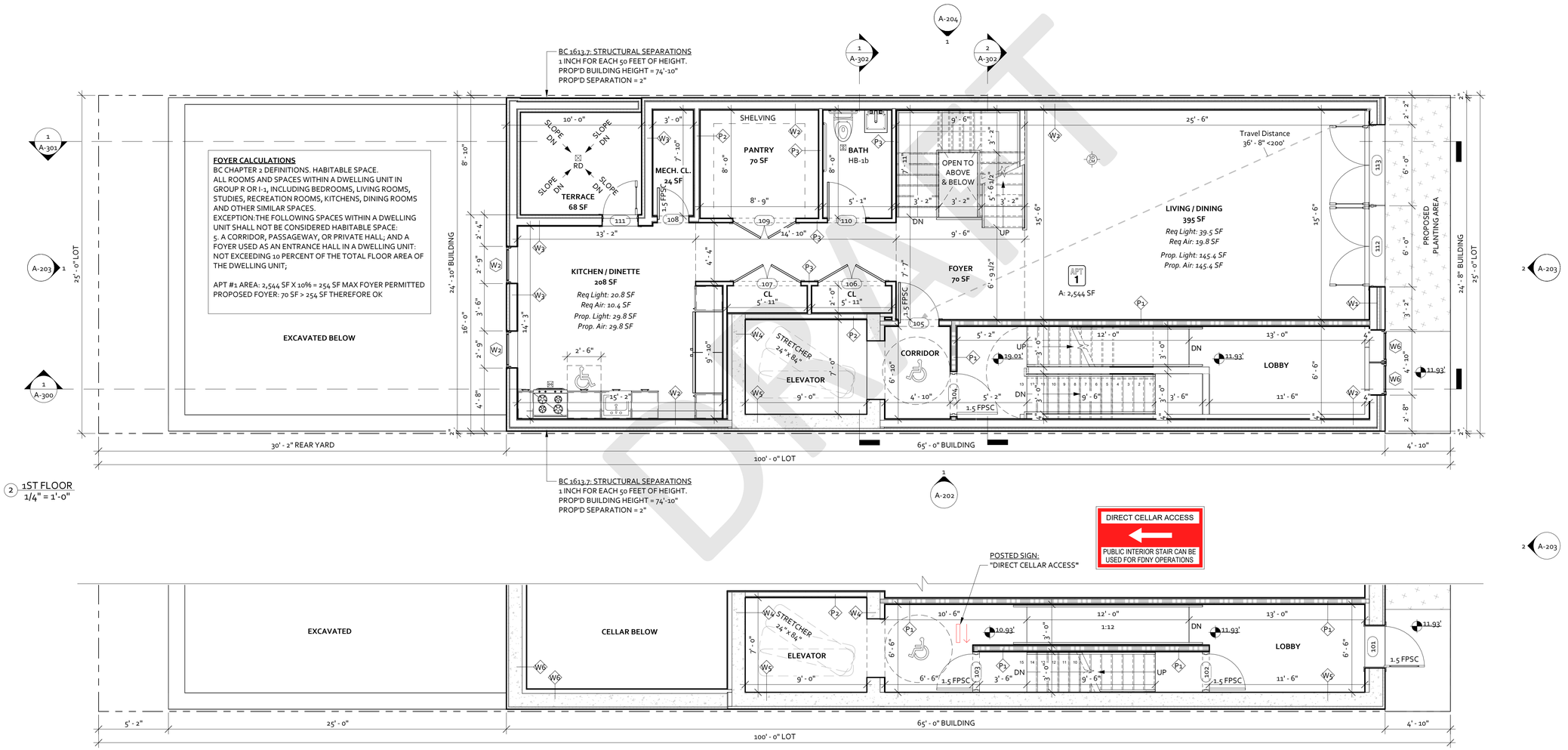
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 12 OF 43 |



**1008.1.9.10 STAIRWAY DOORS.**
INTERIOR STAIRWAY MEANS OF EGRESS DOORS SHALL BE OPENABLE FROM BOTH SIDES WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
**1022.8.4 SIGNAGE REQUIREMENTS.**
STAIRWAY AND FLOOR IDENTIFICATION SIGNS REQUIRED BY SECTIONS 1022.8.1 AND 1022.8.2 SHALL COMPLY WITH ALL OF THE FOLLOWING REQUIREMENTS:
1. THE SIGNS SHALL BE A MINIMUM SIZE OF 18 INCHES BY 12 INCHES.
2. THE ALPHABETIC LETTERS DESIGNATING THE IDENTIFICATION OF THE STAIR ENCLOSURE SHALL BE A MINIMUM OF 1/2 INCHES IN HEIGHT.
3. THE NUMBER DESIGNATING THE FLOOR LEVEL SHALL BE AMINIMUM OF 5 INCHES IN HEIGHT AND LOCATED IN THE CENTER OF THE SIGN.
4. ALL OTHER LETTERING AND NUMBERS SHALL BE A MINIMUM OF 1 INCH IN HEIGHT.
5. CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND, WITH EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.
6. WHEN SIGNS REQUIRED BY SECTION 1022.8 ARE INSTALLED IN INTERIOR EXIT ENCLOSURES OF BUILDINGS SUBJECT TO SECTION 1024, THE SIGNS SHALL BE MADE OF THE SAME LUMINOUS MATERIALS AS REQUIRED BY SECTION 1024.4.

THE INTERIOR CORRIDOR LEADING TO THE CELLAR SHALL BE ENCLOSED IN 2-HOUR FIRE RATED WALLS (WITH UL OR TESTED LABORATORY NUMBER), CEILING AND ASSEMBLIES WITH 1-1/2 HOURS FIRE-RATED SELF-CLOSING DOORS, AT BOTH LEVELS OF SUCH CELLAR AND THE 1ST FLOOR.
PROP'D CORRIDOR ENCLOSED IN A 2- HOUR FIRE RATED ENCLOSURE.




DRAFT

## LEGEND

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS
**APT. #1:**
2,544 SF /200 = 12.7 SF **USE 12 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

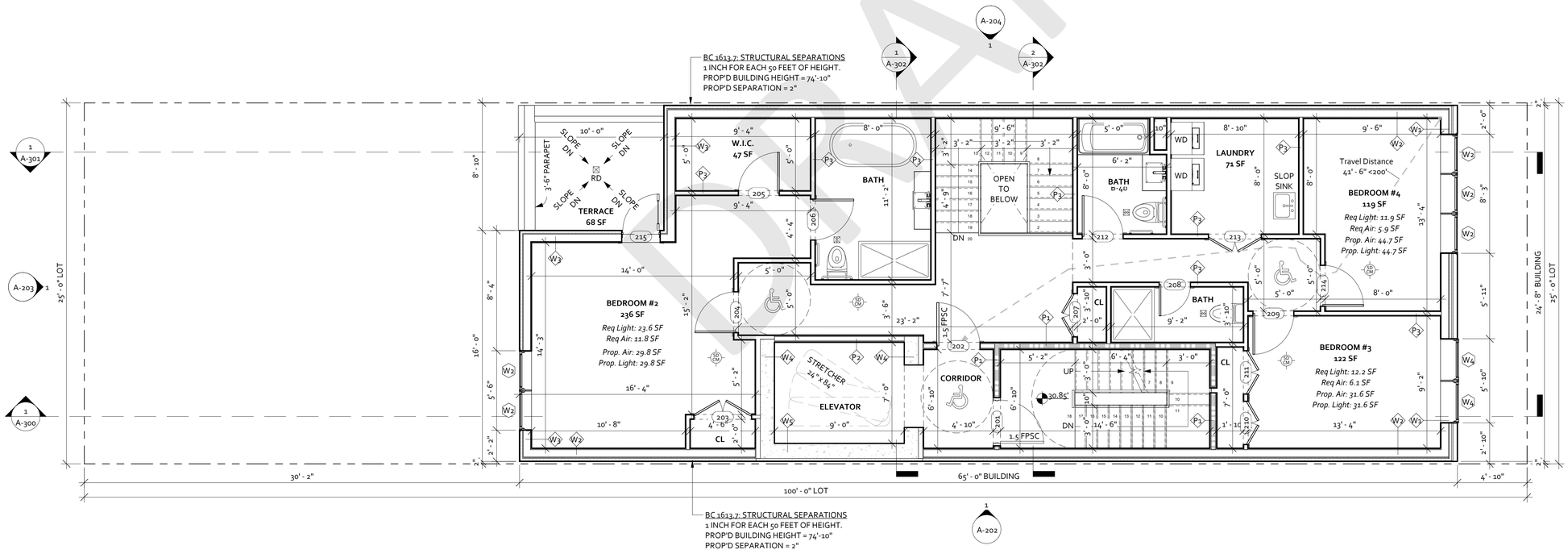
SEAL AND SIGNATURE:

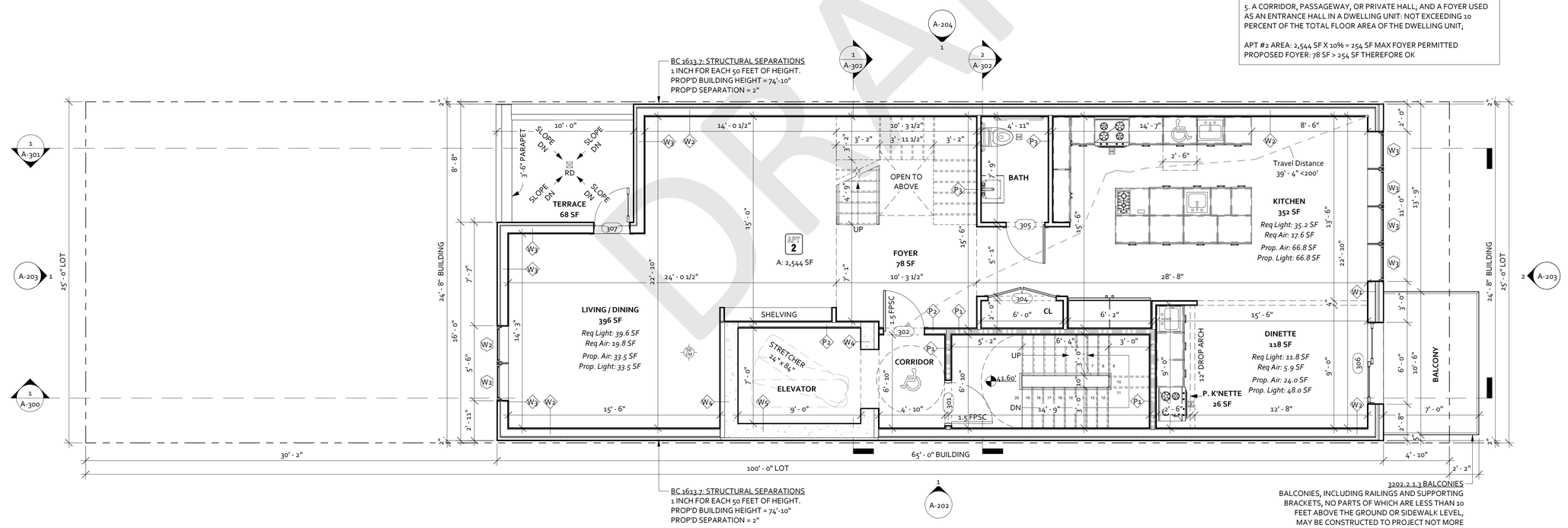
DOB JOB No:
B01127089-I1

DRAWING TITLE:
FIRST FLOOR PLAN

DRAWING NO.:
A-101.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 13 OF 43 |


BC 1613.7: STRUCTURAL SEPARATIONS
1 INCH FOR EACH 50 FEET OF HEIGHT.
PROP'D BUILDING HEIGHT = 74'-10"
PROP'D SEPARATION = 2"
A-204
1
1
A-302
2
A-302
1
A-301
A-203
1
25' - 0" LOT
1
A-300
8' - 10"
8' - 4"
16' - 0"
5' - 6"
14' - 3"
2' - 2"
2"
10' - 0"
SLOPE DN
SLOPE DN
SLOPE DN
SLOPE DN
RD
3'-6" PARAPET
TERRACE
68 SF
9' - 4"
W.I.C.
47 SF
205
206
215
W3
5' - 0"
P3
8' - 0"
BATH
11' - 7"
9' - 4"
4' - 4"
14' - 0"
5' - 0"
5' - 0"
BEDROOM #2
236 SF
Req Light: 23.6 SF
Req Air: 11.8 SF
Prop. Air: 29.8 SF
Prop. Light: 29.8 SF
15' - 2"
204
16' - 4"
10' - 8"
W2
W3
W2
5' - 2"
203
4' - 6"
2' - 0"
CL
STRETCHER
24" x 84"
ELEVATOR
9' - 0"
7' - 0"
W3
W2
3' - 6"
23' - 2"
1.5 FPSC
202
CORRIDOR
6' - 10"
4' - 10"
P1
P2
P1
1.5 FPSC
9' - 6"
3' - 2"
3' - 2"
3' - 2"
OPEN
TO
BELOW
DN 20
6' - 0"
5' - 0"
10"
BATH
5'-4.0"
6' - 2"
8' - 0"
4' - 9"
212
WD
WD
8' - 10"
LAUNDRY
71 SF
213
SLOP
SINK
8' - 0"
8' - 0"
9' - 6"
Travel Distance
41' - 6" <200'
BEDROOM #4
119 SF
Req Light: 11.9 SF
Req Air: 5.9 SF
Prop. Air: 44.7 SF
Prop. Light: 44.7 SF
13' - 4"
W2
W2
W2
W2
8' - 3"
5' - 11"
208
BATH
9' - 2"
3' - 10"
207
3' - 10"
CL
2' - 0"
209
214
5' - 0"
5' - 0"
8' - 0"
BEDROOM #3
122 SF
Req Light: 12.2 SF
Req Air: 6.1 SF
Prop. Air: 31.6 SF
Prop. Light: 31.6 SF
13' - 4"
W2
W1
9' - 2"
5' - 10"
W4
W4
2' - 10"
2"
24' - 8" BUILDING
25' - 0" LOT
2
A-203
UP
3' - 0"
30.8sc
DN
14' - 6"
3' - 0"
6' - 4"
3' - 0"
CL
211
7' - 0"
1' - 10"
210
201
1.5 FPSC
P1
P1
P3
P1
P3
P3
P3




BC 1613.7: STRUCTURAL SEPARATIONS
1 INCH FOR EACH 50 FEET OF HEIGHT.
PROP'D BUILDING HEIGHT = 74'-10"
PROP'D SEPARATION = 2"

**FOYER CALCULATIONS**
BC CHAPTER 2 DEFINITIONS. HABITABLE SPACE.
ALL ROOMS AND SPACES WITHIN A DWELLING UNIT IN GROUP R OR I-1, INCLUDING BEDROOMS, LIVING ROOMS, STUDIES, RECREATION ROOMS, KITCHENS, DINING ROOMS AND OTHER SIMILAR SPACES. EXCEPTION:THE FOLLOWING SPACES WITHIN A DWELLING UNIT SHALL NOT BE CONSIDERED HABITABLE SPACE:
5. A CORRIDOR, PASSAGEWAY, OR PRIVATE HALL; AND A FOYER USED AS AN ENTRANCE HALL IN A DWELLING UNIT: NOT EXCEEDING 10 PERCENT OF THE TOTAL FLOOR AREA OF THE DWELLING UNIT,

APT #2 AREA: 2,544 SF X 10% = 254 SF MAX FOYER PERMITTED
PROPOSED FOYER: 78 SF > 254 SF THEREFORE OK

1 3RD FLOOR
1/4" = 1'-0"

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN
- (AD)AREA DRAIN
- (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**APT. #2:**
2,544 SF /200 = 12.7 SF **USE 12 PERSONS**

3202.2.1.3 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.

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

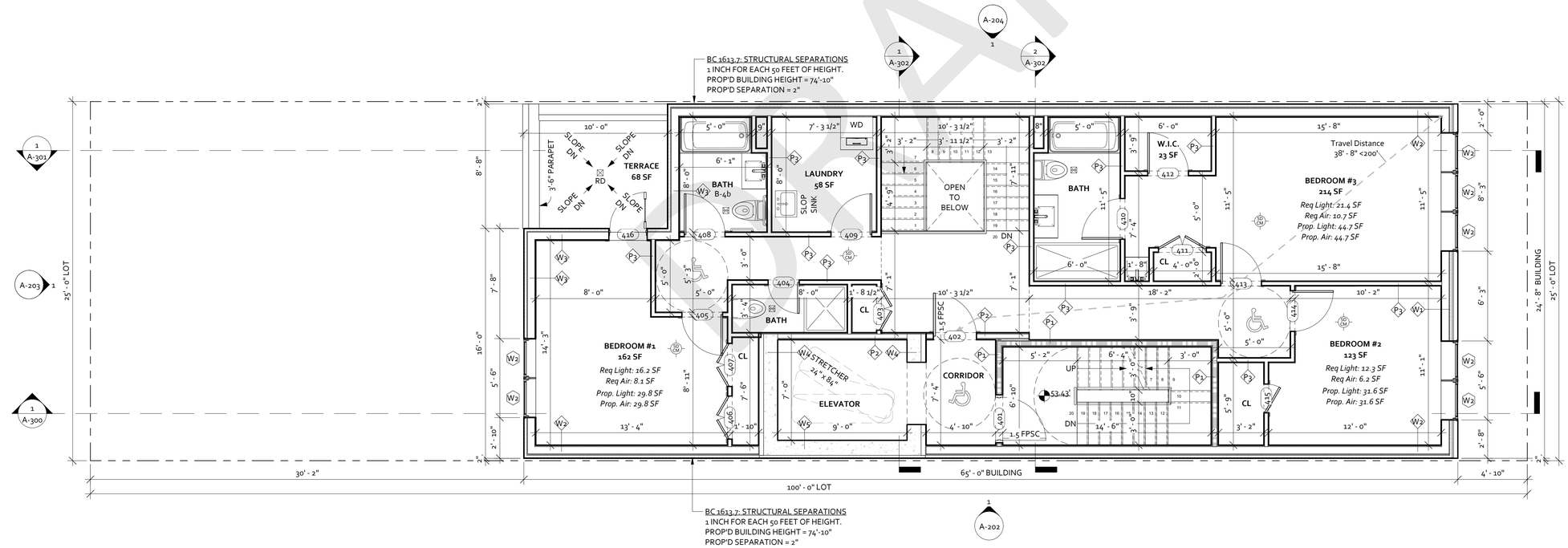
DOB JOB No:
B01127089-I1

DRAWING TITLE:
THIRD FLOOR PLAN

DRAWING NO.:
A-103.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 15 OF 43 |




1 4TH FLOOR
1/4" = 1'-0"

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN
  (AD)AREA DRAIN
  (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
  150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

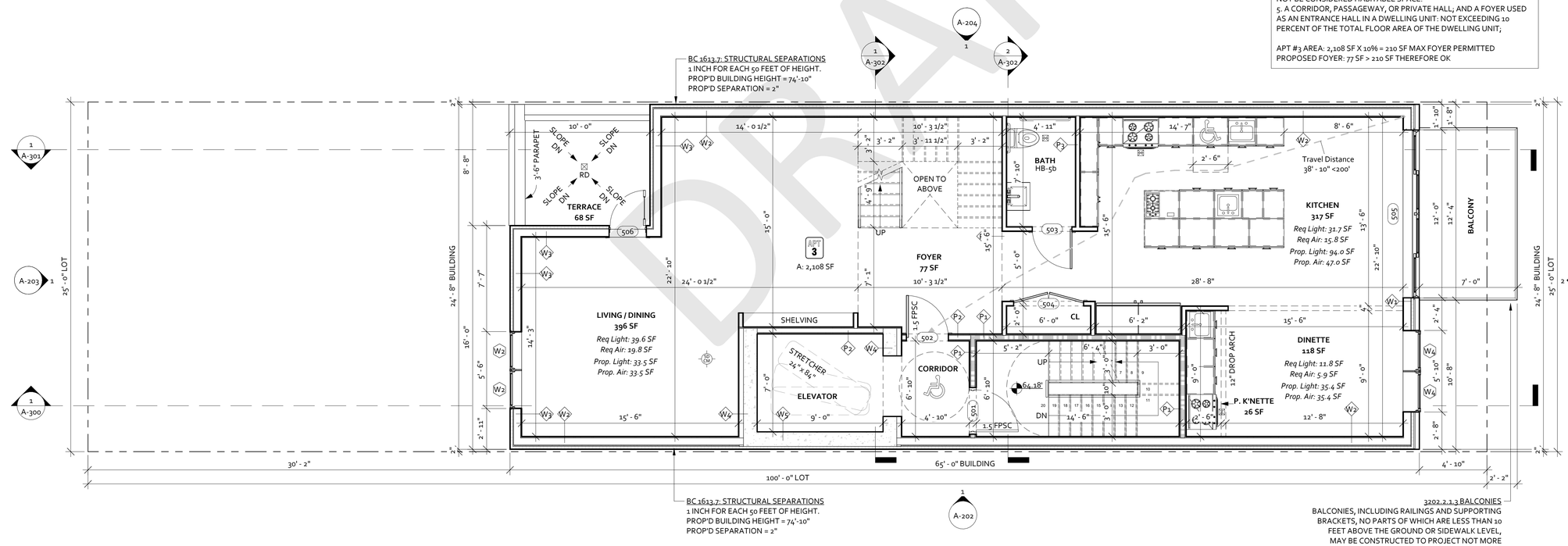
DOB JOB No:
B01127089-I1

DRAWING TITLE:

# FOURTH FLOOR PLAN

DRAWING NO.:
A-104.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 16 OF 43 |




BC 1613.7: STRUCTURAL SEPARATIONS
1 INCH FOR EACH 50 FEET OF HEIGHT.
PROP'D BUILDING HEIGHT = 74'-10"
PROP'D SEPARATION = 2"

**FOYER CALCULATIONS**
BC CHAPTER 2 DEFINITIONS. HABITABLE SPACE.
ALL ROOMS AND SPACES WITHIN A DWELLING UNIT IN GROUP R OR I-1, INCLUDING BEDROOMS, LIVING ROOMS, STUDIES, RECREATION ROOMS, KITCHENS, DINING ROOMS AND OTHER SIMILAR SPACES.
EXCEPTION:THE FOLLOWING SPACES WITHIN A DWELLING UNIT SHALL NOT BE CONSIDERED HABITABLE SPACE:
5. A CORRIDOR, PASSAGEWAY, OR PRIVATE HALL; AND A FOYER USED AS AN ENTRANCE HALL IN A DWELLING UNIT: NOT EXCEEDING 10 PERCENT OF THE TOTAL FLOOR AREA OF THE DWELLING UNIT;

APT #3 AREA: 2,108 SF X 10% = 210 SF MAX FOYER PERMITTED
PROPOSED FOYER: 77 SF > 210 SF THEREFORE OK

3202.2.1.3 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.

1 5TH FLOOR
1/4" = 1'-0"

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN
- (AD)AREA DRAIN
- (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**APT. #3:**
2,108 SF /200 = 10.5 SF **USE 10 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

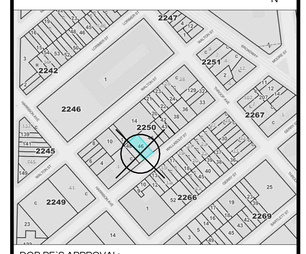
4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
FIFTH FLOOR PLAN

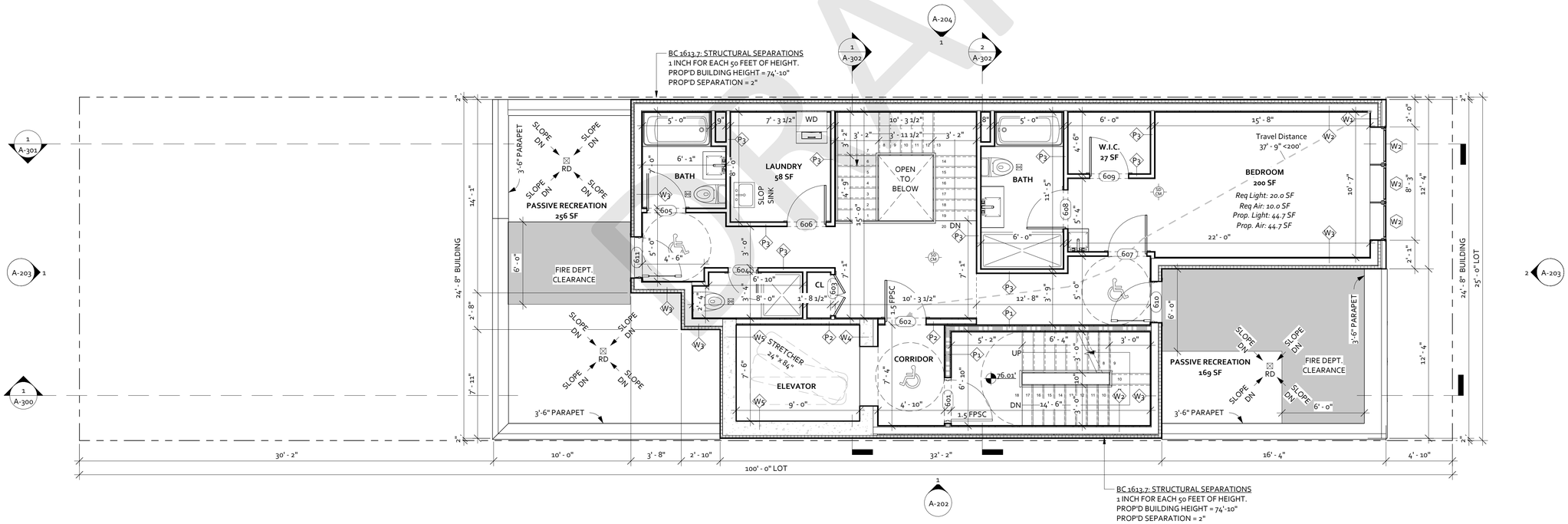
DRAWING NO.:
A-105.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 17 OF 43

DRAFT

**BUILDINGS BULLETIN 2019-010 SUSTAINABLE ROOFING ZONE**
AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE: THE FOLLOWING AREAS ARE EXCLUDED FROM THE SUSTAINABLE ROOFING ZONE:
5. RECREATIONAL SPACES THAT ARE INTEGRAL TO THE PRINCIPAL USE OF THE BUILDING ON WHICH THE ROOFTOP IS LOCATED, INCLUDING BUT NOT LIMITED TO PLAYGROUNDS AND PARTICIPANT SPORT AREAS FOR SPORTS FACILITIES AND SCHOOLS, QUALITY HOUSING RECREATION SPACES, ROOF TERRACES AND PASSIVE RECREATION AREAS THAT ARE DOCUMENTED ON THE CERTIFICATE OF OCCUPANCY OR DEPARTMENT OF BUILDINGS APPROVED FILING AS OUTLINED IN BUILDING BULLETIN 2018-002.
THIS PROJECT IS EXEMPT FROM SUSTAINABLE ROOFING ZONE AS PER BUILDING BULLETIN 2019-010, II (C) 5 - RECREATION SPACES

DRAFT




1 6TH FLOOR
1/4" = 1'-0"

## LEGEND

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS. PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**PASSIVE RECREATION SPACE:**
169 SF /200 = 0.8 SF **USE 1 PERSONS**
263 SF /200 = 1.3 SF **USE 1 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

DOB JOB No:
B01127089-I1

DRAWING TITLE:
# SIXTH FLOOR PLAN

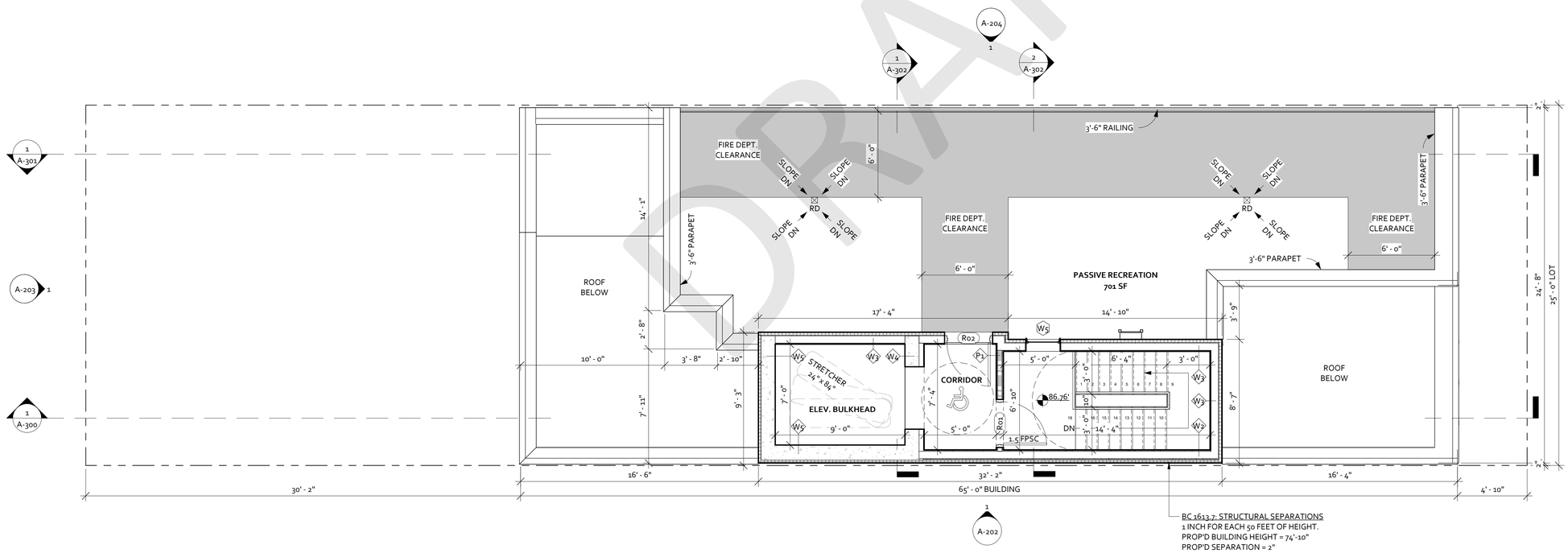
DRAWING NO.:
A-106.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 18 OF 43 |

**BC 708.12.1.2 SMOKE VENT CALCULATIONS**
THE EFFECTIVE VENTING AREA SHALL NOT BE LESS THAN 3½ PERCENT OF THE MAXIMUM SHAFT AREA AT ANY FLOOR, BUT IN NO EVENT LESS THAN 72 SQUARE INCHES.
STAIR AREA: 98 SF X 3.5% = 3.4 SF VENTING REQUIRED
WINDOW: (2'-5" X 2'-11") (0.5) = 3.5 SF
PROP'D: 3.5 SF > 3.4 SF REQUIRED THEREFORE OK

**BC 3004.5.1 SMOKE VENT CALC. FOR ELEVATOR SHAFT**
VENTING AREA NO LESS THAN 3.5 PERCENT OF THE SHAFT AREA NOR LESS THEN 3 SQ FT FOR EACH ELEVATOR CAR WHICH EVER IS GREATER.
SHAFT AREA: 7'-0" X 9'-0" = 63 SF X 3.5% = 2.2 SF REQ.
PROP'D LOUVER:
3'-0" X 2'-0" = 6 SF > 2.5 REQ. THEREFORE OK

**BUILDINGS BULLETIN 2019-010 SUSTAINABLE ROOFING ZONE**
AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE: THE FOLLOWING AREAS ARE EXCLUDED FROM THE SUSTAINABLE ROOFING ZONE:
5. RECREATIONAL SPACES THAT ARE INTEGRAL TO THE PRINCIPAL USE OF THE BUILDING ON WHICH THE ROOFTOP IS LOCATED, INCLUDING BUT NOT LIMITED TO PLAYGROUNDS AND PARTICIPANT SPORT AREAS FOR SPORTS FACILITIES AND SCHOOLS, QUALITY HOUSING RECREATION SPACES, ROOF TERRACES AND PASSIVE RECREATION AREAS THAT ARE DOCUMENTED ON THE CERTIFICATE OF OCCUPANCY OR DEPARTMENT OF BUILDINGS APPROVED FILING AS OUTLINED IN BUILDING BULLETIN 2018-002.
THIS PROJECT IS EXEMPT FROM SUSTAINABLE ROOFING ZONE AS PER BUILDING BULLETIN 2019-010, II (C) 5 - RECREATION SPACES




BC 1613.7: STRUCTURAL SEPARATIONS
1 INCH FOR EACH 50 FEET OF HEIGHT.
PROP'D BUILDING HEIGHT = 74'-10"
PROP'D SEPARATION = 2"

1 ROOF
1/4" = 1'-0"

**LEGEND**

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**PASSIVE RECREATION SPACE:**
701 SF /200 = 3.5 SF **USE 3 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

DOB JOB No:
B01127089-I1

DRAWING TITLE:

## ROOF FLOOR PLAN

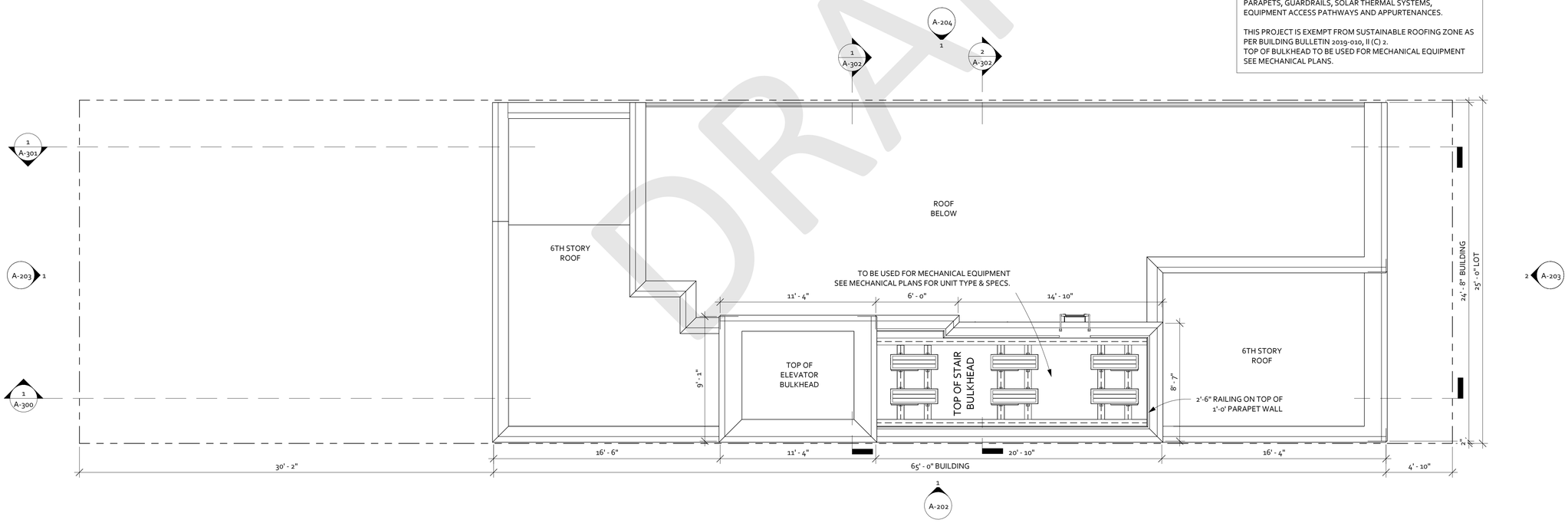
| DRAWING NO.: | |
|---|---|
| A-107.00 | |
| DATE: 4/3/2025 | DRAWN BY: YR |
| SCALE: AS NOTED | SHEET NO.: 19 OF 43 |

DRAFT

DRAFT

**BUILDINGS BULLETIN 2019-010 SUSTAINABLE ROOFING ZONE**
C. AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE:
2. AREAS OCCUPIED BY ROOFTOP STRUCTURES, WATER TOWERS, GREENHOUSES, MECHANICAL EQUIPMENT, TOWERS, ANTENNAS, PARAPETS, GUARDRAILS, SOLAR THERMAL SYSTEMS, EQUIPMENT ACCESS PATHWAYS AND APPURTENANCES.

THIS PROJECT IS EXEMPT FROM SUSTAINABLE ROOFING ZONE AS PER BUILDING BULLETIN 2019-010, II (C) 2.
TOP OF BULKHEAD TO BE USED FOR MECHANICAL EQUIPMENT
SEE MECHANICAL PLANS.




1 TOP OF BUILDING
1/4" = 1'-0"

## LEGEND

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN, 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
EXCELSIOR
STATE OF NEW YORK

DOB JOB No:
B01127089-I1

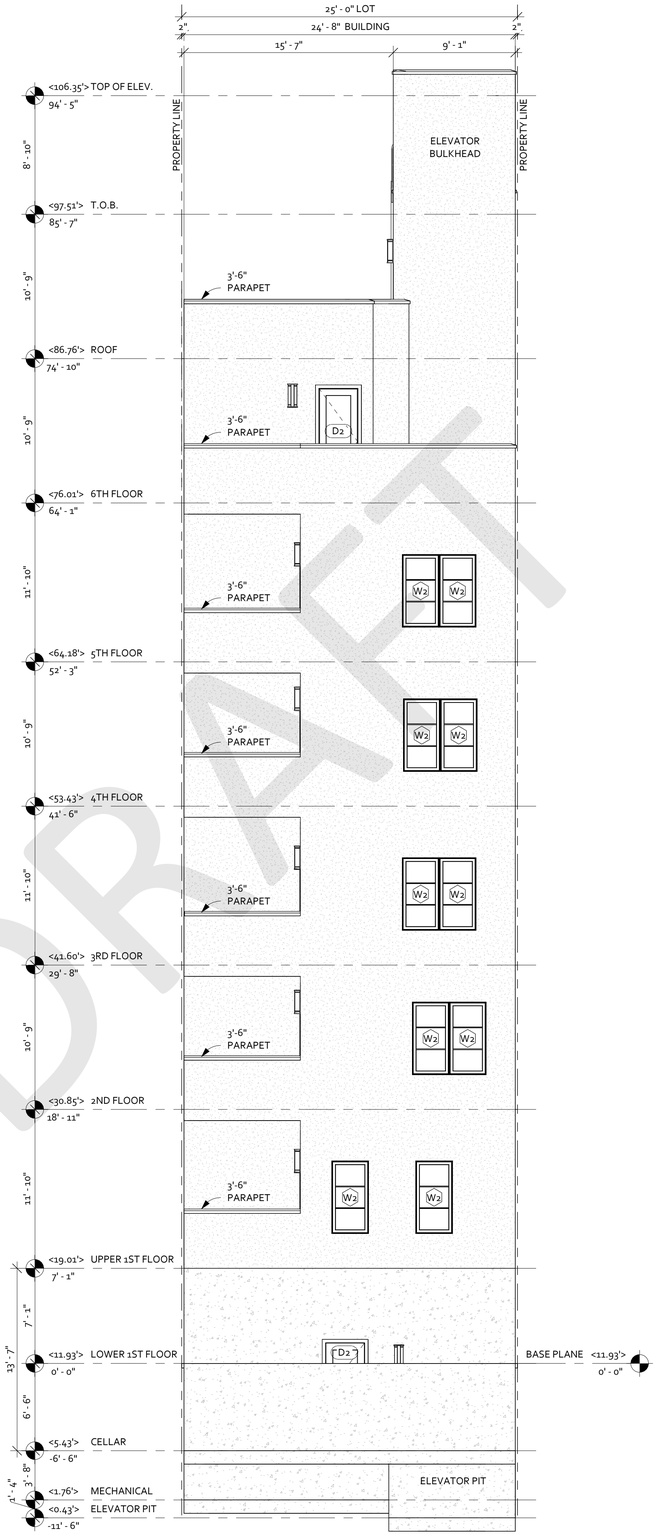
DRAWING TITLE:
TOP OF BUILDING PLAN

DRAWING NO.:
A-108.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 20 OF 43 |

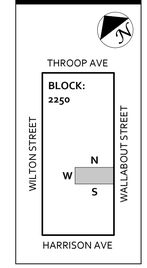
1 EAST ELEVATION
3/16" = 1'-0"




2 WEST ELEVATION
3/16" = 1'-0"

DRAFT

## KEY PLAN




STRUCTURAL DESIGN BY OTHERS

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

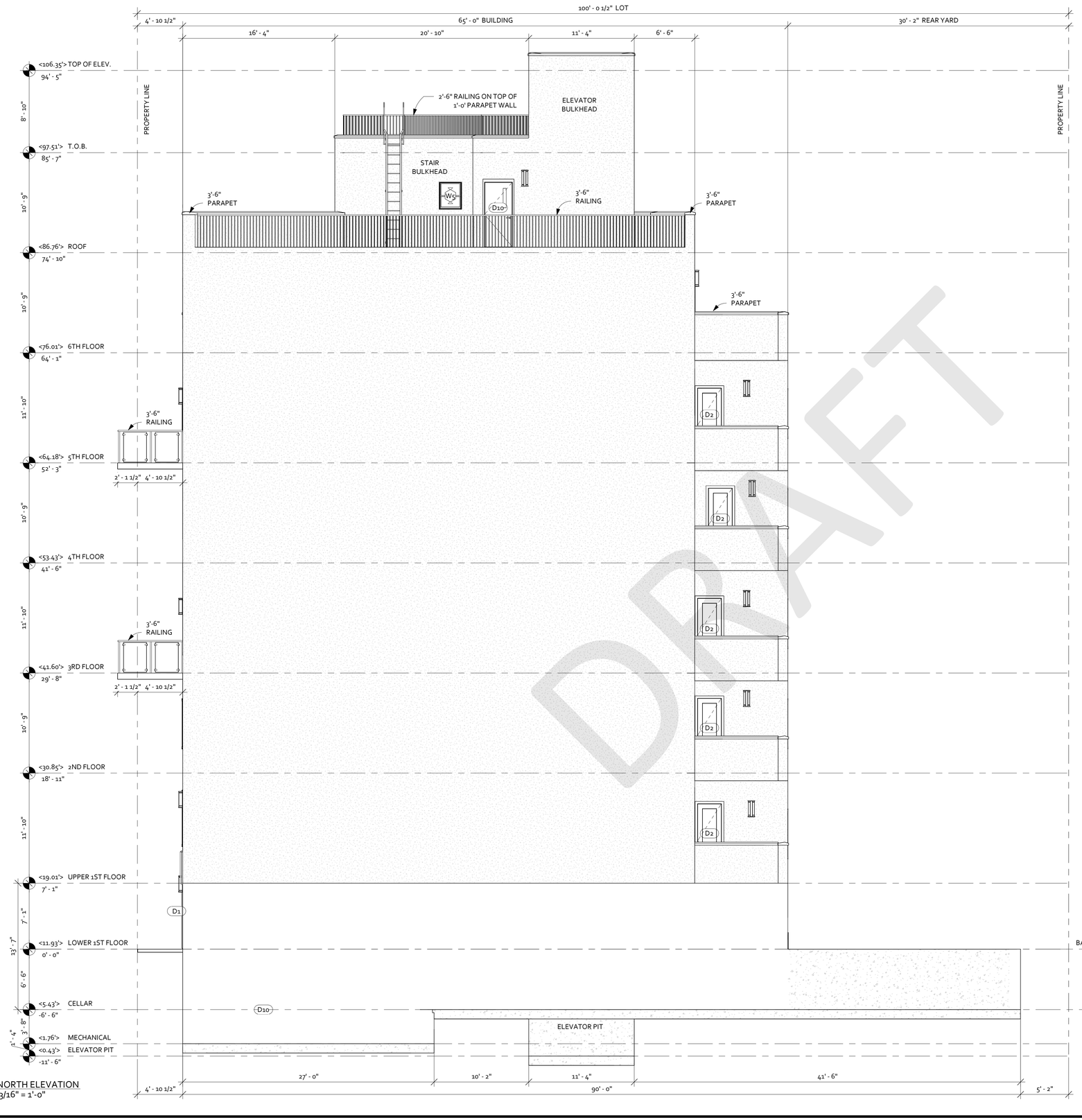
DOB JOB No:
B01127089-I1

DRAWING TITLE:

# EAST & WEST ELEVATION

DRAWING NO.:
A-200.00

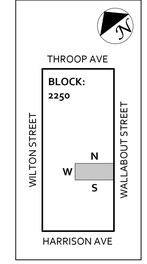
DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 21 OF 43




1 NORTH ELEVATION
3/16" = 1'-0"

DRAFT

## KEY PLAN




STRUCTURAL DESIGN BY OTHERS

REVISIONS

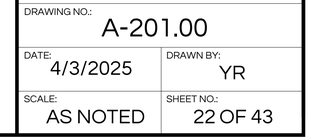
| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

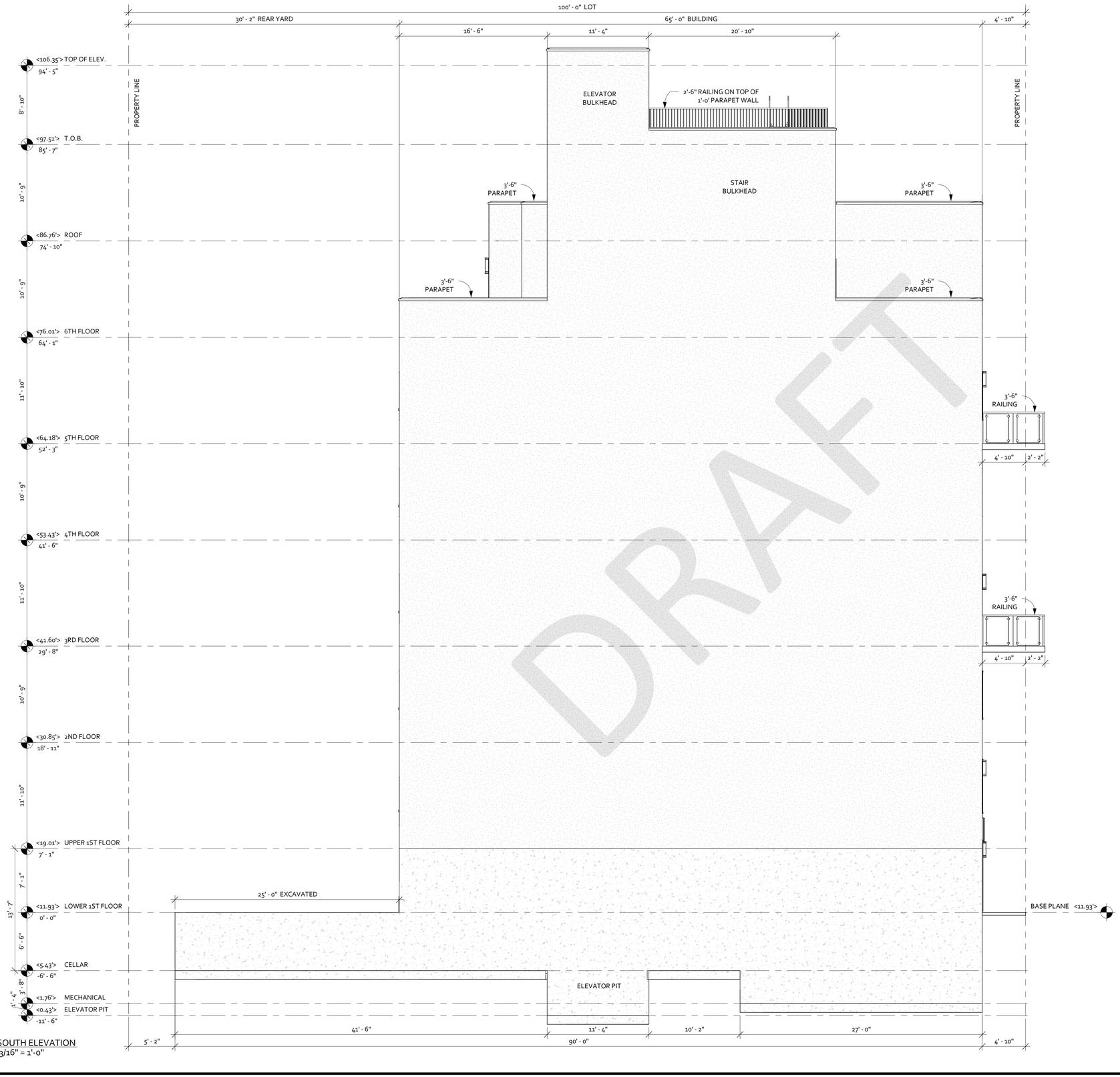
SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
NORTH ELEVATION

DRAWING NO.:
A-201.00

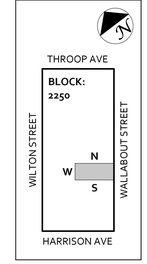
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 22 OF 43 |




1 SOUTH ELEVATION
3/16" = 1'-0"

DRAFT

## KEY PLAN




REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

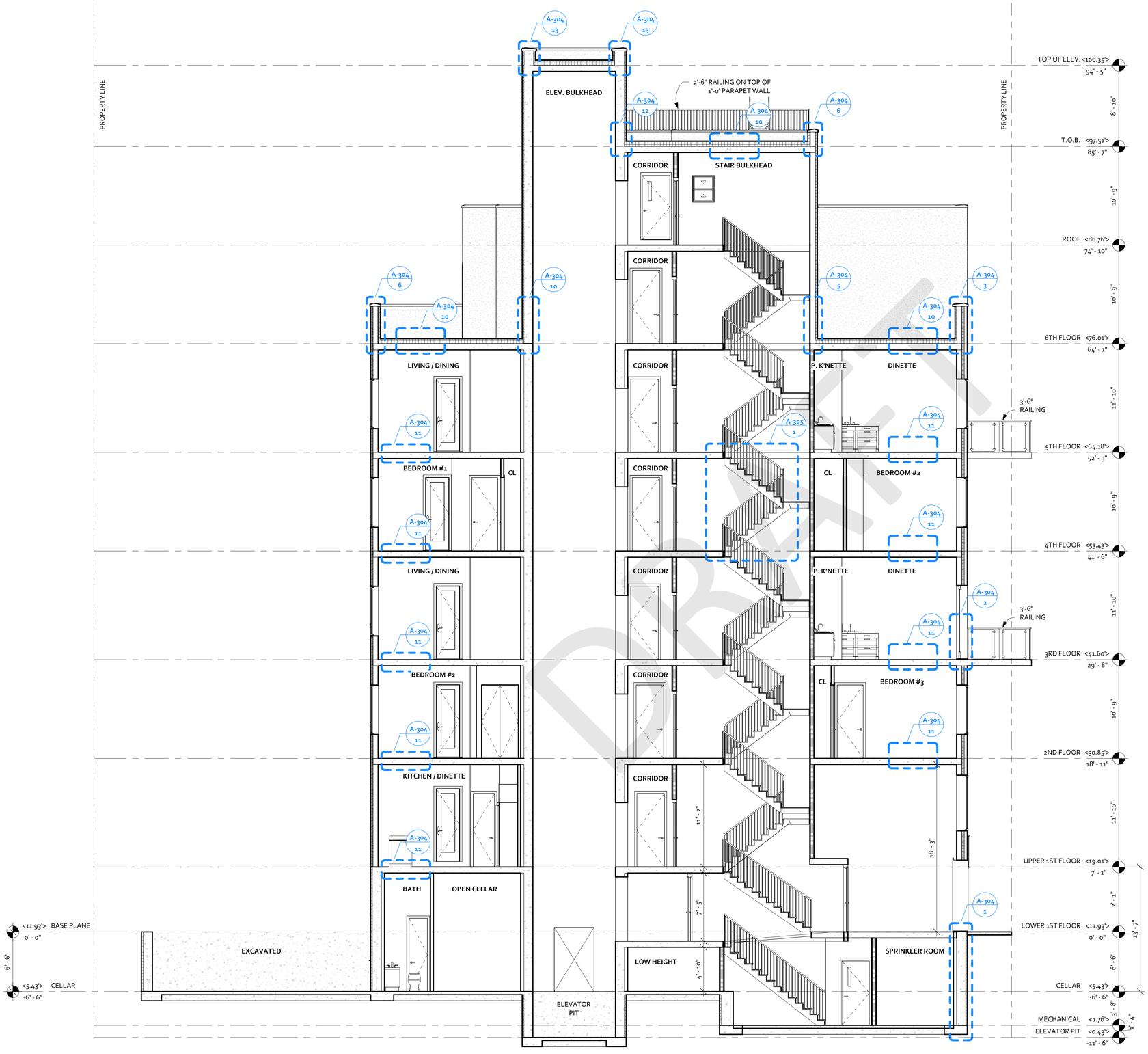
DRAWING TITLE:
SOUTH ELEVATION

DRAWING NO.:
A-202.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 23 OF 43 |

STRUCTURAL DESIGN BY OTHERS




1 LONGITUDINAL SECTION A
3/16" = 1'-0"

STRUCTURAL DESIGN BY OTHERS

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

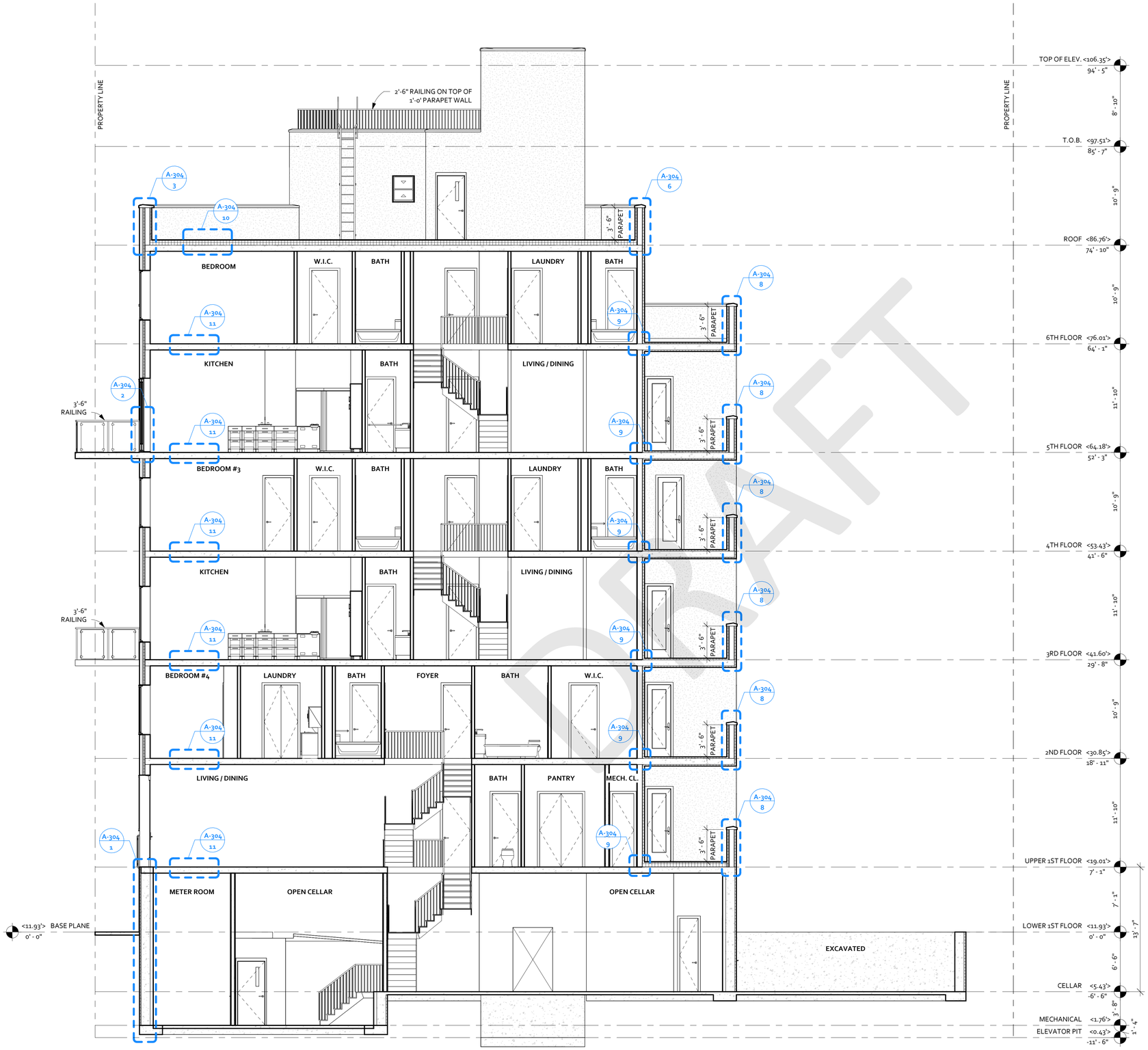
DOB JOB No: B01127089-I1

DRAWING TITLE:

# LONGITUDINAL SECTION A

DRAWING NO.: A-300.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: AS NOTED | SHEET NO.: 24 OF 43 |




1 LONGITUDINAL SECTION B
3/16" = 1'-0"

STRUCTURAL DESIGN BY OTHERS

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

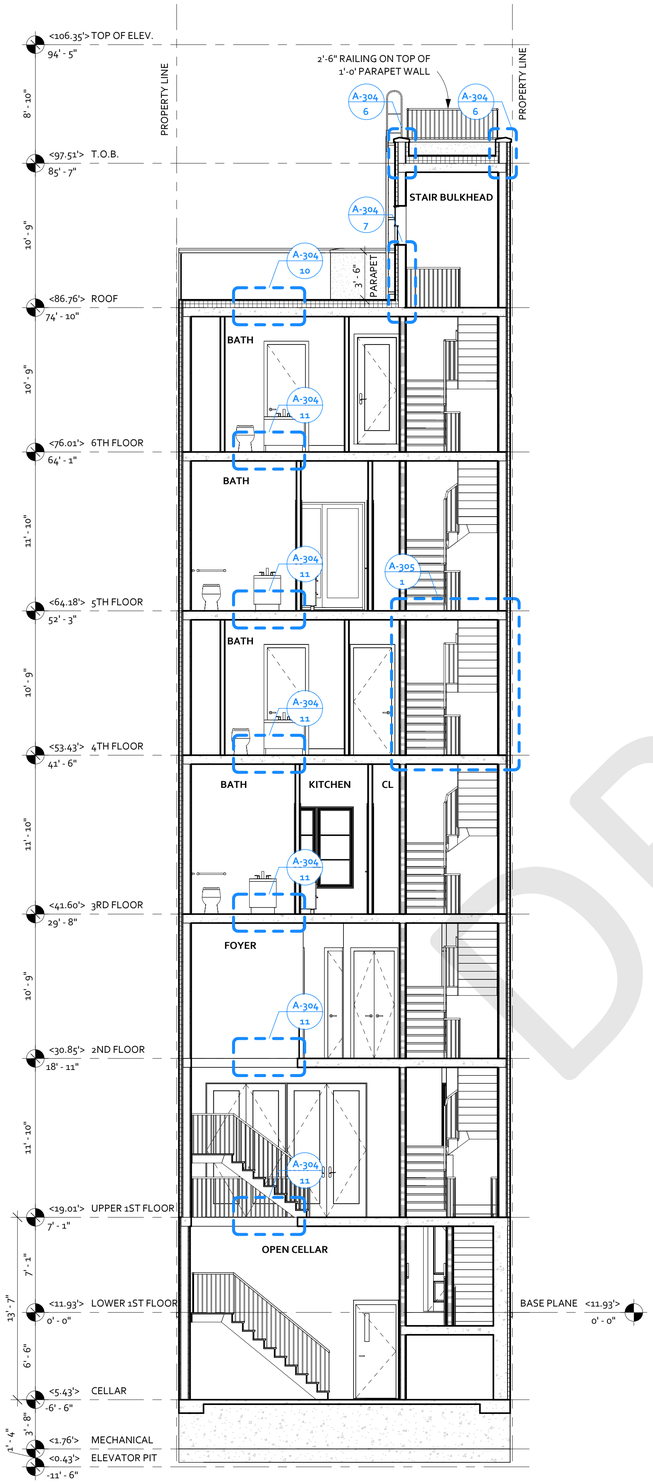
DOB JOB No:
B01127089-I1

DRAWING TITLE:
LONGITUDINAL SECTION B

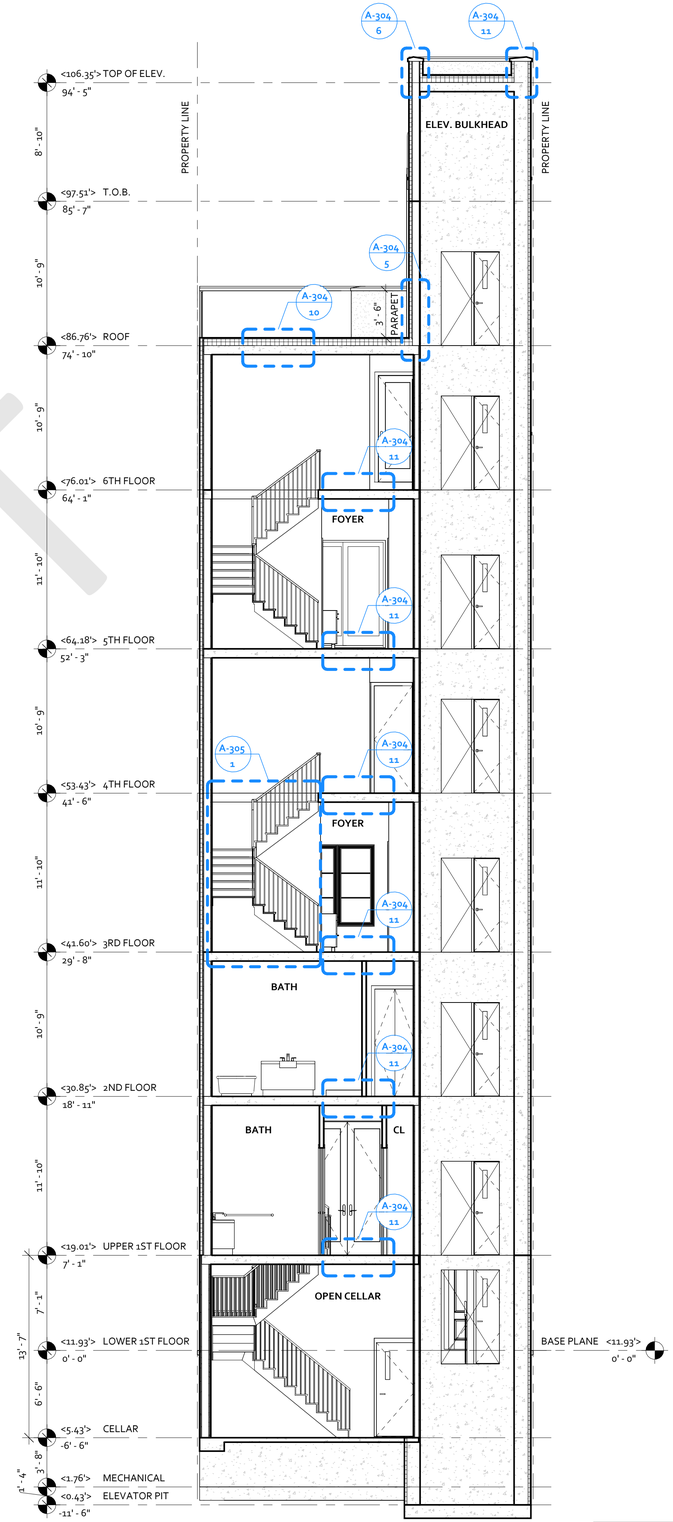
DRAWING NO.:
A-301.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 25 OF 43 |




2 CROSS SECTION A
3/16" = 1'-0"




1 CROSS SECTION B
3/16" = 1'-0"

STRUCTURAL DESIGN
BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
CROSS SECTIONS

DRAWING NO.:
A-302.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 26 OF 43 |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

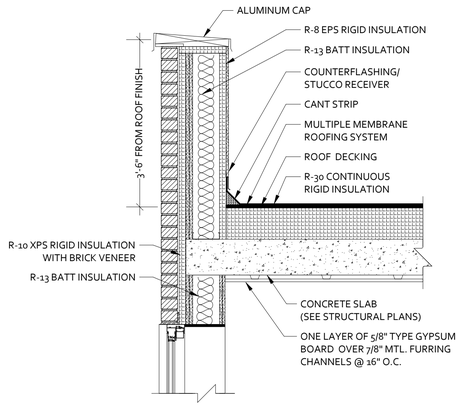
SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

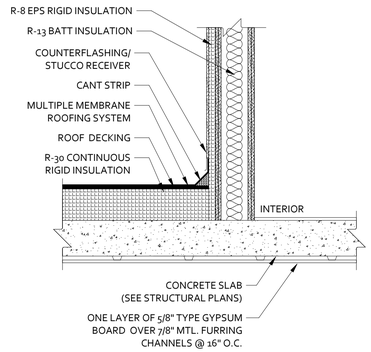
DRAWING TITLE:
3D VIEWS

DRAWING NO.:
A-303.00

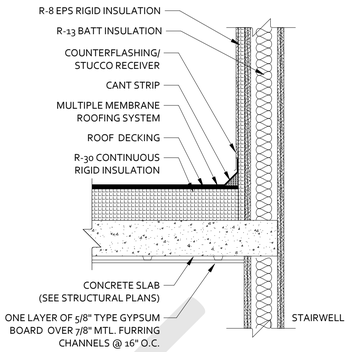
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 27 OF 43 |



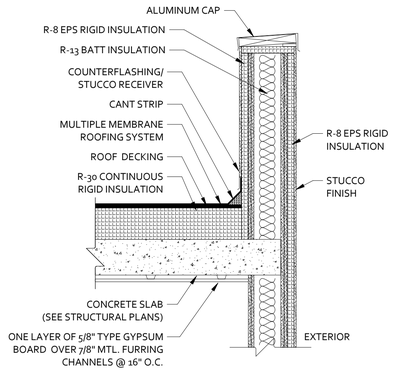

3 ROOF PARAPET DETAIL
NTS



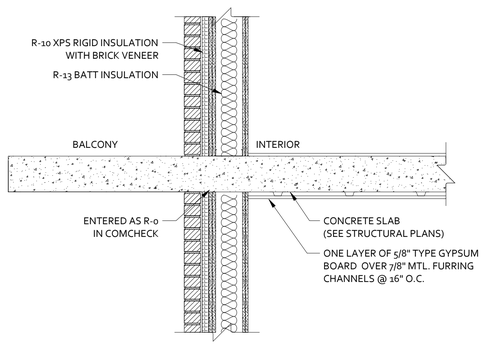

4 ROOF EDGE FRAMING DETAIL
NTS



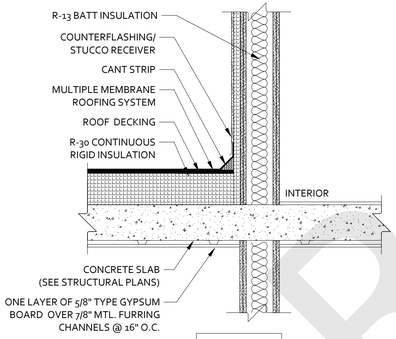

5 STAIR BULKHEAD WALL DETAIL
NTS



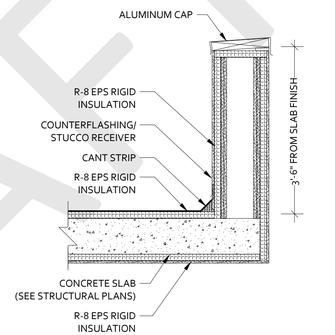

6 PARAPET DETAIL FRAMING
NTS



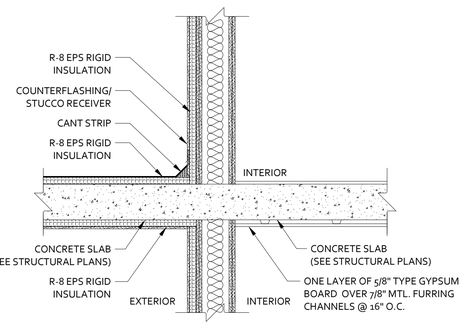

2 BALCONY DETAIL
NTS



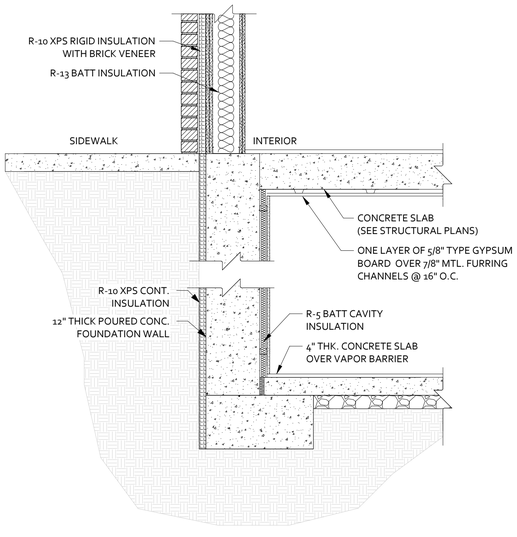

7 ROOF & FLOOR ASSEMBLY DETAIL
NTS



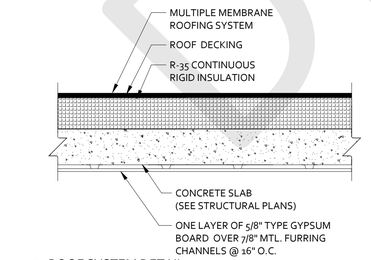

8 BALCONY PARAPET DETAIL
NTS



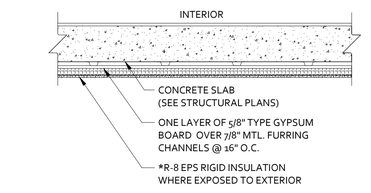

9 REAR BALCONY DETAIL
NTS



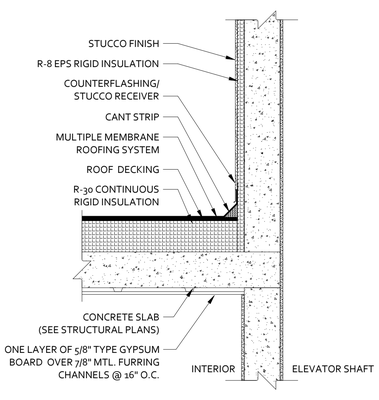

1 FOUNDATION DETAIL
NTS



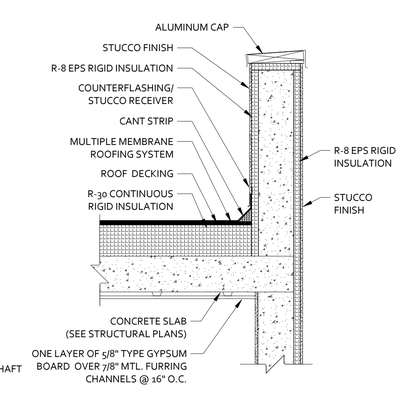

10 ROOF SYSTEM DETAIL
NTS




11 FLOOR SYSTEM DETAIL
NTS




12 ROOF EDGE CONCRETE DETAIL
NTS




13 CONCRETE PARAPET DETAIL
NTS

**NOTE:** CONTRACTOR TO LIMIT THE BACKFILL TO NO MORE THAN ONE THIRD THE HEIGHT OF THE CONCRETE WALL PRIOR TO THE CELLAR CONCRETE FLOOR SLAB AND INSTALLATION OF FIRST FLOOR FRAMING.

PERIMETER SLAB INSULATION IS NOT REQUIRED AS PER EXCEPTION IN C402.2.4: SLAB IS MORE THAN 24" BELOW FINISHED GRADE

STRUCTURAL DESIGN BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
SECTION DETAILS

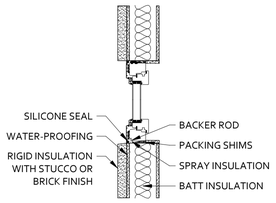
DRAWING NO.:
A-304.00

DATE: 4/3/2025

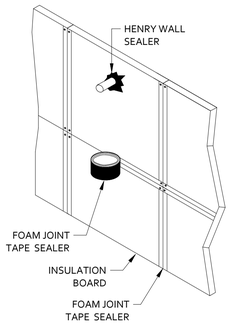
DRAWN BY: YR

SCALE: AS NOTED

SHEET NO.: 28 OF 43




2 WINDOW FINISH DETAIL
NTS



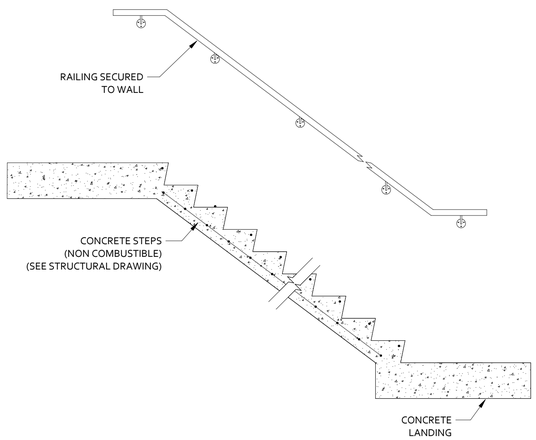

4 JOINT SEALANT DETAIL
NTS

C402.5 AIR LEAKAGE—THERMAL ENVELOPE (MANDATORY). THE THERMAL ENVELOPE OF BUILDINGS SHALL COMPLY WITH SECTIONS C402.5.1 THROUGH C402.5.8, OR THE BUILDING THERMAL ENVELOPE SHALL BE TESTED IN ACCORDANCE WITH ASTM E 779 AT A PRESSURE DIFFERENTIAL OF 0.3 INCH WATER GAUGE (75 PA) OR AN EQUIVALENT METHOD APPROVED BY THE BUILDING OFFICIAL AND DEEMED TO COMPLY WITH THE PROVISIONS OF THIS SECTION WHEN THE TESTED AIR LEAKAGE RATE OF THE BUILDING THERMAL ENVELOPE IS NOT GREATER THAN 0.40 CFM/FT2(2.0 L/S • M2). WHERE COMPLIANCE IS BASED ON SUCH TESTING, THE BUILDING SHALL ALSO COMPLY WITH SECTIONS C402.5.5, C402.5.6 AND C402.5.7.

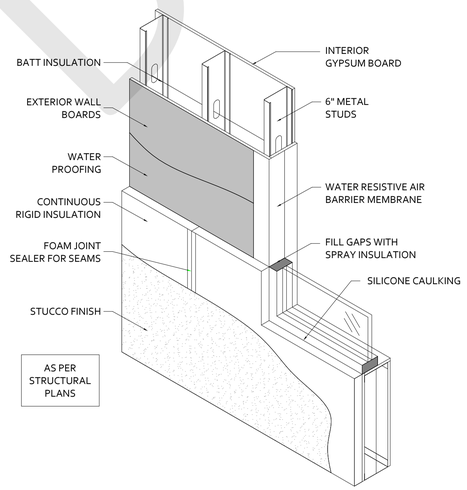
C402.5.1.3 AIR BARRIER TESTING. NEW BUILDINGS AND ADDITIONS OF A CERTAIN SIZE MUST COMPLY WITH THE FOLLOWING REQUIREMENTS AND THE RULES OF THE DEPARTMENT: 1. NEW BUILDINGS AND ADDITIONS 10,000 SQUARE FEET (929 M2) AND GREATER, BUT LESS THAN 50,000 SQUARE FEET (4 645.2 M2), AND LESS THAN OR EQUAL TO 75 FEET (22.86 M) IN HEIGHT MUST SHOW COMPLIANCE THROUGH TESTING IN ACCORDANCE WITH ASTM E779 OR OTHER APPROVED STANDARDS. R-2 BUILDINGS MAY ALTERNATIVELY SHOW COMPLIANCE THROUGH TESTING IN ACCORDANCE WITH SECTION R402.4.1.3 OF THIS CODE.

AIR BARRIER JOINTS AND SEAMS SHALL BE SEALED, INCLUDING SEALING TRANSITIONS IN PLACES AND CHANGES IN MATERIALS. AIR BARRIER PENETRATIONS SHALL BE SEALED IN ACCORDANCE WITH SECTION C402.4.2. THE JOINTS AND SEALS SHALL BE SECURELY INSTALLED IN OR ON THE JOINT FOR ITS ENTIRE LENGTH SO AS NOT TO DISLODGE, LOOSEN OR OTHERWISE IMPAIR ITS ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT AND MECHANICAL VENTILATION.

ALL VENT AND FLUES TO BE THERMALLY SEALED WITH HENRY ROOF COATING (OR EQUIVALENT) ASTM D2370. ALL INSULATION BOARD JOINT AND SEAMS TO BE SEALED WITH OWENS CORNING™ JOINTSEALR™ FOAM JOINT TAPE SEALER.




1 SECTION DETAIL AT STAIRS
NTS




3 WALL ASSEMBLY DETAIL
NTS

STRUCTURAL DESIGN BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

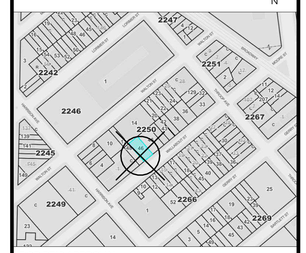
4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:

SECTION DETAILS CONT.

DRAWING NO.:
A-305.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 29 OF 43 |

## WINDOW SCHEDULE

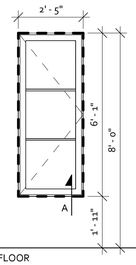
| TYPE | WIDTH | HEIGHT | AREA | OPERATION | THERMAL VALUES | MANUFACTURER | MODEL NO. | COUNT |
|---|---|---|---|---|---|---|---|---|
| **W2** | | | | | | | | |
| Casement | 2' - 9" | 5' - 5" | 14.90 SF | Hinged | U=0.30, SHGC=0.26 | Pella | 2965 | 21 |
| **W3** | | | | | | | | |
| Casement | 2' - 9" | 6' - 1" | 16.73 SF | Hinged | U=0.30, SHGC=0.26 | Pella | 3373 | 4 |
| **W4** | | | | | | | | |
| Casement | 2' - 11" | 5' - 5" | 15.80 SF | Casement Vent | U=0.30, SHGC=0.26 | Pella | 3565 | 4 |
| **W5** | | | | | | | | |
| Double Hung | 2' - 5" | 2' - 11" | 7.05 SF | Vertical Slide | U=0.30, SHGC=0.28 | Pella | 2935 | 1 |
| **W6** | | | | | | | | |
| Casement | 2' - 5" | 6' - 1" | 14.70 SF | Fixed | U=0.29, SHGC=0.32 | Pella | 2973 | 2 |

**TOTAL: 32**

## WINDOW TYPE

**MAXIMUM AIR INFILTRATION RATE:** 0.20 MAX. (CFM/FT2)

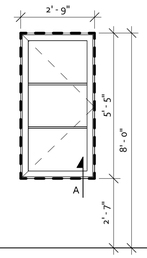
### W1
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #2973




FINISHED FLOOR

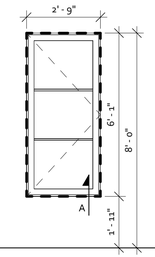
NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W2
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #3365



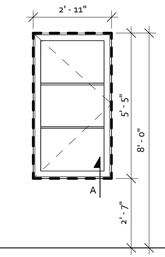

NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W3
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #3373



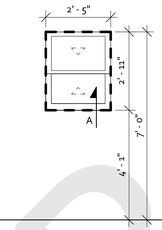

NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W4
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #3565



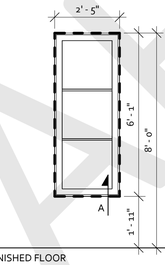

NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W5
**DOUBLE HUNG WINDOW**
MANUF.: PELLA
MODEL #2935




NFRC #PEL-N-179-01137-00001
U-FACTOR=0.30, SHGC=0.28, VLT=0.53

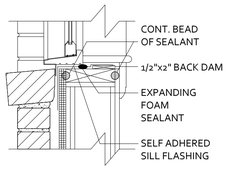
### W6
**FIXED WINDOW**
MANUF.: PELLA
MODEL #2973




FINISHED FLOOR

NFRC #PEL-N-18-02773-00001
U-FACTOR=0.29, SHGC=0.32, VLT=0.62

## SECTION 'A'




TYPICAL SECTION DETAIL AT
WINDOW WITH EXPANDABLE FOAM

**NOTE:**
CASEMENT WINDOW OPENING CONTROL DEVICES ALLOW FOR AN OPENING OF LESS THAN 4" (INCH)

**WINDOW NOTES**
1. WINDOW MANUFACTURER TO VERIFY ALL WINDOW DIMENSIONS, ROUGH & MASONRY OPENING SIZES W/G/C/, QUANTITIES AS WELL AS ALL FINISHED PARTITION THICKNESS FOR FRAME WIDTH SIZING PRIOR TO FABRICATION.
2. ALL WINDOWS TO HAVE WEATHER STRIPPING AT JAMB, HEAD AND SILL.
3. PROVIDE ALLOWANCE FOR BUILDER'S HARDWARE.

APPLY EXPANDABLE SPRAY FOR ALL VERTICAL FENESTRATION BETWEEN DOOR & WINDOW FRAMES AND ROUGH OPENINGS.

**C402.4.2 AIR BARRIER PENETRATIONS**
PENETRATIONS OF THE AIR BARRIER AND PATHS OF AIR LEAKAGE SHALL BE CAULKED, GASKETED OR OTHERWISE SEALED IN A MANNER COMPATIBLE WITH THE CONSTRUCTION MATERIALS AND LOCATION. JOINTS AND SEALS SHALL BE SEALED IN THE SAME MANNER OR TAPED OR COVERED WITH A MOISTURE VAPOR PERMEABLE WRAPPING MATERIAL. SEALING MATERIALS SHALL BE APPROPRIATE TO THE CONSTRUCTION MATERIALS BEING SEALED. THE JOINTS AND SEALS SHALL BE SECURELY INSTALLED IN OR ON THE JOINT FOR ITS ENTIRE LENGTH SO AS NOT TO DISLODGE, LOOSEN OR OTHERWISE IMPAIR ITS ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT AND MECHANICAL VENTILATION.

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
WINDOW SCHEDULE

DRAWING NO.:
A-400.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 30 OF 43 |

## DOOR SCHEDULE

| DOOR No. | AREA | WIDTH | HEIGHT | TYPE | FUNCTION | FIRE RATING |
|---|---|---|---|---|---|---|
| **CELLAR** | | | | | | |
| C01 | OPEN CELLAR | 3' - 0" | 8' - 0" | D2 | Exterior | N/A |
| C02 | OPEN CELLAR | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| C03 | METER ROOM | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| C04 | SPRINKLER ROOM | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| C05 | BATH | 2' - 0" | 8' - 0" | D6 | Interior | N/A |
| C06 | OPEN CELLAR | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| **LOWER 1ST FLOOR** | | | | | | |
| 101 | LOBBY | 3' - 0" | 7' - 8" | D1 | Exterior | 1.5 HR FPSC |
| 102 | LOBBY | 2' - 8" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 103 | LOBBY | 2' - 8" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| **UPPER 1ST FLOOR** | | | | | | |
| 104 | LOBBY | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 105 | LOBBY | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 106 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 107 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 108 | MECH. CL. | 2' - 4" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 109 | PANTRY | 4' - 8" | 8' - 0" | D7 | Interior | N/A |
| 110 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 111 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| 112 | LIVING / DINING | 6' - 0" | 10' - 0" | D3 | Exterior | N/A |
| 113 | LIVING / DINING | 6' - 0" | 10' - 0" | D3 | Exterior | N/A |
| **2ND FLOOR** | | | | | | |
| 201 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 202 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 203 | CL | 4' - 0" | 8' - 0" | D7 | Interior | N/A |
| 204 | BEDROOM #2 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |

## DOOR SCHEDULE

| DOOR No. | AREA | WIDTH | HEIGHT | TYPE | FUNCTION | FIRE RATING |
|---|---|---|---|---|---|---|
| 205 | W.I.C. | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 206 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 207 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 208 | BATH | 2' - 2" | 8' - 0" | D6 | Interior | N/A |
| 209 | BEDROOM #3 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 210 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 211 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 212 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 213 | LAUNDRY | 3' - 8" | 8' - 0" | D7 | Interior | N/A |
| 214 | BEDROOM #4 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 215 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **3RD FLOOR** | | | | | | |
| 301 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 302 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 304 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 305 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 306 | BALCONY | 6' - 0" | 8' - 0" | D4 | Exterior | N/A |
| 307 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **4TH FLOOR** | | | | | | |
| 401 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 402 | CORRIDOR | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 403 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 404 | BATH | 2' - 2" | 8' - 0" | D6 | Interior | N/A |
| 405 | BEDROOM #1 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 406 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 407 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 408 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |

## DOOR SCHEDULE

| DOOR No. | AREA | WIDTH | HEIGHT | TYPE | FUNCTION | FIRE RATING |
|---|---|---|---|---|---|---|
| 409 | LAUNDRY | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 410 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 411 | CL | 3' - 4" | 8' - 0" | D7 | Interior | N/A |
| 412 | W.I.C. | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 413 | BEDROOM #3 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 414 | BEDROOM #2 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 415 | CL | 2' - 0" | 8' - 0" | D6 | Interior | N/A |
| 416 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **5TH FLOOR** | | | | | | |
| 501 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 502 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 503 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 504 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 505 | BALCONY | 12' - 0" | 8' - 0" | D5 | Exterior | N/A |
| 506 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **6TH FLOOR** | | | | | | |
| 601 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 602 | CORRIDOR | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 603 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 604 | BATH | 2' - 2" | 8' - 0" | D6 | Interior | N/A |
| 605 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 606 | LAUNDRY | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 607 | BEDROOM | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 608 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 609 | W.I.C. | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 610 | PASSIVE RECREATION | 3' - 0" | 8' - 0" | D2 | Exterior | N/A |
| 611 | PASSIVE RECREATION | 3' - 0" | 8' - 0" | D2 | Exterior | N/A |
| **ROOF** | | | | | | |
| R01 | STAIR BULKHEAD | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| R02 | CORRIDOR | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |

## TOTAL DOOR COUNT

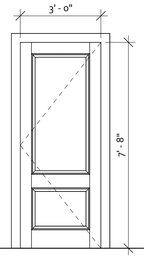
| TYPE | COUNT |
|---|---|
| D1 | 1 |
| D2 | 8 |
| D3 | 2 |
| D4 | 1 |
| D5 | 1 |
| D6 | 26 |
| D7 | 15 |
| D8 | 7 |
| D10 | 14 |

**TOTAL: 75**

## DOOR TYPE

ALL LOCKSETS TO BE GRAND MASTERED TO BUILDING MASTER

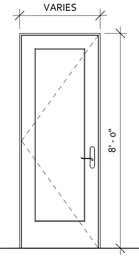
### D1




**BUILDING ENTRANCE DOOR**
1.5 HR FIRE RATED STEEL DOOR
W/CLOSER AND WEATHER STRIPPING
SELF LOCKING AND SELF CLOSING

THERMAL VALUES: NFRC #MID-M-1-00532-00001
U-FACTOR=0.12, SHGC=0.01
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

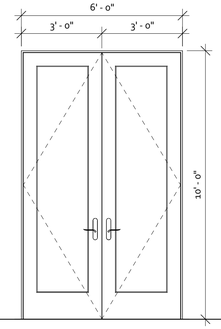
### D2




**EXTERIOR GLASS DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

THERMAL VALUES: NFRC #PEL-N-218-04197-00001
U-FACTOR=0.30, SHGC=0.22, VT=0.39
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D3

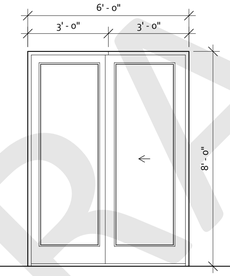



**NOTE:**
DOOR OPENING
CONTROL DEVICE ALLOW
FOR AN OPENING OF LESS
THAN 4" (INCH)

**EXTERIOR HINGED DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

THERMAL VALUES: NFRC #PEL-N-218-04197-00001
U-FACTOR=0.30, SHGC=0.22, VT=0.39
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

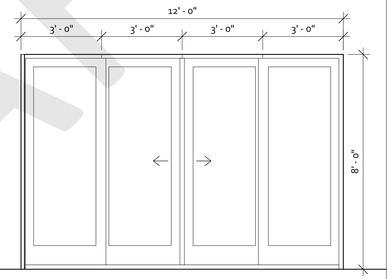
### D4




**EXTERIOR SLIDING DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

THERMAL VALUES: NFRC #PEL-N-237-00030-00001
U-FACTOR=0.30, SHGC=0.23, VT=0.42
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

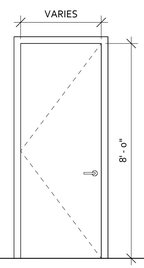
### D5




**EXTERIOR SLIDING DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

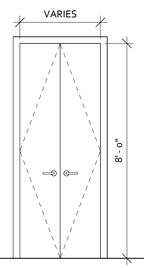
THERMAL VALUES: NFRC #PEL-N-237-00030-00001
U-FACTOR=0.30, SHGC=0.23, VT=0.42
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D6




**INTERIOR WOOD DOOR**
1-3/8" THICK WOOD DOOR
W/ WOOD FRAMING
MANF. & HARDWARE TBD

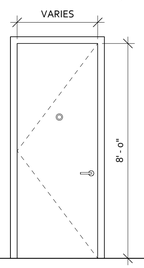
### D7




**INTERIOR WOOD DOUBLE DOOR**
1-3/8" THICK WOOD DOUBLE DOOR
W/ WOOD FRAMING
MANF. & HARDWARE TBD

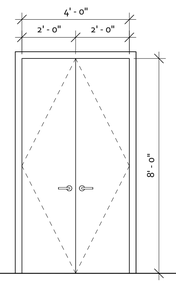
### D8

FOR APARTMENT ENTRY DOORS
PROVIDE BSA APPROVED
PEEP HOLE AS PER MDL SEC. 51A



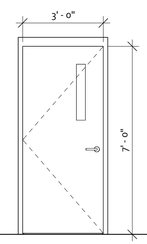

**INTERIOR FIRE RATED DOOR**
1-3/4" THICK 'B' LABEL H.M. DOOR
W/ WELDED FRAME AND SELF CLOSING,
1-1/2 HOUR FIRE RATED
MANF. & HARDWARE TBD
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D9




**INTERIOR FIRE RATED DOUBLE DOOR**
1-3/4" THICK 'B' LABEL H.M. DOUBLE DOOR
W/ WELDED FRAME AND SELF CLOSING,
1-1/2 HOUR FIRE RATED
MANF. & HARDWARE TBD
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D10




**STAIR EXIT EGRESS DOOR**
1-3/4" THICK 'B' LABEL H.M. DOOR
W/ WELDED FRAME AND SELF CLOSING,
1-1/2 HR FIRE RATED, MANF. & HARDWARE TBD

THERMAL VALUES: U-FACTOR=0.14
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

DRAFT

REVISIONS

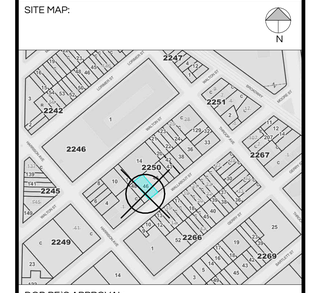
| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
DOOR SCHEDULE

DRAWING NO.:
A-401.00

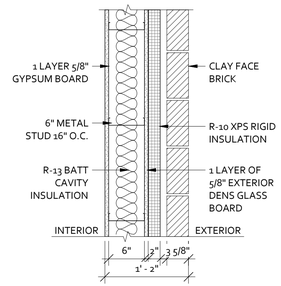
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 31 OF 43 |

## W1 WALL TYPE 1

EXTERIOR STUD WALL WITH BRICK
(1 HR FIRE RATED) UL DESIGN NO. U425

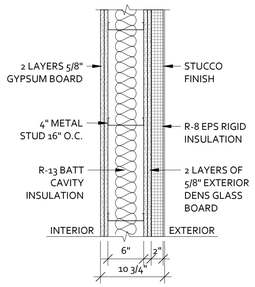
PLAN VIEW




## W2 WALL TYPE 2

EXTERIOR STUD WALL WITH STUCCO
(2 HR FIRE RATED) UL DESIGN NO. U425

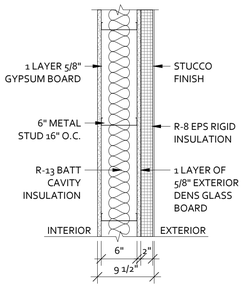
PLAN VIEW




## W3 WALL TYPE 3

EXTERIOR STUD WALL WITH STUCCO
(1 HR FIRE RATED) UL DESIGN NO. U425

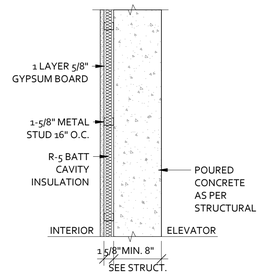
PLAN VIEW




## W4 WALL TYPE 4

CONCRETE WALL W/FURRING
(4 HR FIRE RATED) BC TABLE 720.1 (3)

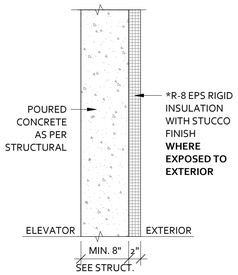
PLAN VIEW




## W5 WALL TYPE 5

CONCRETE WALL
(4 HR FIRE RATED) BC TABLE 720.1 (3)

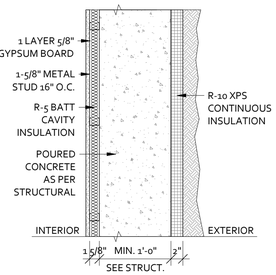
PLAN VIEW




## W6 WALL TYPE 6

CONCRETE FOUNDATION WALL W/FURRING
(4 HR FIRE RATED) BC TABLE 720.1 (3)

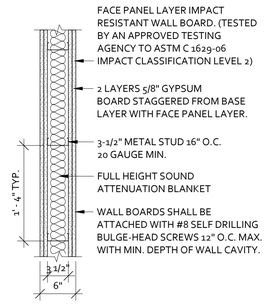
PLAN VIEW




## P1 PARTITION TYPE 1

INTERIOR STUD WALL (2HR FIRE RATED)
MASONRY EQUIVALENT STC 56
UL DESIGN NO. U419 1 RCNY

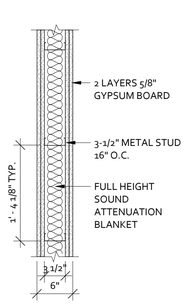
PLAN VIEW




## P2 PARTITION TYPE 2

INTERIOR STUD WALL (2HR FIRE RATED)
STC 56 UL DESIGN NO. U419

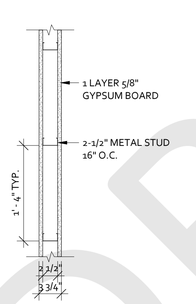
PLAN VIEW




## P3 PARTITION TYPE 3

INTERIOR STUD WALL (1HR FIRE RATED)
UL DESIGN NO. U407

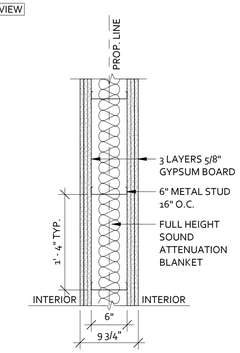
PLAN VIEW



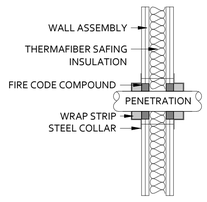

## W7 WALL TYPE 7

PARTY WALL (3HR FIRE RATED)
STC 56 UL DESIGN NO. U419

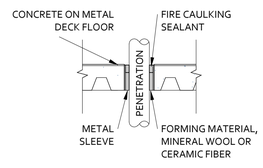
PLAN VIEW




**PENETRATION AT 2HR RATED WALL SYSTEM**
UL SYSTEM NO.510




**PENETRATION AT CONCRETE ON METAL DECK FLOOR** UL SYSTEM NO. C-AJ-2086




STRUCTURAL DESIGN BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

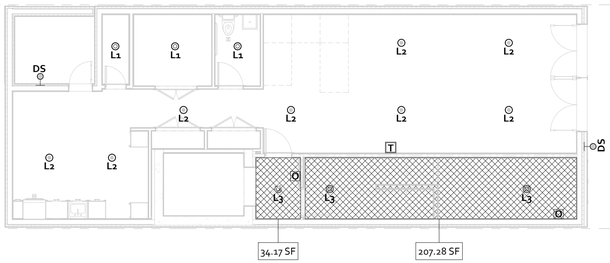
DOB JOB No:
B01127089-I1

DRAWING TITLE:
WALL TYPES & DETAILS

DRAWING NO.:
A-500.00

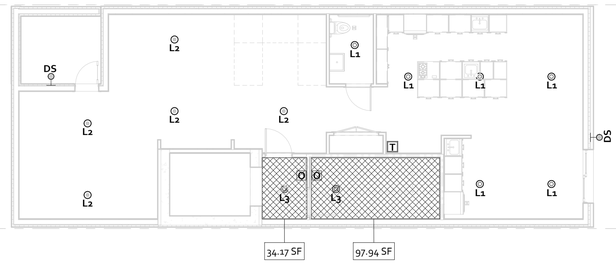
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 32 OF 43 |

| 1ST FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| LOBBY | 207.28 SF |



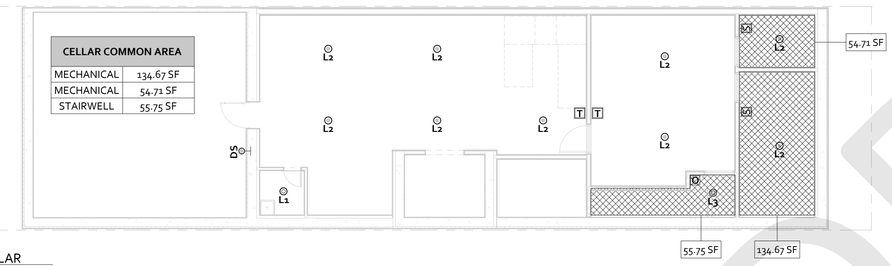

2 1ST FLOOR
1/8" = 1'-0"

| 3RD FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |



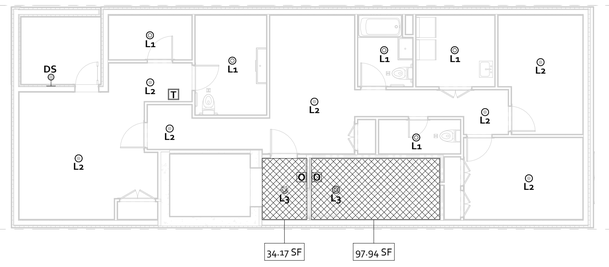

4 3RD FLOOR
1/8" = 1'-0"

| CELLAR COMMON AREA | |
|---|---|
| MECHANICAL | 134.67 SF |
| MECHANICAL | 54.71 SF |
| STAIRWELL | 55.75 SF |




1 CELLAR
1/8" = 1'-0"

| 2ND FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |




3 2ND FLOOR
1/8" = 1'-0"

**LEGEND**

| | |
|---|---|
| S | MANUAL SWITCH |
| T | PROGRAMMABLE THERMOSTAT |
| O | OCCUPANCY SENSOR |
| S | SWITCH WITH OCCUPANCY SENSOR |

SEE FIXTURE LEGEND ON SHEET RCP-002 FOR FIXTURE TYPE

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

291 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

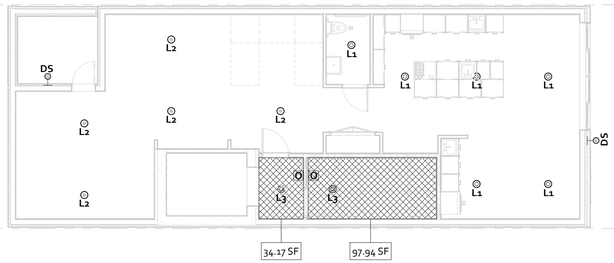
DRAWING TITLE:
REFLECTED CEILING PLANS

DRAWING NO.:
RCP-001.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

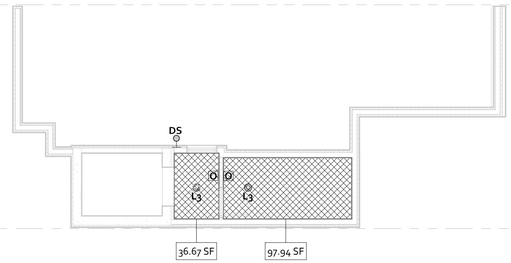
| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 33 OF 43 |

| 5TH FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |



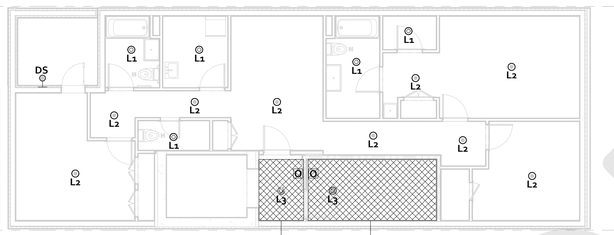

2 5TH FLOOR
1/8" = 1'-0"

| ROOF COMMON AREA | |
|---|---|
| CORRIDOR | 36.67 SF |
| STAIRWELL | 97.94 SF |



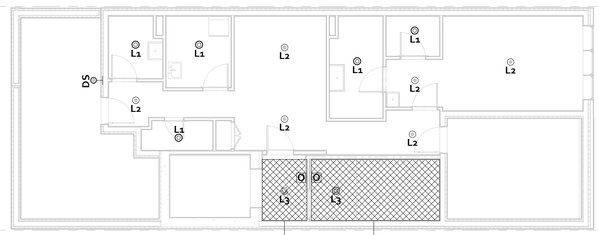

4 ROOF
1/8" = 1'-0"

| 4TH FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |




1 4TH FLOOR
1/8" = 1'-0"

| 6TH FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |




3 6TH FLOOR
1/8" = 1'-0"

**LEGEND**

| | |
|---|---|
| S | MANUAL SWITCH |
| T | PROGRAMMABLE THERMOSTAT |
| O | OCCUPANCY SENSOR |
| S | SWITCH WITH OCCUPANCY SENSOR |

SEE FIXTURE LEGEND ON SHEET RCP-002 FOR FIXTURE TYPE

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
REFLECTED CEILING PLANS CONT.

DRAWING NO.:
RCP-002.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 34 OF 43 |

## INTERIOR LIGHTING SCHEDULE

| Type | Wattage | Count | Total Watts (W) |
|---|---|---|---|
| **CELLAR** | | | |
| L1 | 14 W | 1 | 14 |
| L2 | 25 W | 9 | 225 |
| L3 | 18 W | 1 | 18 |
| **UPPER 1ST FLOOR** | | | |
| L1 | 14 W | 3 | 42 |
| L2 | 25 W | 8 | 200 |
| L3 | 18 W | 3 | 54 |
| **2ND FLOOR** | | | |
| L1 | 14 W | 5 | 70 |
| L2 | 25 W | 7 | 175 |
| L3 | 18 W | 2 | 36 |
| **3RD FLOOR** | | | |
| L1 | 14 W | 6 | 84 |
| L2 | 25 W | 5 | 125 |
| L3 | 18 W | 2 | 36 |
| **4TH FLOOR** | | | |
| L1 | 14 W | 5 | 70 |
| L2 | 25 W | 9 | 225 |
| L3 | 18 W | 2 | 36 |
| **5TH FLOOR** | | | |
| L1 | 14 W | 6 | 84 |
| L2 | 25 W | 5 | 125 |
| L3 | 18 W | 2 | 36 |
| **6TH FLOOR** | | | |
| L1 | 14 W | 5 | 70 |
| L2 | 25 W | 6 | 150 |
| L3 | 18 W | 2 | 36 |
| **ROOF** | | | |
| L3 | 18 W | 2 | 36 |
| **TOTAL WATTS (W)** | | | **1947** |

## EXTERIOR LIGHTING SCHEDULE

| Type | Wattage | Count | Total Watts (W) |
|---|---|---|---|
| **CELLAR** | | | |
| DS | 12 W | 1 | 12 |
| **LOWER 1ST FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **UPPER 1ST FLOOR** | | | |
| DS | 12 W | 2 | 24 |
| **2ND FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **3RD FLOOR** | | | |
| DS | 12 W | 2 | 24 |
| **4TH FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **5TH FLOOR** | | | |
| DS | 12 W | 2 | 24 |
| **6TH FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **ROOF** | | | |
| DS | 12 W | 1 | 12 |
| **TOTAL WATTS (W)** | | | **144** |

## FIXTURE COUNT

| Type | Count |
|---|---|
| DS | 12 |
| L1 | 31 |
| L2 | 49 |
| L3 | 16 |
| **TOTAL** | **108** |

## COMMON AREA LIGHTING SCHEDULE

| Type | Wattage | Count | Total Watts (W) |
|---|---|---|---|
| L2 | 25 W | 2 | 50 |
| L3 | 18 W | 16 | 288 |
| **TOTAL WATTS (W)** | | | **338** |

## TOTAL COMMON AREA

| | |
|---|---|
| CORRIDOR | 241.67 SF |
| LOBBY | 207.28 SF |
| MECHANICAL | 189.38 SF |
| STAIRWELL | 643.42 SF |
| **TOTAL** | **1,281.74 SF** |

## TOTAL GROSS FLOOR AREA

| | |
|---|---|
| CELLAR | 1,603.33 SF |
| UPPER 1ST FLOOR | 1,516.67 SF |
| 2ND FLOOR | 1,516.67 SF |
| 3RD FLOOR | 1,516.67 SF |
| 4TH FLOOR | 1,516.67 SF |
| 5TH FLOOR | 1,516.67 SF |
| 6TH FLOOR | 1,093.99 SF |
| ROOF | 284.76 SF |
| **TOTAL** | **10,565.42 SF** |

C405.3.2 INTERIOR LIGHTING POWER ALLOWANCE
TABLE C405.3.2(1) MULTIFAMILY = 0.49 (W/SF)

C406.3 REDUCED LIGHTING POWER
THE TOTAL CONNECTED INTERIOR LIGHTING POWER CALCULATED IN ACCORDANCE WITH SECTION C405.3.1 SHALL BE LESS THAN 90% OF THE TOTAL LIGHTING POWER ALLOWANCE CALCULATED IN ACCORDANCE WITH C405.3.2.

W/SF ALLOWED: 0.49 x 0.9 = 0.44
PROP'D FLOOR AREA: 10,565.42 SF
W/SF ALLOWED: 0.44 = 4,648.78 WATTS
PROPOSED: 1,947 WATTS = 0.16 (W/SF)
0.18 < 0.44 THEREFORE OK

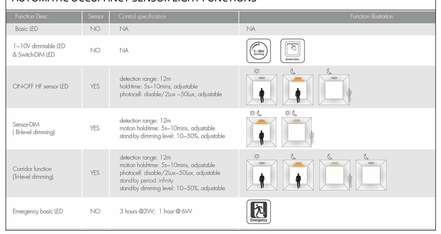
## ENERGY EFFICIENCY PACKAGE

| USE | PER | SQ. FT. | PROPOSED |
|---|---|---|---|
| MULTI FAMILY | 0.44 | 10,565.42 | 0.18 < 0.44 |

## FIXTURE LEGEND

| Image | Symbol | Description | Manufacturer | Model | Wattage | Light Output (Lumens) | Lumens Per Watt | Energy Star Qualified |
|---|---|---|---|---|---|---|---|---|
| | **DS** | 3" WALL MOUNT UP/DOWN CYLINDER | PROGRESS LIGHTING | P563001-143-30K | 12 W | 1766 | 73 | Yes |
| | **L1** | ECOSMART Soft White Twister CFL Bulbs | ECOSMART | ES5A8142 | 14 W | 800 lm | 64 | Yes |
| | **L2** | GE A21 CFL Light Bulb | GE Lighting | FLE25HBA23RVLBX | 25 W | 1,375 lm | 55 | Yes |
| | **L3** | MAX-SMART Intelligent LED Bi-Level | MAX-SMART | ES400 | 18 W | 1,620 lm | 116 | Yes |

AUTOMATIC OCCUPANCY SENSOR LIGHT FUNCTIONS




NARRATIVE FOR LIGHTING AS PER 1 RCNY 5000-01 (G)(3)(I)(A):
NARRATIVE DESCRIPTION FOR LIGHTING FUNCTIONS AND CONTROLS:

**INTERIOR LIGHTING:**
ALL MANUAL CONTROL PROPOSED, TO BE READILY ACCESSIBLE TO OCCUPANTS, AND BE LOCATED WHERE THE CONTROLLED LIGHTS ARE VISIBLE.

**CELLAR FLOOR - SHEET A-100**
**MECHANICAL:** LOCAL SWITCH WITH DUAL TECHNOLOGY - MANUAL ON AND OFF - OCCUPANCY SENSOR TO AUTOMATICALLY TURN ON THE LIGHTING TO NOT MORE THAN 50-PERCENT POWER AND AUTOMATICALLY TURN ALL LIGHTS OFF WITHIN 15 MINUTES OF OCCUPANTS LEAVING THE SPACE.
**STAIRWELL, CORRIDOR:** OCCUPANCY SENSOR THAT AUTOMATICALLY REDUCES THE LIGHTING POWER BY 50 PERCENT WHEN UNOCCUPIED FOR A PERIOD LONGER THAN 15 MINUTES AND AUTOMATICALLY TURNS ON TO 100 PERCENT WHEN OCCUPIED.

**MEZZANINE - SHEET A-100 THRU A-103**
**LOBBY, CORRIDOR:** OCCUPANCY SENSOR THAT AUTOMATICALLY REDUCES THE LIGHTING POWER BY 50 PERCENT WHEN UNOCCUPIED FOR A PERIOD LONGER THAN 15 MINUTES AND AUTOMATICALLY TURNS ON TO 100 PERCENT WHEN OCCUPIED.

**FIRST FLOOR THRU ROOF - SHEET A-100 THRU A-103**
**STAIRWELL, CORRIDOR:** OCCUPANCY SENSOR THAT AUTOMATICALLY REDUCES THE LIGHTING POWER BY 50 PERCENT WHEN UNOCCUPIED FOR A PERIOD LONGER THAN 15 MINUTES AND AUTOMATICALLY TURNS ON TO 100 PERCENT WHEN OCCUPIED.

**DWELLING UNITS: NO LIGHTING CONTROLS OTHER THAN A MANUAL SWITCH, PROPOSESD IN DWELLING UNITS.**
**100% OF THE PERMANENTLY INSTALLED FIXTURES USE LAMPS WITH AN EFFICIACY OF AT LEAST 65 LUMENS PER WATT.**

**EXTERIOR LIGHTING:**
1. BE PROVIDED WITH A CONTROL WITH ASTRONOMICAL TIME SWITCH OR PHOTOCELL, THAT AUTOMATICALLY TURNS OFF THE LIGHTING AS A FUNCTION OF AVAILABLE DAYLIGHT, .
2. LIGHTING SHALL HAVE CONTROLS CONFIGURED TO AUTOMATICALLY REDUCE THE CONNECTED LIGHTING POWER BY NOT LESS THAN 30 PERCENT FROM NOT LATER THAN MIDNIGHT TO 6 A.M.
3. ALL TIME SWITCHES SHALL BE ABLE TO RETAIN PROGRAMMING AND THE TIME SETTING DURING LOSS OF POWER FOR A PERIOD OF AT LEAST 10 HOURS.

NO RECESSED LIGHTING PROPOSED IN THE BUILDING THERMAL ENVELOPE. ROOF INSULATION ENTIRELY ABOVE DECK.

**C405.8.1 ELEVATOR EQUIPMENT AND CABS**
FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NOT LESS THAN 35 LUMENS PER WATT. VENTILATION FANS IN ELEVATORS THAT DO NOT HAVE THEIR OWN AIR-CONDITIONING SYSTEM SHALL NOT CONSUME MORE THAN 0.33 WATTS/CFM AT THE MAXIMUM RATED SPEED OF THE FAN. CONTROLS SHALL BE PROVIDED THAT WILL DE-ENERGIZE VENTILATION FANS AND LIGHTING SYSTEMS WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED AND WITH ITS DOORS CLOSED FOR OVER 15 MINUTES.

**NOTE: AS PER C408.3 LIGHTING SYSTEM FUNCTIONAL TESTING**
AN LIGHTING SYSTEM FUNCTIONAL TESTING SHOULD BE PERFORMED BY AN APPROVED AGENCY TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH NYCECC SECTIONS C408.3.1.1 THRU C408.3.1.3. REQUIRED DOCUMENTATION SHALL BE PROVIDED TO BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

DRAFT

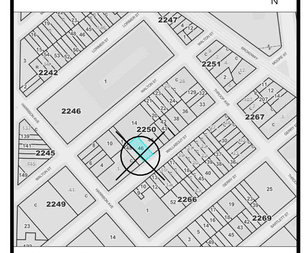
REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
# 291 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01127089-I1

DRAWING TITLE:
## R.C.P. NOTES

DRAWING NO.:
RCP-003.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 35 OF 43 |

# NB - 6 STORY & CELLAR RESIDENTIAL BUILDING

## 293 WALLABOUT STREET, BROOKLYN, NY

DRAFT

| SHEET LIST | | |
|---|---|---|
| 01 | T-001 | COVER SHEET |
| 02 | Z-001 | ZONING ANALYSIS |
| 03 | Z-002 | HEIGHT & SETBACK DIAGRAMS |
| 04 | Z-003 | HEIGHT & SETBACK DIAGRAMS CONT. |
| 05 | Z-004 | GROSS FLOOR AREA |
| 06 | Z-005 | DEDUCTION AREA DIAGRAMS |
| 07 | Z-006 | DEDUCTION AREA DIAGRAMS CONT. |
| 08 | Z-007 | FIRM FLOOD MAP |
| 09 | GN-001 | GENERAL NOTES |
| 10 | GN-002 | ADA COMPLIANCE DETAILS |
| 11 | GN-003 | ADA DETAILS CONTINUED |
| 12 | A-100 | CELLAR FLOOR PLAN |
| 13 | A-101 | FIRST FLOOR PLAN |
| 14 | A-102 | SECOND FLOOR PLAN |
| 15 | A-103 | THIRD FLOOR PLAN |
| 16 | A-104 | FOURTH FLOOR PLAN |
| 17 | A-105 | FIFTH FLOOR PLAN |
| 18 | A-106 | SIXTH FLOOR PLAN |
| 19 | A-107 | ROOF FLOOR PLAN |
| 20 | A-108 | TOP OF BUILDING PLAN |
| 21 | A-200 | EAST & WEST ELEVATION |
| 22 | A-201 | NORTH ELEVATION |
| 23 | A-202 | SOUTH ELEVATION |
| 24 | A-300 | LONGITUDINAL SECTION A |
| 25 | A-301 | LONGITUDINAL SECTION B |
| 26 | A-302 | CROSS SECTIONS |
| 27 | A-303 | 3D VIEWS |
| 28 | A-304 | SECTION DETAILS |
| 29 | A-305 | SECTION DETAILS CONT. |
| 30 | A-400 | WINDOW SCHEDULE |
| 31 | A-401 | DOOR SCHEDULE |
| 32 | A-500 | WALL TYPES & DETAILS |
| 33 | RCP-001 | REFLECTED CEILING PLANS |
| 34 | RCP-002 | REFLECTED CEILING PLANS CONT. |
| 35 | RCP-003 | R.C.P. NOTES |
| 36 | EN-001 | ENERGY INSPECTION COMPLIANCE |
| 37 | EN-002 | EAST FENESTRATION AREA |
| 38 | EN-003 | WEST FENESTRATION AREA |
| 39 | EN-004 | NORTH FENESTRATION AREA |
| 40 | EN-005 | SOUTH FENESTRATION AREA |
| 41 | EN-006 | EXPOSED AREA DIAGRAMS |
| 42 | EN-007 | COMCHECK ANALYSIS |
| 43 | EN-008 | COMCHECK COMPLIANCE |

| APPLICATION TO BE FILED SEPARATELY / SUBSEQUENTLY | | |
|---|---|---|
| 01 | STRUCTURAL | DOB # |
| 02 | FO/EA | DOB # |
| 03 | SOE | DOB # |
| 04 | FENCE | DOB # |
| 05 | MECHANICAL | DOB # |
| 06 | PLUMBING | DOB # |
| 07 | SPRINKLER | DOB # |
| 08 | FIRE ALARM | DOB # |
| 09 | BPP | DOB # |
| 10 | DEMOLITION | DOB # |

ITEMS SUBJECT TO CONTROLLED INSPECTION THE FOLLOWING PROCEDURES SHALL BE SUBJECT TO SPECIAL INSPECTIONS:

| SPECIAL INSPECTIONS | |
|---|---|
| ALTERNATIVE MATERIALS - OTCR BB 2015-15 | BC 1704.14 |
| FIRE-RESISTANT PENETRATION AND JOINTS | BC 1704.27 |

| PROGRESS INSPECTIONS | |
|---|---|
| ENERGY CODE COMPLIANCE INSPECTION TR8 | BC 110.3.5 |
| FIRE RESISTANCE RATED CONSTRUCTION | BC 110.3.4 |

| ENERGY CODE PROGRESS INSPECTION: TR-8 | |
|---|---|
| PROTECTION OF EXPOSED FOUNDATION INSULATION | (IIA1) |
| INSULATION PLACEMENT AND R VALUES | (IIA2) |
| FENESTRATION AND DOOR U-FACTOR AND PRODUCT RATINGS | (IIA3) |
| FENESTRATION AIR LEAKAGE | (IIA4) |
| FENESTRATION AREAS | (IIA5) |
| AIR BARRIER - VISUAL INSPECTION | (IIA6) |
| AIR BARRIER - TESTING | (IIA7) |
| METERING | (IIC1) |
| LIGHTING IN DWELLING UNITS | (IIC2) |
| INTERIOR LIGHTING POWER | (IIC3) |
| EXTERIOR LIGHTING POWER | (IIC4) |
| LIGHTING CONTROLS | (IIC5) |
| MAINTENANCE INFORMATION | (IID1) |

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:

COVER SHEET

DRAWING NO.:
T-001.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 01 OF 43 |

# PROJECT INFORMATION: 293 WALLABOUT STREET, BROOKLYN, NY 11206

**BOROUGH:** BROOKLYN
**BLOCK:** 2250 **LOT:** 46
**ZONING:** R7A INCLUSION HOUSING ZONE
**COMMERCIAL OVERLAY:** NONE
**CONSTRUCTION CLASS:** I-B

**COMMUNITY BOARD:** 301
**USE GROUP:** 2
**ZONING MAP:** 16c
**OCCUPANCY GROUP:** R-2
**MULTIPLE DWELLING CLASS:** HAEA

**SCOPE OF WORK:**
PROPOSED 6 STORY & CELLAR RESIDENTIAL BUILDING.
TOTAL OF 3 DWELLING UNITS.

**LOT AREA:** 2,500 SF
**CONSTRUCTION GROSS FLOOR AREA:** 10,565.43 SF

**ZONING ANALYSIS**

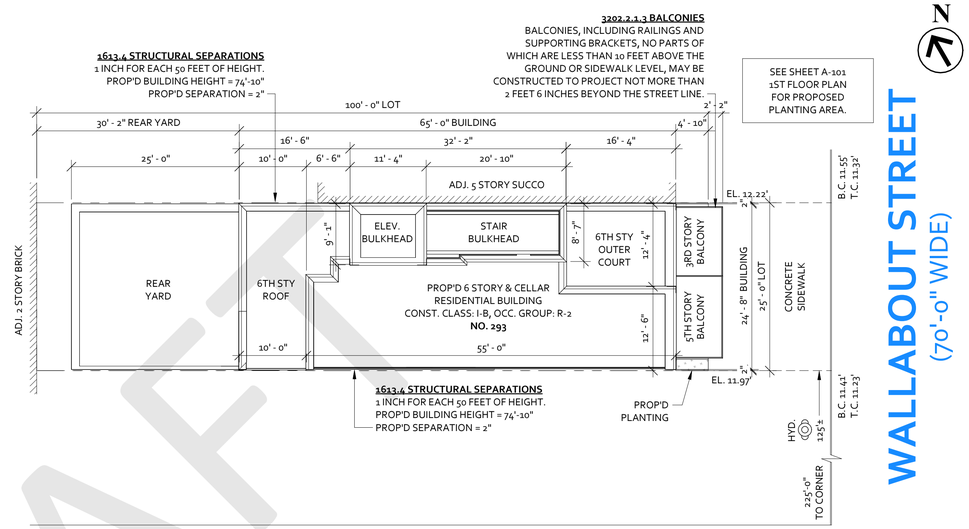
| | ITEM | PERMITTED / REQUIRED | PROPOSED |
|---|---|---|---|
| ZR 22-12 | USE PERMITTED | USE GROUP 2 | USE GROUP 2 |
| ZR 23-154 (b) | R7A FLOOR AREA RATIO INCLUSIONARY HOUSING | 3.45 FLOOR AREA RATIO (QUALITY HOUSING)<br>LOT AREA: 2,500 SF x 3.45 = 8,625 SF MAX ALLOWABLE FLOOR AREA<br>(SEE SHEET Z-002 FOR LOT AREA CALCULATIONS) | |

| | PROPOSED | DEDUCTED | NET AREA |
|---|---|---|---|
| CELLAR | 1,603.33 SF | 1,603.33 SF | 0.00 SF |
| 1ST FLOOR | 1,516.67 SF | 209.51 SF | 1,307.16 SF |
| 2ND FLOOR | 1,516.67 SF | 16.51 SF | 1,500.16 SF |
| 3RD FLOOR | 1,516.67 SF | 16.51 SF | 1,500.16 SF |
| 4TH FLOOR | 1,516.67 SF | 17.72 SF | 1,498.95 SF |
| 5TH FLOOR | 1,516.67 SF | 16.51 SF | 1,500.16 SF |
| 6TH FLOOR | 1,093.99 SF | 17.72 SF | 1,076.27 SF |
| BULKHEAD | 284.76 SF | 284.76 SF | 0.00 SF |
| TOTAL GROSS AREA = 10,565.43 SF | | | |
| TOTAL DEDUCTIONS = 2,182.57 SF | | | |
| TOTAL NET AREA = 8,382.86 SF | | | |
| LOT AREA = 2,500.00 SF | | | FAR = 3.35 |
| 3.35 < 3.45 PERMITTED FAR, THEREFORE OK | | | |

| | | | |
|---|---|---|---|
| ZR 23-153 | LOT COVERAGE | MAX LOT COVERAGE: 65%<br>0.65 x 2,500 = 1,625 SF | PROPOSED LOT COVERAGE: 1603.33 SF = 64.13%<br>64.13% < 65% PERMITTED THEREFORE OK.<br>SEE LOT COVERAGE DIAGRAM ON SHEET Z-002 |
| ZR 23-22 | DENSITY | 8,625 SF (FA) /680 (FACTOR) = 12.7 = 12 UNITS MAX | 3 D.U. PROPOSED THEREFORE OK |
| ZR 23-32 | MINIMUM LOT AREA | 1,700 SF | 2,500 SF > 1,700 SF THEREFORE OK |
| ZR 23-32 | MINIMUM LOT WIDTH | 18 FT | 25'-0" > 18'-0" THEREFORE OK |
| ZR 23-132 | BALCONIES | NOT PROJECT GREATER THAN SEVEN FEET FROM THE BUILDING WALL.<br>AT OR HIGHER THAN THE THIRD STORY OF A BUILDING OR AT LEAST 20 FEET ABOVE CURB.<br>BALCONY WIDTH NOT EXCEEDING 50 PERCENT OF THE BUILDING WALL | PROPOSED BUILDING WIDTH: 24'-8" / 2 = 12'-4" PERMITTED<br>PROPOSED BALCONIES WIDTH: 12'-4"<br>PROPOSED BALCONY PROJECTION: 7'-0", THEREFORE OK |
| **YARDS** | | | |
| ZR 23-45 | FRONT YARD | NO FRONT YARD REQUIRED | 4'-10" PROPOSED THEREFORE OK |
| ZR 23-462(c) | SIDE YARD | 0'-0" OR 8'-0" | NONE PROPOSED THEREFORE OK |
| ZR 23-47 | REAR YARD | 30'-0" | 30'-2" PROPOSED THEREFORE OK |
| ZR 23-841 (b) | NARROW OUTER COURT | IF AN OUTER COURT IS LESS THAN 30 FEET WIDE, THE WIDTH OF SUCH OUTER COURT SHALL BE AT LEAST EQUAL TO THE DEPTH OF SUCH OUTER COURT.<br>HOWEVER, THE DEPTH OF AN OUTER COURT MAY EXCEED ITS WIDTH IN A SMALL OUTER COURT, PROVIDED THAT: (1) NO LEGALLY REQUIRED WINDOWS SHALL FACE ONTO SUCH SMALL OUTER COURT. (2) SUCH SMALL OUTER COURT IS LOCATED ABOVE THE LEVEL OF THE FIRST STORY. (3) THE AREA OF SUCH SMALL OUTER COURT SHALL NOT BE LESS THAN 200 SQUARE FEET AND NO DIMENSION SHALL BE LESS THAN 10 FEET. | PROP'D OUTER COURTS:<br>AT 6TH STORY: 12'-4" WIDTH x 16'-4" DEPTH<br>(1) NO LEGALLY REQ. WINDOWS FACE ONTO OUTER COURT.<br>(2) OUTER COURT LOCATED AT 6TH STORY.<br>(3) AREA OF OUTER COURT 12'-4" x 16'-4" = 201 SF,<br>WITH NO DIMENSION LESS THAN 10 FEET.<br>THEREFORE OK, SEE PLOT PLAN ON THIS SHEET. |
| ZR 23-861 | LEGALLY REQ. WINDOWS | 30'-0" TO LOT LINE | 30'-2" PROPOSED THEREFORE OK |
| **HEIGHT AND SETBACK** | | | |
| ZR 23-661 (a) (1) | STREET WALL LOCATION | THE STREET WALL SHALL BE LOCATED NO CLOSER TO THE STREET LINE THAN THE CLOSEST STREET WALL, OR PORTION THEREOF, OF AN EXISTING ADJACENT BUILDING ON THE SAME OR AN ADJOINING ZONING LOT LOCATED ON THE SAME STREET FRONTAGE. | ADJACENT BUILDING 4'-10" FROM STREET LINE<br>PROPOSED 4'-10" FROM STREET LINE<br>THEREFORE OK |
| ZR 23-662 (a) | MINIMUM BASE HEIGHT | 40'-0" | 64'-1" PROPOSED THEREFORE OK |
| | MAXIMUM BASE HEIGHT | 65'-0" | 64'-1" PROPOSED THEREFORE OK |
| | MAXIMUM BUILDING HEIGHT | 80'-0" | 74'-10" PROPOSED THEREFORE OK |
| ZR 23-662 (c) (1) | SETBACK ABOVE MAXIMUM BASE HEIGHT (NARROW STREET) | 15'-0"<br>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 BE PROVIDED. | STREET WALL IS LOCATED 4'-10" BEYOND STREET LINE<br>15'-0" - 4'-10" = 10'-2" MIN. SETBACK REQUIRED<br>10'-2" PROPOSED SETBACK ABOVE MAX BASE HEIGHT<br>THEREFORE OK |
| ZR 23-621 (c) (1) | PERMITTED OBSTRUCTIONS DORMERS | 60% OF STREET WALL, FOR EACH FOOT OF HEIGHT ABOVE BASE HEIGHT, DORMER SHALL BE DECREASED BY 1% OF STREET WALL. | STREET WALL: 24'-8" x 60% = 14'-8"<br>9'-10" ABOVE BASE HEIGHT: 60% - 9.8% = 50.2% = 12'-4"<br>12'-4" MAX DORMER WIDTH, PROPOSED: 12'-4"<br>THEREFORE OK, SEE SHEET Z-002. |
| ZR 23-622 (c) | PERMITTED OBSTRUCTIONS ELEVATOR OR STAIR BULKHEADS AND ACCESSORY MECHANICAL EQUIPMENT (INCLUDING ENCLOSURES) | (1) SUCH OBSTRUCTIONS SHALL BE LOCATED NOT LESS THAN 10 FEET FROM THE STREET WALL OF A BUILDING. (2) AGGREGATE AREA DOES NOT EXCEED 50 PERCENT OF THE LOT COVERAGE OF THE BUILDING. (3) THE HEIGHT OF OBSTRUCTIONS WITHIN AN AGGREGATE AREA EQUIVALENT TO AT LEAST 20 PERCENT OF THE LOT COVERAGE OF THE BUILDING SHALL NOT EXCEED 15 FEET ABOVE THE MAXIMUM PERMITTED HEIGHT; (4) THE HEIGHT OF OBSTRUCTIONS WITHIN THE REMAINING LOT COVERAGE, NOT TO EXCEED 30 PERCENT OF THE BUILDING SHALL NOT EXCEED: A HEIGHT OF 35 FEET ABOVE THE MAXIMUM PERMITTED HEIGHT. (5) ALL MECHANICAL EQUIPMENT SHALL BE SCREENED ON ALL SIDES. | PROP'D BULKHEADS ARE 16'-2" FROM STREET WALL.<br>PROP'D MAX HEIGHT OF BULKHEAD IS 17'-9".<br>NO MECHANICALS PROPOSED ON BULKHEAD.<br>PROPOSED BULKHEAD LOT COVERAGE:<br>284.76 SF (SEE SHEET Z-004)<br>BUILDING L.C. 1,603.33 SF * .20% = 320.66 SF<br>284.76 < 320.66 SF THEREFORE OK |
| **PARKING REQUIREMENTS** | | | |
| ZR 25-025<br>ZR 25-241<br>ZR 28-40 | REDUCED PARKING REQUIREMENTS FOR SMALL ZONING LOTS | 30% OF DWELLING UNITS:<br>PROPOSED 3 UNITS X 30% = 1 PARKING SPACE REQUIRED | NONE PROPOSED, WAIVED PER SEC. 25-261 |
| ZR 25-811 | BICYCLE PARKING | 1 PER 2 DWELLING UNITS: 3 UNITS /2 = 1.5 = 2 BICYCLE PARKING REQUIRED | NONE PROPOSED, WAIVED PER SEC. 25-811 (a)<br>BUILDINGS CONTAINING 10 DWELLING UNITS OR LESS |
| ZR 25-03 | STREET TREE PLANTING | 1 PER 25' OF STREET FRONTAGE:<br>25' STREET FRONTAGE = 1 TREE REQUIRED | 1 REQUIRED. 1 TREE TO BE PAID INTO TREE FUND<br>TO BE PLANTED OFF-SITE. |

**ZR 28-00 QUALITY HOUSING REQUIREMENTS**

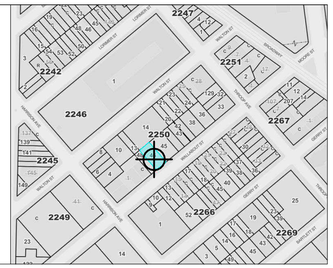
| | REGULATIONS | CONFORMING CONDITIONS |
|---|---|---|
| ZR 28-11 | ELEVATED GROUND FLOOR UNITS | PROPOSED 1ST FLOOR IS 7'-1" ABOVE CURB LEVEL, 500 SF MAY BE EXCLUDED FROM BUILDING FLOOR AREA. PROP'D 221.88 SF DEDUCTED FROM ENTRYWAY.<br>SEE DEDUCTION CALCULATION ON SHEET Z-005. |
| ZR 28-12 | REFUSE DISPOSAL ROOM - REQ'D FOR 9 UNIT AND MORE | PROP'D 3 UNITS, REFUSE STORAGE AND DISPOSAL ROOM NOT REQUIRED. |
| ZR 28-13 | LAUNDRY FACILITY 1 WASHING PER 20 UNITS, 1 DRYER PER 40 UNITS | PROP'D 3 UNITS, LAUNDRY FACILITY NOT REQUIRED. |
| ZR 28-14 | DAYLIGHT IN CORRIDORS | 50% OF THE SQUARE FOOTAGE OF A CORRIDOR MAY BE EXCLUDED FROM THE FLOOR AREA IF WINDOW IS PROVIDED. REFER TO DEDUCTION DIAGRAMS ON Z-005. |
| ZR 28-21 | REQUIRED RECREATION SPACE OF 3.3% OF RESIDENTIAL FLOOR AREA WITH 9 OR MORE DWELLING UNITS. | PROP'D 3 UNITS, RECREATION SPACE NOT REQUIRED. |
| ZR 28-23 | PLANTING AREA - BETWEEN STREET LINE AND STREET WALL | PLANTING AREA PROPOSED BETWEEN STREET LINE AND STREET WALL, SEE SHEET A-101. |
| ZR 28-31 | DENSITY PER CORRIDOR - 11 UNITS PER CORRIDOR<br>FIFTY PERCENT OF THE SQUARE FOOTAGE OF A CORRIDOR MAY BE EXCLUDED FROM F.A. IF NOT EXCEEDING THE MAX. | CORRIDORS ARE SERVING LESS THAN 11 UNITS PER FLOOR.<br>REFER TO DEDUCTION DIAGRAMS ON Z-005. |
| ZR 28-40 | PARKING FOR QUALITY HOUSING | NONE PROP'D, WAIVED PER SEC. 25-261 |




1 SITE PLAN
3/32" = 1'-0"

| |
|---|
| BASE PLANE: 12.22' + 11.97' = 24.19 /2 = 12.10' |
| 1 TREE TO BE PAID INTO TREE FUND AND TO BE PLANTED OFF SITE. |
| PROPOSED BUILDING HAS NO CONFLICT WITH SUBWAY LINES. |
| NO GAS PROPOSED IN BUILDING. |

TAX LOT MAP




ZONING MAP

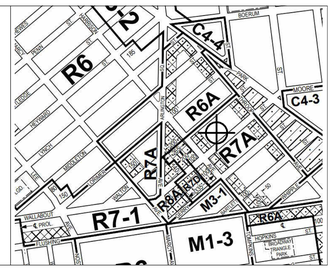



**TABLE 601**
**FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)**

CONSTRUCTION CLASSIFICATION

| BUILDING ELEMENT | TYPE I A | TYPE I B | TYPE II A | TYPE II B | TYPE III A | TYPE III B | TYPE IV HT | TYPE V A | TYPE V B |
|---|---|---|---|---|---|---|---|---|---|
| PRIMARY STRUCTURAL FRAME (SEE SECTION 202) | 3 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| BEARING WALLS EXTERIOR | 3 | 2 | 1 | 0 | 2 | 2 | 2 | 1 | 0 |
| BEARING WALLS INTERIOR | 3 | 2 | 1 | 0 | 1 | 0 | 1/HT | 1 | 0 |
| NONBEARING WALLS AND PARTITIONS EXTERIOR | TABLE 602 | | | | | | | | |
| NONBEARING WALLS AND PARTITIONS INTERIOR | 0 | 0 | 0 | 0 | 0 | 0 | SEE SECTION 602.4.6 | 0 | 0 |
| FLOOR CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202) | 2 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| ROOF CONSTRUCTION AND SECONDARY MEMBERS (SEE SECTION 202) | 1 1/2 | 1 | 1 | 0 | 1 | 0 | HT | 1 | 0 |

2 CONST. CLASSIFICATION

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:
293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

DOB JOB No:
B01105567-I1

DRAWING TITLE:
ZONING ANALYSIS

DRAWING NO.:
Z-001.00

DATE: 4/3/2025
DRAWN BY: YR

SCALE: AS NOTED
SHEET NO.: 02 OF 43

DRAFT

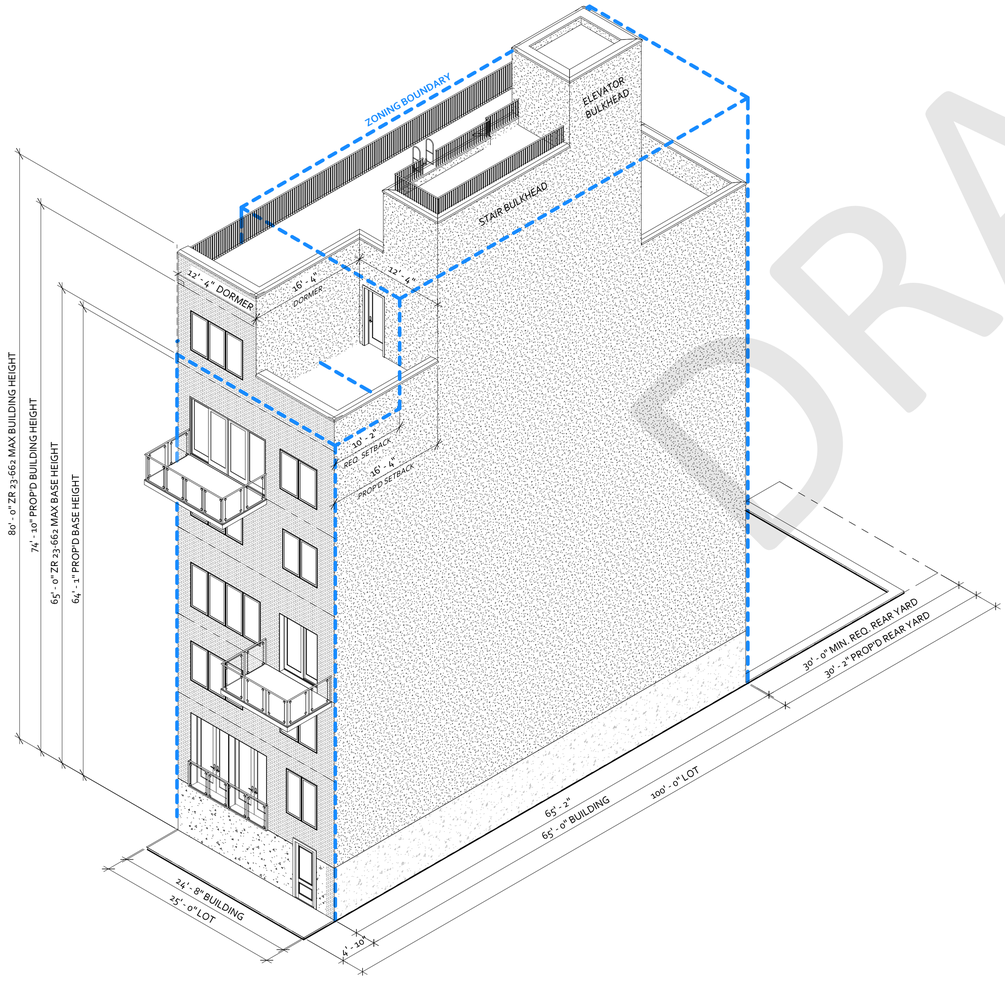
**23-62 PERMITTED OBSTRUCTIONS**
(g) ELEVATOR OR STAIR BULKHEADS
(3) SUCH OBSTRUCTIONS AND SCREENING ARE CONTAINED WITHIN A VOLUME THAT COMPLIES WITH ONE OF THE FOLLOWING: (ii) THE LOT COVERAGE OF ALL SUCH OBSTRUCTIONS DOES NOT EXCEED 20 PERCENT OF THE LOT COVERAGE OF THE BUILDING.
PROPOSED BUILDING LOT COVERAGE: 1,603.33 SF
PROPOSED BULKHEAD LOT COVERAGE: 284.76 SF
MAX ALLOWABLE: 1,603.33 X 20% = 320.67 SF
PROPOSED: 284.76 < 320.67 SF THEREFORE OK
(SEE SHEET Z-004 AREA DIAGRAM)

**DORMERS**
PROPOSED DORMER AS PER (ZR 23-621)
(c)(1) MAX WIDTH OF PROPOSED DORMER TO BE MAX 60% OF THE WIDTH OF STREET WALL OF THE HIGHEST STORY BELOW THE MAX BASE HEIGHT. FOR EACH FOOT OF DORMER HEIGHT ABOVE MAX BASE HEIGHT, THE AGGREGATE WIDTH OF ALL DORMERS SHALL BE DECREASED BY ONE PERCENT OF THE STREET WALL WIDTH OF THE HIGHEST STORY ENTIRELY BELOW THE MAX BASE HEIGHT.

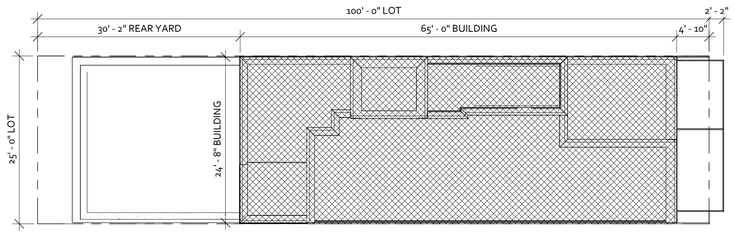
MAX BASE HEIGHT = 65'-0"
PROPOSED BUILDING HEIGHT = 74'-10"
WIDTH OF STREET WALL BELOW = 24'-8"
PROP'D DORMER HEIGHT ABOVE MAX BASE HEIGHT = 9'-10"

FOR EVERY FOOT OVER MAX BASE HEIGHT DEDUCT 1%:
9'-10" X 1% = 9.8%, 60% - 9.8% = 50.2%
THEN 24'-10" X 50.2% = 12'-6" (MAX DORMER WIDTH)

PROPOSED DORMER WIDTH: 12'-4"
12'-4" MAX PERMITTED, THEREFORE OK




1 ISOMETRIC




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

**ZR 23-153 MAXIMUM LOT COVERAGE**
R7A: 65% MAX LOT COVERAGE
**LOT AREA:** 25' x 100' = 2,500 SF
LOT: 2,500 SF x 65% = 1,625 SF
**LOT COVERAGE:** 65'-0" X 24'-8" = 1,603.33 SF
1,603.33 SF = 64.13% < 65% PERMITTED - OK

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

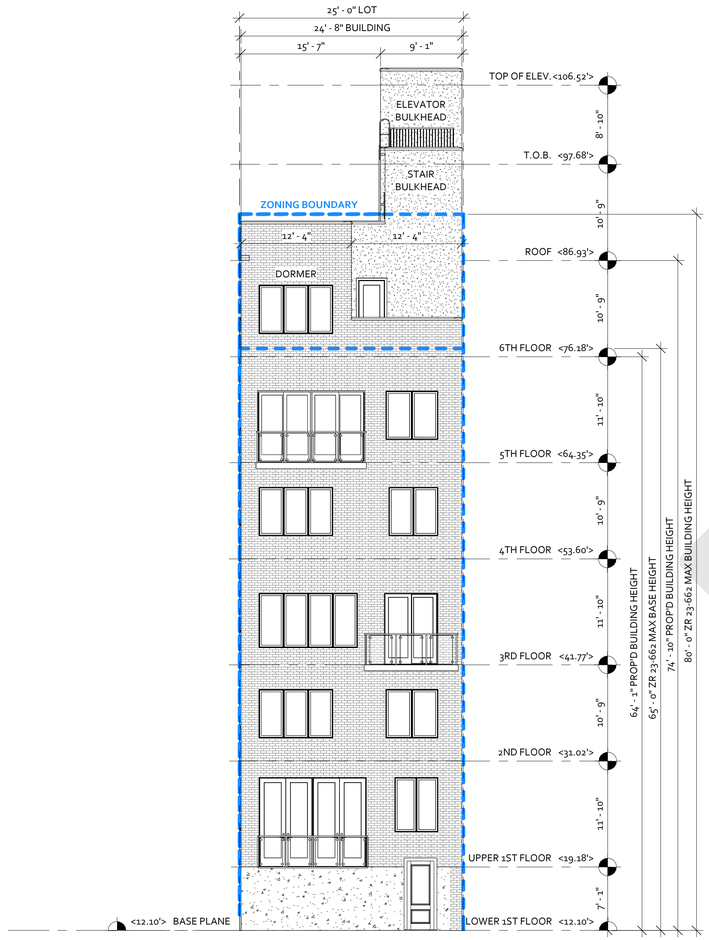
DOB JOB No:
B01105567-I1

DRAWING TITLE:
HEIGHT & SETBACK DIAGRAMS

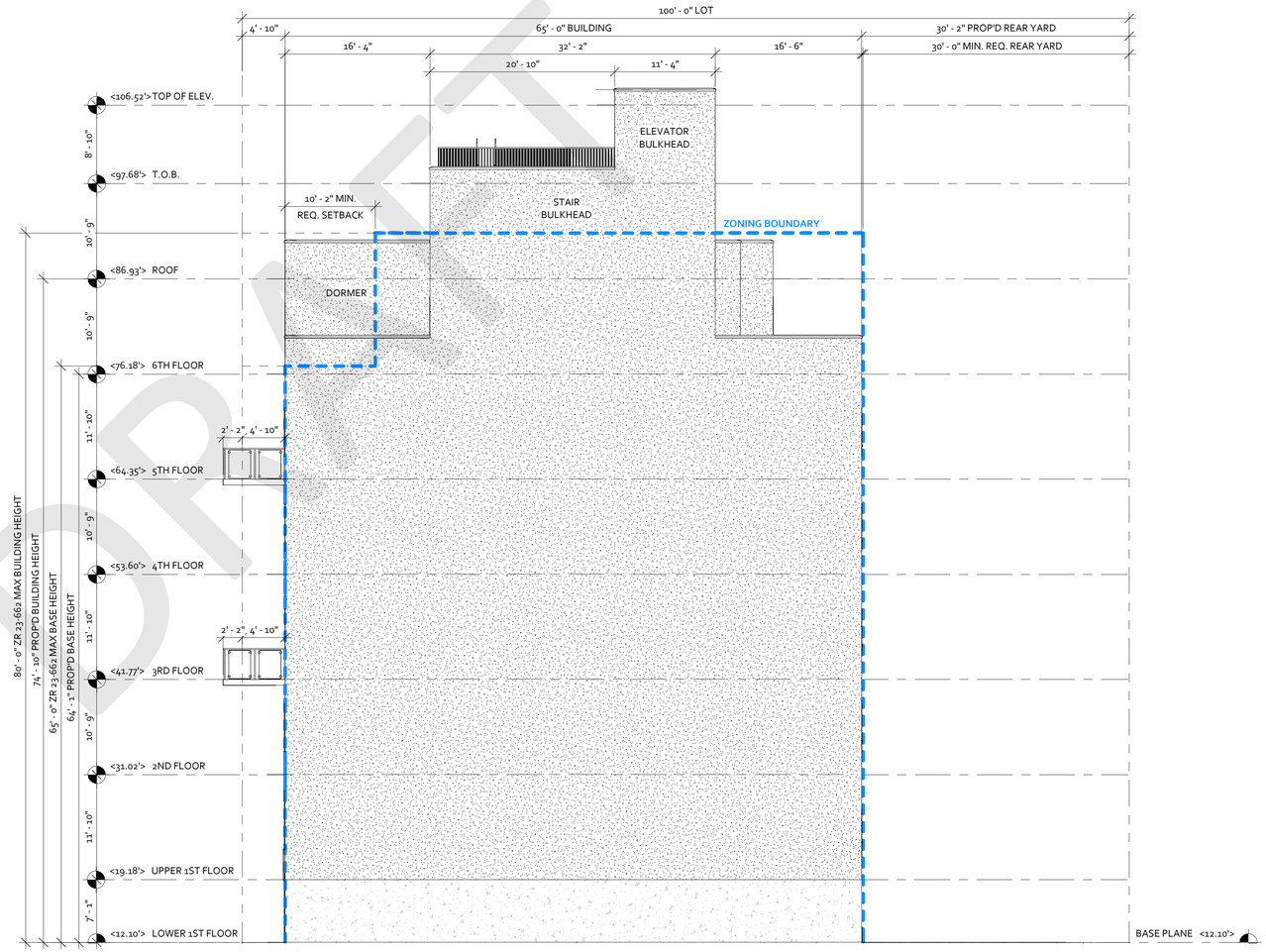
DRAWING NO.:
Z-002.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 03 OF 43 |




1 ZONING DIAGRAM FRONT




2 ZONING DIAGRAM SIDE

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE'S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

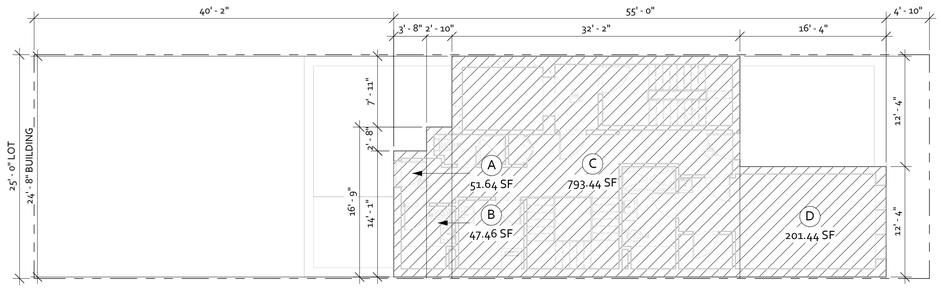
DOB JOB No:
B01105567-I1

DRAWING TITLE:

HEIGHT & SETBACK DIAGRAMS CONT.

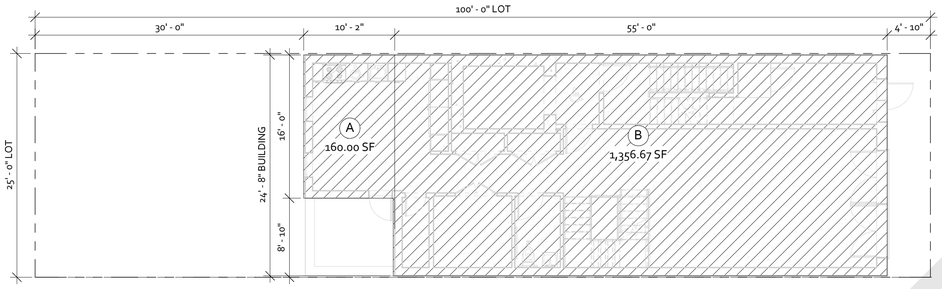
DRAWING NO.:
Z-003.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 04 OF 43 |



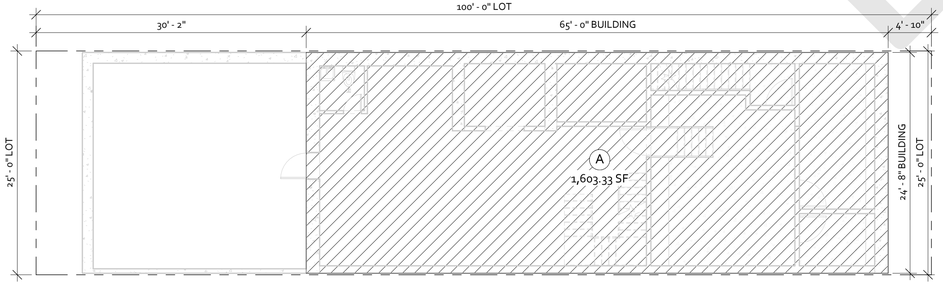

3 6TH GROSS FLOOR AREA
1/8" = 1'-0"

| 6TH GROSS FLOOR AREA | | |
|---|---|---|
| A | 3'-8" X 14'-3" | 51.64 SF |
| B | 2'-10" X 16'-11" | 47.46 SF |
| C | 32'-2" X 24'-10" | 793.44 SF |
| D | 16'-4" X 12'-6" | 201.44 SF |
| TOTAL | | 1,093.99 SF |



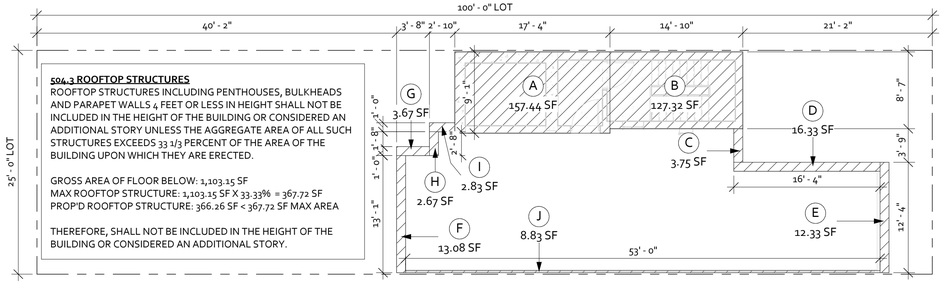

2 1ST THRU 5TH GROSS FLOOR AREA
1/8" = 1'-0"

| 1ST THRU 5TH GROSS FLOOR AREA | | |
|---|---|---|
| A | 10'-0" X 16'-0" | 160.00 SF |
| B | 55'-0" X 24'-10" | 1,356.67 SF |
| TOTAL | | 1,516.67 SF |




1 CELLAR GROSS FLOOR AREA
1/8" = 1'-0"

| CELLAR GROSS FLOOR AREA | | |
|---|---|---|
| A | 65'-0" X 24'-8" | 1,603.33 SF |
| TOTAL | | 1,603.33 SF |




**504.3 ROOFTOP STRUCTURES**
ROOFTOP STRUCTURES INCLUDING PENTHOUSES, BULKHEADS AND PARAPET WALLS 4 FEET OR LESS IN HEIGHT SHALL NOT BE INCLUDED IN THE HEIGHT OF THE BUILDING OR CONSIDERED AN ADDITIONAL STORY UNLESS THE AGGREGATE AREA OF ALL SUCH STRUCTURES EXCEEDS 33 1/3 PERCENT OF THE AREA OF THE BUILDING UPON WHICH THEY ARE ERECTED.

GROSS AREA OF FLOOR BELOW: 1,103.15 SF
MAX ROOFTOP STRUCTURE: 1,103.15 SF X 33.33% = 367.72 SF
PROP'D ROOFTOP STRUCTURE: 366.26 SF < 367.72 SF MAX AREA

THEREFORE, SHALL NOT BE INCLUDED IN THE HEIGHT OF THE BUILDING OR CONSIDERED AN ADDITIONAL STORY.

4 ROOF GROSS FLOOR AREA
1/8" = 1'-0"

| ROOFTOP STRUCTURES | | |
|---|---|---|
| A | 17'-4" X 9'-1" | 157.44 SF |
| B | 14'-10" X 8'-7" | 127.32 SF |
| C | 1'-0" X 3'-9" | 3.75 SF |
| D | 1'-0" X 16'-4" | 16.33 SF |
| E | 1'-0" X 12'-4" | 12.33 SF |
| F | 1'-0" X 13'-1" | 13.08 SF |
| G | 1'-0" X 3'-8" | 3.67 SF |
| H | 1'-0" X 2'-8" | 2.67 SF |
| I | 1'-0" X 2'-10" | 2.83 SF |
| J | 53'-0" X 2" | 8.83 SF |
| TOTAL | | 348.26 SF |

| ROOF GROSS FLOOR AREA | | |
|---|---|---|
| A | 17'-4" X 9'-1" | 157.44 SF |
| B | 14'-10" X 8'-7" | 127.32 SF |
| TOTAL | | 284.76 SF |

| TOTAL GROSS FLOOR AREA | |
|---|---|
| CELLAR | 1,603.33 SF |
| 1ST FLOOR )R | 1,516.67 SF |
| 2ND FLOOR | 1,516.67 SF |
| 3RD FLOOR | 1,516.67 SF |
| 4TH FLOOR | 1,516.67 SF |
| 5TH FLOOR | 1,516.67 SF |
| 6TH FLOOR | 1,093.99 SF |
| ROOF | 284.76 SF |
| TOTAL | 10,565.42 SF |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

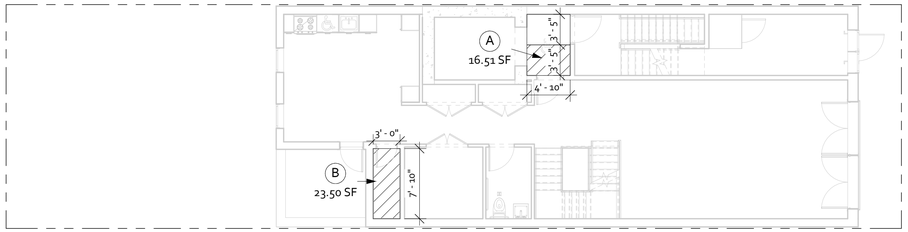
DOB JOB No:
B01105567-I1

DRAWING TITLE:
GROSS FLOOR AREA

DRAWING NO.:
Z-004.00

DATE: 4/3/2025
DRAWN BY: YR

SCALE: AS NOTED
SHEET NO.: 05 OF 43

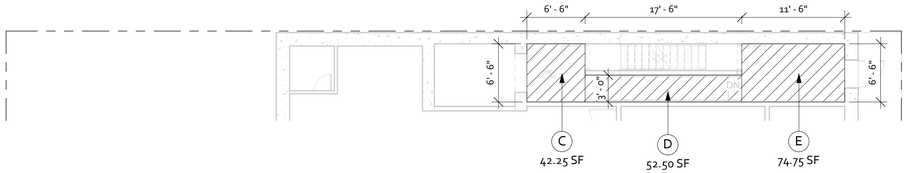



3 UPPER 1ST FLOOR DEDUCTION AREA
1/8" = 1'-0"

| UPPER 1ST FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| B | MECHANICAL | 3'-0" X 7'-10" | 23.50 SF |
| **TOTAL** | | | **40.01 SF** |

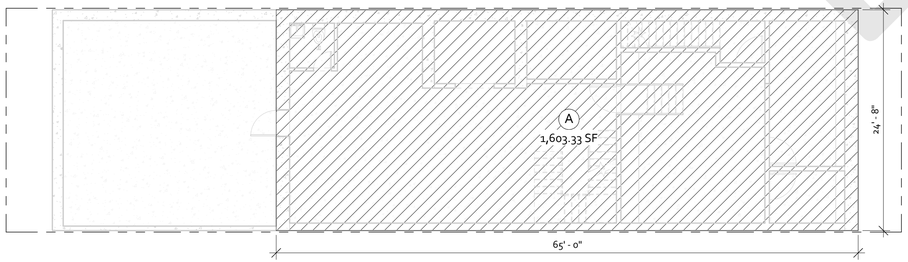
| LOWER 1ST FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| C | ENTRYWAYS | 6'-6" X 6'-6" | 42.25 SF |
| D | ENTRYWAYS | 17'-6" X 3'-0" | 52.50 SF |
| E | ENTRYWAYS | 6'-6" X 11'-6" | 74.75 SF |
| **TOTAL** | | | **169.50 SF** |

| TOTAL LOWER AND UPPER 1ST FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| B | MECHANICAL | 3'-0" X 7'-10" | 23.50 SF |
| C | ENTRYWAYS | 6'-6" X 6'-6" | 42.25 SF |
| D | ENTRYWAYS | 17'-6" X 3'-0" | 52.50 SF |
| E | ENTRYWAYS | 6'-6" X 11'-6" | 74.75 SF |
| **TOTAL** | | | **209.51 SF** |



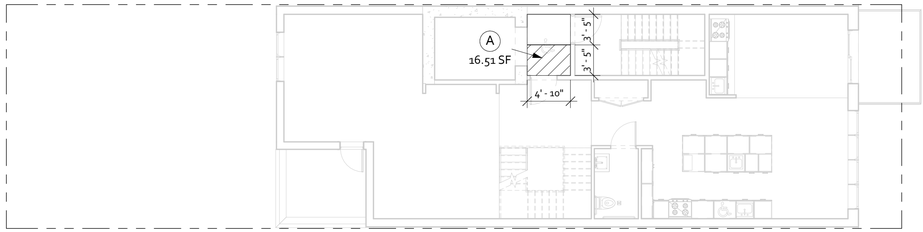

2 LOWER 1ST FLOOR DEDUCTION AREA
1/8" = 1'-0"

**ZR 28-11 ELEVATED GROUND FLOOR UNITS**
FOR ALL QUALITY HOUSING 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 EXCLUDED 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 MAY BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA FOR EACH BUILDING.
**PROPOSED 1ST FLOOR IS 7'-1" ABOVE CURB LEVEL,**
**MAXIMUM OF 500 SF MAY BE EXCLUDED FROM BUILDING FLOOR AREA.**



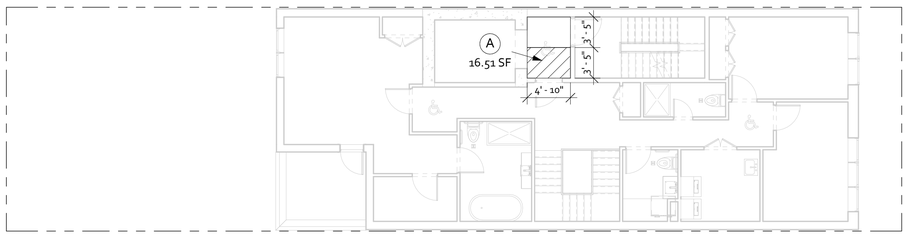

1 CELLAR DEDUCTION AREA
1/8" = 1'-0"

| CELLAR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CELLAR AREA | 65'-0" X 24'-8" | 1,603.33 SF |
| **TOTAL** | | | **1,603.33 SF** |




5 3RD FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 3RD FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| **TOTAL** | | | **16.51 SF** |




4 2ND FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 2ND FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| **TOTAL** | | | **16.51 SF** |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

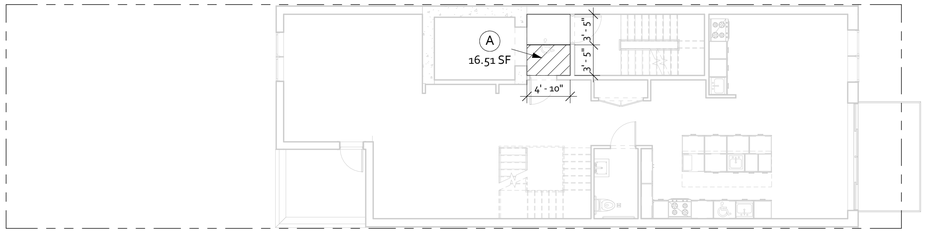
SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
DEDUCTION AREA DIAGRAMS

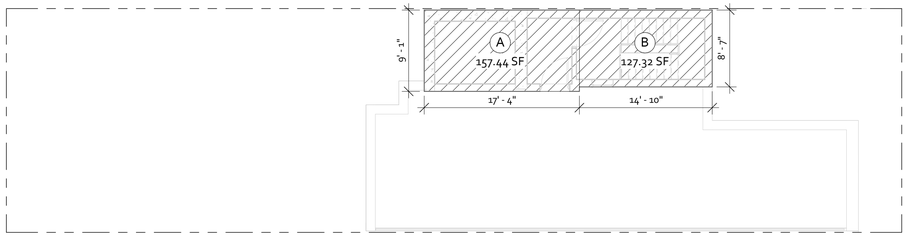
DRAWING NO.:
Z-005.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 06 OF 43



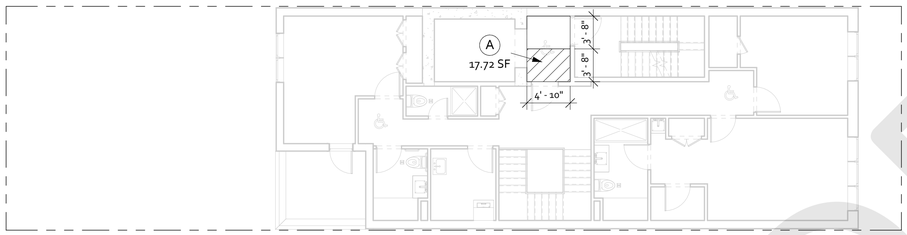

2 5TH FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 5TH FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-5" | 16.51 SF |
| **TOTAL** | | | **16.51 SF** |



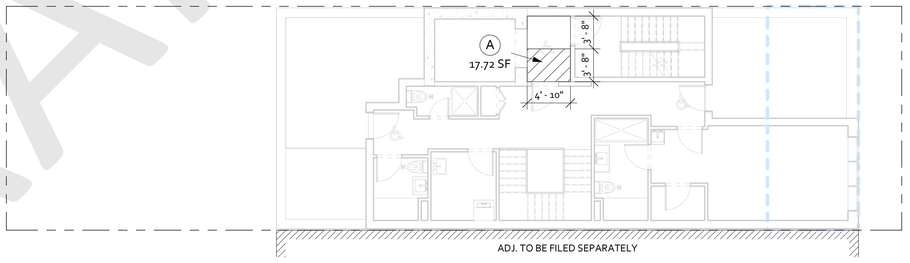

4 ROOF DEDUCTION AREA
1/8" = 1'-0"

| ROOF DEDUCTION AREA | | | |
|---|---|---|---|
| A | STAIR BULKHEAD | 17'-4" X 9'-1" | 157.44 SF |
| B | STAIR BULKHEAD | 14'-10" X 8'-7" | 127.32 SF |
| **TOTAL** | | | **284.76 SF** |




1 4TH FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 4TH FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-8" | 17.72 SF |
| **TOTAL** | | | **17.72 SF** |




3 6TH FLOOR DEDUCTION AREA
1/8" = 1'-0"

| 6TH FLOOR DEDUCTION AREA | | | |
|---|---|---|---|
| A | CORRIDOR: DENSITY %50 | 4'-10" X 3'-8" | 17.72 SF |
| **TOTAL** | | | **17.72 SF** |

| TOTAL DEDUCTION AREA | |
|---|---|
| CELLAR | 1,603.33 SF |
| LOWER 1ST FLOOR | 169.50 SF |
| UPPER 1ST FLOOR | 40.01 SF |
| 2ND FLOOR | 16.51 SF |
| 3RD FLOOR | 16.51 SF |
| 4TH FLOOR | 17.72 SF |
| 5TH FLOOR | 16.51 SF |
| 6TH FLOOR | 17.72 SF |
| ROOF | 284.76 SF |
| **TOTAL DEDUCTION AREA** | **2,182.60 SF** |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:

DEDUCTION AREA
DIAGRAMS CONT.

DRAWING NO.:
Z-006.00

DATE: 4/3/2025
DRAWN BY: YR

SCALE: AS NOTED
SHEET NO.: 07 OF 43

## NOTES TO USERS

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

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

**Coastal Base Flood Elevations** (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was New York State Plane Zone 3104 FIPSZONE 3104. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3182
(301) 713-3242

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

**Base map** information shown on this FIRM was provided in digital format by the Department of Information Technology and Telecommunication, City of New York (DoITT). This information was derived from digital orthophotos produced at a scale of 1:1,200 with 2-foot pixel resolution from photography dated April 2006.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unmoved streams may differ from what is shown on previous maps.

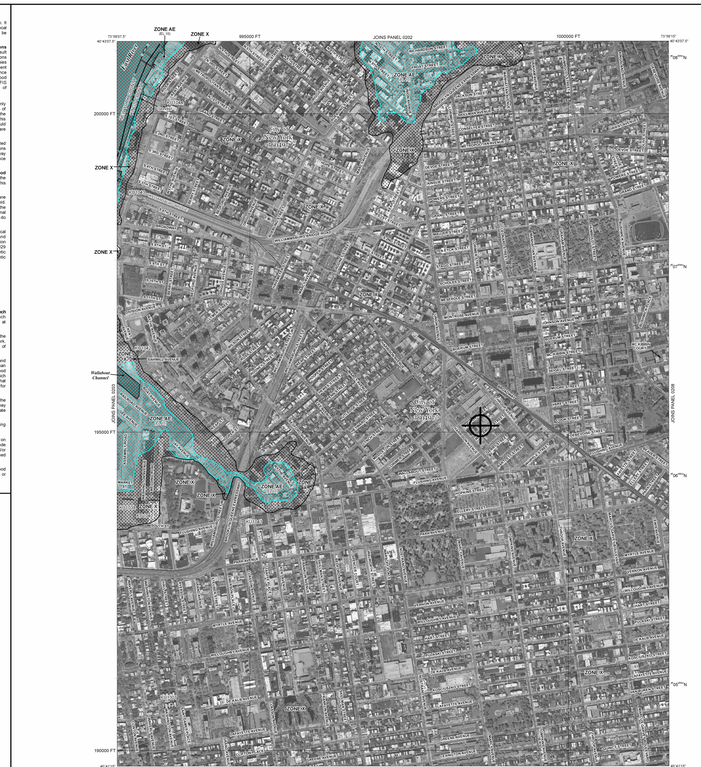
**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5 - foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.




## LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross-section line
- 87°07'45", 32°22'30" — Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1°00'" N — 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT — 5000-foot grid ticks: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
June 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
June 17, 1974

FLOOD INSURANCE RATE MAP EFFECTIVE
November 15, 1983

FLOOD INSURANCE RATE MAP REVISIONS
September 5, 2007 - to incorporate revised Flood Hazard Areas, and to reflect updated topographic information.

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

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

NFIP — NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0204F

# FIRM
## FLOOD INSURANCE RATE MAP

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

PANEL 204 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| NEW YORK, CITY OF | 360497 | 0204 | F |

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

MAP NUMBER
3604970204F

MAP REVISED
SEPTEMBER 5, 2007

Federal Emergency Management Agency


## NOTES TO USERS

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

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

**Coastal Base Flood Elevations** (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was New York State Plane Zone 3104 FIPSZONE 3104. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3182
(301) 713-3242

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

**Base map** information shown on this FIRM was provided in digital format by the Department of Information Technology and Telecommunication, City of New York (DoITT). This information was derived from digital orthophotos produced at a scale of 1:1,200 with 2-foot pixel resolution from photography dated April 2006.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unmoved streams may differ from what is shown on previous maps.

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

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5 - foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

## LEGEND


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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross-section line
- 87°07'45", 32°22'30" — Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1°00'" N — 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT — 5000-foot grid values: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
June 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
June 17, 1974

FLOOD INSURANCE RATE MAP EFFECTIVE
November 15, 1983

FLOOD INSURANCE RATE MAP REVISIONS

For descriptions of revisions see Notice to Users page in the Flood Insurance Study report.

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

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

NFIP — NATIONAL FLOOD INSURANCE PROGRAM


PANEL 0204G

# FIRM
## FLOOD INSURANCE RATE MAP

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

PANEL 204 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| NEW YORK, CITY OF | 360497 | 0204 | G |

PRELIMINARY
DECEMBER 5, 2013

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

MAP NUMBER
3604970204G

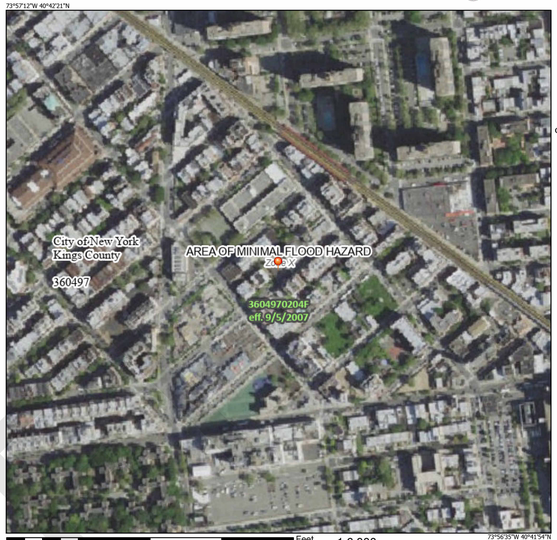
MAP REVISED

Federal Emergency Management Agency

# National Flood Hazard Layer FIRMette

FEMA

73°57'12"W 40°42'21"N




0 250 500 1,000 1,500 2,000 Feet 1:6,000

73°56'35"W 40°41'54"N

*Basemap Imagery Source: USGS National Map 2023*

## Legend

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

- SPECIAL FLOOD HAZARD AREAS: Without Base Flood Elevation (BFE) — Zone A, V, A99; With BFE or Depth — Zone AE, AO, AH, VE, AR; Regulatory Floodway
- OTHER AREAS OF FLOOD HAZARD: 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile — Zone X; Future Conditions 1% Annual Chance Flood Hazard — Zone X; Area with Reduced Flood Risk due to Levee. See Notes. — Zone X; Area with Flood Risk due to Levee — Zone D
- OTHER AREAS: NO SCREEN — Area of Minimal Flood Hazard — Zone X; Effective LOMRs; Area of Undetermined Flood Hazard — Zone D
- GENERAL STRUCTURES: Channel, Culvert, or Storm Sewer; Levee, Dike, or Floodwall
- OTHER FEATURES: 20.2 — Cross Sections with 1% Annual Chance; 17.5 — Water Surface Elevation; Coastal Transect; Base Flood Elevation Line (BFE); Limit of Study; Jurisdiction Boundary; Coastal Transect Baseline; Profile Baseline; Hydrographic Feature
- MAP PANELS: Digital Data Available; No Digital Data Available; Unmapped

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

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

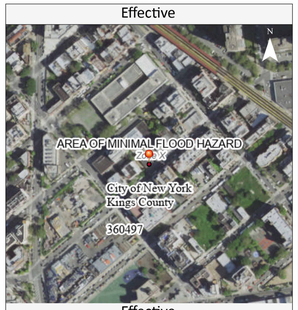
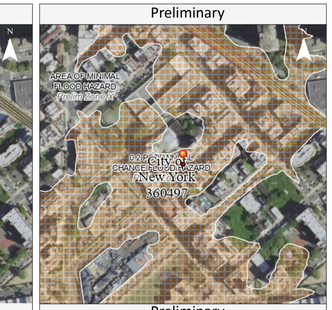
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/7/2024 at 6:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

# Comparison of Flood Hazard

Effective & Preliminary Flood Hazards

FEMA

| Effective | Preliminary |
|---|---|
|  |  |
| POI Longitude/Latitude: 40.7021, -73.9481 | POI Longitude/Latitude: 40.7021, -73.9481 |
| Effective FIRM Panel: 3604970204F | Preliminary FIRM Panel: 3604970204G |
| Effective Date: 9/5/2007 | Preliminary Issue Date: 1/30/2015 |
| Flood Zone: X | Flood Zone: X |
| Static BFE*: Not Available | Estimated Static BFE*: Not Available |
| Flood Depth: Not Available | Estimated Flood Depth: Not Available |
| Vertical Datum: Not Available | Vertical Datum: Not Available |



* A **Base Flood Elevation** is the expected elevation of flood water during the 1% annual chance storm event. Structures below the estimated water surface elevation may experience flooding during a base flood event.

| Hazard Level | Flood Hazard Zone |
|---|---|
| High Flood Hazard | **AE, A, AH, AO, VE and V Zones.** Properties in these flood zones have a 1% chance of flooding each year. This represents a 26% chance of flooding over the life of a 30-year mortgage. |
| Moderate Flood Hazard | **Shaded Zone X.** Properties in the moderate flood risk areas also have a chance of flooding from storm events that have a less than 1% chance of occuring each year. Moderate flood risk indicates an area that may be provided flood risk reduction due to a flood control system or an area that is prone to flooding during a 0.2% annual chance storm event. These areas may have been indicated as areas of shallow flooding by your community.<br><br>**Unshaded Zone X.** Properties on higher ground and away from local flooding sources have a reduced flood risk when compared to the Moderate and High Flood Risk categories. Structures in these areas may be affected by larger storm events, in excess of the 0.2% annual chance storm event. |
| Low Flood Hazard | **Insurance Note:** High Risk Areas are called 'Special Flood Hazard Areas' and flood insurance is mandatory for federally backed-mortgage holders. Properties in Moderate and Low Flood Risk areas may purchase flood insurance at a lower-cost rate, known as Preferred Risk Policies. See your local insurance agent or visit https://www.fema.gov/national-flood-insurance-program for more information. |

**Disclaimer:** *This report is for informational purposes only and is not authorized for official use. The positional accuracy may be compromised in some areas. Please contact your local floodplain administrator for more information or go to msc.fema.gov to view an official copy of the Flood Insurance Rate Maps.*

Service Layer Credits: USGS, USDA

7/7/2024 6:57 PM

REVISIONS

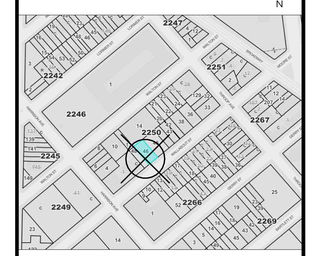
| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:

B01105567-I1

DRAWING TITLE:

FIRM FLOOD MAP

DRAWING NO.:

Z-007.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: AS NOTED | SHEET NO.: 08 OF 43 |

**GENERAL NOTES:**

1. THE PROPOSED WORK ON THIS PLAN SHALL COMPLY WITH NEW YORK CITY 2022 BUILDING CODE REQUIREMENTS.
2. THE GENERAL CONTRACTOR SHALL OBTAIN CONSTRUCTION PERMIT AND PAY ALL REQUIRED FEES TO THE D.O.B. BASED ON THE PROPOSED WORK OF THIS DRAWING FROM NEW YORK CITY BUILDING DEPARTMENT PRIOR TO START.
3. ALL ELECTRICAL WORK BEING PERFORMED SHALL BE BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH NEW YORK CITY ELECTRICAL CODE., AND SHALL BE REQUIRED TO OBTAIN ALL REQUIRED SIGN-OFFS AND CERTIFICATE OF COMPLETIONS FROM THE B.E.C.
4. ALL PLUMBING WORK SHALL BE PERFORMED BY A LICENSED PLUMBER IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE AND INSPECTION REQUIREMENTS. HE SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED PLUMBING SIGN-OFFS AND INSPECTIONS FROM THE DEPARTMENT OF BUILDING.
5. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL CONDITIONS AND DIMENSIONS ON THE SITE PRIOR TO START OF WORK. HE SHALL NOTIFY THE ARCHITECT/ENGINEER OF RECORD ANY DISCREPANCIES AND/OR CHANGE OF LAYOUT BETWEEN THE FIELD CONDITIONS AND THIS DRAWINGS IMMEDIATELY. FAILURE TO DO SO WILL INDICATE THE GENERAL CONTRACTOR'S ACCEPTANCE OF THIS DRAWING(S) AND WILL TAKE FULL RESPONSIBILITY FOR SAID WORK BEING PERFORMED.
6. THE ARCHITECT/ENGINEER OF RECORD HAS NOT BEEN RETAINED TO SUPERVISE THE CONSTRUCTION.
7. THE GENERAL CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED ARCHITECT/ENGINEER FOR ALL REQUIRED CONTROLLED INSPECTIONS.
8. THE GENERAL CONTRACTOR SHALL OBTAIN SIGN-OFF FROM THE DEPARTMENT OF BUILDING AFTER COMPLETION OF WORK.
9. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL BE KNOWLEDGEABLE OF CONDITIONS THEREON. HE SHALL INVESTIGATE, VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS OF THE PROJECT AND SHALL NOTIFY THE OWNER OF ANY CONDITIONS REQUIRING MODIFICATIONS BEFORE PROCEEDING WITH THE WORK.
10. NOTES APPEAR ON VARIOUS SHEETS FOR DIFFERENT SYSTEMS AND MATERIALS. SHEETS ARE TO BE REVIEWED AND NOTES ON ANY ONE SHEET ARE TO BE APPLIED ON RELATED DRAWINGS AND DETAILS.
11. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE DETAILED. WHERE SPECIFIED DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
12. STAIR OPENINGS SHALL BE CERTIFIED BY THE SUBCONTRACTOR PRIOR TO FORMING. REQUIRED MODIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR APPROVAL PRIOR TO FORMING.
13. CONTRACTOR TO COORDINATE ALL EQUIPMENT BASE AND HOUSEKEEPING PADS WITH MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTORS. EQUIPMENT BASES AND HOUSEKEEPING PADS TO BE A MINIMUM OF 4" HIGH UNLESS OTHERWISE NOTED. PROVIDE ONE LAYER OF WWF 6X6XW4 WELDED WIRE FABRIC MINIMUM, TO BE INSTALLED BENEATH THE FULL PROJECTED AREA OF EQUIPMENT.
14. CONC. PADS AND MOUNTINGS IN MECH. SPACES SHALL BE COORDINATED WITH ELECTRICAL AND PLUMBING CONTRACTORS.
15. CONTRACTOR TO COORDINATE ALL MECHANICAL AND ELECTRICAL FLOOR AND WALL SLEEVES AND ALL MECHANICAL SHAFTS WITH MECHANICAL, PLUMBING, FIRE-PROTECTION, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL DRAWINGS.
16. PROVIDE ACCESS PANELS AS APPLICABLE AND AS REQUIRED FOR MECHANICAL EQUIPMENT. ALL ACCESS PANELS SHALL BE CONCEALED, AND LOCATIONS SHALL BE REVIEWED WITH THE ARCHITECT PRIOR TO PROCEEDING.
17. ALL STRUCTURAL ELEMENTS WHICH DO NOT REQUIRE FIREPROOFING SHALL BE FIELD PAINTED
(STRUCTURAL DESIGN IS BY OTHERS).
18. ALL EXTERIOR DOORS SHALL PREVENT AIR LEAKAGE/INFILTRATION AROUND THEIR
19. ALL EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES, BETWEEN WALLS AND PERIMETER WHEN IN A CLOSED POSITION. FOUNDATIONS, BETWEEN WALLS AND ROOFS, AND BETWEEN WALLS AND PANELS AT PENETRATION OF UTILITIES THROUGH THE ENVELOPE SHALL BE SEALED, CAULKED OR WEATHER STRIPPED TO PREVENT AIR LEAKAGE/INFILTRATION.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CONDITIONS AND MATERIALS WITHIN THE PROPOSED CONSTRUCTION AREA. THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR ALL STRUCTURAL AND REMOVAL TASKS. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ANY DAMAGE OR INJURIES CAUSED BY OR DURING THE EXECUTION OF WORK.
21. THIS PROJECT DOES NOT INCLUDE MODULAR CONSTRUCTION.

**CHIMNEYS**

2113.1.6.1 RESPONSIBILITY OF OWNER OF TALLER BUILDING. WHENEVER A BUILDING IS ERECTED, ENLARGED, OR INCREASED IN HEIGHT SO THAT ANY PORTION OF SUCH BUILDING, EXCEPT CHIMNEYS OR VENTS, EXTENDS HIGHER THAN THE TOP OF ANY PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS WITHIN 100 FEET (30 480 MM), THE OWNER OF SUCH NEW OR ALTERED BUILDING SHALL HAVE THE RESPONSIBILITY OF ALTERING SUCH CHIMNEYS OR VENTS TO MAKE THEM CONFORM WITH THE REQUIREMENTS OF THIS CHAPTER. A CHIMNEY OR VENT THAT IS NO LONGER CONNECTED WITH A FIREPLACE OR COMBUSTION OR OTHER EQUIPMENT FOR WHICH A CHIMNEY OR VENT WAS REQUIRED, SHALL BE EXEMPT FROM THIS REQUIREMENT. SUCH ALTERATIONS SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MEANS OR A COMBINATION THEREOF:
1. CARRY UP THE PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS TO THE HEIGHT REQUIRED IN THIS CHAPTER.
2. OFFSET SUCH CHIMNEYS OR VENTS TO A DISTANCE BEYOND THAT REQUIRED IN THIS CHAPTER FROM THE NEW OR ALTERED BUILDING PROVIDED THAT THE NEW LOCATION OF THE OUTLET OF THE OFFSET CHIMNEY OR VENT SHALL OTHERWISE COMPLY WITH THE REQUIREMENTS OF THIS CHAPTER.
3. SUCH REQUIREMENTS SHALL NOT DISPENSE WITH OR MODIFY ANY ADDITIONAL REQUIREMENTS THAT MAY BE APPLICABLE PURSUANT TO RULES OF THE NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION.

2113.1.6.2 PROTECTION OF DRAFT. AFTER THE ALTERATION OF A CHIMNEY OR VENT AS REQUIRED BY THIS SECTION, IT SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE NEW OR ALTERED BUILDING TO PROVIDE ANY MECHANICAL EQUIPMENT OR DEVICES NECESSARY TO MAINTAIN THE PROPER DRAFT IN THE EQUIPMENT.

2113.1.6.3 WRITTEN NOTIFICATION. THE OWNER OF THE NEW OR ALTERED BUILDING SHALL NOTIFY THE OWNER OF THE BUILDING AFFECTED IN WRITING AT LEAST 45 DAYS BEFORE STARTING THE WORK REQUIRED AND REQUEST WRITTEN CONSENT TO DO SUCH WORK. SUCH NOTICE SHALL BE ACCOMPANIED BY PLANS INDICATING THE MANNER IN WHICH THE PROPOSED ALTERATIONS ARE TO BE MADE.

2113.1.6.4 APPROVAL. THE PLANS AND METHOD OF ALTERATION SHALL BE SUBJECT TO THE APPROVAL OF THE COMMISSIONER.

2113.1.6.5 REFUSAL OF CONSENT. IF CONSENT IS NOT GRANTED BY THE OWNER OF THE PREVIOUSLY CONSTRUCTED BUILDING TO DO THE ALTERATION WORK REQUIRED BY THIS SECTION, SUCH OWNER SHALL SIGNIFY HIS OR HER REFUSAL IN WRITING TO THE OWNER OF THE NEW OR ALTERED BUILDING AND TO THE COMMISSIONER, AND THE OWNER OF THE NEW OR ALTERED BUILDING HAVING SUBMITTED PLANS THAT CONFORM TO THE REQUIREMENTS OF THIS SECTION, SHALL THEREUPON BE RELEASED FROM ANY RESPONSIBILITY FOR THE PROPER OPERATION OF THE EQUIPMENT DUE TO LOSS OF DRAFT AND FOR ANY HEALTH HAZARD OR NUISANCE THAT MAY OCCUR AS A RESULT OF THE NEW OR ALTERED BUILDING. SUCH RESPONSIBILITIES SHALL THEN BE ASSUMED BY THE OWNER OF THE PREVIOUSLY CONSTRUCTED BUILDING. SIMILARLY, SHOULD SUCH OWNER FAIL TO GRANT CONSENT WITHIN 45 DAYS FROM THE DATE OF WRITTEN REQUEST OR FAIL TO SIGNIFY HIS OR HER REFUSAL, HE OR SHE SHALL THEN ASSUME ALL RESPONSIBILITIES AS PRESCRIBED ABOVE.

2113.1.6.6 PROCEDURE. IT SHALL BE THE OBLIGATION OF THE OWNER OF THE NEW OR ALTERED BUILDING TO:
1. SCHEDULE THIS WORK SO AS TO CREATE A MINIMUM OF DISTURBANCE TO THE OCCUPANTS OF THE AFFECTED BUILDING, AND
2. PROVIDE SUCH ESSENTIAL SERVICES AS ARE NORMALLY SUPPLIED BY THE EQUIPMENT WHILE IT IS OUT OF SERVICE; AND
3. WHERE NECESSARY, SUPPORT SUCH EXTENDED CHIMNEYS, VENTS AND EQUIPMENT FROM THIS BUILDING OR TO CARRY UP SUCH CHIMNEYS OR VENTS WITHIN HIS OR HER BUILDING; AND
4. PROVIDE FOR THE MAINTENANCE, REPAIR, AND/OR REPLACEMENT OF SUCH EXTENSIONS AND ADDED EQUIPMENT; AND
5. MAKE SUCH ALTERATIONS OF THE SAME MATERIAL AS THE ORIGINAL CHIMNEY OR VENT SO AS TO MAINTAIN THE SAME QUALITY AND APPEARANCE, EXCEPT WHERE THE AFFECTED OWNER OF THE CHIMNEY OR VENT SHALL GIVE HIS OR HER CONSENT TO DO OTHERWISE. ALL WORK SHALL BE DONE IN SUCH FASHION AS TO MAINTAIN THE ARCHITECTURAL AESTHETICS OF THE EXISTING BUILDING. WHERE THERE IS PRACTICAL DIFFICULTY IN COMPLYING STRICTLY WITH THE PROVISIONS OF THIS ITEM, THE COMMISSIONER MAY PERMIT AN EQUALLY SAFE ALTERNATIVE.

2113.1.6.7 EXISTING VIOLATIONS. ANY EXISTING VIOLATIONS ON THE PREVIOUSLY CONSTRUCTED EQUIPMENT SHALL BE CORRECTED BY THE OWNER OF THE EQUIPMENT BEFORE ANY EQUIPMENT IS ADDED OR ALTERATIONS MADE AT THE EXPENSE OF THE OWNER OF THE NEW OR ALTERED BUILDING.

2113.1.6.8 VARIANCE. THE COMMISSIONER MAY GRANT A VARIANCE IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE.

**1603.1.5 EARTHQUAKE DESIGN DATA.**

THE FOLLOWING INFORMATION RELATED TO SEISMIC LOADS SHALL BE SHOWN, REGARDLESS OF WHETHER SEISMIC LOADS GOVERN THE DESIGN OF THE LATERAL-FORCE-RESISTING SYSTEM OF THE BUILDING:
1. SEISMIC IMPORTANCE FACTOR, IE, AND SEISMIC USE GROUP.
2. MAPPED SPECTRAL RESPONSE ACCELERATIONS SS AND S1.
3. SITE CLASS.
4. SPECTRAL RESPONSE COEFFICIENTS SDS AND SD1.
5. SEISMIC DESIGN CATEGORY
6. BASIC SEISMIC-FORCE-RESISTING SYSTEM(S).
7. DESIGN BASE SHEAR.
8. SEISMIC RESPONSE COEFFICIENT(S), CS.
9. RESPONSE MODIFICATION FACTOR(S), R.
10. ANALYSIS PROCEDURE USED.

**MULTIPLE DWELLING & HOUSE MAINTENANCE NOTES**

1. PAINTING OF PUBLIC PARTS WITHIN DWELLING TO COMPLY WITH SEC. D26-12.01 H.M.C.
2. PAINTING OF WINDOW FRAMES AND FIRE ESCAPES TO COMPLY WITH SEC. D26-12.03 H.M.C.
3. WALLS OF COURTS AND SHAFTS TO BE OF A LIGHT COLORED SURFACE AS PER SEC. D26-12.05 H.M.C. AND SEC. 29 M.D.L.
4. PREMISES TO BE MAINTAINED AND KEPT FREE OF RODENT AND INSECT INFESTATION AS PER SEC. D26-13.03 AND D26-13.05 M.D.L.
5. RECEPTACLES FOR THE COLLECTION OF WASTE MATTER TO BE PROVIDED AS PER D26-14.03 AND D26-14.05 H.M.C. AND SEC. 81 M.D.L.
6. DRAINAGE OF ROOFS, COURTS AND YARDS TO COMPLY WITH SEC. D26-16.03 H.M.C. AND SEC. 77.
7. YEARLY INSPECTION OF CENTRAL HEATING PLANT BY QUALIFIED PERSON TO BE MADE AS PER SEC. D26-17.05 H.M.C. CENTRAL HEAT AND HOT WATER TO BE PROVIDED AS PER SEC. 29 SUBD.
8. PROPER ELECTRIC LIGHTING EQUIPMENT WITHIN DWELLING TO BE PROVIDED AND MAINTAINED AS PER SEC. D26-19.01, D26-19.03 AND D26-19.05 H.M.C.
9. PROPER ELECTRIC LIGHTS TO BE PROVIDED NEAR ENTRANCE WAYS, YARDS AND COURTS AS PER SEC. D26-19.07 H.M.C. ON SEPARATE CIRCUITS OR CONNECTED TO HOUSE LINE SERVICING PUBLIC HALLS, AND IN ACCORDANCE WITH REQUIREMENTS AND APPROVAL OF THE DEPARTMENT OF WATER SUPPLY, GAS AND ELECTRICITY AS PER SEC. 35 AND SEC. 26 SUBD 7A M.D.L. AND DEPARTMENT OF RULES AND REGULATIONS.
10. B.S.A. APPROVED PEEP HOLES APPROX. 5'-0" ABOVE FINISHED FLOOR TO BE PROVIDED IN ENTRANCE DOORS OF DWELLING UNITS AS PER SEC. D26-20.03 H.M.C. AND DEPARTMENT RULES AND REGULATIONS.
11. PROPERLY MOUNTED AND SECURED POLISHED METAL VIEWING MIRRORS TO BE PROVIDED WITHIN SELF SERVICE ELEVATORS (IF ANY) AS PER SEC. D26-20.03 H.M.C. AND DEPARTMENT RULES AND REGULATIONS.
12. KEY LOCKS IN THE ENTRANCE DOOR TO EACH DWELLING UNIT WITH AT LEAST ONE KEY TO BE PROVIDED BY OWNER AS PER SEC. D26-20.05 H.M.C. HEAVY DUTY LATCH SET DEAD BOLT THUMB TURN INSIDE.
13. APPROVED TYPE MAIL RECEPTACLES AND DIRECTORY OF PERSONS LIVING IN THE DWELLING TO BE PROVIDED AS PER SEC. D26-21.01 H.M.C. AND REGULATIONS OF POST OFFICE DEPARTMENT SEC. 57 M.D.L.
14. PROPER SIGNS TO BE PROVIDED IN THE PUBLIC HALLS NEAR STAIR AND ELEVATOR AND WITHIN STAIR ENCLOSURE AS PER SEC. D26-21.03 AND DEPARTMENT RULES AND REGULATIONS.
15. PROPER STREET NUMBERS TO BE PROVIDED IN FRONT OF DWELLING AS PER SEC. D26-21.05 H.M.C. AND RULES AND REGULATIONS OF BOROUGH PRESIDENT.
16. PROPER JANITORIAL SERVICES TO BE PROVIDED AS PER SEC. 26-22.03 AND D26-22.05 H.M.C.
17. EVERY KITCHEN AND KITCHENETTE TO BE PROVIDED WITH SINK HAVING MIN. 2" WASTE AND TRAP AS PER SEC. D26-32.01 H.M.C.
18. ALL COMBUSTIBLE MATERIAL WITHIN 1'(FT) OF COOKING APPARATUS TO BE PROPERLY FIRE RETARDED AND MIN. 2'(FT) CLEARANCE MAINTAINED ABOVE COOKING SURFACE. COMBUSTIBLE MATERIAL BETWEEN 2'(FT) AND 3'(FT) ABOVE EXPOSED SURFACE TO BE FIRE RETARDED. SEC. 26-32.05 H.M.C. AND DEPARTMENT RULES AND REGULATIONS SEC. 33 SUBD 3 M.D.L.
19. NO KITCHEN SHALL BE OCCUPIED FOR SLEEPING PURPOSES SEC. D26-33.05 H.M.C.
20. REGISTRATION STATEMENT TO BE FILED AS PER SEC. D26-41.01 AND D26-41.03 H.M.C.
21. REGISTRATION IDENTIFICATION SIGN CONTAINING SERIAL NUMBERS TO BE POSTED AS PER SEC. D26-41.15 H.M.C. 22. IDENTIFICATION OF MANAGING AGENT OR OWNER TO BE INDICATED ON TENANTS RENT RECEIPT AS PER SEC. D26-41.17 H.M.C.
23. ALL BATHROOMS, TOILETS AND BATHING COMPARTMENTS TO HAVE CERAMIC TILE FLOOR AND 6" MIN. CERAMIC TILE BASE. WALLS AND CEILING PLASTER AS PER SEC. 76 M.D.L. AND SEC. D26-31.03 H.M.C.
24. ALL DOORS LEADING TO PUBLIC HALLS SHALL BE SELF CLOSING. NO TRANSOM OR PLAIN GLASS PANELS.
25. BUILDING TO COMPLY WITH SEC. 64 M.D.L. GAS METER, GAS APPLIANCES AND ARTIFICIAL LIGHTING.
26. BUILDING TO COMPLY WITH LOCAL LAWS APPLICABLE TO ART. 6 WITH H.M.C. AND WITH DEPARTMENT RULES AND REGULATIONS.
27. ENTIRE BUILDING TO COMPLY WITH SEC. D26-33.03 H.M.C. MAXIMUM OCCUPANCY, MINIMUM ROOM AREA ART. 33 D26-33.01.
28. ALL NEWLY CREATED PARTITIONS IN HALLS TO BE FIRE RETARDED ON BOTH SIDES AND FIRE STOPPED AT TOP AND BOTTOM AS PER DEPARTMENT RULES AND REGULATIONS, RULE 1,2,10 AND RULE 1.7.
29. EVERY VESTIBULE ENTRANCE, PUBLIC AND STAIR HALL TO BE PROVIDED WITH MIN. OF 60 WATT LIGHT AS PER SEC. 37 SBOL M.D.L.

**SMOKE DETECTOR & CARBON MONOXIDE NOTES**

907.2.11 SMOKE ALARMS COMPLYING WITH UL 217 SHALL BE INSTALLED IN ACCORDANCE WITH SECTIONS 907.2.11.1 THROUGH 907.2.11.4 AND NFPA 72.

908.7 CARBON MONOXIDE ALARMS AND DETECTORS SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SECTIONS 908.7.1 THROUGH 908.7.4.

REQUIRED LOCATIONS WITHIN DWELLING UNITS AS PER 907.2.11.1 SMOKE ALARMS AND 908.7.1.1.1 CARBON MONOXIDE ALARMS:
1. ON THE CEILING OR WALL OUTSIDE OF EACH ROOM USED FOR SLEEPING PURPOSES WITHIN 15FT 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.

908.7.1.1.2 INSTALLATION REQUIREMENTS.
ALARMS OR DETECTORS SHALL COMPLY WITH THE POWER SOURCE, INTERCONNECTION, AND ACCEPTANCE TESTING REQUIREMENTS AS REQUIRED FOR SMOKE ALARMS IN ACCORDANCE WITH SECTIONS 907.2.11.2 THROUGH 907.2.11.3.

**SAFEGUARDS DURING CONSTRUCTION OR DEMOLITION**

1. CONTRACTORS, CONSTRUCTION MANAGERS, AND SUBCONTRACTORS ENGAGED CONSTRUCTION OR DEMOLITION OPERATIONS SHALL INSTITUTE AND MAINTAIN ALL SAFETY MEASURES REQUIRED BY CHAPTER 3301 AND PROVIDE ALL EQUIPMENT OR TEMPO-RARY CONSTRUCTION NECESSARY TO SAFEGUARD AND THE PUBLIC AND PROPERTY AFFECTED BY SUCH CONTRACTOR 'S OPERATIONS.
2. A SITE SAFETY MANAGER OR SITE SAFETY COORDINATOR MUST BE DESIGNATED AND PRESENT AT THE CONSTRUCTION OR DEMOLITION OF A MAJOR BUILDING.
3. STRUCTURES, TEMPORARY CONSTRUCTION, OPERATIONS, AND EQUIPMENT SHALL BE INSPECTED AS REQUIRED BY THIS CODE.
4. WHERE THIS CHAPTER REQUIRES CONSTRUCTION DOCUMENTS, DRAWINGS, INSPECTION REPORTS, LOGS,CHECKLISTS, SITE SAFETY PLANS, FIRE SAFETY AND EVACUATION PLANS, TENANT PROTECTION PLANS, OCCUPANT PROTECTION PLANS, OR MONITORING PLANS, COPIES OF SUCH SHALL BE MAINTAINED AT THE SITE FOR THE DURATION OF THE JOB AND MADE AVAILABLE TO THE COMMISSIONER UPON REQUEST.
5. THE DEPARTMENT SHALL BE NOTIFIED IMMEDIATELY BY THE PERMIT HOLDER, OR A DULY AUTHORIZED REPRESENTATIVE, OF AN ACCIDENT AT A CONSTRUCTION OR DEMOLITION SITE,
6. SIGNS SHALL BE POSTED AT A CONSTRUCTION OR DEMOLITION SITE IN ACCORDANCE WITH SECTIONS 3301.9.1 THROUGH 3301.9.5.
7. 3309.1 PROTECTION REQUIRED. ADJOINING PUBLIC AND PRIVATE PROPERTY, INCLUDING PERSONS THEREON,SHALL BE PROTECTED FROM DAMAGE AND INJURY DURING CONSTRUCTION OR DEMOLITION WORK IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 3309. PROTECTION MUST BE PROVIDED FOR FOOTINGS, FOUNDATIONS, PARTY WALLS, CHIMNEYS, SKYLIGHTS AND ROOFS. PROVISIONS SHALL BE MADE TO CONTROL WATER RUN-OFF AND EROSION DURING CONSTRUCTION OR DEMOLITION ACTIVITIES.
8. 3309.2 LICENSE TO ENTER ADJOINING PROPERTY.THE RESPONSIBILITY OF AFFORDING ANY LICENSE TO ENTER ADJOINING PROPERTY SHALL REST UPON THE OWNER OF THE ADJOINING PROPERTY INVOLVED; AND IN CASE ANY TENANT OF SUCH OWNER FAILS OR REFUSES TO PERMIT THE OWNER TO AFFORD SUCH LICENSE, SUCH FAILURE OR REFUSAL SHALL BE A CAUSE FOR THE OWNER TO DISPOSSESS SUCH TENANT THROUGH APPROPRIATE LEGAL PROCEEDINGS FOR RECOVERING POSSESSION OF REAL PROPERTY.NOTHING IN THIS CHAPTER SHALL BE CONSTRUED TO PROHIBIT THE OWNER OF THE PROPERTY UNDERTAKING CONSTRUCTION OR DEMOLITION WORK FROM PETITIONING FOR A SPECIAL PROCEEDING PURSUANT TO SECTION 881 OF THE REAL PROPERTY ACTIONS AND PROCEEDINGS LAW.
9. 3309.5 UNDERPINNING.WHENEVER UNDERPINNING IS REQUIRED TO PRESERVE AND PROTECT AN ADJACENT PROPERTY FROM CONSTRUCTION, DEMOLITION,OR EXCAVATION WORK, THE PERSON WHO CAUSES SUCH WORK SHALL, AT HIS OR HER OWN EXPENSE, UNDERPIN THE ADJACENT BUILDING PROVIDED SUCH PERSON IS AFFORDED A LICENSE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 3309.2 TO ENTER AND INSPECT THE ADJOINING BUILDINGS AND PROPERTY, AND TO PERFORM SUCH WORK THEREON AS MAY BE NECESSARY FOR SUCH PURPOSE. IF THE PERSON WHO CAUSES THE CONSTRUCTION, DEMOLITION,OR EXCAVATION WORK IS NOT AFFORDED A LICENSE, SUCH DUTY TO PRESERVE AND PROTECT THE ADJACENT PROPERTY SHALL DEVOLVE TO THE OWNER OF THE ADJOINING PROPERTY, WHO SHALL BE AFFORDED A SIMILAR LICENSE WITH RESPECT TO THE PROPERTY WHERE THE CONSTRUCTION, DEMOLITION, OR EXCAVATION IS TO BE PERFORMED

**3307.7 FENCES**

ALL SITES WHERE A NEW BUILDING IS BEING CONSTRUCTED, OR A BUILDING IS BEING DEMOLISHED TO GRADE, SHALL BE ENCLOSED WITH A FENCE.
FENCES SHALL BE AT LEAST 8 FEET (2438 MM) HIGH, BUILT SOLID FOR THEIR ENTIRE LENGTH, OUT OF WOOD OR OTHER SUITABLE MATERIAL, AND SHALL BE RETURNED AT THE ENDS TO THE EXTENT NECESSARY TO EFFECTIVELY CLOSE OFF THE SITE.
3307.7.1 LOCATION OF FENCE.
WHERE THE FENCE IS INSTALLED TO FULLY ENCLOSE A SITE, THE FENCE SHALL BE CONSTRUCTED ALONG THE INSIDE EDGE OF THE SIDEWALK OR WALKWAY AND ALONG THE EDGES OF THE PROPERTY LINE.
FENCES SHALL BE INSTALLED AND LOCATED SO TO NOT UNREASONABLY OBSTRUCT, EITHER VISUALLY OR PHYSICALLY, TRAFFIC, CURB CUTS, VEHICULAR ACCESS POINTS, STREET LIGHTING POLES, TRAFFIC LIGHTS OR SIGNS, FIRE HYDRANTS, FIRE DEPARTMENT CONNECTIONS, WATER SAMPLING STATIONS, BUS SHELTERS, OR OTHER STREET FURNITURE, TREES, OR MEANS OF INGRESS/EGRESS.
FENCES MAY ENCROACH ONTO THE SIDEWALK IN ACCORDANCE WITH DEPARTMENT OF TRANSPORTATION REQUIREMENTS.
3307.7.2 GATES.
GATES SHALL BE SLIDING OR SHALL SWING INTO AREAS NOT ACCESSIBLE TO THE PUBLIC, AND SHALL BE PROVIDED ONLY WHERE REQUIRED FOR ACCESS TO THE SITE OR TO FACILITATE THE WORK. GATES SHALL CONSIST OF THE SAME MATERIAL AND CONSTRUCTION AS THE REST OF THE FENCE. GATES SHALL BE KEPT CLOSED AT ALL TIMES EXCEPT DURING ACTUAL LOADING AND UNLOADING OPERATIONS, WHEN INDIVIDUALS OR VEHICLES ARE ACTIVELY ENTERING OR LEAVING THE SITE, OR AS NEEDED TO FACILITATE ACTIVE WORK AROUND THE GATE.
3307.7.3 VIEWING PANELS.
VIEWING PANELS SHALL BE PROVIDED IN SOLID FENCES AT A RATE ONE FOR EVERY 25 LINEAR FEET (7.6 M) PER FRONTAGE, WITH A MINIMUM OF ONE PER FRONTAGE. VIEWING PANELS SHALL BE 12 INCHES BY 12 INCHES(305 BY305 MM) IN SIZE AND SHALL BE BLOCKED WITH PLEXIGLASS OR AN EQUIVALENT NON FRANGIBLE MATERIAL. THE TOP OF THE VIEWING PANEL SHALL BE LOCATED NO MORE THAN 6 FEET (1829 MM) ABOVE THE LEVEL OF THE GROUND, AND THE BOTTOM OF THE VIEWING PANEL SHALL BE LOCATED NO LESS THAN 3 FEET (914 MM) ABOVE THE LEVEL OF THE GROUND.
3307.7.5 DESIGN OF FENCES.
FENCE INSTALLATIONS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL. THE EFFECT OF WIND ON THE FENCE SHALL BE CONSIDERED IN THE DESIGN IN ACCORDANCE WITH CHAPTER 16.EXCEPTIONS:1.FENCES INSTALLED IN CONNECTION WITH THE CONSTRUCTION OR DEMOLITION OF A ONE-,TWO-,OR THREE-FAMILY BUILDING.2.FENCES THAT CONFORM TO A STANDARD DESIGN APPROVED BY THE COMMISSIONER PROVIDED THE FENCE IS INSTALLED AT THE SITE IN ACCORDANCE WITH THE STANDARD DESIGN.
3307.7.6 INSTALLATION AND REMOVAL OF FENCES.
FENCES REQUIRED BY THIS SECTION SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORK. SUCH REQUIRED FENCES SHALL NOT BE REMOVED UNTIL THE SITE HAS BEEN FILLED AND GRADED AND ALL HAZARDS TO THE PUBLIC REMOVED AND THE FAÇADE HAS BEEN ENCLOSED, WITH ALL DOORS AND WINDOWS INSTALLED,
3307.7.7 CONDITION OF FENCES.
ALL FENCES SHALL BE INSTALLED, ADJUSTED, REPAIRED, AND MAINTAINED IN A SOUND CONDITION, FREE OF PROTRUDING OR LOOSE NAILS, WOOD, OR METAL, AND WITH POSTS IN AN UPRIGHT POSITION RESTRAINED TO PREVENT THE FENCE FROM LEANING OR OVERTURNING.
3307.7.8 COLOR.
FENCES ERECTED SHALL BE PAINTED HUNTER GREEN.
3307.8 MAINTAINING DEPARTMENT OF TRANSPORTATION PEDESTRIAN PROTECTION IN PLACE.
PEDESTRIAN PROTECTION REQUIRED BY THE DEPARTMENT OF TRANSPORTATION SHALL BE MAINTAINED IN PLACE AND KEPT IN GOOD ORDER FOR THE ENTIRE LENGTH OF TIME PEDESTRIANS MAY BE ENDANGERED.
3307.9 REMOVING PROTECTION AT CONCLUSION OF WORK.
PUBLIC PROPERTY SHALL BE LEFT IN AS GOOD A CONDITION FOLLOWING THE COMPLETION OF THE CONSTRUCTION OR DEMOLITION WORK AS IT WAS BEFORE SUCH WORK WAS COMMENCED. EXCEPT WHERE OTHERWISE REQUIRED BY THIS CODE, THE OWNER OR THE OWNER'S AGENT SHALL, UPON THE COMPLETION OF THE CONSTRUCTION OR DEMOLITION WORK, IMMEDIATELY REMOVE ALL SIDEWALK SHEDS, FENCES, GUARD RAILS, TEMPORARY WALKWAYS, MATERIAL, AND OTHER OBSTRUCTIONS IN OR ADJACENT TO THE PUBLIC WAY.

**ADA GENERAL NOTES**

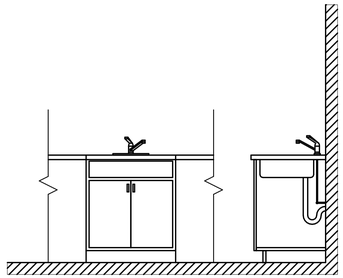
1. ONE LOWERABLE WORK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 2. ONE LOWERABLE SINK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 3. OVENS ARE ASSUMED TO BE SELF-CLEANING TYPE. IF OTHERWISE, PROVIDE A MINIMUM 30" ADJUSTABLE COUNTER SPACE WITH REMOVABLE BASE CABINETS NEXT TO OVEN. 4. A MINIMUM 36" TURNAROUND SPACE UNDER THE COUNTER WITH REMOVABLE BASE CABINETS SHALL BE PROVIDED IN DEEP CLOSED ENDED GALLEY KITCHENS AND OTHER U-SHAPED KITCHENS WHERE THE CLEARANCE BETWEEN CABINETS IS LESS THAN 5'-0". THE MINIMUM CLEARANCE BETWEEN CABINETS SHALL BE 40". 5. 48" A.F.F. WHEN CONVERTED TO ACCESSIBLE KITCHEN. PROVIDE REQUIRED WALL REINFORCEMENT FOR POSSIBLE FUTURE RELOCATION.

**ACCESSIBLE ROUTE**

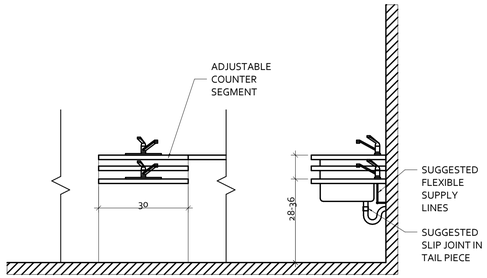
A CONTINUOUS UNOBSTRUCTED PATH CONNECTING ALL ACCESSIBLE SPACES AND ROOMS IN A BUILDING THAT CAN BE NEGOTIATED BY ALL CATEGORIES OF PEOPLE HAVING PHYSICAL DISABILITIES. PORTIONS OF ACCESSIBLE ROUTES WITH SLOPES OF MORE THAN 1:20 ARE RAMPS AND SHALL COMPLY WITH REQUIREMENTS FOR RAMPS. AN INTERIOR ACCESSIBLE ROUTE SHALL BE PROVIDED FROM THE ENTRANCE OF THE BUILDING TO ALL DWELLING UNITS IN THE BUILDING. ALL DWELLING UNITS ARE TO BE ADAPTABLE.

**ADAPTABLE DWELLING UNITS**

DWELLING UNITS WHICH ARE CONSTRUCTED ON AN ACCESSIBLE ROUTE AND EQUIPPED AS SET FORTH IN REFERENCE STANDARD RS 4-6 OF THE NYC BUILDING CODE SO THAT THEY CAN BE CONVERTED TO BE USED, WITH A MINIMUM OF STRUCTURAL CHANGE, BY ALL CATEGORIES OF PERSONS HAVING PHYSICAL DISABILITIES.
ALL DOORS TO BE PROVIDED WITH HANDICAP COMPLIANT HARDWARE AND SADDLES AS PER SEC. 4.13, ANSI A117.1. ADAPTABLE DWELLING UNITS SHALL BE EQUIPPED WITH DOOR WIDTHS AND CLEAR FLOOR SPACES FOR POSSIBLE OCCUPANTS WITH PHYSICAL DISABILITIES. ADAPTABLE SPACES WITHIN DWELLING UNITS SHALL INCLUDE KITCHENS AND BATHROOMS AND THEIR RESPECTIVE DOORWAYS. THE INFORMATION SHOWN ON THIS D



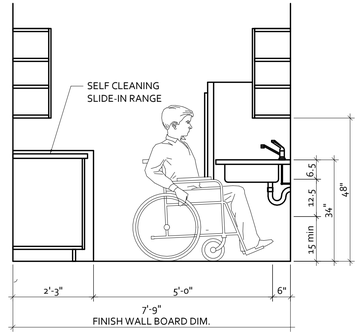
(A) BEFORE REMOVAL OF CABINETS AND BASE



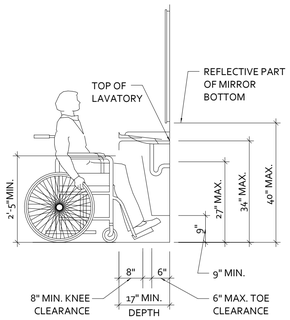

(B) CABINETS AND BASE REMOVED AND HEIGHT ALTERNATIVES

**KITCHEN SINK**

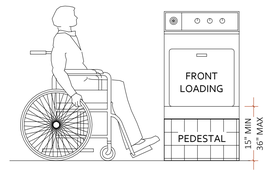
**ADAPTABLE KITCHENS (CAPABLE OF POSSIBLE FUTURE CONVERSION TO ACCESSIBLE KITCHENS)**



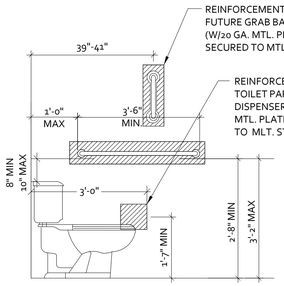

**KITCHEN CLEARANCE DIMENSIONS**



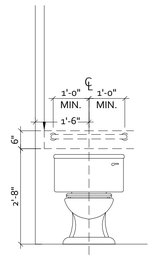

AS PER ANSI 611, WASHER DRYER COMBO MACHINES PROVIDED WITHIN TYPE B+NYC DWELLING UNITS SHALL COMPLY WITH SECTION 600 OF ICCA117.1 AND SHALL BE FRONT LOADING. ACCESSIBLE LAUNDRY EQUIPMENT SHALL BE IN COMMON-USE AREAS AS REQUIRED IN SECTION 107.3 AND SHALL COMPLY WITH SECTION 105.2.



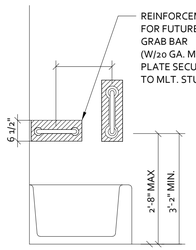

**WASHER/DRYER ELEVATION FORWARD APPROACH**



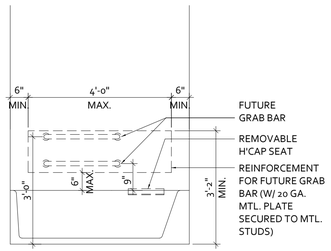

**ADAPTABLE TOILET**



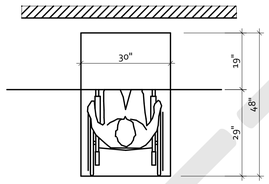

**ADAPTABLE TOILET**



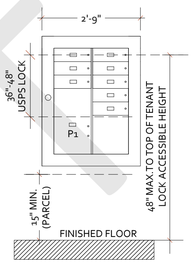

**HEAD END WALL**



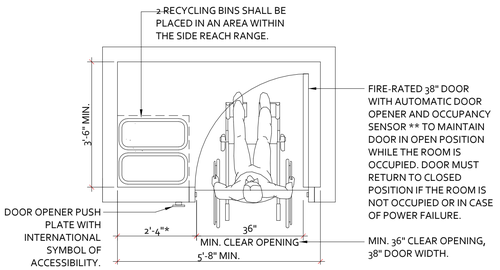

**ADAPTABLE BATHTUB**




**(C) CLEAR FLOOR SPACE UNDER WORK SURFACE**




**MAILBOX ELEVATION**




** THE OCCUPANCY SENSOR MAY BE:
1. WEIGHT SENSITIVE FLOOR MAT
2. INFRARED SENSOR
3. OTHER EQUIVALENT TECHNOLOGY

* VARIABLE DIMENSION. MUST BE OF SUFFICIENT SIZE TO ACCOMMODATE 2 DIFFERENT RECYCLING BINS AND BE WITHIN THE SIDE REACH RANGE.

**REFUSE DISPOSAL ROOM**

**GENERAL NOTES**

1. ONE LOWERABLE WORK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 2. ONE LOWERABLE SINK SURFACE, 30" WIDE, IS REQUIRED, WITH REMOVABLE BASE CABINETS. HEIGHT TO BE ADJUSTABLE BETWEEN 28" AND 36" AFF TO COUNTERTOP. 3. OVENS ARE ASSUMED TO BE SELF-CLEANING TYPE. IF OTHERWISE, PROVIDE A MINIMUM 30" ADJUSTABLE COUNTER SPACE WITH REMOVABLE BASE CABINETS NEXT TO OVEN . 4. A MINIMUM 36" TURNAROUND SPACE UNDER THE COUNTER WITH REMOVABLE BASE CABINETS SHALL BE PROVIDED IN DEEP CLOSED ENDED GALLEY KITCHENS AND OTHER U-SHAPED KITCHENS WHERE THE CLEARANCE BETWEEN CABINETS IS LESS THAN 5'-0". THE MINIMUM CLEARANCE BETWEEN CABINETS SHALL BE 40". 5. 48" A.F.F. WHEN CONVERTED TO ACCESSIBLE KITCHEN. PROVIDE REQUIRED WALL REINFORCEMENT FOR POSSIBLE FUTURE RELOCATION.

**ACCESSIBLE ROUTE**

A CONTINUOUS UNOBSTRUCTED PATH CONNECTING ALL ACCESSIBLE SPACES AND ROOMS IN A BUILDING THAT CAN BE NEGOTIATED BY ALL CATEGORIES OF PEOPLE HAVING PHYSICAL DISABILITIES. PORTIONS OF ACCESSIBLE ROUTES WITH SLOPES OF MORE THAN 1:20 ARE RAMPS AND SHALL COMPLY WITH REQUIREMENTS FOR RAMPS. AN INTERIOR ACCESSIBLE ROUTE SHALL BE PROVIDED FROM THE ENTRANCE OF THE BUILDING TO ALL DWELLING UNITS IN THE BUILDING. ALL DWELLING UNITS ARE TO BE ADAPTABLE.

**ADAPTABLE DWELLING UNITS**

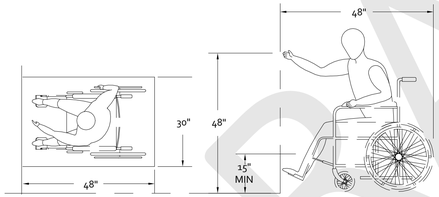
DWELLING UNITS WHICH ARE CONSTRUCTED ON AN ACCESSIBLE ROUTE AND EQUIPPED AS SET FORTH IN REFERENCE STANDARD RS 4-6 OF THE NYC BUILDING CODE SO THAT THEY CAN BE CONVERTED TO BE USED, WITH A MINIMUM OF STRUCTURAL CHANGE, BY ALL CATEGORIES OF PERSONS HAVING PHYSICAL DISABILITIES. ALL DOORS TO BE PROVIDED WITH HANDICAP COMPLIANT HARDWARE AND SADDLES AS PER SEC.4.13, ANSI A117.1. ADAPTABLE DWELLING UNITS SHALL BE EQUIPPED WITH DOOR WIDTHS AND CLEAR FLOOR SPACES FOR POSSIBLE OCCUPANTS WITH PHYSICAL DISABILITIES. ADAPTABLE SPACES WITHIN DWELLING UNITS SHALL INCLUDE KITCHENS AND BATHROOMS AND THEIR RESPECTIVE DOORWAYS. THE INFORMATION SHOWN ON THIS DRAWING IS FOR GUIDANCE PURPOSES ONLY AND OUTLINE THE MOST COMMON ACCESSIBILITY CRITERIA APPLICABLE TO THIS JOB. THEY DO NOT CONSTITUTE A COMPREHENSIVE DESCRIPTION OF ALL POSSIBLE CRITERIA WHICH ARE GIVEN IN RS 4-6 OF THE NYC BLDG. CODE AND ANSI A1117.1 - 1986 AS MODIFIED BY RS 4-6. THE GENERAL CONTRACTOR MUST DO ALL WORK IN ACCORDANCE WITH THESE REGULATIONS.

**OPERABLE PARTS**

309.1 GENERAL. OPERABLE PARTS REQUIRED TO BE ACCESSIBLE SHALL COMPLY WITH SECTION 309. 309.2 CLEAR FLOOR SPACE. A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 SHALL BE PROVIDED. 309.3 HEIGHT. OPERABLE PARTS SHALL BE PLACED WITHIN ONE OR MORE OF THE REACH RANGES SPECIFIED IN SECTION 308. 309.4 OPERATION. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5.0 POUNDS (22.2 N) MAXIMUM.

**REACH RANGES**

308.1 GENERAL. REACH RANGES SHALL COMPLY WITH SECTION 308. 308.2 FORWARD REACH. 308.2.1 UNOBSTRUCTED. WHERE A FORWARD REACH IS UNOBSTRUCTED, THE HIGH FORWARD REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM AND THE LOW FORWARD REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FLOOR. 308.2.2 OBSTRUCTED HIGH REACH. WHERE A HIGH FORWARD REACH IS OVER AN OBSTRUCTION, THE CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 SHALL EXTEND BENEATH THE ELEMENT FOR A DISTANCE NOT LESS THAN THE REQUIRED REACH DEPTH OVER THE OBSTRUCTION. THE HIGH FORWARD REACH SHALL BE 48 INCHES (1220MM) MAXIMUM ABOVE THE FLOOR WHERE THE REACH DEPTH IS 20 INCHES (510MM) MAXIMUM. WHERE THE REACH DEPTH EXCEEDS 20 INCHES (510 MM), THE HIGH FORWARD REACH SHALL BE 44 INCHES (1120 MM) MAXIMUM ABOVE THE FLOOR, AND THE REACH DEPTH SHALL BE 25 INCHES (635MM) MAXIMUM. 308.3 SIDE REACH. 308.3.1 UNOBSTRUCTED. WHERE A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE EDGE OF THE CLEAR FLOOR SPACE IS 10 INCHES (255 MM) MAXIMUM FROM THE ELEMENT, THE HIGH SIDE REACH SHALL BE 48 INCHES I (1220 MM) MAXIMUM AND THE LOW SIDE REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FLOOR. EXCEPTION: EXISTING ELEMENTS THAT ARE NOT ALTERED SHALL BE PERMITTED AT 54 INCHES (1370 MM) MAXIMUM ABOVE THE FLOOR. 308.3.2 OBSTRUCTED HIGH REACH. WHERE A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE HIGH SIDE REACH IS OVER AN OBSTRUCTION, THE HEIGHT OF THE OBSTRUCTION SHALL BE 34 INCHES (865 MM) MAXIMUM ABOVE THE FLOOR AND THE DEPTH OF THE OBSTRUCTION SHALL BE 24 INCHES (610 MM) MAXIMUM. THE HIGH SIDE REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM ABOVE THE FLOOR FOR A REACH DEPTH OF 10 INCHES (255 MM) MAXIMUM. WHERE THE REACH DEPTH EXCEEDS 10 INCHES (255 MM), THE HIGH SIDE REACH SHALL BE 46 INCHES (1170 MM) MAXIMUM ABOVE THE FLOOR FOR A REACH DEPTH OF 24 INCHES (610 MM) MAXIMUM. EXCEPTION: AT WASHING MACHINES AND CLOTHES DRYERS, THE HEIGHT OF THE OBSTRUCTION SHALL BE PERMITTED TO BE 36 INCHES (915 MM) MAXIMUM ABOVE THE FLOOR.

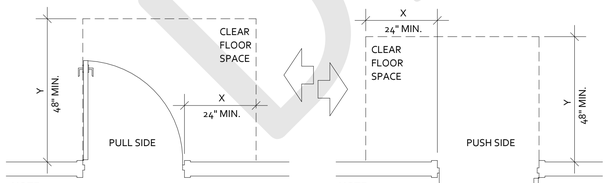



(a)

**HIGH FORWARD REACH LIMIT**

**FORWARD REACH**

**FIG. 5**

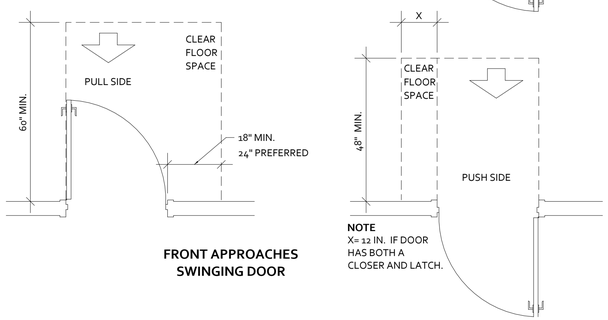



**NOTE**
Y= 54 IN. MINIMUM
IF DOOR HAS CLOSER.

**NOTE**
Y= 48 IN. MINIMUM
IF DOOR HAS CLOSER.

**LATCH-SIDE APPROACHES**

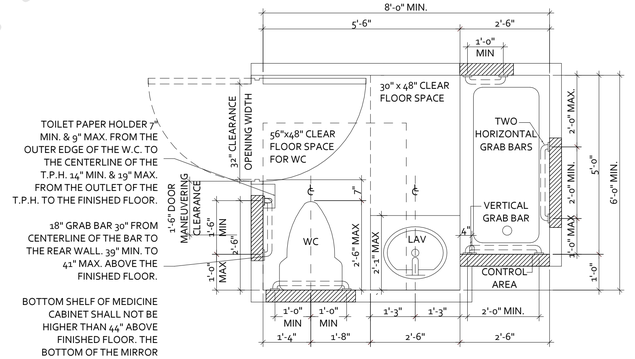
**SWINGING DOOR**




**NOTE**
X= 12 IN. IF DOOR HAS BOTH A CLOSER AND LATCH.

**FRONT APPROACHES**

**SWINGING DOOR**



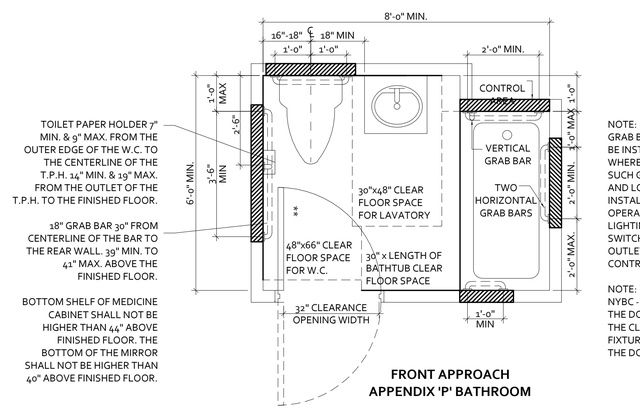

TOILET PAPER HOLDER 7" MIN. & 9" MAX. FROM THE OUTER EDGE OF THE W.C. TO THE CENTERLINE OF THE T.P.H. 14" MIN. & 19" MAX. FROM THE OUTLET OF THE T.P.H. TO THE FINISHED FLOOR.

18" GRAB BAR 30" FROM CENTERLINE OF THE BAR TO THE REAR WALL. 39" MIN. TO 41" MAX. ABOVE THE FINISHED FLOOR.

BOTTOM SHELF OF MEDICINE CABINET SHALL NOT BE HIGHER THAN 44" ABOVE FINISHED FLOOR. THE BOTTOM OF THE MIRROR SHALL NOT BE HIGHER THAN 40" ABOVE FINISHED FLOOR.

**SIDE APPROACH**

**APPENDIX 'P' BATHROOM**




TOILET PAPER HOLDER 7" MIN. & 9" MAX. FROM THE OUTER EDGE OF THE W.C. TO THE CENTERLINE OF THE T.P.H. 14" MIN. & 19" MAX. FROM THE OUTLET OF THE T.P.H. TO THE FINISHED FLOOR.

18" GRAB BAR 30" FROM CENTERLINE OF THE BAR TO THE REAR WALL. 39" MIN. TO 41" MAX. ABOVE THE FINISHED FLOOR.

BOTTOM SHELF OF MEDICINE CABINET SHALL NOT BE HIGHER THAN 44" ABOVE FINISHED FLOOR. THE BOTTOM OF THE MIRROR SHALL NOT BE HIGHER THAN 40" ABOVE FINISHED FLOOR.

NOTE:
GRAB BARS ARE NOT REQUIRED TO BE INSTALLED WHERE REINFORCEMENT FOR SUCH GRAB BARS IS INSTALLED AND LOCATED TO PERMIT FUTURE INSTALLATION OF GRAB BARS. OPERABLE PARTS SUCH AS LIGHTING CONTROLS, ELECTRICAL SWITCHES AND RECEPTACLE OUTLETS, AND ENVIRONMENTAL CONTROLS SHALL BE ACCESSIBLE.

NOTE:
NYBC - P102.3 EXCEPTION 2 - THE DOOR MAY SWING INTO THE CLEAR FLOOR SPACE FOR FIXTURES IF FUTURE REVERSAL OF THE DOOR SWING IS PROVIDED.

**FRONT APPROACH**

**APPENDIX 'P' BATHROOM**

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

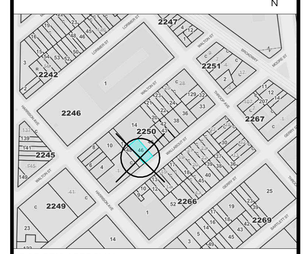
4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
ADA COMPLIANCE DETAILS

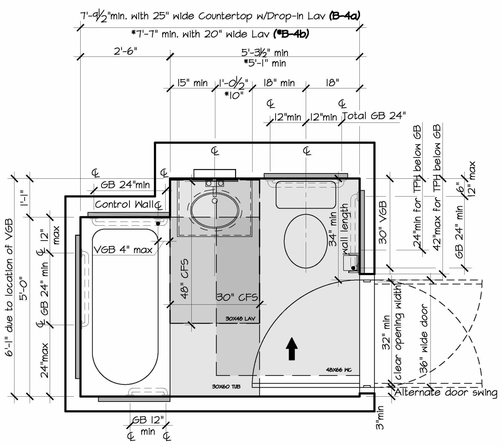
DRAWING NO.:
GN-002.00

DATE: 4/3/2025

DRAWN BY: YR

SCALE: AS NOTED

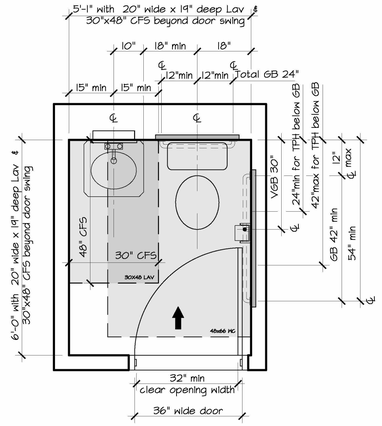
SHEET NO.: 10 OF 43




For this Layout Refer to:

| | |
|---|---|
| BR-6a(PD), 7a(PA), (PB), 8a(PB) | CFS @ Bathroom fixtures |
| BR-6b(PA), (EA) | GB & Reinforcement @ WC Rear Wall & Flush Control |
| BR-6d(PD), (ED) | GB & Reinforcement @ WC Side Wall |
| BR-6e(1A) | TPH |
| BR-7b | Lav Vanity, Mirror Medicine Cab |
| BR-8a(PC), 8b&8c | GB & Reinforcement @ Tub, Tub Control & Hand Shower |

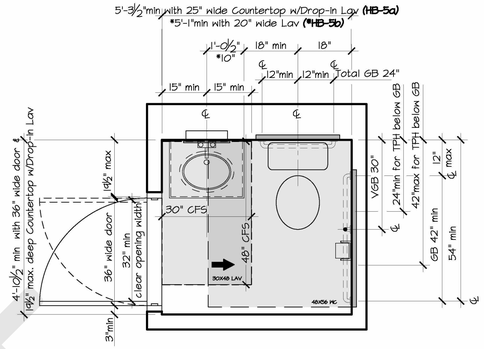
- DMC is required only outside of the bathroom




For this Layout Refer to:

| | |
|---|---|
| BR-6a(PD), 7a(PB) | CFS @ Bathroom fixtures |
| BR-6b(PA), (EA) | GB & Reinforcement @ WC Rear Wall |
| BR-6d(PE), (EE) | GB & Reinforcement @ WC Side Wall |
| B-R6d (1A) | TPH |
| B-R7b | Lav Vanity, Mirror & Medicine Cab |

- When TPH is Surface Mounted, it shall be installed so as not to limit full 90 degree door swing
- DMC is required only outside of the bathroom.



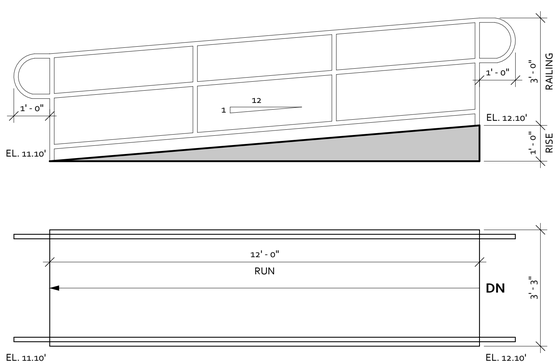

- *5'-1" relates to other dimensions with *

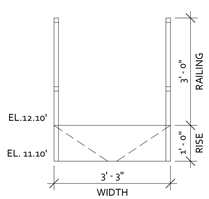
For this Layout Refer to:

| | |
|---|---|
| BR-6a(PD), 7a(PA)or(PB) | CFS @ Bathroom fixtures |
| BR-6b(PA), (EA) | GB & Reinforcement @ WC Rear Wall |
| BR-6d(PE), (EE) | GB & Reinforcement @ WC Side Wall |
| B-R6d (1A) | TPH |
| B-R7b | Lav Vanity, Mirror & Medicine Cab |

- DMC is required only outside of the bathroom

| | COMPLIANCE | OVERALL DIMENSIONS | LAYOUT |
|---|---|---|---|
| Dwelling Unit Bathrooms | FHA / BC-Appendix "P" | 7'-9 1/2" x 6'-1" | B-4a |
| | | 7'-7" x 6'-1" | B-4b |
| Dwelling Unit Half-Baths | BC-Appendix "P" | 5'-1" x 6'-0" | HB-1b |
| Dwelling Unit Half-Baths | BC-Appendix "P" | 5'-3 1/2" x 4'-10 1/2" | HB-5a |
| | | 5'-1" x 4'-10 1/2" | HB-5b |




**BC 1010.2 SLOPE**

RAMPS USED AS PART OF A MEANS OF EGRESS OR PART OF AN ACCESSIBLE ROUTE SHALL HAVE A RUNNING SLOPE NOT STEEPER THAN ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL (8 PERCENT SLOPE). THE SLOPE OF OTHER PEDESTRIAN RAMPS SHALL NOT BE STEEPER THAN ONE UNIT VERTICAL IN EIGHT UNITS HORIZONTAL (12.5 PERCENT SLOPE).

RAMP SLOPE CALCULATION:
PROP'D VERTICAL RISE: 12.10' - 11.10' = 1'
PROP'D HORIZONTAL RUN: 12.00'
PROP'D SLOPE: (RISE) 1' / (RUN) 12.00' = 0.08 = 8%
PROP'D 8% = MAX PERMITTED 8%, THEREFORE OK

1 ADA RAMP DETAIL
1/2" = 1'-0"

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE'S APPROVAL:

DOB SCAN:

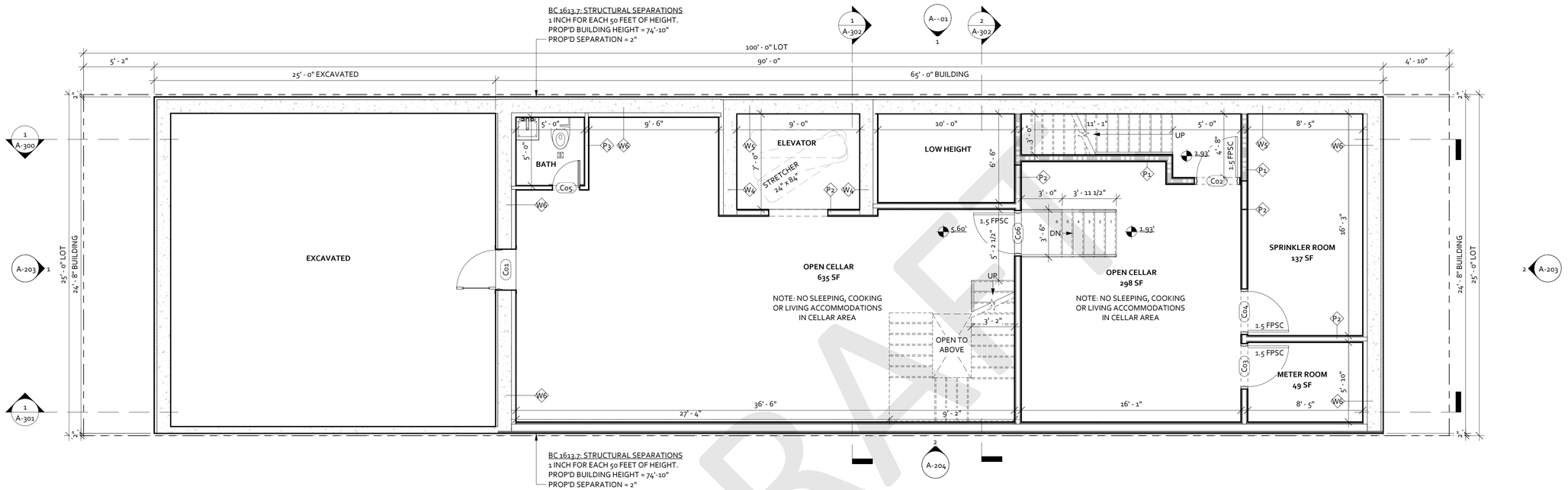
SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
ADA DETAILS CONTINUED

DRAWING NO.:
GN-003.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 11 OF 43




1 CELLAR
1/4" = 1'-0"

DRAFT

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN / 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

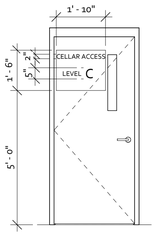
DOB JOB No:
B01105567-I1

DRAWING TITLE:
CELLAR FLOOR PLAN

DRAWING NO.:
A-100.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

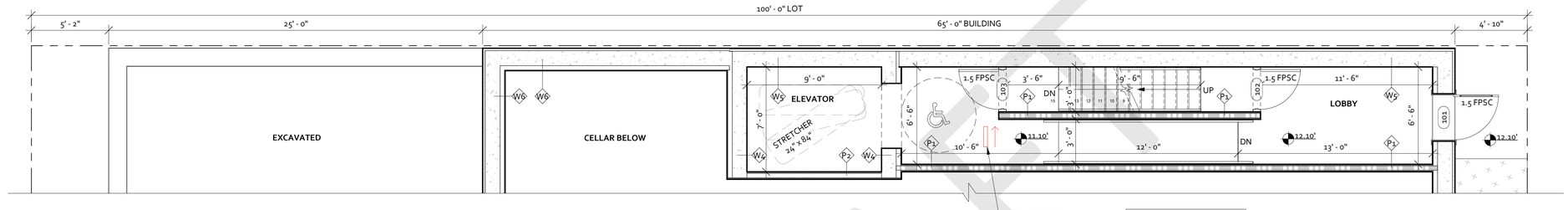
| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 12 OF 43 |



**1008.1.9.10 STAIRWAY DOORS.**
INTERIOR STAIRWAY MEANS OF EGRESS DOORS SHALL BE OPENABLE FROM BOTH SIDES WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

**1022.8.4 SIGNAGE REQUIREMENTS.**
STAIRWAY AND FLOOR IDENTIFICATION SIGNS REQUIRED BY SECTIONS 1022.8.1 AND 1022.8.2 SHALL COMPLY WITH ALL OF THE FOLLOWING REQUIREMENTS:
1. THE SIGNS SHALL BE A MINIMUM SIZE OF 18 INCHES BY 12 INCHES.
2. THE ALPHABETIC LETTERS DESIGNATING THE IDENTIFICATION OF THE STAIR ENCLOSURE SHALL BE A MINIMUM OF 1½ INCHES IN HEIGHT.
3. THE NUMBER DESIGNATING THE FLOOR LEVEL SHALL BE AMINIMUM OF 5 INCHES IN HEIGHT AND LOCATED IN THE CENTER OF THE SIGN.
4. ALL OTHER LETTERING AND NUMBERS SHALL BE A MINIMUM OF 1 INCH IN HEIGHT.
5. CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND, WITH EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.
6. WHEN SIGNS REQUIRED BY SECTION 1022.8 ARE INSTALLED IN INTERIOR EXIT ENCLOSURES OF BUILDINGS SUBJECT TO SECTION 1024, THE SIGNS SHALL BE MADE OF THE SAME LUMINOUS MATERIALS AS REQUIRED BY SECTION 1024.4.

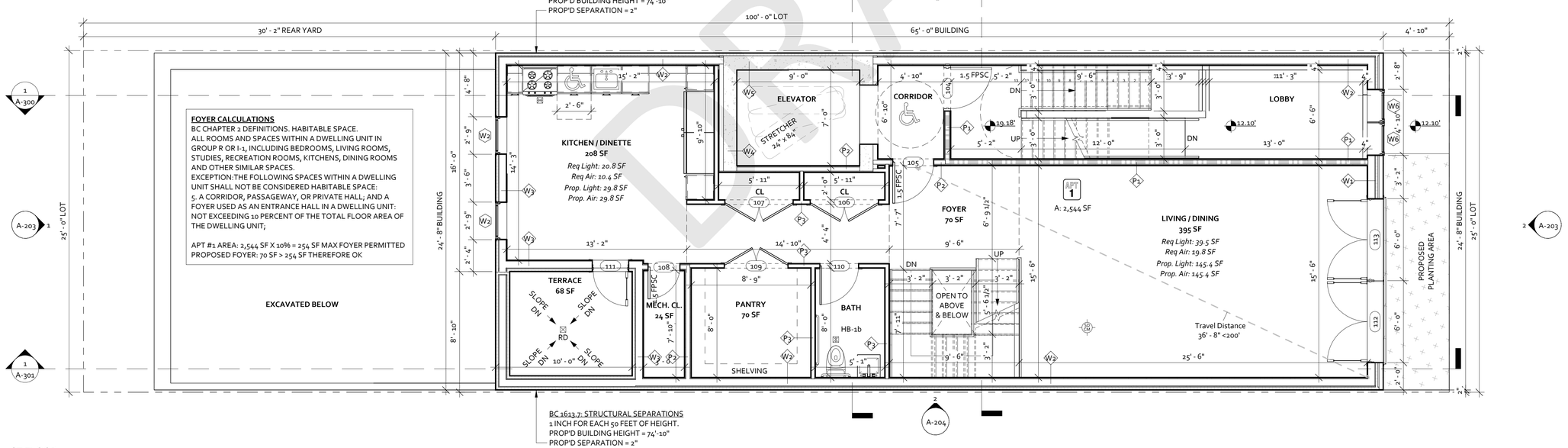
THE INTERIOR CORRIDOR LEADING TO THE CELLAR SHALL BE ENCLOSED IN 2-HOUR FIRE RATED WALLS (WITH UL OR TESTED LABORATORY NUMBER), CEILING AND ASSEMBLIES WITH 1-1/2 HOURS FIRE-RATED SELF-CLOSING DOORS, AT BOTH LEVELS OF SUCH CELLAR AND THE 1ST FLOOR.
PROP'D CORRIDOR ENCLOSED IN A 2- HOUR FIRE RATED ENCLOSURE.




POSTED SIGN:
"DIRECT CELLAR ACCESS"

2 LOWER 1ST FLOOR
1/4" = 1'-0"

BC 1613.7: STRUCTURAL SEPARATIONS
1 INCH FOR EACH 50 FEET OF HEIGHT.
PROP'D BUILDING HEIGHT = 74'-10"
PROP'D SEPARATION = 2"




BC 1613.7: STRUCTURAL SEPARATIONS
1 INCH FOR EACH 50 FEET OF HEIGHT.
PROP'D BUILDING HEIGHT = 74'-10"
PROP'D SEPARATION = 2"

1 1ST FLOOR
1/4" = 1'-0"

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**APT. #1:**
2,544 SF /200 = 12.7 SF **USE 12 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

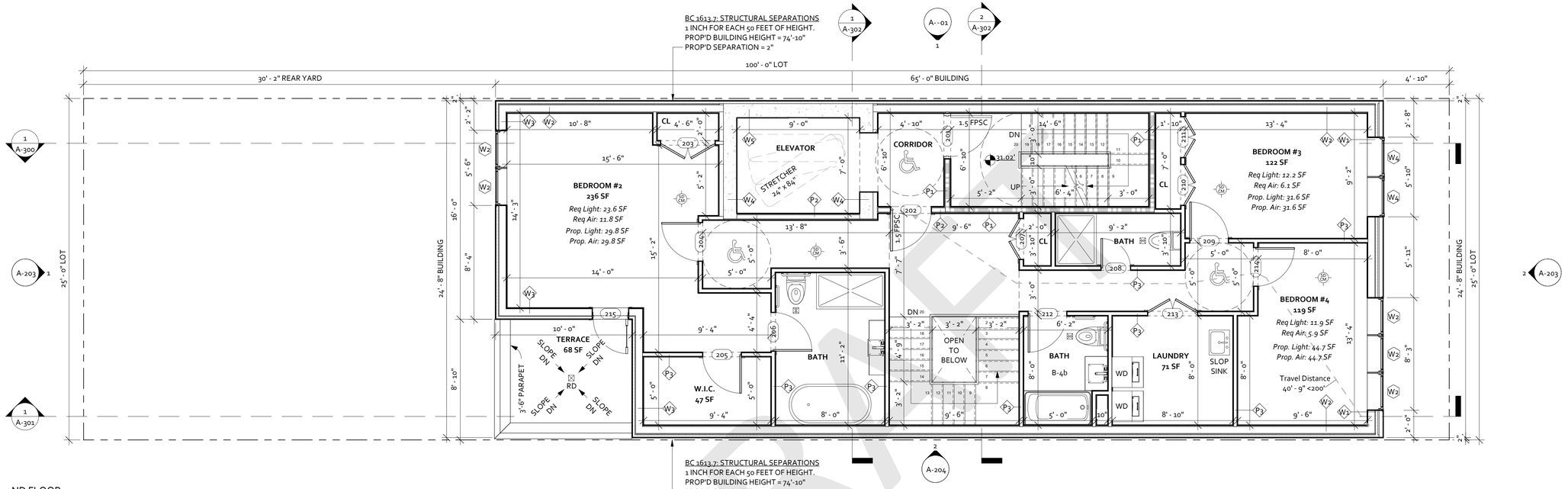
DOB JOB No:
B01105567-I1

DRAWING TITLE:
FIRST FLOOR PLAN

DRAWING NO.:
A-101.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 13 OF 43

RAFT




1 2ND FLOOR
1/4" = 1'-0"

DRAFT

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS. PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN, 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

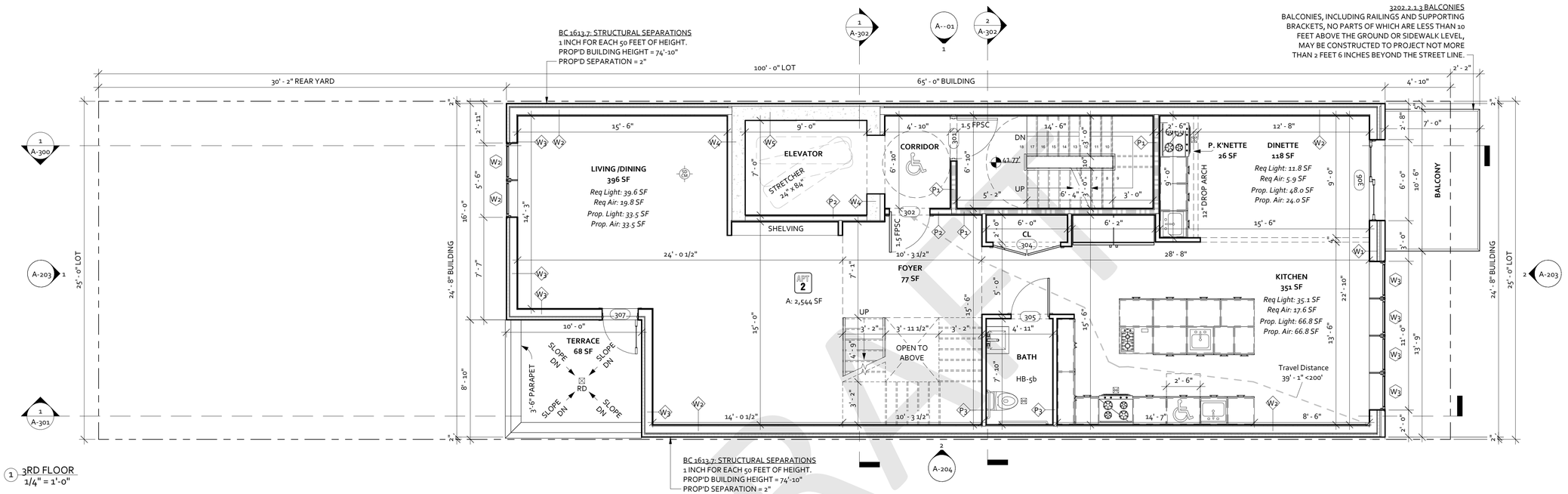
DRAWING TITLE:
SECOND FLOOR PLAN

DRAWING NO.:
A-102.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 14 OF 43 |

**FOYER CALCULATIONS**
BC CHAPTER 2 DEFINITIONS. HABITABLE SPACE.
ALL ROOMS AND SPACES WITHIN A DWELLING UNIT IN GROUP R OR I-1, INCLUDING BEDROOMS, LIVING ROOMS, STUDIES, RECREATION ROOMS, KITCHENS, DINING ROOMS AND OTHER SIMILAR SPACES.
EXCEPTION:THE FOLLOWING SPACES WITHIN A DWELLING UNIT SHALL NOT BE CONSIDERED HABITABLE SPACE:
5. A CORRIDOR, PASSAGEWAY, OR PRIVATE HALL; AND A FOYER USED AS AN ENTRANCE HALL IN A DWELLING UNIT: NOT EXCEEDING 10 PERCENT OF THE TOTAL FLOOR AREA OF THE DWELLING UNIT;

APT #2 AREA: 2,544 SF X 10% = 254 SF MAX FOYER PERMITTED
PROPOSED FOYER: 78 SF > 254 SF THEREFORE OK




1 3RD FLOOR
1/4" = 1'-0"

## LEGEND

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**APT. #2:**
2,544 SF /200 = 12.7 SF **USE 12 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:
# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

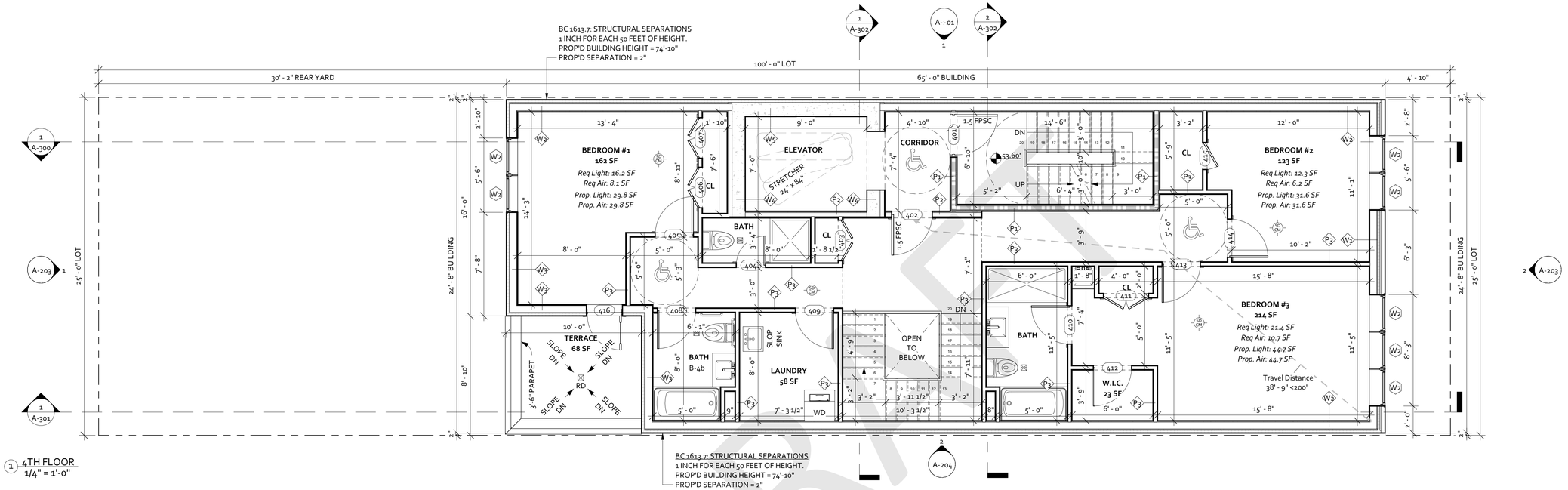
DOB JOB No:
B01105567-I1

DRAWING TITLE:
THIRD FLOOR PLAN

DRAWING NO.:
A-103.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 15 OF 43 |

DRAFT




1 4TH FLOOR
1/4" = 1'-0"

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN
- (AD)AREA DRAIN
- (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

DOB JOB No:
B01105567-I1

DRAWING TITLE:
FOURTH FLOOR PLAN

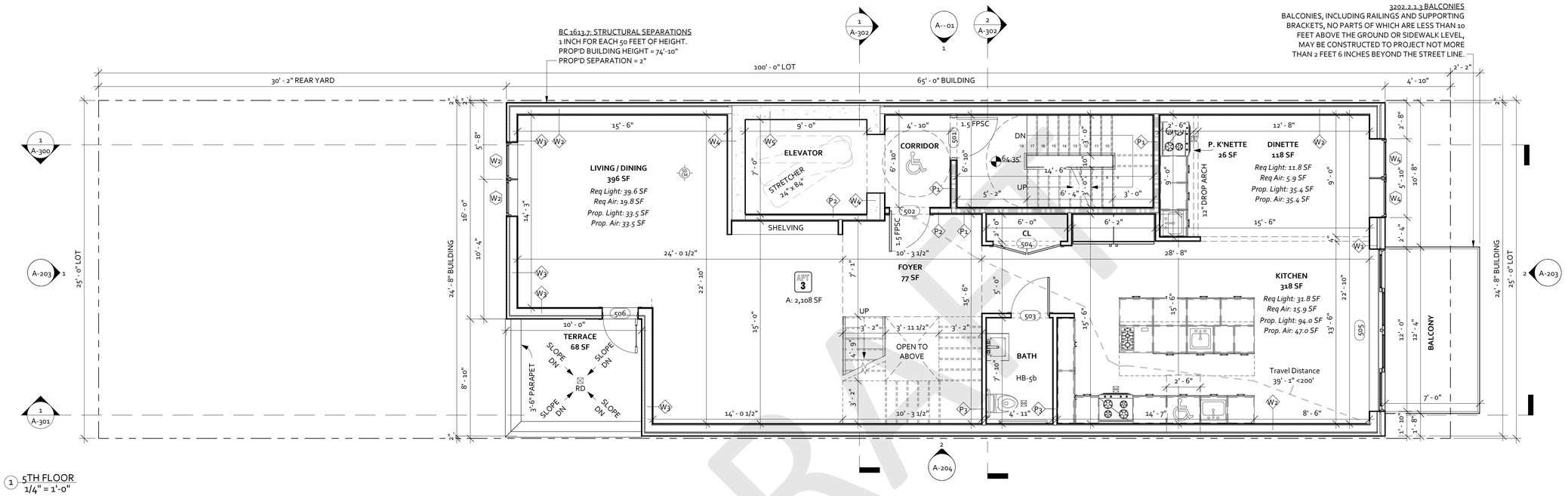
DRAWING NO.:
A-104.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 16 OF 43 |

DRAFT

**FOYER CALCULATIONS**
BC CHAPTER 2 DEFINITIONS. HABITABLE SPACE.
ALL ROOMS AND SPACES WITHIN A DWELLING UNIT IN GROUP R OR I-1, INCLUDING BEDROOMS, LIVING ROOMS, STUDIES, RECREATION ROOMS, KITCHENS, DINING ROOMS AND OTHER SIMILAR SPACES.
EXCEPTION:THE FOLLOWING SPACES WITHIN A DWELLING UNIT SHALL NOT BE CONSIDERED HABITABLE SPACE:
5. A CORRIDOR, PASSAGEWAY, OR PRIVATE HALL; AND A FOYER USED AS AN ENTRANCE HALL IN A DWELLING UNIT: NOT EXCEEDING 10 PERCENT OF THE TOTAL FLOOR AREA OF THE DWELLING UNIT;

APT #3 AREA: 2,108 SF X 10% = 210 SF MAX FOYER PERMITTED
PROPOSED FOYER: 77 SF > 210 SF THEREFORE OK




1 5TH FLOOR
1/4" = 1'-0"

**LEGEND**

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS. PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**APT. #3:**
2,108 SF /200 = 10.5 SF **USE 10 PERSONS**

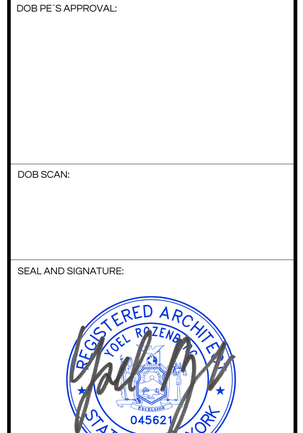
REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:
# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

DOB JOB No:
B01105567-I1

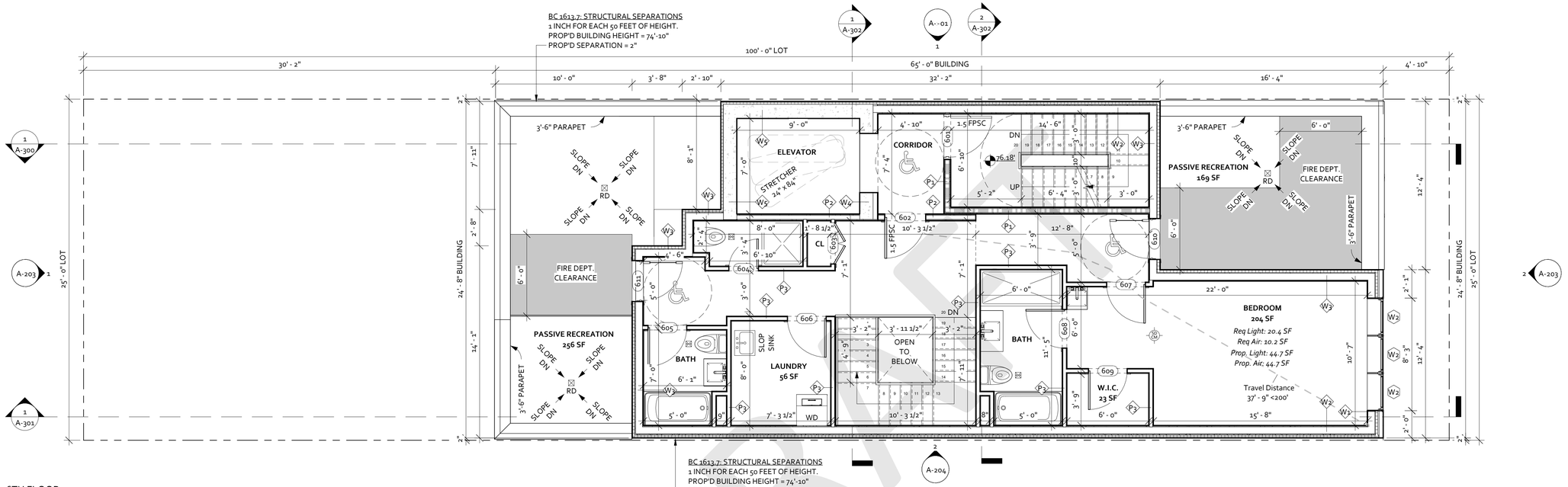
DRAWING TITLE:
FIFTH FLOOR PLAN

DRAWING NO.:
A-105.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 17 OF 43 |

DRAFT

**BUILDINGS BULLETIN 2019-010 SUSTAINABLE ROOFING ZONE**
AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE: THE FOLLOWING AREAS ARE EXCLUDED FROM THE SUSTAINABLE ROOFING ZONE:
5. RECREATIONAL SPACES THAT ARE INTEGRAL TO THE PRINCIPAL USE OF THE BUILDING ON WHICH THE ROOFTOP IS LOCATED, INCLUDING BUT NOT LIMITED TO PLAYGROUNDS AND PARTICIPANT SPORT AREAS FOR SPORTS FACILITIES AND SCHOOLS, QUALITY HOUSING RECREATION SPACES, ROOF TERRACES AND PASSIVE RECREATION AREAS THAT ARE DOCUMENTED ON THE CERTIFICATE OF OCCUPANCY OR DEPARTMENT OF BUILDINGS APPROVED FILING AS OUTLINED IN BUILDING BULLETIN 2018-002.
THIS PROJECT IS EXEMPT FROM SUSTAINABLE ROOFING ZONE AS PER BUILDING BULLETIN 2019-010, II (C) 5 - RECREATION SPACES




1 6TH FLOOR
1/4" = 1'-0"

## LEGEND

- W1 — FRAMING & BRICK (1) HR. FIRE RATED
- W2 — FRAMING & STUCCO (2) HR. FIRE RATED
- W3 — FRAMING & STUCCO (1) HR. FIRE RATED
- W4 — CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 — CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 — CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 — INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 — MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 — INTERIOR PARTITION (2) HR. FIRE RATED
- P3 — 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD/CM — SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN
- (AD)AREA DRAIN
- (RD)ROOF DRAIN
- F.P.S.C. — FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT — APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 — WALL TAG
- 1 — DOOR TAG
- W1 — WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**PASSIVE RECREATION SPACE:**
169 SF /200 = 0.8 SF **USE 1 PERSONS**
263 SF /200 = 1.3 SF **USE 1 PERSONS**

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:
# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

DOB JOB No:
B01105567-I1

DRAWING TITLE:
SIXTH FLOOR PLAN

DRAWING NO.:
A-106.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

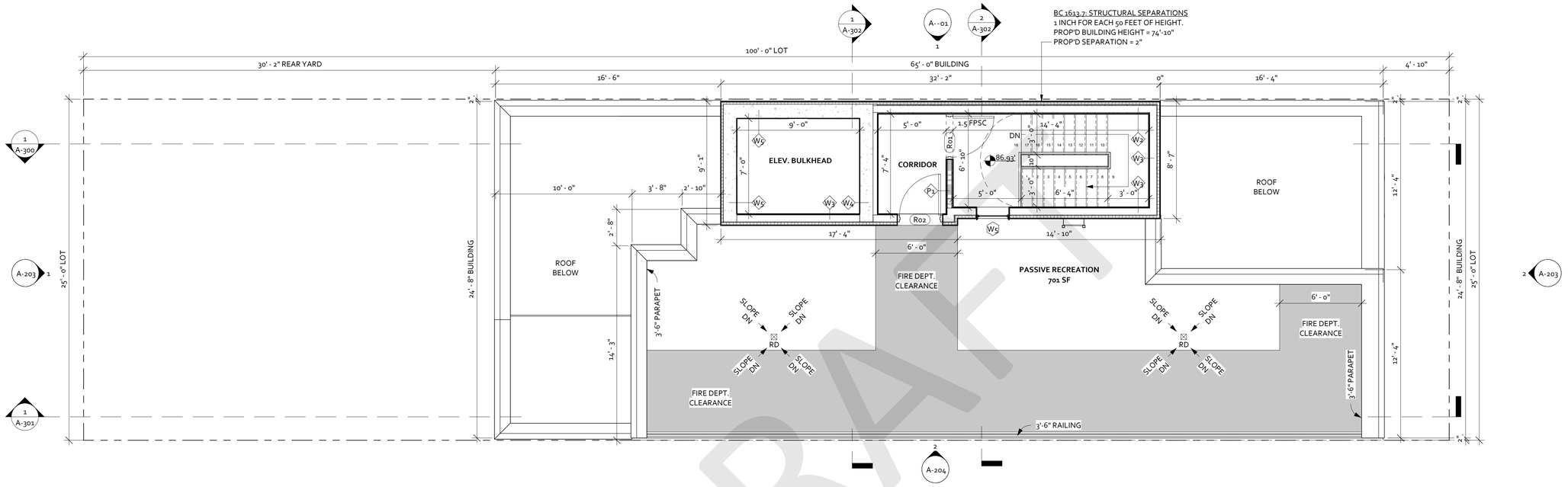
| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 18 OF 43 |

DRAFT

**BC 708.12.1.2 SMOKE VENT CALCULATIONS**
THE EFFECTIVE VENTING AREA SHALL NOT BE LESS THAN 3½ PERCENT OF THE MAXIMUM SHAFT AREA AT ANY FLOOR, BUT IN NO EVENT LESS THAN 72 SQUARE INCHES.
STAIR AREA: 98 SF X 3.5% = 3.4 SF VENTING REQUIRED
WINDOW: (2'-5" X 2'-11") (0.5) = 3.5 SF
PROP'D: 3.5 SF > 3.4 SF REQUIRED THEREFORE OK

**BC 3004.5.1 SMOKE VENT CALC. FOR ELEVATOR SHAFT**
VENTING AREA NO LESS THAN 3.5 PERCENT OF THE SHAFT AREA NOR LESS THEN 3 SQ FT FOR EACH ELEVATOR CAR WHICH EVER IS GREATER.
SHAFT AREA: 7'-0" X 9'-0" = 63 SF X 3.5% = 2.2 SF REQ.
PROP'D LOUVER:
3'-0" X 2'-0" = 6 SF > 2.5 REQ. THEREFORE OK

**BUILDINGS BULLETIN 2019-010 SUSTAINABLE ROOFING ZONE**
AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE: THE FOLLOWING AREAS ARE EXCLUDED FROM THE SUSTAINABLE ROOFING ZONE:
5. RECREATIONAL SPACES THAT ARE INTEGRAL TO THE PRINCIPAL USE OF THE BUILDING ON WHICH THE ROOFTOP IS LOCATED, INCLUDING BUT NOT LIMITED TO PLAYGROUNDS AND PARTICIPANT SPORT AREAS FOR SPORTS FACILITIES AND SCHOOLS, QUALITY HOUSING RECREATION SPACES, ROOF TERRACES AND PASSIVE RECREATION AREAS THAT ARE DOCUMENTED ON THE CERTIFICATE OF OCCUPANCY OR DEPARTMENT OF BUILDINGS APPROVED FILING AS OUTLINED IN BUILDING BULLETIN 2018-002.
THIS PROJECT IS EXEMPT FROM SUSTAINABLE ROOFING ZONE AS PER BUILDING BULLETIN 2019-010, II (C) 5 - RECREATION SPACES




1 ROOF
1/4" = 1'-0"

DRAFT

**LEGEND**

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS. SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

**OCCUPANCY LOAD CALCULATIONS**
RESIDENTIAL SPACE APARTMENT OCCUPANCY LOAD TABLE 1004.1.1: 200 GROSS WITHIN DWELLING UNITS

**PASSIVE RECREATION SPACE:**
701 SF /200 = 3.5 SF **USE 3 PERSONS**

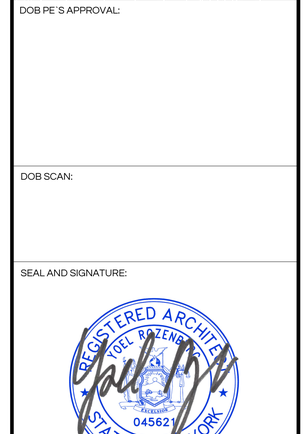
REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

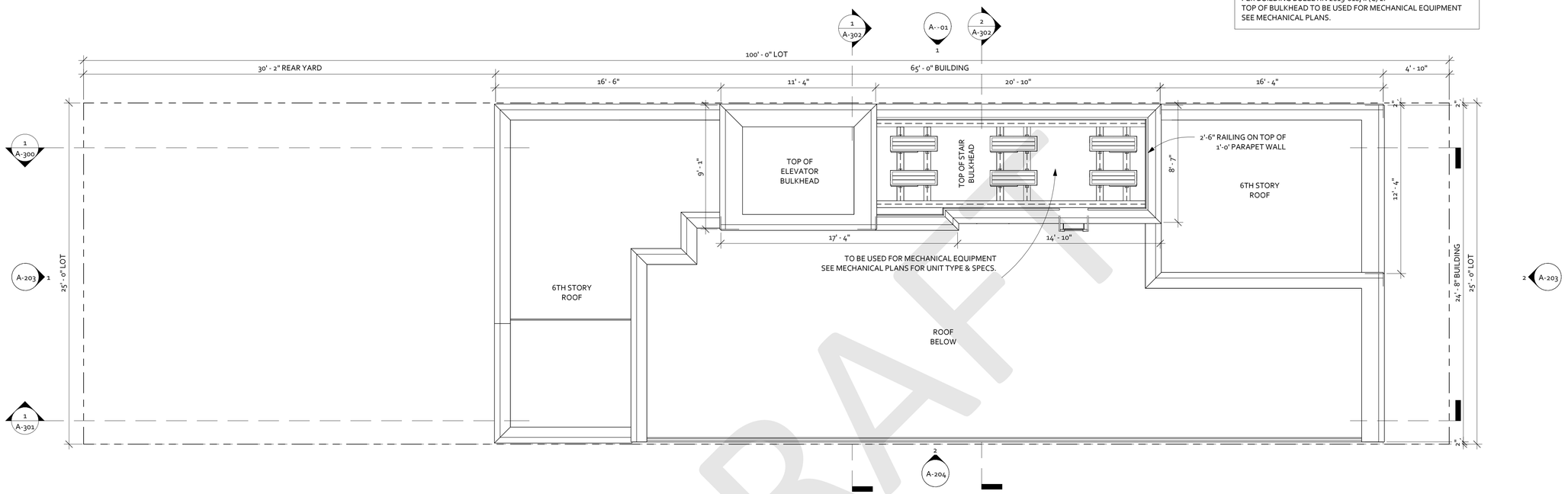
DRAWING TITLE:
# ROOF FLOOR PLAN

DRAWING NO.:
A-107.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 19 OF 43 |

**BUILDINGS BULLETIN 2019-010 SUSTAINABLE ROOFING ZONE**
C. AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE:
2. AREAS OCCUPIED BY ROOFTOP STRUCTURES, WATER TOWERS, GREENHOUSES, MECHANICAL EQUIPMENT, TOWERS, ANTENNAS, PARAPETS, GUARDRAILS, SOLAR THERMAL SYSTEMS, EQUIPMENT ACCESS PATHWAYS AND APPURTENANCES.

THIS PROJECT IS EXEMPT FROM SUSTAINABLE ROOFING ZONE AS PER BUILDING BULLETIN 2019-010, II (C) 2.
TOP OF BULKHEAD TO BE USED FOR MECHANICAL EQUIPMENT SEE MECHANICAL PLANS.




1 TOP OF BUILDING
1/4" = 1'-0"

DRAFT

## LEGEND

- W1 FRAMING & BRICK (1) HR. FIRE RATED
- W2 FRAMING & STUCCO (2) HR. FIRE RATED
- W3 FRAMING & STUCCO (1) HR. FIRE RATED
- W4 CONC. INTERIOR WALL (4) HR. FIRE RATED
- W5 CONC. EXTERIOR WALL (4) HR. FIRE RATED
- W6 CONC. FOUNDATION WALL (4) HR. FIRE RATED
- W7 INTERIOR PARTY WALL (2) HR. FIRE RATED
- P1 MASONRY EQUIVALENT (2) HR. FIRE RATED
- P2 INTERIOR PARTITION (2) HR. FIRE RATED
- P3 4" INTERIOR PARTITION (1) HR. FIRE RATED

**AS PER TABLE 1016.1**
**EXIT ACCESS TRAVEL DISTANCE**
200 FEET MAXIMUM TRAVEL DISTANCE FOR SPRINKLERED BUILDINGS.
PROPOSED BUILDING TO BE FULLY SPRINKLERED.

**SEE PLUMBING AND MECHANICAL DRAWINGS FOR UNIT TYPE AND SPECIFICATIONS.**

**SEE SHEET A-500 FOR WALL & PARTITION TYPE DETAILS.**
**SEE STRUCTURAL PLANS FOR STRUCTURAL SPECIFICATIONS.**

- SD CM SMOKE DETECTOR/CARBON MONOXIDE DETECTOR HARDWIRED AND TO BE INTERCONNECTED
- (FD)FLOOR DRAIN (AD)AREA DRAIN (RD)ROOF DRAIN
- F.P.S.C. FIRE PROOF SELF CLOSE DOOR
- EXIT SIGN & EMERGENCY LIGHTING
- 1 APT APARTMENT NUMBER
- 75 CFM BATHROOM EXHAUST FAN
- 150 CFM KITCHEN EXHAUST FAN
- 1 WALL TAG
- 1 DOOR TAG
- W1 WINDOW TAG

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
YOEL ROZENBERG
045621
STATE OF NEW YORK

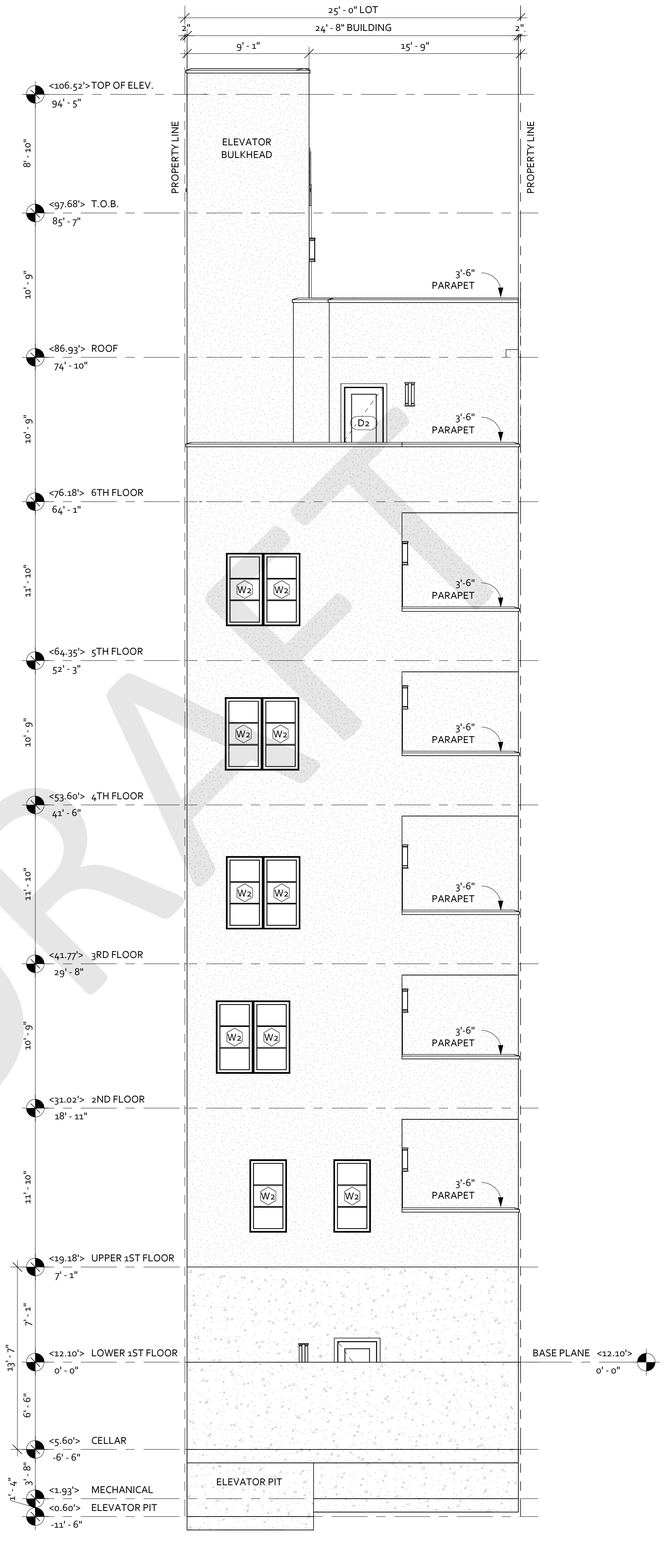
DOB JOB No:
B01105567-I1

DRAWING TITLE:
TOP OF BUILDING PLAN

DRAWING NO.:
A-108.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 20 OF 43 |

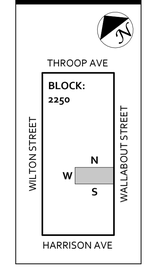
1 EAST ELEVATION
3/16" = 1'-0"




2 WEST ELEVATION
3/16" = 1'-0"

DRAFT

## KEY PLAN




STRUCTURAL DESIGN BY OTHERS

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

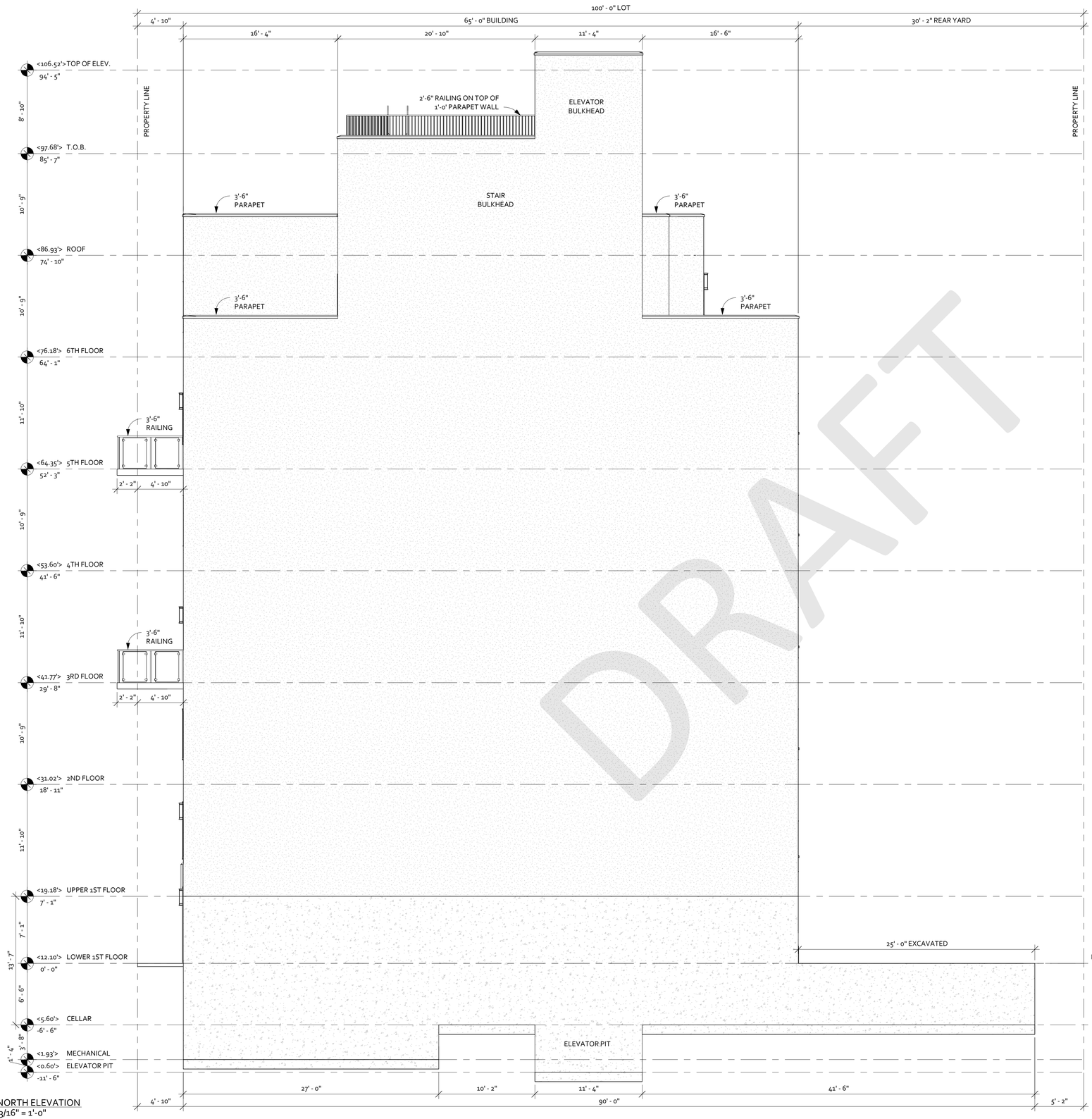
SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
EAST & WEST ELEVATION

DRAWING NO.:
A-200.00

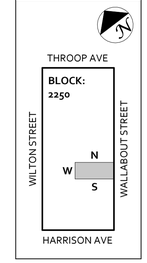
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 21 OF 43 |




1 NORTH ELEVATION
3/16" = 1'-0"

DRAFT

## KEY PLAN




REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No: B01105567-I1

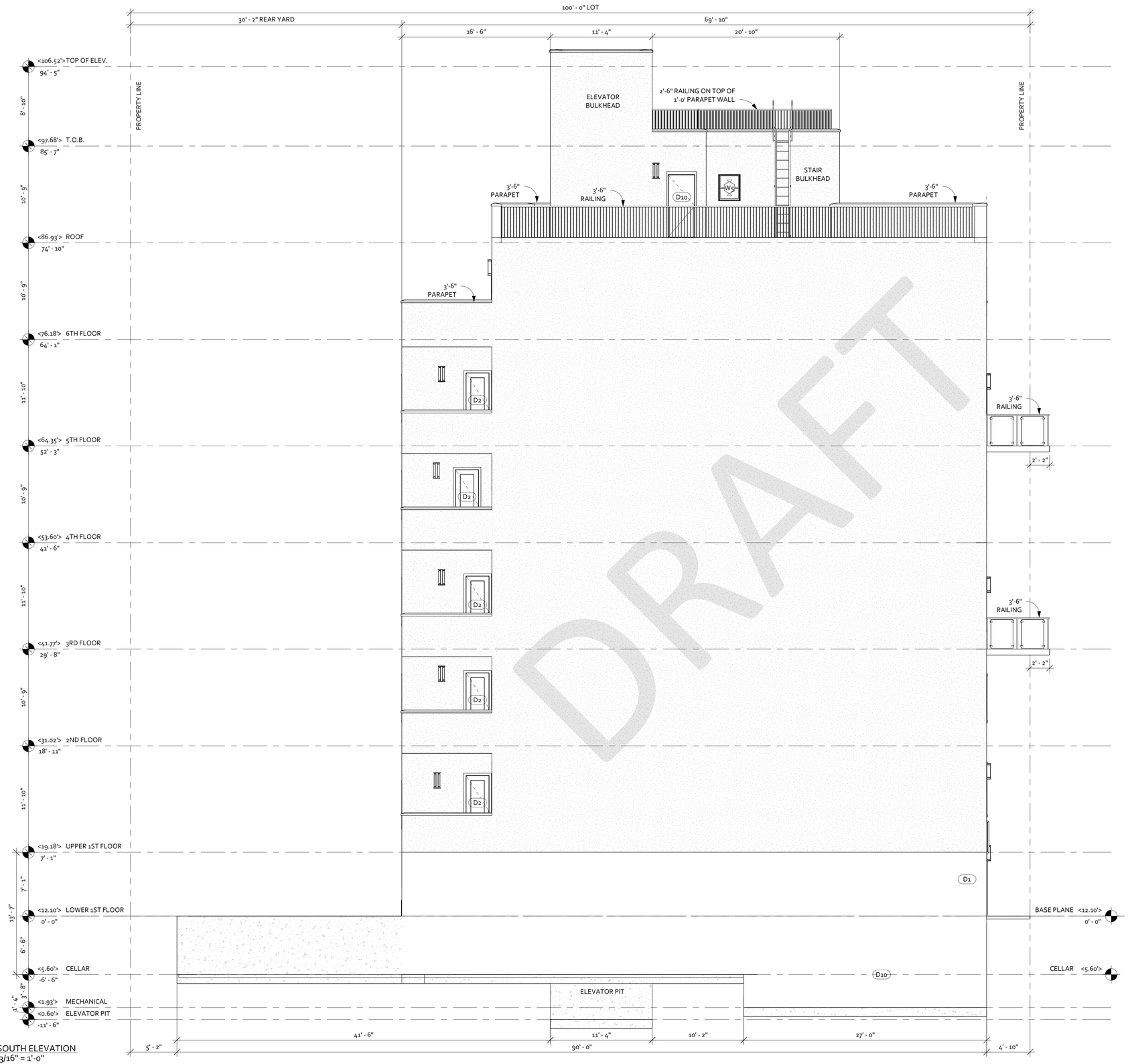
DRAWING TITLE:

## NORTH ELEVATION

DRAWING NO.: A-201.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: AS NOTED | SHEET NO.: 22 OF 43 |

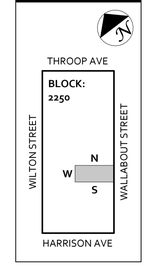
STRUCTURAL DESIGN BY OTHERS




1 SOUTH ELEVATION
3/16" = 1'-0"

DRAFT

## KEY PLAN




REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

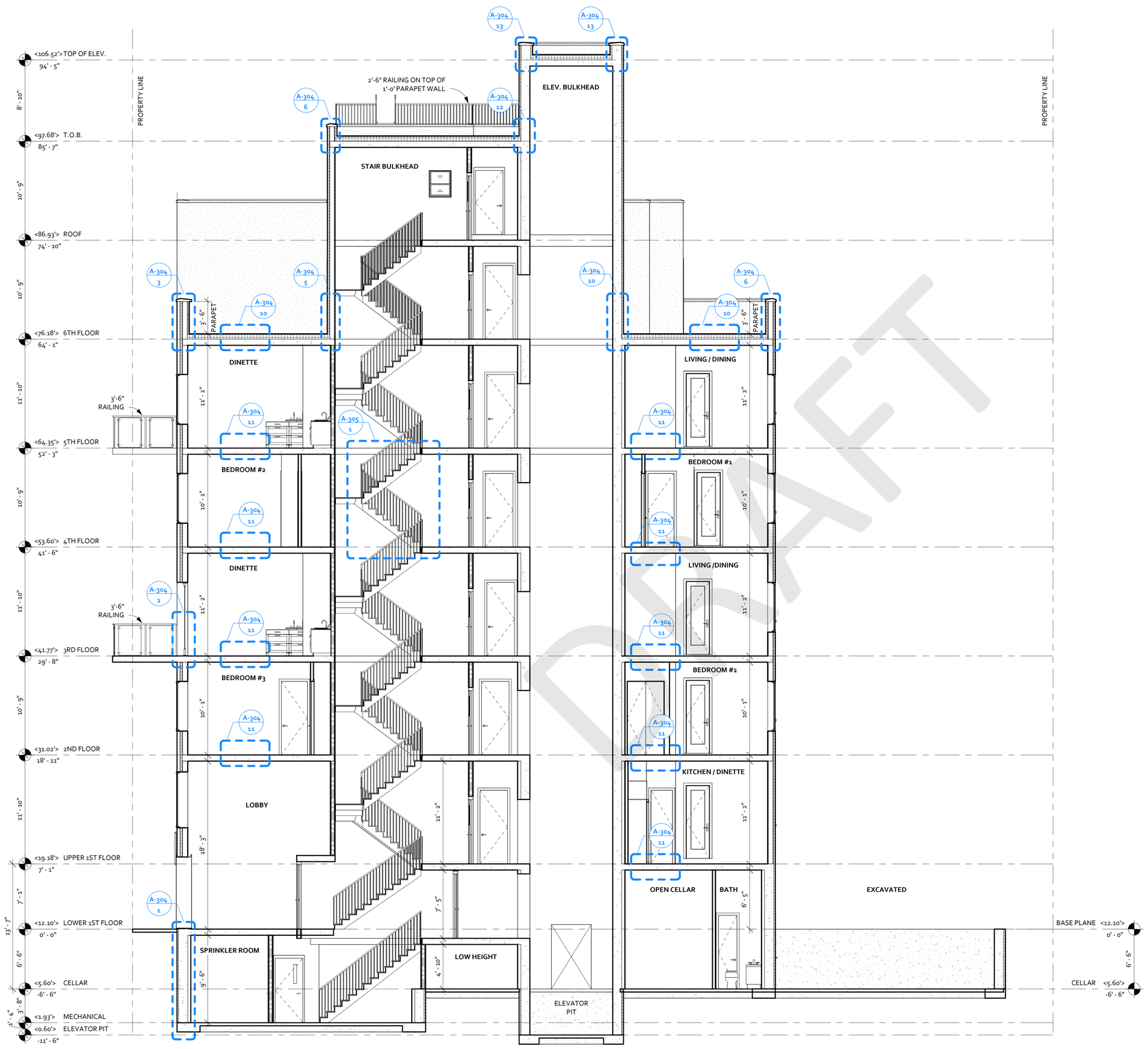
DOB JOB No:
B01105567-I1

DRAWING TITLE:
SOUTH ELEVATION

DRAWING NO.:
A-202.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: AS NOTED | SHEET NO.: 23 OF 43 |

STRUCTURAL DESIGN BY OTHERS




1 LONGITUDINAL SECTION A
3/16" = 1'-0"

STRUCTURAL DESIGN BY OTHERS

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
LONGITUDINAL SECTION A

DRAWING NO.:
A-300.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 24 OF 43 |

1 LONGITUDINAL SECTION B
3/16" = 1'-0"

STRUCTURAL DESIGN BY OTHERS

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621


PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

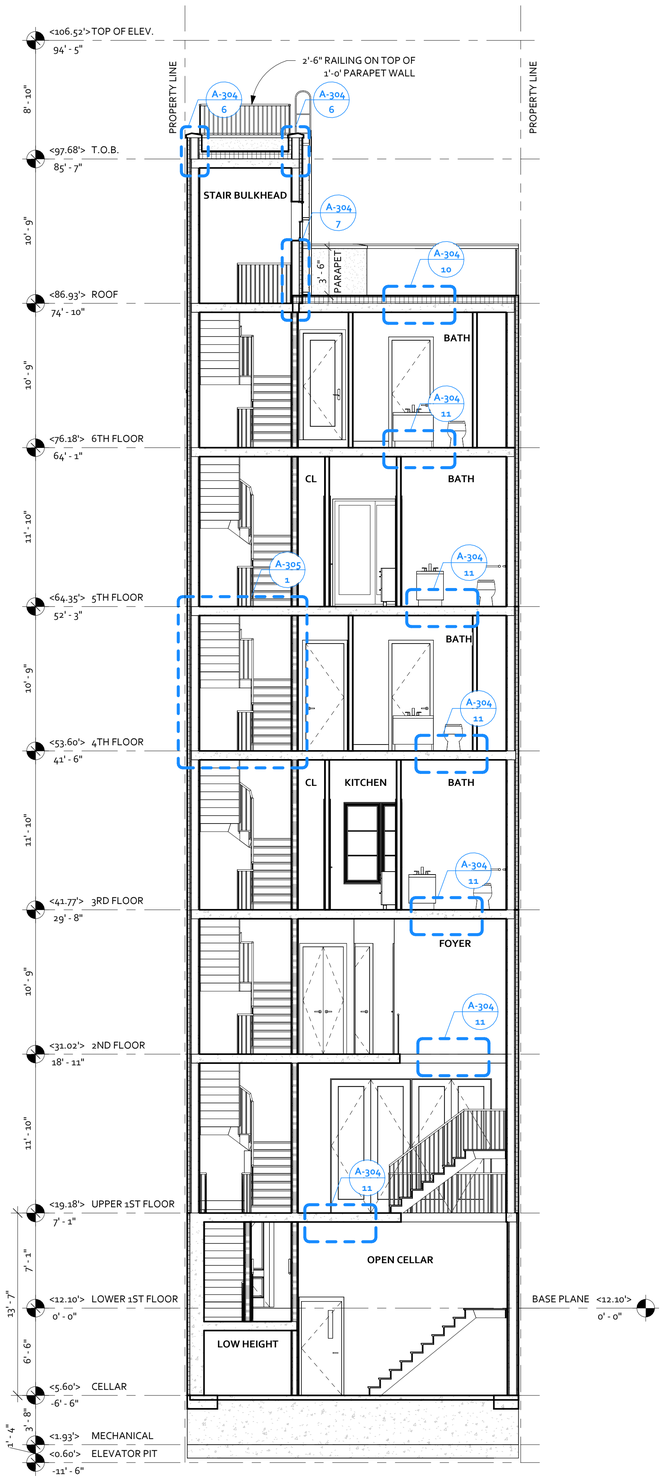
DOB JOB No:
B01105567-I1

DRAWING TITLE:
LONGITUDINAL SECTION B

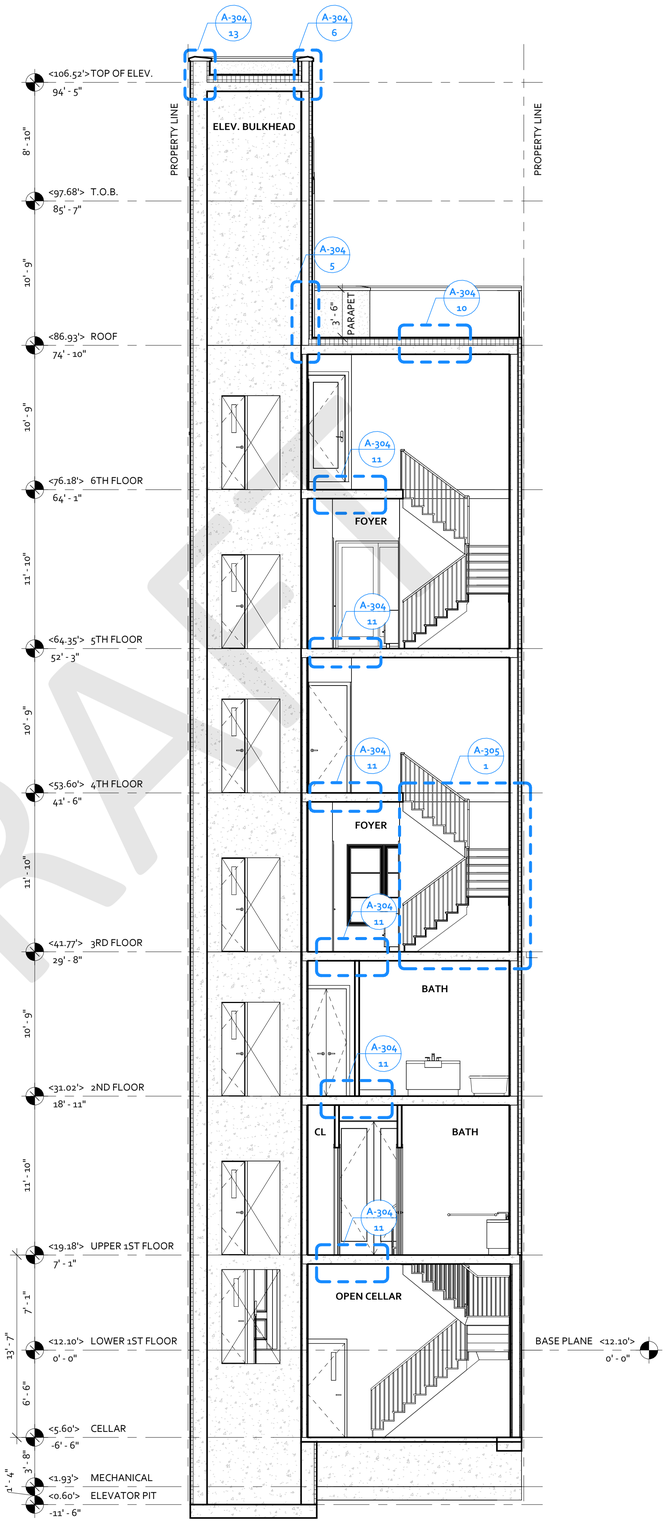
DRAWING NO.:
A-301.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 25 OF 43 |




2 CROSS SECTION A
3/16" = 1'-0"




1 CROSS SECTION B
3/16" = 1'-0"

STRUCTURAL DESIGN
BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST.
# BROOKLYN, N.Y.
# 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
CROSS SECTIONS

DRAWING NO.:
A-302.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 26 OF 43 |

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

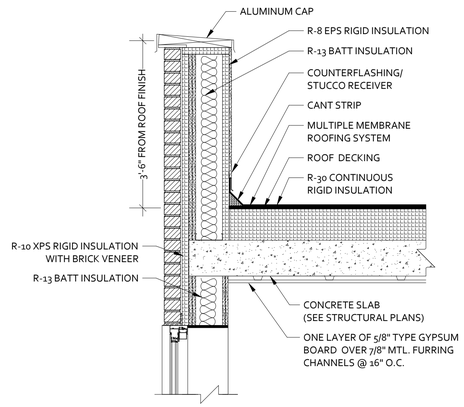
DOB JOB No:
B01105567-I1

DRAWING TITLE:
3D VIEWS

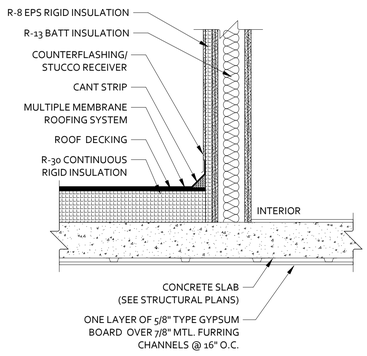
DRAWING NO.:
A-303.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

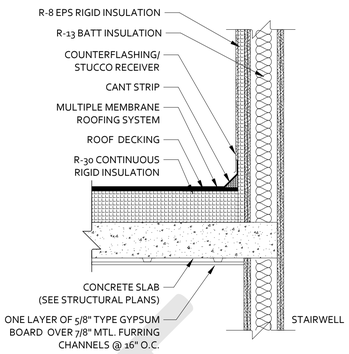
| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 27 OF 43 |



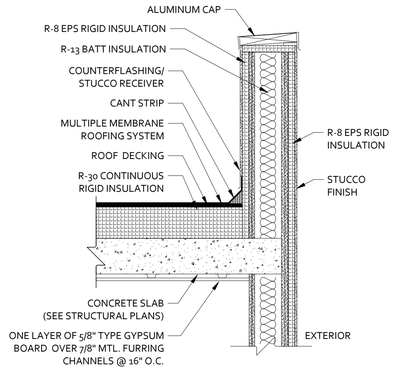

3 ROOF PARAPET DETAIL
NTS



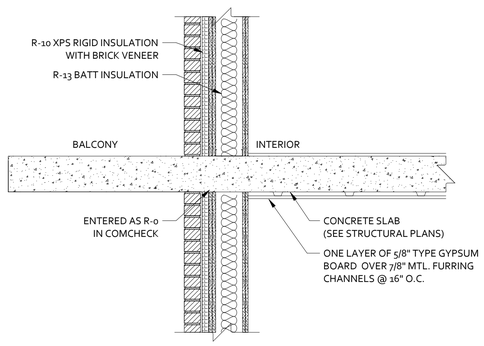

4 ROOF EDGE FRAMING DETAIL
NTS



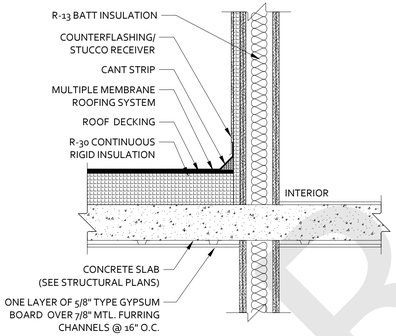

5 STAIR BULKHEAD WALL DETAIL
NTS



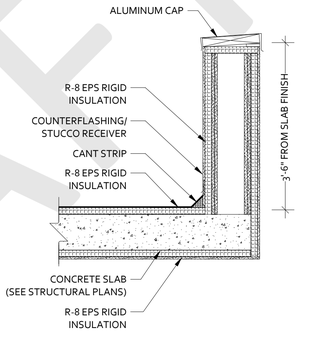

6 PARAPET DETAIL FRAMING
NTS



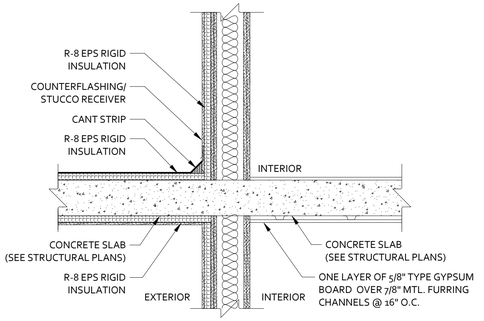

2 BALCONY DETAIL
NTS



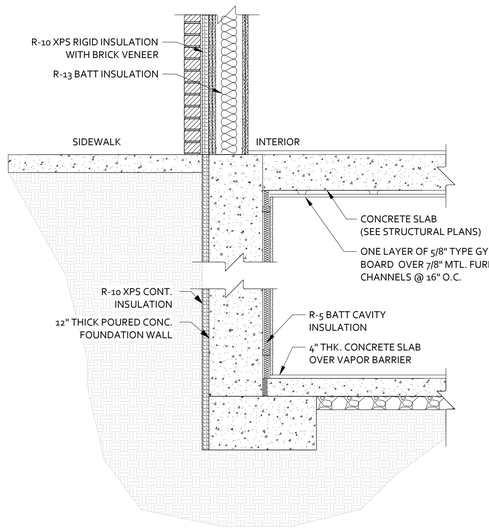

7 ROOF & FLOOR ASSEMBLY DETAIL
NTS



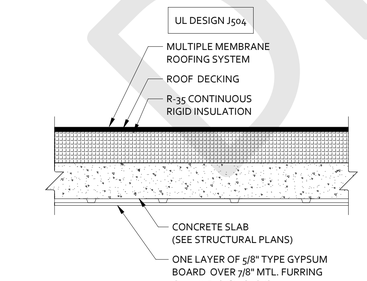

8 BALCONY PARAPET DETAIL
NTS



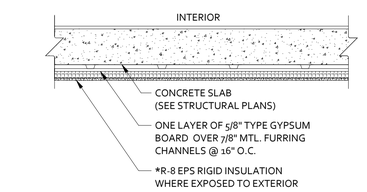

9 REAR BALCONY DETAIL
NTS



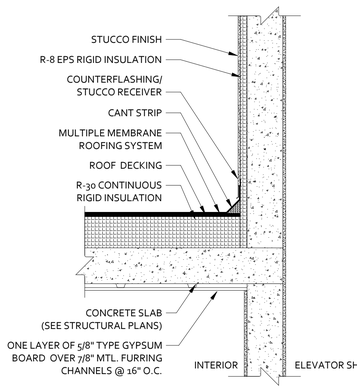

1 FOUNDATION DETAIL
NTS



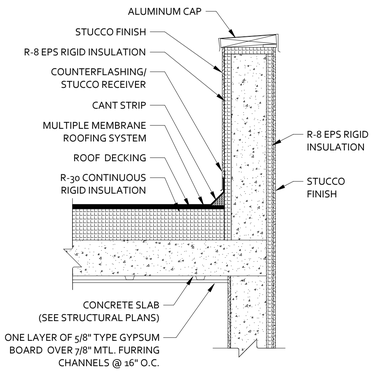

10 ROOF SYSTEM DETAIL
NTS




11 FLOOR SYSTEM DETAIL
NTS




12 ROOF EDGE CONCRETE DETAIL
NTS




13 CONCRETE PARAPET DETAIL
NTS

**NOTE:** CONTRACTOR TO LIMIT THE BACKFILL TO NO MORE THAN ONE THIRD THE HEIGHT OF THE CONCRETE WALL PRIOR TO THE CELLAR CONCRETE FLOOR SLAB AND INSTALLATION OF FIRST FLOOR FRAMING.

PERIMETER SLAB INSULATION IS NOT REQUIRED AS PER EXCEPTION IN C402.2.4: SLAB IS MORE THAN 24" BELOW FINISHED GRADE

STRUCTURAL DESIGN BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

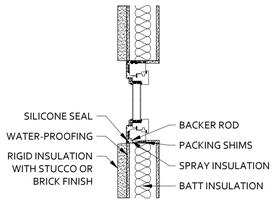
SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

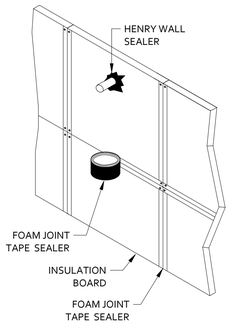
DRAWING TITLE:
SECTION DETAILS

DRAWING NO.:
A-304.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 28 OF 43




2 WINDOW FINISH DETAIL
NTS



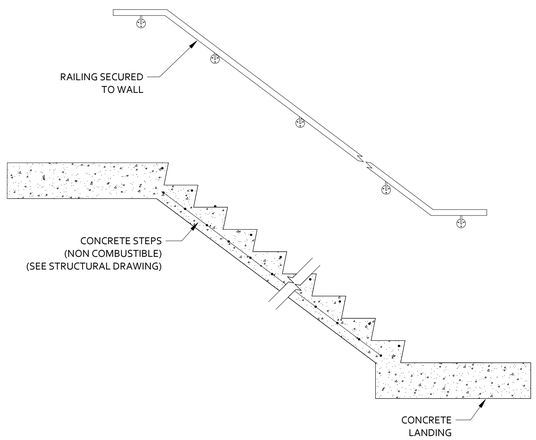

4 JOINT SEALANT DETAIL
NTS

C402.5 AIR LEAKAGE—THERMAL ENVELOPE (MANDATORY). THE THERMAL ENVELOPE OF BUILDINGS SHALL COMPLY WITH SECTIONS C402.5.1 THROUGH C402.5.8, OR THE BUILDING THERMAL ENVELOPE SHALL BE TESTED IN ACCORDANCE WITH ASTM E 779 AT A PRESSURE DIFFERENTIAL OF 0.3 INCH WATER GAUGE (75 PA) OR AN EQUIVALENT METHOD APPROVED BY THE BUILDING OFFICIAL AND DEEMED TO COMPLY WITH THE PROVISIONS OF THIS SECTION WHEN THE TESTED AIR LEAKAGE RATE OF THE BUILDING THERMAL ENVELOPE IS NOT GREATER THAN 0.40 CFM/FT2(2.0 L/S • M2). WHERE COMPLIANCE IS BASED ON SUCH TESTING, THE BUILDING SHALL ALSO COMPLY WITH SECTIONS C402.5.5, C402.5.6 AND C402.5.7.

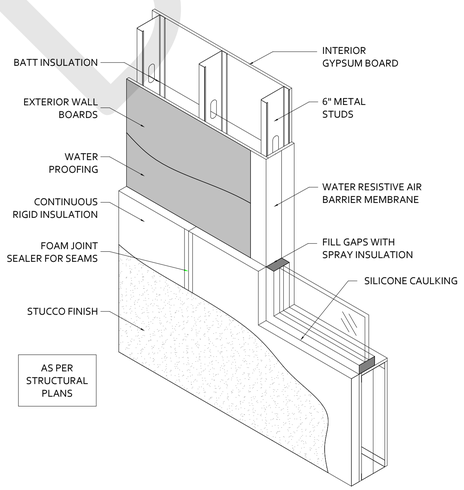
C402.5.1.3 AIR BARRIER TESTING. NEW BUILDINGS AND ADDITIONS OF A CERTAIN SIZE MUST COMPLY WITH THE FOLLOWING REQUIREMENTS AND THE RULES OF THE DEPARTMENT: 1. NEW BUILDINGS AND ADDITIONS 10,000 SQUARE FEET (929 M2) AND GREATER, BUT LESS THAN 50,000 SQUARE FEET (4 645.2 M2), AND LESS THAN OR EQUAL TO 75 FEET (22.86 M) IN HEIGHT MUST SHOW COMPLIANCE THROUGH TESTING IN ACCORDANCE WITH ASTM E779 OR OTHER APPROVED STANDARDS. R-2 BUILDINGS MAY ALTERNATIVELY SHOW COMPLIANCE THROUGH TESTING IN ACCORDANCE WITH SECTION R402.4.1.3 OF THIS CODE.

AIR BARRIER JOINTS AND SEAMS SHALL BE SEALED, INCLUDING SEALING TRANSITIONS IN PLACES AND CHANGES IN MATERIALS. AIR BARRIER PENETRATIONS SHALL BE SEALED IN ACCORDANCE WITH SECTION C402.4.2. THE JOINTS AND SEALS SHALL BE SECURELY INSTALLED IN OR ON THE JOINT FOR ITS ENTIRE LENGTH SO AS NOT TO DISLODGE, LOOSEN OR OTHERWISE IMPAIR ITS ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT AND MECHANICAL VENTILATION.

ALL VENT AND FLUES TO BE THERMALLY SEALED WITH HENRY ROOF COATING (OR EQUIVALENT) ASTM D2370. ALL INSULATION BOARD JOINT AND SEAMS TO BE SEALED WITH OWENS CORNING™ JOINTSEALR™ FOAM JOINT TAPE SEALER.




1 SECTION DETAIL AT STAIRS
NTS




3 WALL ASSEMBLY DETAIL
NTS

STRUCTURAL DESIGN BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:

SECTION DETAILS CONT.

DRAWING NO.:
A-305.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 29 OF 43 |

## WINDOW SCHEDULE

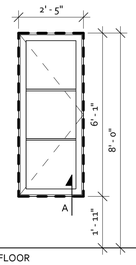
| TYPE | WIDTH | HEIGHT | AREA | OPERATION | THERMAL VALUES | MANUFACTURER | MODEL NO. | COUNT |
|---|---|---|---|---|---|---|---|---|
| **W2** | | | | | | | | |
| Casement | 2' - 9" | 5' - 5" | 14.90 SF | Hinged | U=0.30, SHGC=0.26 | Pella | 3365 | 21 |
| **W3** | | | | | | | | |
| Casement | 2' - 9" | 6' - 1" | 16.73 SF | Hinged | U=0.30, SHGC=0.26 | Pella | 3373 | 4 |
| **W4** | | | | | | | | |
| Casement | 2' - 11" | 5' - 5" | 15.80 SF | Casement Vent | U=0.30, SHGC=0.26 | Pella | 3565 | 4 |
| **W5** | | | | | | | | |
| Double Hung | 2' - 5" | 2' - 11" | 7.05 SF | Vertical Slide | U=0.30, SHGC=0.28 | Pella | 2935 | 1 |
| **W6** | | | | | | | | |
| Casement | 2' - 5" | 6' - 1" | 14.70 SF | Fixed | U=0.29, SHGC=0.32 | Pella | 2973 | 2 |

**TOTAL: 32**

## WINDOW TYPE

**MAXIMUM AIR INFILTRATION RATE:** 0.20 MAX. (CFM/FT2)

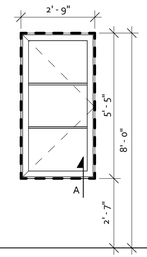
### W1
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #2973




FINISHED FLOOR

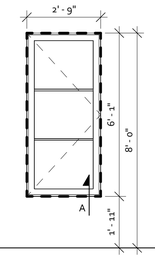
NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W2
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #3365



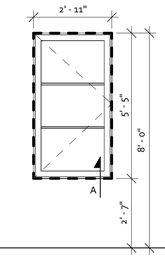

NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W3
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #3373



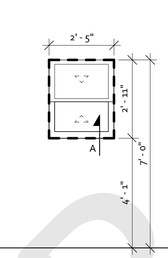

NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W4
**CASEMENT WINDOW**
MANUF.: PELLA
MODEL #3565



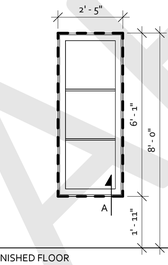

NFRC #PEL-N-11-21561-00002
U-FACTOR=0.30, SHGC=0.26, VLT=0.48

### W5
**DOUBLE HUNG WINDOW**
MANUF.: PELLA
MODEL #2935




NFRC #PEL-N-179-01137-00001
U-FACTOR=0.30, SHGC=0.28, VLT=0.53

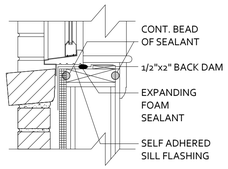
### W6
**FIXED WINDOW**
MANUF.: PELLA
MODEL #2973




FINISHED FLOOR

NFRC #PEL-N-18-02773-00001
U-FACTOR=0.29, SHGC=0.32, VLT=0.62

## SECTION 'A'




TYPICAL SECTION DETAIL AT
WINDOW WITH EXPANDABLE FOAM

**NOTE:**
CASEMENT WINDOW OPENING CONTROL DEVICES ALLOW FOR AN OPENING OF LESS THAN 4" (INCH)

**WINDOW NOTES**
1. WINDOW MANUFACTURER TO VERIFY ALL WINDOW DIMENSIONS, ROUGH & MASONRY OPENING SIZES W/G/C/, QUANTITIES AS WELL AS ALL FINISHED PARTITION THICKNESS FOR FRAME WIDTH SIZING PRIOR TO FABRICATION.
2. ALL WINDOWS TO HAVE WEATHER STRIPPING AT JAMB, HEAD AND SILL.
3. PROVIDE ALLOWANCE FOR BUILDER'S HARDWARE.

APPLY EXPANDABLE SPRAY FOR ALL VERTICAL FENESTRATION BETWEEN DOOR & WINDOW FRAMES AND ROUGH OPENINGS.

**C402.4.2 AIR BARRIER PENETRATIONS**
PENETRATIONS OF THE AIR BARRIER AND PATHS OF AIR LEAKAGE SHALL BE CAULKED, GASKETED OR OTHERWISE SEALED IN A MANNER COMPATIBLE WITH THE CONSTRUCTION MATERIALS AND LOCATION. JOINTS AND SEALS SHALL BE SEALED IN THE SAME MANNER OR TAPED OR COVERED WITH A MOISTURE VAPOR PERMEABLE WRAPPING MATERIAL. SEALING MATERIALS SHALL BE APPROPRIATE TO THE CONSTRUCTION MATERIALS BEING SEALED. THE JOINTS AND SEALS SHALL BE SECURELY INSTALLED IN OR ON THE JOINT FOR ITS ENTIRE LENGTH SO AS NOT TO DISLODGE, LOOSEN OR OTHERWISE IMPAIR ITS ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT AND MECHANICAL VENTILATION.

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

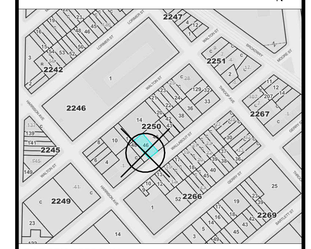
4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
WINDOW SCHEDULE

DRAWING NO.:
A-400.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |

| SCALE: | SHEET NO.: |
|---|---|
| AS NOTED | 30 OF 43 |

## DOOR SCHEDULE

| DOOR No. | AREA | WIDTH | HEIGHT | TYPE | FUNCTION | FIRE RATING |
|---|---|---|---|---|---|---|
| **CELLAR** | | | | | | |
| C01 | OPEN CELLAR | 3' - 0" | 8' - 0" | D2 | Exterior | N/A |
| C02 | OPEN CELLAR | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| C03 | METER ROOM | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| C04 | SPRINKLER ROOM | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| C05 | BATH | 2' - 0" | 8' - 0" | D6 | Interior | N/A |
| C06 | OPEN CELLAR | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| **LOWER 1ST FLOOR** | | | | | | |
| 101 | LOBBY | 3' - 0" | 7' - 8" | D1 | Exterior | 1.5 HR FPSC |
| 102 | LOBBY | 2' - 8" | 7' - 0" | D10 | Exterior | 1.5 HR FPSC |
| 103 | LOBBY | 2' - 8" | 7' - 0" | D10 | Exterior | 1.5 HR FPSC |
| **UPPER 1ST FLOOR** | | | | | | |
| 104 | LOBBY | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 105 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 106 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 107 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 108 | MECH. CL. | 2' - 4" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 109 | PANTRY | 4' - 8" | 8' - 0" | D7 | Interior | N/A |
| 110 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 111 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| 112 | LIVING / DINING | 6' - 0" | 10' - 0" | D3 | Exterior | N/A |
| 113 | LIVING / DINING | 6' - 0" | 10' - 0" | D3 | Exterior | N/A |
| **2ND FLOOR** | | | | | | |
| 201 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 202 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 203 | CL | 4' - 0" | 8' - 0" | D7 | Interior | N/A |
| 204 | BEDROOM #2 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |

## DOOR SCHEDULE

| DOOR No. | AREA | WIDTH | HEIGHT | TYPE | FUNCTION | FIRE RATING |
|---|---|---|---|---|---|---|
| 205 | W.I.C. | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 206 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 207 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 208 | BATH | 2' - 2" | 8' - 0" | D6 | Interior | N/A |
| 209 | BEDROOM #3 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 210 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 211 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 212 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 213 | LAUNDRY | 3' - 8" | 8' - 0" | D7 | Interior | N/A |
| 214 | BEDROOM #4 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 215 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **3RD FLOOR** | | | | | | |
| 301 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 302 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 304 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 305 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 306 | BALCONY | 6' - 0" | 8' - 0" | D4 | Exterior | N/A |
| 307 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **4TH FLOOR** | | | | | | |
| 401 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 402 | CORRIDOR | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 403 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 404 | BATH | 2' - 2" | 8' - 0" | D6 | Interior | N/A |
| 405 | BEDROOM #1 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 406 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 407 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 408 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |

## DOOR SCHEDULE

| DOOR No. | AREA | WIDTH | HEIGHT | TYPE | FUNCTION | FIRE RATING |
|---|---|---|---|---|---|---|
| 409 | LAUNDRY | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 410 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 411 | CL | 3' - 4" | 8' - 0" | D7 | Interior | N/A |
| 412 | W.I.C. | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 413 | BEDROOM #3 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 414 | BEDROOM #2 | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 415 | CL | 2' - 0" | 8' - 0" | D6 | Interior | N/A |
| 416 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **5TH FLOOR** | | | | | | |
| 501 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 502 | FOYER | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 503 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 504 | CL | 5' - 0" | 8' - 0" | D7 | Interior | N/A |
| 505 | BALCONY | 12' - 0" | 8' - 0" | D5 | Exterior | N/A |
| 506 | TERRACE | 2' - 8" | 8' - 0" | D2 | Exterior | N/A |
| **6TH FLOOR** | | | | | | |
| 601 | STAIRWELL | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |
| 602 | CORRIDOR | 3' - 0" | 8' - 0" | D8 | Interior | 1.5 HR FPSC |
| 603 | CL | 3' - 0" | 8' - 0" | D7 | Interior | N/A |
| 604 | BATH | 2' - 2" | 8' - 0" | D6 | Interior | N/A |
| 605 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 606 | LAUNDRY | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 607 | BEDROOM | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 608 | BATH | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 609 | W.I.C. | 2' - 10" | 8' - 0" | D6 | Interior | N/A |
| 610 | PASSIVE RECREATION | 3' - 0" | 8' - 0" | D2 | Exterior | N/A |
| 611 | PASSIVE RECREATION | 3' - 0" | 8' - 0" | D2 | Exterior | N/A |
| **ROOF** | | | | | | |
| R01 | STAIR BULKHEAD | 3' - 0" | 7' - 0" | D10 | Interior | 1.5 HR FPSC |

## TOTAL DOOR COUNT

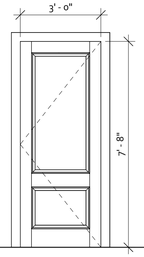
| TYPE | COUNT |
|---|---|
| D1 | 1 |
| D2 | 8 |
| D3 | 2 |
| D4 | 1 |
| D5 | 1 |
| D6 | 26 |
| D7 | 15 |
| D8 | 7 |
| D10 | 14 |

**TOTAL: 75**

## DOOR TYPE

ALL LOCKSETS TO BE GRAND MASTERED TO BUILDING MASTER

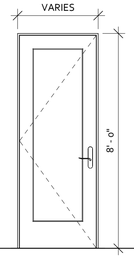
### D1




**BUILDING ENTRANCE DOOR**
1.5 HR FIRE RATED STEEL DOOR
W/CLOSER AND WEATHER STRIPPING
SELF LOCKING AND SELF CLOSING

THERMAL VALUES: NFRC #MID-M-1-00532-00001
U-FACTOR=0.12, SHGC=0.01
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

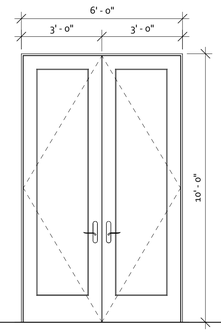
### D2




**EXTERIOR GLASS DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

THERMAL VALUES: NFRC #PEL-N-218-04197-00001
U-FACTOR=0.30, SHGC=0.22, VT=0.39
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D3

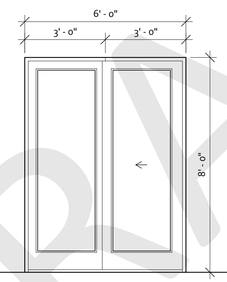



**EXTERIOR HINGED DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

THERMAL VALUES: NFRC #PEL-N-218-04197-00001
U-FACTOR=0.30, SHGC=0.22, VT=0.39
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

**NOTE:**
DOOR OPENING
CONTROL DEVICE ALLOW
FOR AN OPENING OF LESS
THAN 4" (INCH)

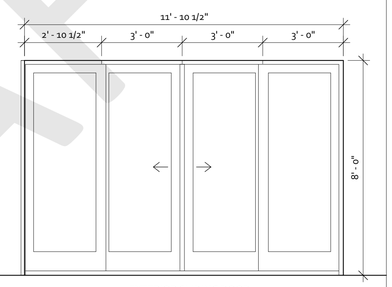
### D4




**EXTERIOR SLIDING DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

THERMAL VALUES: NFRC #PEL-N-237-00030-00001
U-FACTOR=0.30, SHGC=0.23, VT=0.42
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

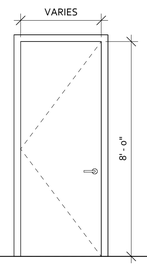
### D5




**EXTERIOR SLIDING DOOR**
ALUMINUM & SAFETY GLASS DOOR,
W/ CLOSER AND WEATHER STRIPPING

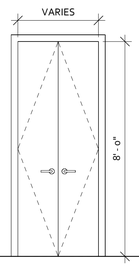
THERMAL VALUES: NFRC #PEL-N-237-00030-00001
U-FACTOR=0.30, SHGC=0.23, VT=0.42
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D6




**INTERIOR WOOD DOOR**
1-3/8" THICK WOOD DOOR
W/ WOOD FRAMING
MANF. & HARDWARE TBD

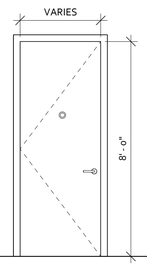
### D7




**INTERIOR WOOD DOUBLE DOOR**
1-3/8" THICK WOOD DOUBLE DOOR
W/ WOOD FRAMING
MANF. & HARDWARE TBD

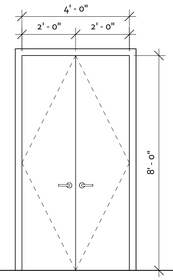
### D8

FOR APARTMENT ENTRY DOORS
PROVIDE BSA APPROVED
PEEP HOLE AS PER MDL SEC. 51A



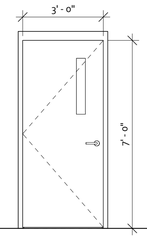

**INTERIOR FIRE RATED DOOR**
1-3/4" THICK 'B' LABEL H.M. DOOR
W/ WELDED FRAME AND SELF CLOSING,
1-1/2 HOUR FIRE RATED
MANF. & HARDWARE TBD
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D9




**INTERIOR FIRE RATED DOUBLE DOOR**
1-3/4" THICK 'B' LABEL H.M. DOUBLE DOOR
W/ WELDED FRAME AND SELF CLOSING,
1-1/2 HOUR FIRE RATED
MANF. & HARDWARE TBD
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

### D10




**STAIR EXIT EGRESS DOOR**
1-3/4" THICK 'B' LABEL H.M. DOOR
W/ WELDED FRAME AND SELF CLOSING,
1-1/2 HR FIRE RATED, MANF. & HARDWARE TBD

THERMAL VALUES: U-FACTOR=0.14
MAX. AIR INFILTRATION RATE:
0.20 MAX (CFM/FT2)

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

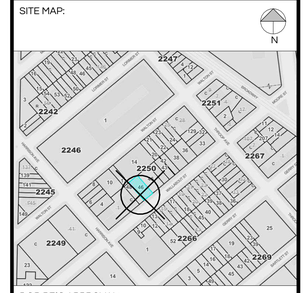
4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
DOOR SCHEDULE

DRAWING NO.:
A-401.00

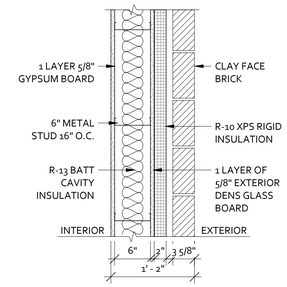
DATE: 4/3/2025
DRAWN BY: YR

SCALE: AS NOTED
SHEET NO.: 31 OF 43

## W1 WALL TYPE 1

EXTERIOR STUD WALL WITH BRICK
(1 HR FIRE RATED) UL DESIGN NO. U425

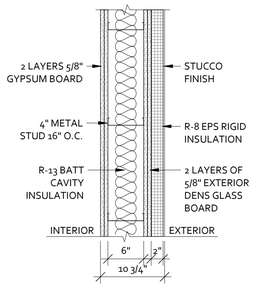
PLAN VIEW




## W2 WALL TYPE 2

EXTERIOR STUD WALL WITH STUCCO
(2 HR FIRE RATED) UL DESIGN NO. U425

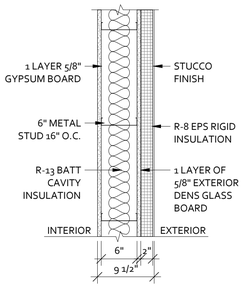
PLAN VIEW




## W3 WALL TYPE 3

EXTERIOR STUD WALL WITH STUCCO
(1 HR FIRE RATED) UL DESIGN NO. U425

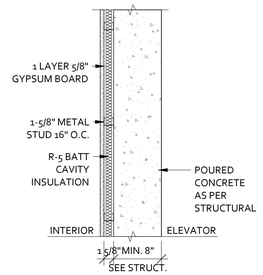
PLAN VIEW




## W4 WALL TYPE 4

CONCRETE WALL W/FURRING
(4 HR FIRE RATED) BC TABLE 720.1 (3)

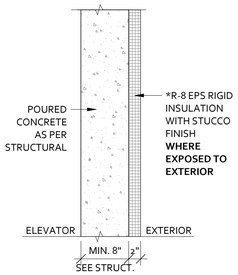
PLAN VIEW




## W5 WALL TYPE 5

CONCRETE WALL
(4 HR FIRE RATED) BC TABLE 720.1 (3)

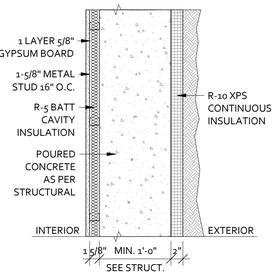
PLAN VIEW




## W6 WALL TYPE 6

CONCRETE FOUNDATION WALL W/FURRING
(4 HR FIRE RATED) BC TABLE 720.1 (3)

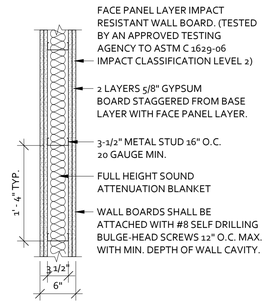
PLAN VIEW




## P1 PARTITION TYPE 1

INTERIOR STUD WALL (2HR FIRE RATED)
MASONRY EQUIVALENT STC 56
UL DESIGN NO. U419 1 RCNY

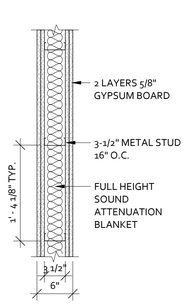
PLAN VIEW




## P2 PARTITION TYPE 2

INTERIOR STUD WALL (2HR FIRE RATED)
STC 56 UL DESIGN NO. U419

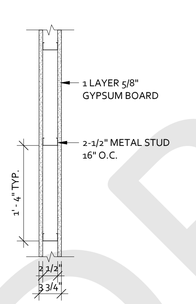
PLAN VIEW




## P3 PARTITION TYPE 3

INTERIOR STUD WALL (1HR FIRE RATED)
UL DESIGN NO. U407

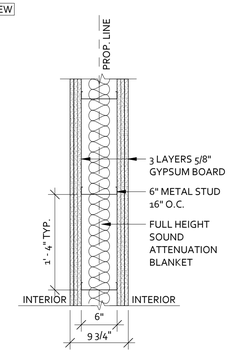
PLAN VIEW



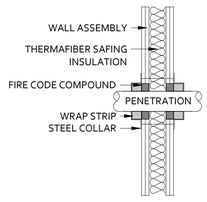

## W7 WALL TYPE 7

PARTY WALL (3HR FIRE RATED)
STC 56 UL DESIGN NO. U419

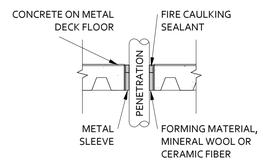
PLAN VIEW




**PENETRATION AT 2HR RATED WALL SYSTEM**
UL SYSTEM NO.510




**PENETRATION AT CONCRETE ON METAL DECK FLOOR** UL SYSTEM NO. C-AJ-2086




STRUCTURAL DESIGN BY OTHERS

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

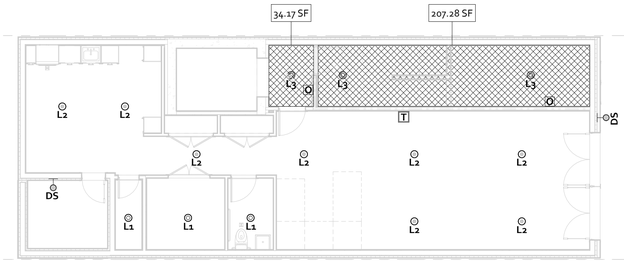
DOB JOB No:
B01105567-I1

DRAWING TITLE:
WALL TYPES & DETAILS

DRAWING NO.:
A-500.00

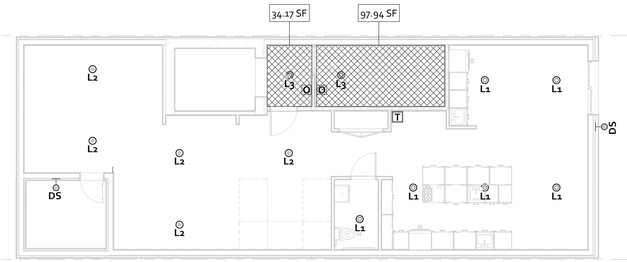
| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 32 OF 43 |

| 1ST FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| LOBBY | 207.28 SF |



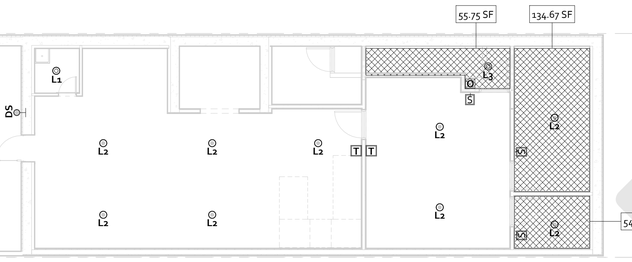

2 1ST FLOOR
1/8" = 1'-0"

| 3RD FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |



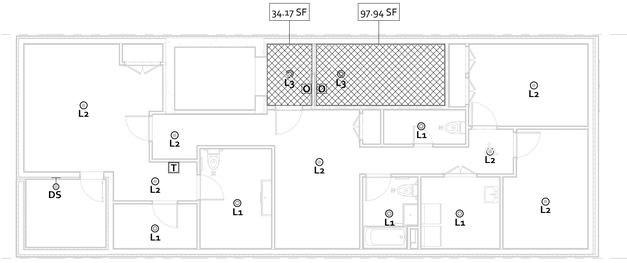

4 3RD FLOOR
1/8" = 1'-0"

| CELLAR COMMON AREA | |
|---|---|
| MECHANICAL | 134.67 SF |
| MECHANICAL | 54.71 SF |
| STAIRWELL | 55.75 SF |




1 CELLAR
1/8" = 1'-0"

| 2ND FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |




3 2ND FLOOR
1/8" = 1'-0"

**LEGEND**

| | |
|---|---|
| S | MANUAL SWITCH |
| T | PROGRAMMABLE THERMOSTAT |
| O | OCCUPANCY SENSOR |
| S | SWITCH WITH OCCUPANCY SENSOR |

SEE FIXTURE LEGEND ON SHEET RCP-002 FOR FIXTURE TYPE

DRAFT

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

# 293 WALLABOUT ST. BROOKLYN, N.Y. 11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

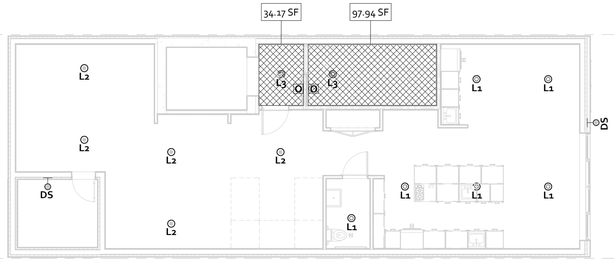
DOB JOB No:
B01105567-I1

DRAWING TITLE:
REFLECTED CEILING PLANS

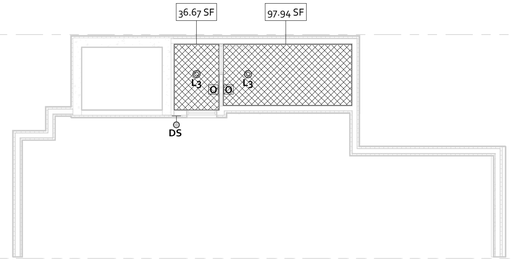
DRAWING NO.:
RCP-001.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 33 OF 43 |

| 5TH FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |



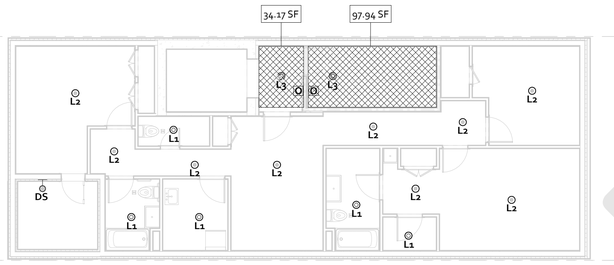

| ROOF COMMON AREA | |
|---|---|
| CORRIDOR | 36.67 SF |
| STAIRWELL | 97.94 SF |



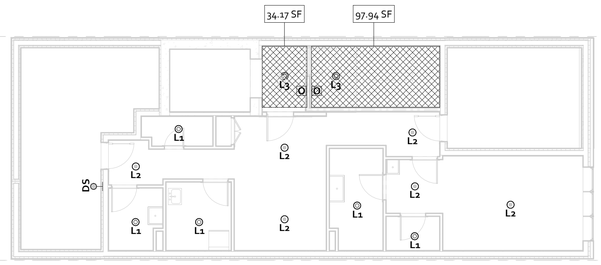

2 5TH FLOOR
1/8" = 1'-0"

4 ROOF
1/8" = 1'-0"

| 4TH FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |




| 6TH FL COMMON AREA | |
|---|---|
| CORRIDOR | 34.17 SF |
| STAIRWELL | 97.94 SF |




1 4TH FLOOR
1/8" = 1'-0"

3 6TH FLOOR
1/8" = 1'-0"

DRAFT

**LEGEND**

| | |
|---|---|
| S | MANUAL SWITCH |
| T | PROGRAMMABLE THERMOSTAT |
| O | OCCUPANCY SENSOR |
| S | SWITCH WITH OCCUPANCY SENSOR |

SEE FIXTURE LEGEND ON SHEET RCP-002 FOR FIXTURE TYPE

REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT

4 SHERATON DRIVE
LAKEWOOD, NJ 08701

RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:

293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:

DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
REFLECTED CEILING PLANS CONT.

DRAWING NO.:
RCP-002.00

| DATE: | DRAWN BY: |
|---|---|
| 4/3/2025 | YR |
| SCALE: | SHEET NO.: |
| AS NOTED | 34 OF 43 |

## INTERIOR LIGHTING SCHEDULE

| Type | Wattage | Count | Total Watts (W) |
|---|---|---|---|
| **CELLAR** | | | |
| L1 | 14 W | 1 | 14 |
| L2 | 25 W | 9 | 225 |
| L3 | 18 W | 1 | 18 |
| **UPPER 1ST FLOOR** | | | |
| L1 | 14 W | 4 | 56 |
| L2 | 25 W | 8 | 200 |
| L3 | 18 W | 3 | 54 |
| **2ND FLOOR** | | | |
| L1 | 14 W | 5 | 70 |
| L2 | 25 W | 7 | 175 |
| L3 | 18 W | 2 | 36 |
| **3RD FLOOR** | | | |
| L1 | 14 W | 6 | 84 |
| L2 | 25 W | 5 | 125 |
| L3 | 18 W | 2 | 36 |
| **4TH FLOOR** | | | |
| L1 | 14 W | 5 | 70 |
| L2 | 25 W | 9 | 225 |
| L3 | 18 W | 2 | 36 |
| **5TH FLOOR** | | | |
| L1 | 14 W | 6 | 84 |
| L2 | 25 W | 5 | 125 |
| L3 | 18 W | 2 | 36 |
| **6TH FLOOR** | | | |
| L1 | 14 W | 5 | 70 |
| L2 | 25 W | 6 | 150 |
| L3 | 18 W | 2 | 36 |
| **ROOF** | | | |
| L3 | 18 W | 2 | 36 |
| **TOTAL WATTS (W)** | | | **1961** |

## EXTERIOR LIGHTING SCHEDULE

| Type | Wattage | Count | Total Watts (W) |
|---|---|---|---|
| **CELLAR** | | | |
| DS | 12 W | 1 | 12 |
| **LOWER 1ST FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **UPPER 1ST FLOOR** | | | |
| DS | 12 W | 2 | 24 |
| **2ND FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **3RD FLOOR** | | | |
| DS | 12 W | 2 | 24 |
| **4TH FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **5TH FLOOR** | | | |
| DS | 12 W | 2 | 24 |
| **6TH FLOOR** | | | |
| DS | 12 W | 1 | 12 |
| **ROOF** | | | |
| DS | 12 W | 1 | 12 |
| **TOTAL WATTS (W)** | | | **144** |

## FIXTURE COUNT

| Type | Count |
|---|---|
| DS | 12 |
| L1 | 32 |
| L2 | 49 |
| L3 | 16 |
| **TOTAL** | **109** |

## COMMON AREA LIGHTING SCHEDULE

| Type | Wattage | Count | Total Watts (W) |
|---|---|---|---|
| L2 | 25 W | 2 | 50 |
| L3 | 18 W | 16 | 288 |
| **TOTAL WATTS (W)** | | | **338** |

## TOTAL COMMON AREA

| | |
|---|---|
| CORRIDOR | 241.67 SF |
| LOBBY | 207.28 SF |
| MECHANICAL | 189.38 SF |
| STAIRWELL | 643.42 SF |
| **TOTAL** | **1,281.74 SF** |

## TOTAL GROSS FLOOR AREA

| | |
|---|---|
| CELLAR | 1,603.33 SF |
| UPPER 1ST FLOOR | 1,516.67 SF |
| 2ND FLOOR | 1,516.67 SF |
| 3RD FLOOR | 1,516.67 SF |
| 4TH FLOOR | 1,516.67 SF |
| 5TH FLOOR | 1,516.67 SF |
| 6TH FLOOR | 1,093.99 SF |
| ROOF | 284.76 SF |
| **TOTAL** | **10,565.42 SF** |

C405.3.2 INTERIOR LIGHTING POWER ALLOWANCE
TABLE C405.3.2(1) MULTIFAMILY = 0.49 (W/SF)

C406.3 REDUCED LIGHTING POWER
THE TOTAL CONNECTED INTERIOR LIGHTING POWER CALCULATED IN ACCORDANCE WITH SECTION C405.3.1 SHALL BE LESS THAN 90% OF THE TOTAL LIGHTING POWER ALLOWANCE CALCULATED IN ACCORDANCE WITH C405.3.2.

W/SF ALLOWED: 0.49 x 0.9 = 0.44
PROP'D FLOOR AREA: 10,631.23 SF
W/SF ALLOWED: 0.44 = 4,677.74 WATTS
PROPOSED: 1,961 WATTS = 0.16 (W/SF)
0.16 < 0.44 THEREFORE OK

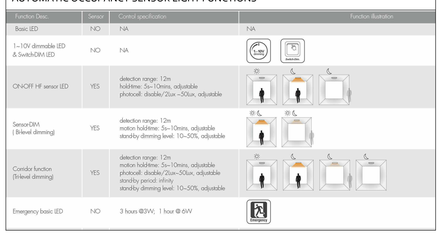
## ENERGY EFFICIENCY PACKAGE

| USE | PER | SQ. FT. | PROPOSED |
|---|---|---|---|
| MULTI FAMILY | 0.44 | 10,631.23 | 0.16 < 0.44 |

## FIXTURE LEGEND

| Image | Symbol | Description | Manufacturer | Model | Wattage | Light Output (Lumens) | Lumens Per Watt | Energy Star Qualified |
|---|---|---|---|---|---|---|---|---|
| | **DS** | 3" WALL MOUNT UP/DOWN CYLINDER | PROGRESS LIGHTING | P563001-143-30K | 12 W | 1766 | 73 | Yes |
| | **L1** | ECOSMART Soft White Twister CFL Bulbs | ECOSMART | ES5A8142 | 14 W | 800 lm | 64 | Yes |
| | **L2** | GE A21 CFL Light Bulb | GE Lighting | FLE25HBA23RVLBX | 25 W | 1,375 lm | 55 | Yes |
| | **L3** | MAX-SMART Intelligent LED Bi-Level | MAX-SMART | ES400 | 18 W | 1,620 lm | 116 | Yes |

AUTOMATIC OCCUPANCY SENSOR LIGHT FUNCTIONS



| Function Desc. | Sensor | Control specification | Function Illustration |
|---|---|---|---|
| Basic LED | NO | NA | NA |
| 1–10V dimmable LED & SwitchDIM LED | NO | NA | |
| ON/OFF HF sensor LED | YES | detection range: 12m<br>hold time: 5s–10mins, adjustable<br>photocell: disable/2Lux–50Lux, adjustable | |
| SensorDIM<br>( Bi-level dimming) | YES | detection range: 12m<br>motion hold time: 5s–10mins, adjustable<br>standby dimming level: 10–50%, adjustable | |
| Corridor function<br>(Tri-level dimming) | YES | detection range: 12m<br>motion hold time: 5s–10mins, adjustable<br>photocell: disable/2Lux–50Lux, adjustable<br>standby period: infinity<br>standby dimming level: 10–50%, adjustable | |
| Emergency basic LED | NO | 3 hours @3W; 1 hour @ 6W | |

NARRATIVE FOR LIGHTING AS PER 1 RCNY 5000-01 (G)(3)(I)(A):
NARRATIVE DESCRIPTION FOR LIGHTING FUNCTIONS AND CONTROLS:

**INTERIOR LIGHTING:**
ALL MANUAL CONTROL PROPOSED, TO BE READILY ACCESSIBLE TO OCCUPANTS, AND BE LOCATED WHERE THE CONTROLLED LIGHTS ARE VISIBLE.

**CELLAR FLOOR - SHEET A-100**
**MECHANICAL:** LOCAL SWITCH WITH DUAL TECHNOLOGY - MANUAL ON AND OFF - OCCUPANCY SENSOR TO AUTOMATICALLY TURN ON THE LIGHTING TO NOT MORE THAN 50-PERCENT POWER AND AUTOMATICALLY TURN ALL LIGHTS OFF WITHIN 15 MINUTES OF OCCUPANTS LEAVING THE SPACE.
**STAIRWELL, CORRIDOR:** OCCUPANCY SENSOR THAT AUTOMATICALLY REDUCES THE LIGHTING POWER BY 50 PERCENT WHEN UNOCCUPIED FOR A PERIOD LONGER THAN 15 MINUTES AND AUTOMATICALLY TURNS ON TO 100 PERCENT WHEN OCCUPIED.

**MEZZANINE - SHEET A-100 THRU A-103**
**LOBBY, CORRIDOR:** OCCUPANCY SENSOR THAT AUTOMATICALLY REDUCES THE LIGHTING POWER BY 50 PERCENT WHEN UNOCCUPIED FOR A PERIOD LONGER THAN 15 MINUTES AND AUTOMATICALLY TURNS ON TO 100 PERCENT WHEN OCCUPIED.

**FIRST FLOOR THRU ROOF - SHEET A-100 THRU A-103**
**STAIRWELL, CORRIDOR:** OCCUPANCY SENSOR THAT AUTOMATICALLY REDUCES THE LIGHTING POWER BY 50 PERCENT WHEN UNOCCUPIED FOR A PERIOD LONGER THAN 15 MINUTES AND AUTOMATICALLY TURNS ON TO 100 PERCENT WHEN OCCUPIED.

**DWELLING UNITS: NO LIGHTING CONTROLS OTHER THAN A MANUAL SWITCH, PROPOSESD IN DWELLING UNITS.**
**100% OF THE PERMANENTLY INSTALLED FIXTURES USE LAMPS WITH AN EFFICIACY OF AT LEAST 65 LUMENS PER WATT.**

**EXTERIOR LIGHTING:**
1. BE PROVIDED WITH A CONTROL WITH ASTRONOMICAL TIME SWITCH OR PHOTOCELL, THAT AUTOMATICALLY TURNS OFF THE LIGHTING AS A FUNCTION OF AVAILABLE DAYLIGHT, .
2. LIGHTING SHALL HAVE CONTROLS CONFIGURED TO AUTOMATICALLY REDUCE THE CONNECTED LIGHTING POWER BY NOT LESS THAN 30 PERCENT FROM NOT LATER THAN MIDNIGHT TO 6 A.M.
3. ALL TIME SWITCHES SHALL BE ABLE TO RETAIN PROGRAMMING AND THE TIME SETTING DURING LOSS OF POWER FOR A PERIOD OF AT LEAST 10 HOURS.

NO RECESSED LIGHTING PROPOSED IN THE BUILDING THERMAL ENVELOPE. ROOF INSULATION ENTIRELY ABOVE DECK.

**C405.8.1 ELEVATOR EQUIPMENT AND CABS**
FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NOT LESS THAN 35 LUMENS PER WATT. VENTILATION FANS IN ELEVATORS THAT DO NOT HAVE THEIR OWN AIR-CONDITIONING SYSTEM SHALL NOT CONSUME MORE THAN 0.33 WATTS/CFM AT THE MAXIMUM RATED SPEED OF THE FAN. CONTROLS SHALL BE PROVIDED THAT WILL DE-ENERGIZE VENTILATION FANS AND LIGHTING SYSTEMS WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED AND WITH ITS DOORS CLOSED FOR OVER 15 MINUTES.

**NOTE: AS PER C408.3 LIGHTING SYSTEM FUNCTIONAL TESTING**
AN LIGHTING SYSTEM FUNCTIONAL TESTING SHOULD BE PERFORMED BY AN APPROVED AGENCY TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH NYCECC SECTIONS C408.3.1.1 THRU C408.3.1.3. REQUIRED DOCUMENTATION SHALL BE PROVIDED TO BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

DRAFT

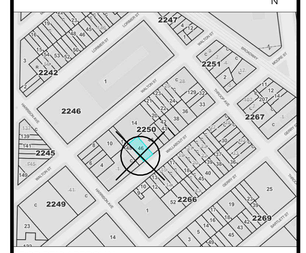
REVISIONS

| REV. | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

YOEL ROZENBERG
REGISTERED ARCHITECT
4 SHERATON DRIVE
LAKEWOOD, NJ 08701
RCUBEDNY@GMAIL.COM
LICENSE No.: 045621

PROJECT:
293 WALLABOUT ST.
BROOKLYN, N.Y.
11206

SITE MAP:




DOB PE`S APPROVAL:

DOB SCAN:

SEAL AND SIGNATURE:

DOB JOB No:
B01105567-I1

DRAWING TITLE:
R.C.P. NOTES

DRAWING NO.:
RCP-003.00

DATE: 4/3/2025
DRAWN BY: YR
SCALE: AS NOTED
SHEET NO.: 35 OF 43

# APPENDIX D
# Construction Health and Safety Plan

DRAFT

**HALEY & ALDRICH, INC.**
**SITE-SPECIFIC SAFETY PLAN**

FOR

291 Wallabout Street

291 Wallabout Street, Brooklyn, NY 11206

Project/File No. 0211139

Gensuite EZ Scan®

BI - Developers

DRAFT

| | |
|---|---|
| **Prepared By: Matthew C. Cal** | **Date: 4/29/2025** |
| **Approvals: The following signatures constitute approval of this Health & Safety Plan.** | |
| | |
| **Field Safety Manager: Brian Ferguson** | **Date: 5/8/2025** |
| | |
| **Project Manager: Zhan Shu** | **Date: 5/8/2025** |
| **HASP Valid Through:** 12-31-2025 | |

# Table of Contents

Page

**STOP WORK AUTHORITY** **3**

**ISSUANCE AND COMPLIANCE** **4**

**EMERGENCY EVENT PROCEDURES** **5**

**PROJECT INFORMATION AND CONTACTS** **6**

**DIRECTIONS TO THE NEAREST HOSPITAL** **7**

**DIRECTIONS TO THE NEAREST URGENT CARE** **8**

**1. WORK SCOPE** **9**

Project Task Breakdown 9
Subcontractor(s) Tasks 9

**2. SITE OVERVIEW / DESCRIPTION** **10**

Site Classification 10
Site Description 10
Background and Historic Site Usage 10
Site Status 10
Site Plan 10
Work Areas 10

**3. HAZARD ASSESSMENT** **12**

Site Chemical Hazards 12
Site Hazards Checklist 14
Weather 14
Biological 14
Location/Terrain 15
Miscellaneous 19
Task Hazard Summary 21
Task Physical Hazards Checklist 26
Summary of Physical Hazards & Controls 27

**4. PROTECTIVE MEASURES** **41**

Required Safety & Personal Protective Equipment 41

**5. TRAINING REQUIREMENTS** **42**

Site Specific Training Requirements 42
Task Specific Training Requirements 42

**6. AIR MONITORING PLAN AND EQUIPMENT** **43**

Air Monitoring/Screening Equipment Requirements 43
Monitoring Plans 43

**7. DECONTAMINATION & DISPOSAL METHODS** **43**

Personal Hygiene Safeguards 44
Decontamination Supplies 44

DRAFT



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

Location of Decontamination Station 44
Standard Personal Decontamination Procedures 45
Disposal Methods 46
Disposal of Single Use Personal Protective Equipment 46

**8. SITE CONTROL 47**

Communication 47
Visitors 47
Zoning 47

**9. SITE SPECIFIC EMERGENCY RESPONSE PLAN 48**

Pre-Emergency Planning 48
Onsite Emergency Response Equipment 48
EVACUATION ALARM 49
EVACUATION ROUTES 49
EVACUATION MUSTER POINT(S)/ SHELTER AREA(S) 49
EVACUTION RESPONSE DRILLS 49
Emergency Type 50
Notification 50
Response Action 50
Evacuation Plan/Route 50

**10. HASP ACKNOWLEDGEMENT FORM 51**

**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
Attachment F Site-Specific Operating Procedures

DRAFT



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

## STOP WORK AUTHORITY

In accordance with Haley & Aldrich (Haley & Aldrich) Stop Work Authority Operating Procedure (OP1035), any individual has the right to refuse to perform work that he or she believes to be unsafe without fear of retaliation. He or she also has the authority, obligation, and responsibility to stop others from working in an unsafe manner.

**STOP Work Authority** is the stop work policy for all personnel and subcontractors on the Site. When work has been stopped due to an unsafe condition, Haley & Aldrich site management (e.g., Project Manager [PM], Site Health & Safety Officer [SHSO], etc.) and the Haley & Aldrich Senior Project Manager (SPM) will be notified immediately.

Reasons for issuing a stop work order include, but are not limited to:

- The belief/perception that injury to personnel or accident causing significant damage to property or equipment is imminent.
- An Haley & Aldrich subcontractor is in breach of site safety requirements and/or their own site HASP.
- Identifying a substandard condition (e.g., severe weather) or activity that creates an unacceptable safety risk as determined by a qualified person.

Work will not resume until the unsafe act has been stopped OR sufficient safety precautions have been taken to remove or mitigate the risk to an acceptable degree. Stop work orders will be documented as part of an on-site stop work log, on daily field reports to include the activity/activities stopped, the duration, person stopping work, person in-charge of stopped activity/activities, and the corrective action agreed to and/or taken. Once work has been stopped, only the Haley & Aldrich SPM or SHSO can give the order to resume work. Haley & Aldrich senior management is committed to support anyone who exercises his or her “Stop Work” authority.

DRAFT



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

## ISSUANCE AND COMPLIANCE

This HASP has been prepared in accordance with Occupational Safety and Health Administration (OSHA) regulations (CFR 29, Parts 1904, 1910, and 1926) if such are applicable.

The specific requirements of this HASP include precautions for hazards that exist during this project and may be revised as new information is received or as site conditions change.

- This HASP must be signed by all Haley & Aldrich personnel involved in implementation of the SOW (Section 2 of this HASP).
- This HASP, or a current signed copy, must be retained at all times when Haley & Aldrich staff are present.
- Revisions to this HASP must be outlined within the contents of the HASP. If immediate or minor changes are necessary, the Field Safety Manager (FSM), Haley & Aldrich, SSO and/or Project Manager (PM) may use Attachment 1 (HASP Amendment Form), presented at the end of this HASP. Any revision to the HASP requires employees and subcontractors to be informed of the changes so that they understand the requirements of the change.
- Deviations from this HASP are permitted with approval from the Haley & Aldrich FSM, PM, or Senior Health & Safety Manager (SHSM). Unauthorized deviations may constitute a violation of Haley & Aldrich company procedures/policies and may result in disciplinary action.
- This HASP will be relied upon by Haley & Aldrich's subcontractors and visitors to the site. Haley & Aldrich's subcontractors must have their own HASP which will address hazards specific to their trade that is not included in this HASP. This HASP will be made available for review to Haley & Aldrich's subcontractors and other interested parties (e.g. Facility personnel and regulatory agencies) to ensure that Haley & Aldrich has properly informed our subcontractors and others of the potential hazards associated with the implementation of the SOW to the extent that Haley &Aldrich is aware.

This site-specific HASP provides only site-specific descriptions and work procedures. General safety and health compliance programs in support of this HASP (e.g., injury reporting, medical surveillance, personal protective equipment (PPE) selection, etc.) are described in detail in the Haley &Aldrich Corporate Health and Safety Program Manual and within Haley & Aldrich's Standard Operating Procedures Both the manual and SOPs can be located on the Haley & Aldrich's Company Intranet. When appropriate, users of this HASP should always refer to these resources and incorporate to the extent possible. The manual and SOPs are available to clients and regulators upon request.

DRAFT



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

## EMERGENCY EVENT PROCEDURES

### 1 - ASSESS THE SCENE

- **STOP WORK**
- Review the situation and ascertain if it's safe to enter the area.
- Evacuate the site if the conditions are unsafe.

### 2 - EVALUATE THE EMERGENCY

- **Call 911, or designated emergency number, if required.**
- **Provide first aid for the victim if qualified and safe to do so.**
  - First aid will be addressed using the onsite first aid kit. *
    - If providing first aid, remember to use proper first aid universal precautions if blood or bodily fluids are present.
- **If exposure to hazardous substance is suspected, immediately vacate the contaminated area.**
  - Remove any contaminated clothing and/or equipment.
  - Wash any affected dermal/ocular area(s) with water for at least 15 minutes.
  - Seek immediate medical assistance if any exposure symptoms are present.

* *Note: Haley & Aldrich employees are not required or expected to administer first aid / CPR to any Haley & Aldrich staff member, Contractor, or Civilian personnel at any time; it is Haley & Aldrich´s position that those who do are doing so on their own behalf and not as a function of their job.*

### 3 - SECURE THE AREA

- **Cordon off the incident area, if possible.**
  - Notify any security personnel, if required.
  - Escort all non-essential personnel out of the area, if able.

### 4 - REPORT ON-SITE ACCIDENTS / INCIDENTS TO PM / SSO

- **Notify the PM and SSO as soon as it is safe to do so.**
  - Assist PM and SSO in completing any additional tasks, as required.

### 5 - INVESTIGATE / REPORT THE INCIDENT

- **Record details of the incident for input to the Gensuite.**
  - Complete any additional forms as requested by the PM and SSO.

### 6 - TAKE CORRECTIVE ACTION

- **Implement corrective actions per the PM following root cause analysis.**
  - Complete Lessons Learned form.

DRAFT



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

| PROJECT INFORMATION AND CONTACTS | |
|---|---|
| **Project Name:** 291 Wallabout Street | **Haley & Aldrich File No.:** 0211139 |
| **Location: 291 Wallabout Street, Brooklyn, NY** | |
| **Client/Site Contact:**<br>Phone Number: | **Moshe Schwimmer**<br>347.786.2048 |
| **Haley & Aldrich Field Representative:**<br>Phone Number:<br>Emergency Phone Number: | **Andrea Felice**<br>201.742.1795<br>973.658.3933 |
| **Haley & Aldrich Project Manager:**<br>Phone Number:<br>Emergency Phone Number: | **Zhan Shu**<br>201.213.6178<br>973.658.3924 |
| **Field Safety Manager:**<br>Phone Number:<br>Emergency Phone Number: | **Brian Ferguson**<br>617.886.7439<br>617.908.2761 |
| **Subcontractor Project Manager:**<br>Phone Number: | Enter Name<br>Enter Phone Number |
| **Nearest Hospital:**<br>Address:<br>(see map on next page)<br><br>Phone Number: | **NYC Health + Hospitals/Woodhull**<br>760 Broadway<br>Brooklyn, NY11206<br><br>718.963.8000 |
| **Nearest Occ. Health Clinic:**<br>http://www.talispoint.com/liberty/ext/<br>Address:<br>(see map on next page)<br>Phone Number: | **ModernMD Urgent Care- S.E. Williamsburg**<br>68 Graham Avenue<br>Brooklyn, NY 11206<br><br>646.604.8120 |
| **Liberty Mutual Claim Policy** | **WC6-Z11-254100-035** |
| **WORKCARE Injury & Illness HOTLINE** | **1-888-449-7787** |
| **Emergency Response Number:** | **911** |
| **Other Local Emergency Response Number:** | N/A |
| **Other Ambulance, Fire, Police, or Environmental Emergency Resources:** | |

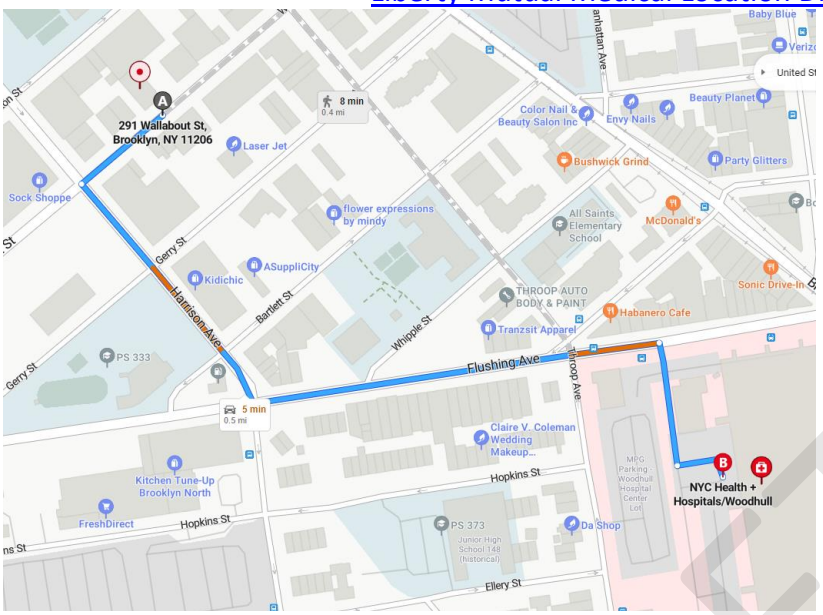
DRAFT



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

# DIRECTIONS TO THE NEAREST HOSPITAL

Liberty Mutual Medical Location Directory




**Directions to the Nearest Hospital:**

Paste map and directions showing route to nearest hospital here.

Print

A 291 Wallabout St, Brooklyn, NY 11206
Leave at 1:57 PM

↑ Head southwest on Wallabout St toward Harrison Ave

259 ft

↰ Turn left onto Harrison Ave
Meat Market on the corner

0.1 mi

↰ Turn left onto Flushing Ave

0.2 mi

↱ Turn right
*Gated road*
*Private Road*

305 ft

↰ Turn left
*Private Road*

148 ft

Arrive at your destination on the left

B NYC Health + Hospitals/Woodhull
Arrive by 2:03 PM
760 Broadway, Brooklyn, NY 11206

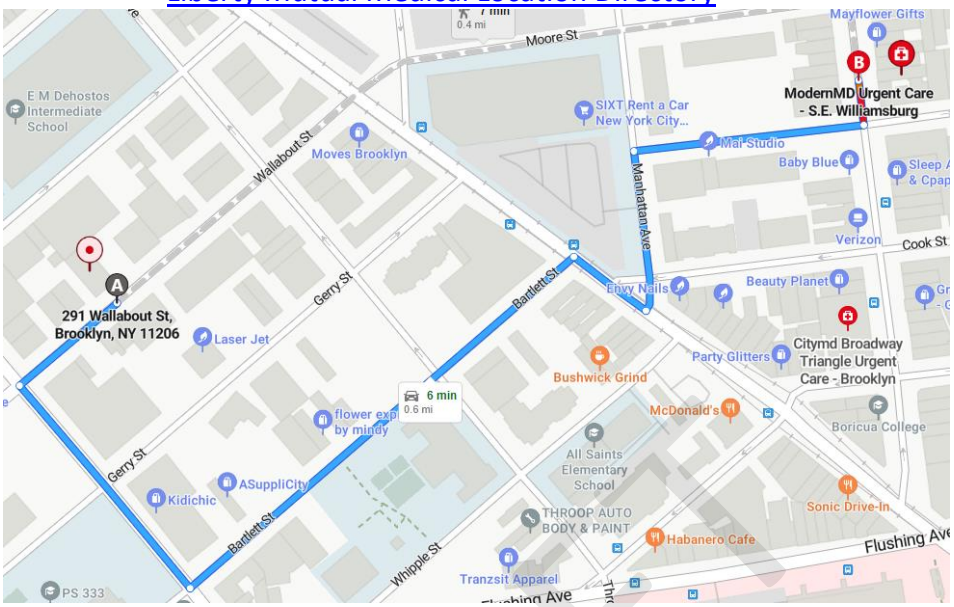
DRAFT



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

## DIRECTIONS TO THE NEAREST URGENT CARE

[Liberty Mutual Medical Location Directory]




**Directions to the Nearest Occupational Clinic:**

Paste map and directions showing route to nearest hospital here.

A 291 Wallabout St, Brooklyn, NY 11206
Leave at 2:03 PM

↑ Head southwest on Wallabout St toward Harrison Ave

259 ft

↰ Turn left onto Harrison Ave
Meat Market on the corner

0.1 mi

↰ Turn left onto Bartlett St

0.2 mi

↱ Turn right onto Broadway

187 ft

↰ Turn left onto Manhattan Ave

331 ft

↱ Turn right onto Varet St

476 ft

↰ Turn left onto Graham Ave

92 ft

● Arrive at Graham Ave
The last intersection before your destination is Varet St
If you reach Moore St, you've gone too far

B ModernMD Urgent Care - S.E. Williamsburg
Arrive by 2:10 PM
68 Graham Ave, Brooklyn, NY 11206

DRAFT



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

## 1. WORK SCOPE

This Site-Specific Health and Safety Plan addresses the health and safety practices and procedures that will be exercised by all Haley & Aldrich employees participating in all work on the Project Site. This plan is based on an assessment of the site-specific health and safety risks available to Haley & Aldrich and Haley & Aldrich's experience with other similar project sites. The scope of work includes the following:

1. **Oversee remedial activities including excavation, soil/concrete and debris (C&D) export, support of excavation (SOE), and backfill import.**
2. **Oversee the installation of a groundwater dewatering system and conduct sampling on groundwater influent to determine water quality.**
3. **Conduct confirmation endpoint soil sampling and preliminary/supplemental waste characterization soil sampling.**

**Project Task Breakdown**

| Task No. | Task Description | Employee(s) Assigned | Work Date(s) or Duration |
|---|---|---|---|
| **1** | Remedial Oversight (Excavation, Soil/C&D Export, Backfill Import) | Andrea Felice | 4 Months |
| **2** | Groundwater dewatering oversight and Influent Sampling | Andrea Felice | 4 Months |
| **3** | Endpoint/Waste Characterization Soil Sampling | Andrea Felice | 4 Months |

**Subcontractor(s) Tasks**

| Firm Name | Work Activity | Work Date(s) or Duration |
|---|---|---|
| Enter name. | Enter task description. | Enter dates/duration. |

**Projected Start Date:** 8/1/2025

**Projected Completion Date:** 2/1/2026

DRAFT



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

## 2. SITE OVERVIEW / DESCRIPTION

### Site Classification

Commercial

### Site Description

The Site is approximately 5,000 square feet (sq ft) (0.11 acres) and the one-story garage was demolished in January 2025. The Site is bounded to the north by a one-story industrial warehouse building, to the east by a multi-family residential building, to the south by Wallabout Street, followed by residential buildings, and to the west by a vacant lot.

### Background and Historic Site Usage

The Site was developed by 1918 with a warehouse labeled as "Wheelwright" on the 1918 Sanborn Fire Insurance Map. The Site remained relatively unchanged until the late 1940s, when the building became occupied by "John Koerners Sons, Inc. Truck Body Building" and woodworking. These operations extended north to the southern side of Walton Street. The Site remained relatively unchanged until the mid-1980s, when the property appeared vacant and remained developed with the warehouse. The 2014, 2017, and 2020 City Directories indicate that the Site was occupied by "AZ Plastic." The Site is currently vacant.

### Site Status

Indicate current activity status and describe operations at the site:

**Inactive**

Vacant

### 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:

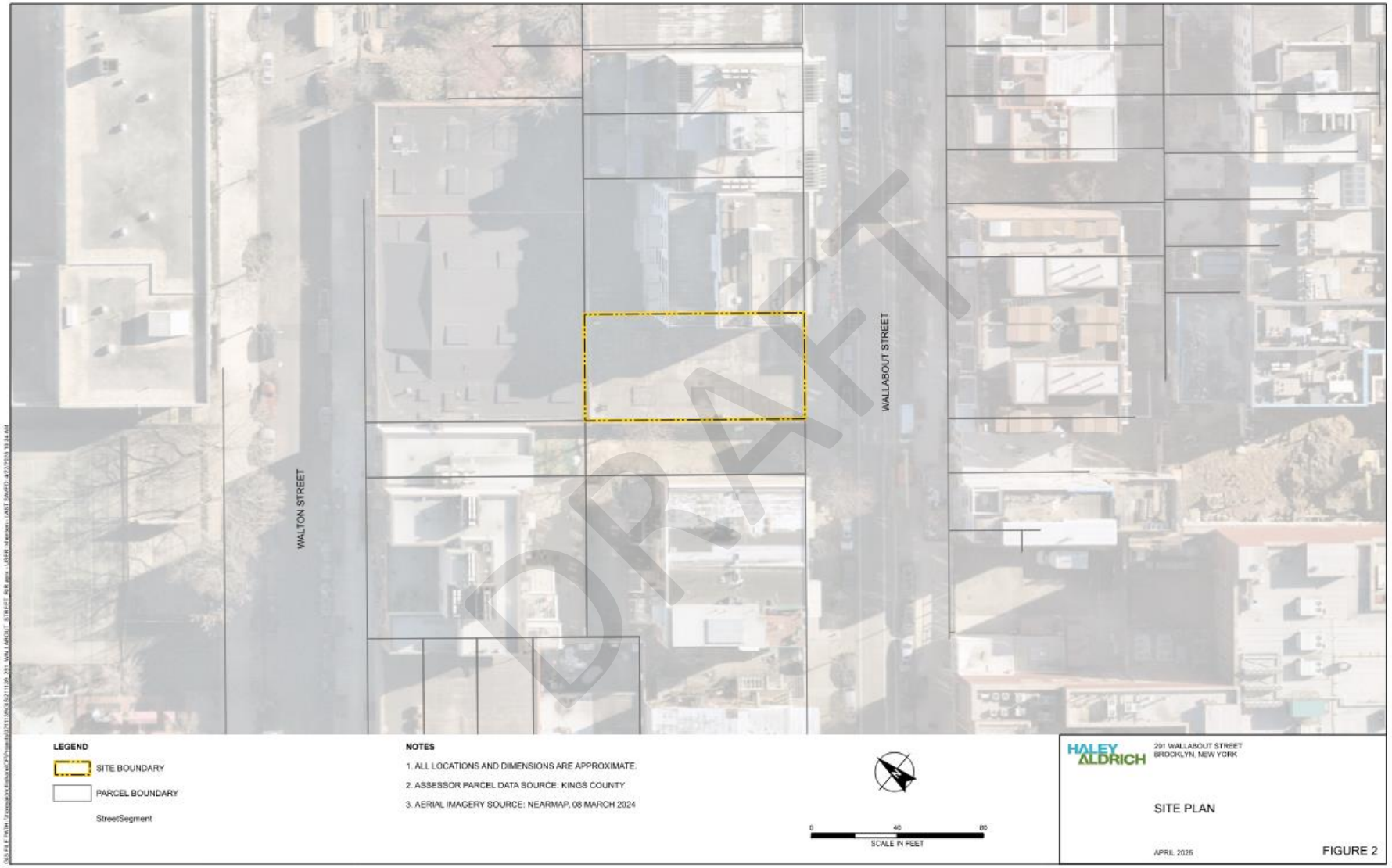
The work area consists of the entire property.

DRAFT



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

## Site Plan






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

## 3. HAZARD ASSESSMENT

Indicate all hazards that may be present at the site and for each task. If any of these potential hazards are checked, it is the Project Manager's responsibility to determine how to eliminate / minimize the hazard to protect onsite personnel.

### Site Chemical Hazards

Is this Site impacted with chemical contamination? Yes

Source of information about contaminants: Previous Investigation

| Contaminant of Concern | Location/Media | Concentration | Units |
|---|---|---|---|
| **Trichloroethylene** | **Soil** | **1.4** | **mg/kg** |
| **Polycyclic aromatic hydrocarbons (PAHs)** | **Soil** | **4.9** | **mg/kg** |
| **Lead** | **Soil** | **6,060.0** | **mg/kg** |
| **Zinc** | **Soil** | **3,900.0** | **mg/kg** |
| **Barium** | **Soil** | **848.0** | **mg/kg** |
| **Mercury** | **Soil** | **159.0** | **mg/kg** |
| **Trichloroethylene** | **Groundwater** | **5.8** | **ug/L** |
| **Lead** | **Groundwater** | **25.71** | **ug/L** |
| **Magnesium** | **Groundwater** | **57.400.0** | **ug/L** |
| **Volatile Organic Compounds (VOCs)** | **Soil Vapor** | **5,000.37** | **ug/m3** |
| **BTEX/VOCs** | **Soil Vapor** | **2,866.27** | **ug/m3** |

Trichloroethylene: is a nonflammable colorless liquid with a sweet odor. Trichloroethylene vapor is heavier than air and is found in low lying areas.

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.

**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

DRAFT



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

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.

**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.

**Barium:** is a soft, silvery metal that rapidly tarnishes in air and reacts with water. It is mostly used in drilling fluids for oil and gas wells and used in paint and in glassmaking. All barium compounds are toxic; however, barium sulfate is insoluble and so can be safely swallowed. A suspension of barium sulfate is sometimes given to patients suffering from digestive disorders.

Barium has no known biological role, although barium sulfate has been found in one type of algae. Barium is toxic, as are its water- or acid-soluble compounds. Barium occurs only in combination with other elements. The major ores are barite (barium sulfate) and witherite (barium carbonate). Barium metal can be prepared by electrolysis of molten barium chloride, or by heating barium oxide with aluminum powder.

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.

**VOCs:** include all organic compounds (substances made up of predominantly carbon and hydrogen) with boiling temperatures in the range of 50-260 degrees C, excluding pesticides. This means that they are likely to be present as a vapor or gas in normal ambient temperatures. Substances which are included in the VOC category include aliphatic hydrocarbons (such as hexane), aldehydes, aromatic hydrocarbons (such as benzene, toluene, and the xylenes or BTEX), and oxygenated compounds (such as acetone and similar ketones). The term VOC often is used in a legal or regulatory context and in such cases the precise definition is a matter of law.

VOCs are released from oil and gasoline refining, storage and combustion as well as from a wide range of industrial processes. Processes involving fuels, solvents, paints or the use of chemicals are the most significant sources. VOCs may also be emitted from cleaning products, degreasing products, fabrics, carpets, plastic products, glues, printed material, varnishes, wax, disinfectants, and cosmetics.

Typically, VOCs are present in gas or vapor and will enter the body by breathing contaminated air. Higher concentrations of VOCs may occur in areas of poor ventilation.

DRAFT



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

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.

Click + Add Additional Chemical Language

| Site Hazards Checklist | | | |
|---|---|---|---|
| **Weather** | | | |
| Hot Temperatures | High Winds | Lightning Storms | Select Hazard |

### 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.

### High Winds

While high winds are commonly associated with severe thunderstorms and hurricanes they may also occur as a result of differences in air pressures, such as when a cold front passes across the area. They can cause downed trees and power lines, and flying debris (such as dust or larger debris), which adds additional risks and could lead to power outages, transportation disruptions, damage to buildings and vehicles, and serious injury.

Wind Advisory are issued for sustained winds 25 to 39 mph and/or gusts to 57 mph. High Wind warnings are issued by the National Weather Service when high wind speeds may pose a hazard or is life threatening. The criteria for this warning will varies by state. The Beaufort Wind Scale is a helpful tool to when dealing with high winds.

### 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.

DRAFT



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

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** | | | |
|---|---|---|---|
| Small Mammals | Mosquitoes | Stinging Insects | Wildlife Droppings |

### 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 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.

DRAFT



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

### 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 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

DRAFT



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

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.

### 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 | Public Rd/Right of Way | Economically Depressed | SIMOPS |

### Slips, Trips & Falls

Slip and trip injuries are the most frequent injuries to workers. Statistics show most falls happen on the same level resulting from slips and trips. Both slips and trips result from unintended or unexpected change in the contact between the feet and the ground or walking surface. Good housekeeping, quality of walking surfaces (flooring), awareness of surroundings, selection of proper footwear, and



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

appropriate pace of walking are critical for preventing fall accidents.

Site workers will be walking on a variety of irregular surfaces, that may affect their balance. Extra care must be taken to walk cautiously near rivers because the bottom of the riverbed maybe slick and may not be visible. Rocks, gradient changes, sandy bottoms, and debris may be present but not observable.

Take your time and pay attention to where you are going. Adjust your stride to a pace that is suitable for the walking surface and the tasks you are doing. Check the work area to identify hazards - beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain. Establish and utilize a pathway free of slip and trip hazards. Choose a safer walking route. Carry loads you can see over. Keep work areas clean and free of clutter. Communicate hazards to on-site personnel and remove hazards as appropriate.

### Public Right of Way

H&A staff and their subcontractors conducting work on public roads and/or right of ways can be exposed to vehicular traffic and expose the public to the hazards of the job site. Where a hazard exists to site workers because of traffic or haulage conditions at work sites that encroach public streets or highways, a system of traffic controls in conformance with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), or state program, is required. A Temporary Traffic Control Plan (TCP) describes traffic controls to be used for facilitating vehicle and pedestrian traffic through a temporary traffic control zone TCPs are required to provide for worker protection and safe passage of traffic through and around job sites with as little inconvenience and delay as possible.

The plan may range in scope from being very detailed, to merely referencing typical drawings contained in the MUTCD. The degree of detail in the TCP depends entirely on the complexity of the situation, and TCP's should be prepared by persons knowledgeable about the fundamental principles of temporary traffic control and the work activities to be performed.

H&A Project Managers or their subcontractors need to establish appropriate control measures and obtain any permits when project work is on or encroaches public roadways. You may need flaggers or police details. Cease work and notify the field supervisor immediately if any conditions are such that safety is jeopardized. Utilize protective vehicles whenever appropriate or position equipment so in between the work and oncoming traffic.

### 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.

DRAFT



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

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.

### 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.

| Miscellaneous | | | |
|---|---|---|---|
| Extended Shift | Night Work | Choose an item. | Choose an item. |

### Extended Shift

An extended shift can include extending a workday beyond eight hours. Extended or unusual work shifts may be more stressful physically, mentally, and emotionally. Non-traditional shifts and extended work hours may disrupt the body's regular schedule, leading to increased fatigue, stress, and lack of concentration. This leads to an increased risk of operator error, injuries and/or accidents. The degree to which an individual is exposed to fatigue risk factors depends upon the work schedule. As both the duration of the workday and the number of days worked increase so does the fatigue risk factors. Staff Managers need to be aware of the fatigue risk factors and ensure projects are structured to mitigate these factors. Staff Members also have a responsibility to manage the personal fatigue risk factors that they can control outside of work (e.g, duration and quality of sleep, diet, drugs, and alcohol)

Fatigue is a message to the body to rest and can be eliminated with proper rest. However, if rest is not possible, fatigue can increase and becomes distressing and eventually debilitating. Fatigue symptoms, both mental and physical, vary and depend on the person and degree of overexertion. Examples include: weariness, sleepiness, irritability, reduced alertness, lack of memory, concentration and motivation, increased susceptibility to illness, depression, headache, loss of appetite, and digestive problems.

DRAFT



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

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.

### Night Work

The way work is planned and scheduled can increase the risk of fatigue. Scheduling work in a way that fails to allow staff members enough time for travel to and from work and/or allow for sufficient time for sleep can cause fatigue. Working at times when staff members are biologically programmed to sleep and working for long periods of time can also produce fatigue. Working night shift, including the number of consecutive nights can be a significant fatigue risk factor if not managed properly.

Night shifts may be more stressful physically, mentally, and emotionally. They can disrupt the body's regular schedule, leading to increased fatigue, stress, and lack of concentration. These effects lead to an increased risk of operator error, injuries and/or accidents. The degree which an individual is exposed to fatigue risk factors depends upon the work schedule. As both the duration of the workday and number of days worked increase so does the exposure to fatigue risk factors. Staff Managers need to be aware of the fatigue risk factors and ensure projects are structured to mitigate these risk factors.

Employers must ensure that employees are not exposed to hazardous chemicals or other agents in excess of health standards. Working extended shifts may involve prolonged exposures to hazards which exceed established standards. Employers should implement measures to monitor and limit exposures. Controls may include limiting time employees may remain at the project site; having clean locations for employee rest areas; or rest areas located sufficiently up wind of contaminated sites.

Minimize or redesign routine administrative tasks to ensure staff members can focus on core duties during their night work. Limit consecutive night shifts worked. If a project requiring staff to work beyond four nights requires a fatigue management plan. Ensure that rosters allow for at least two full night's sleep after the last night shift before returning to day shift. Regular and frequent breaks are needed. Comprehensive training on fatigue risk factors for the staff members assigned to the project. Optimal sleeping conditions during the day (e.g., dark/quiet rooms, minimize distractions, light meal prior to sleep).

DRAFT



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

## Task Hazard Summary

### Task 1A – Excavation/Trenching

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.

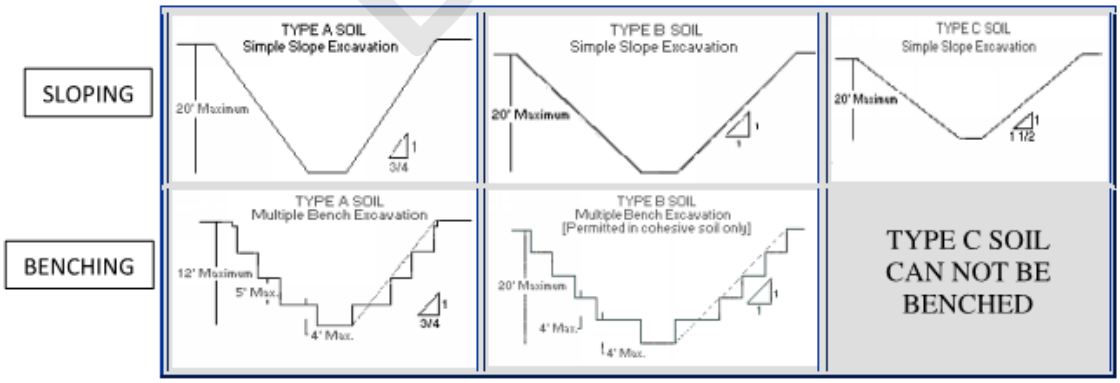
Excavations five (5) feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If the depth is less than five (5) feet deep, a competent person may determine that a protective system is not required. Trenches 20 feet deep or greater require that the protective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



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

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 1B - Steel Sheeting

Installation of Steel sheeting is typically conducted for foundations and utility trenches. Familiarity with basic heavy construction safety is an essential component of all piles installation. Potential hazards related to steel sheeting installation include, but are not limited to encountering line of fire, underground or overhead utilities, noise, traffic and heavy equipment, and overhead work, Cranes or Lifting Equipment. While staff members do not operate heavy equipment, they will 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 unloading of piles from delivery trucks or hoisting of piles onto the rig as staff may often be in the line of fire or swing radius of the cranes. Staff should be aware at all times of all overhead hoisting operations even during pile installation. Staff should always maintain a safe distance to the pile driving rig during installation as the pile/hammer/accessories may break free of the rig due to vibration/impact. Always have an “exit strategy” in mind when working near the pile driving hammer. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

## Task 1C - Steel Piles

Installation of Steel piles is conducted for a range of services that can include but are not limited to: bridge, dock and building foundation installation. Familiarity with basic heavy construction safety is an essential component of all piles installation. Potential hazards related to steel pile installation include, but are not limited to encountering line of fire, underground or overhead utilities, noise, traffic and heavy equipment, and overhead work, cranes or lifting Equipment. While staff members do not operate heavy equipment, they will 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 unloading of piles from delivery trucks or hoisting of piles onto the rig as staff may often be in the line of fire or swing radius of the cranes. Staff should be aware at all times of all overhead hoisting operations even during pile installation. Staff should always maintain a safe distance to the pile driving rig during installation as the pile/hammer/accessories may break free of the rig due to vibration/impact. Be aware of danger zone if a pile fell when being set into the leads. Always have an “exit strategy” in mind when working near the pile driving hammer. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

## Task 1D – 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



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

during earthwork activities, and as part of environmental remedial activities such as delineation and confirmation sampling. Familiarity with basic heavy construction safety, site conditions (geotechnical and environmental), and potential soil contaminants are essential components of soil sampling performed on active sites. Potential hazards related to soil sampling at construction sites include, but are not limited to: encountering site vehicle traffic and heavy equipment operations, manual lifting, generated waste, contact or exposure to impacted soil, and encountering unknown toxic or hazardous substances. Although soil sampling is commonly performed within active excavations, from stockpiles, or within trench excavations, sampling locations and situations will vary depending on site conditions. Care should be taken while entering and exiting excavations or trenches, and when accessing (climbing up or down) soil stockpiles, ensuring that the sampling area is not being actively accessed by construction equipment. Care should also be taken with handling of potentially environmentally impacted soil during sampling, with appropriate PPE identified and used. At no time during classification activities are personnel to reach for debris near machinery that is in operation, place any samples in their mouth, or come in contact with the soils without the use of gloves. Staff will have to carry and use a variety of sampling tools, equipment, containers, and potentially heavy sample bags. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

## Task 2A – Water Sampling

Environmental water sampling could include activities such as groundwater sampling from permanent or temporary wells, or surface water sampling from streams, rivers, lakes, ponds, lagoons, and surface impoundments.

Sampling tasks could involve uncapping, purging (pumping water out of the well), and sampling, and/or monitoring, new or existing monitoring wells. A mechanical pump may be used to purge the wells and can be hand-, gas-, or electric-operated. Water samples taken from the wells are then placed in containers and shipped to an analytical laboratory for analysis. The physical hazards of these operations are primarily associated with the collection methods and procedures used.

When sampling bodies of water containing known or suspected hazardous substances, adequate precautions must be taken to ensure the safety of sampling personnel. The sampling team member collecting the sample should not get too close to the edge, where ground failure or slips, trips or falls may cause him/her to lose his/her balance. The person performing the sampling should have fall restraint or protection for the task. When conducting sampling from a boat in an impoundment or flowing waters, appropriate vessel safety procedures should be followed. Avoid lifting heavy coolers with back muscles; instead, use ergonomic lifting techniques, team lift or mechanical lifts. Wear proper gloves, such as when handling sample containers to avoid contacting any materials that may have spilled out of the sample containers.

Inhalation and absorption of COCs are the primary routes of entry associated with water sampling, due to the manipulation of sample media and equipment, manual transfer of media into sample containers, and proximity of operations to the breathing zone. During this project, several different groundwater sampling methodologies may be used based on equipment accessibility and the types of materials to be sampled. These sampling methods may include hand or mechanical bailing. The primary hazards associated with these specific sampling procedures are not potentially serious; however, other operations in the area or the conditions under which samples must be collected may present chemical



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

and physical hazards. The hazards directly associated with groundwater sampling procedures are generally limited to strains or sprains from hand bailing, and potential eye hazards. Exposure to water containing COCs is also possible. All tools and equipment that will be used at the site must be intrinsically safe (electronics and electrical equipment) and non-sparking or explosion-proof (hand tools).

## Task 2B - System Sampling

Periodic sampling at water treatment systems is required to demonstrate compliance and/or system effectiveness. Staff should be familiar with how the system operation and the associated hazards. Staff could be exposed to lines under pressure, treatment chemicals, contaminated water, slippery surfaces, extreme temperature or other. Treatment systems may be located in remote locations which may result in staff working alone. Check in and out protocols are required when this occurs. Ensure facility requirements are reviewed and understood prior to accessing the client site and/or system. Staff need to avoid accessing confined spaces or working from height unless proper planning has occurred. Lock Out Tag Out also needs to be addressed if system equipment needs to be isolated to collect a sample.

Proper selection of PPE is important so that staff minimize the potential for exposure. Consideration should be given to protective gloves and goggles or face shield to protect the eyes from a splash or lines under pressure. Care should be given when handling glassware to prevent possible breakage.

## Task 3A – Excavation/Trenching

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.***

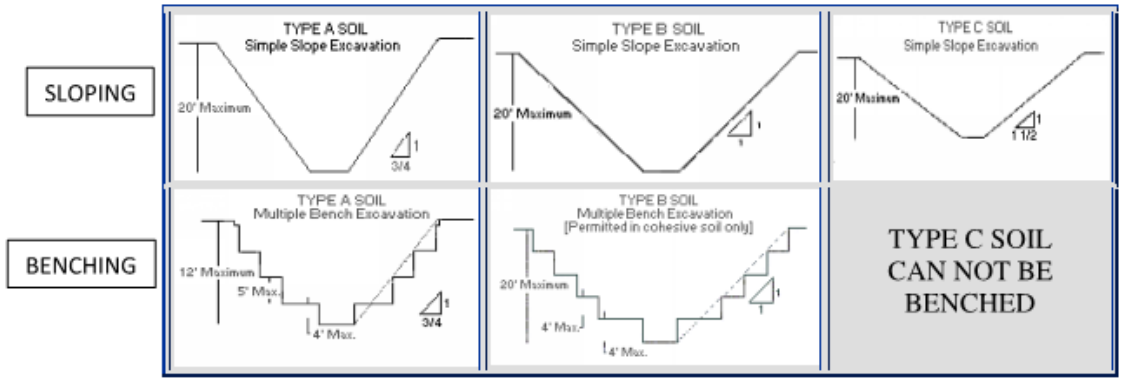
The following are list identifies the types of protective measures that can be used in the event a staff member is required to enter an excavation or trench.

- **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



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

surfaces between levels. Benching cannot be done in Type C soil. Below is a diagram indicating the appropriate slope angle for both sloping and benching.




- **Shoring** requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.
- **Shielding** protects workers by using trench boxes or other types of supports to prevent soil cave-ins.

Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, water content of soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity.

See OP 1001 Excavation and Trenching Safety for more information.

## Task 3B – Soil Sampling

Soil sampling by H&A staff on active construction sites can be conducted in conjunction with a wide range activities such as building construction, earthwork and soil management related activities. These activities can include, but are not limited to: drill spoil characterization and management during building foundation element installation, characterization of excavated soils for management/disposal/reuse during earthwork activities, and as part of environmental remedial activities such as delineation and confirmation sampling. Familiarity with basic heavy construction safety, site conditions (geotechnical and environmental), and potential soil contaminants are essential components of soil sampling performed on active sites. Potential hazards related to soil sampling at construction sites include, but are not limited to: encountering site vehicle traffic and heavy equipment operations, manual lifting, generated waste, contact or exposure to impacted soil, and encountering unknown toxic or hazardous substances. Although soil sampling is commonly performed within active excavations, from stockpiles, or within trench excavations, sampling locations and situations will vary depending on site conditions. Care should be taken while entering and exiting excavations or trenches, and when accessing (climbing up or down) soil stockpiles, ensuring that the sampling area is not being actively accessed by construction equipment. Care should also be taken with handling of potentially environmentally impacted soil during sampling, with appropriate PPE identified and used. At no time during classification activities are personnel to reach for debris near machinery that is in operation, place any samples in their mouth, or come in contact with the soils without the use of gloves. Staff will have to carry and use a variety of sampling tools, equipment, containers, and potentially heavy sample bags. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

DRAFT



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

| Task Physical Hazards Checklist | | | |
|---|---|---|---|
| **Potential Task Hazards** | **Task 1**<br><br>**Remedial Oversight (Excavation, Soil/C&D Export, Backfill Import)** | **Task 2**<br><br>**Groundwater Dewatering Oversight and Influent Sampling** | **Task 3**<br><br>**Endpoint/Waste Characterization Soil Sampling** |
| Combustible Materials | ☒ | ☒ | ☒ |
| Compressed Gas | ☒ | ☒ | ☒ |
| Congested Area | ☒ | ☒ | ☒ |
| Cranes-Lifting Operations | ☒ | ☒ | ☒ |
| Ergonomics | ☒ | ☒ | ☒ |
| Excavation/Trenching | ☒ | ☒ | ☒ |
| Energized Equipment | ☒ | ☒ | ☐ |
| Generated Wastes | ☒ | ☒ | ☒ |
| Ground Disturbance | ☒ | ☒ | ☒ |
| Hand/Power Tools | ☒ | ☒ | ☐ |
| Heavy Equipment | ☒ | ☒ | ☒ |
| Hot Work | ☒ | ☐ | ☐ |
| Inadequate Lighting | ☒ | ☒ | ☒ |
| Ladders (Portable/Fixed) | ☒ | ☒ | ☒ |
| Line of Fire | ☒ | ☒ | ☒ |
| Manual Lifting | ☒ | ☒ | ☒ |
| Noise | ☒ | ☒ | ☒ |
| Overhead Utilities | ☒ | ☒ | ☐ |
| Repetitive Motion | ☒ | ☒ | ☒ |

DRAFT



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

| | | | |
|---|---|---|---|
| Rotating Equipment | ☒ | ☐ | ☒ |
| Slippery Surfaces | ☒ | ☒ | ☒ |
| Sharp Objects | ☒ | ☒ | ☐ |
| Traffic | ☒ | ☒ | ☐ |
| Underground Utilities | ☒ | ☒ | ☒ |
| Work Overhead | ☒ | ☐ | ☐ |
| Other: Specify | ☐ | ☐ | ☐ |

**Summary of Physical Hazards & Controls**

DRAFT

## Combustible Material

There are 6 divisions to combustible materials: flammable gases, flammable liquids, combustible liquids, flammable solids, flammable aerosols and reactive flammable materials. Effective management of flammable and combustible materials is a critical fire prevention and protection issue. The essence of fire prevention is keeping potential fuel away from ignition sources.

Fire or explosions can be caused by the combination of fuel (e.g. flammable liquid), air, and an ignition source (e.g. sparks, flames, friction, hot surfaces, static electricity, light switches and other electrical devices such as power tools).

Flammable gases: hydrogen, acetylene, propane
Flammable liquids: gasoline, toluene, acetone (in many nail polish removers)
Combustible liquids: diesel fuel, kerosene, formaldehyde solutions
Flammable solids: silicon, naphthalene
Flammable aerosols: aerosol products that contain propane or butane as the propellant (e.g. hair sprays)
Reactive flammable materials: lithium, zinc powder

**Controls**

When not in use, containers of flammable liquids must be closed to prevent ignition and creation of hazardous atmospheres, and stored in approved cabinets, containers, and buildings. Flammable liquid drums must be grounded and dispensing containers must be electrically bonded during dispensing or transfer of the flammable liquid to prevent the build-up of an electrical charge. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces, and static discharge. Keep your work zone clear of materials that can burn (e.g. rags, piles of paper). All spills must be cleaned promptly and properly.

## Compressed Gas

Hazards associated with compressed gases include oxygen displacement, fires, explosions, and toxic gas exposures, as well as the physical hazards associated with pressurized containers. In most instances,



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

accidents are caused by improper application, misuse of the gas, or its container by inadequately trained personnel. Special storage, use, and handling precautions are necessary to minimize accidents and control these hazards above.

See OP 1048 Compressed Gas Safety for more information.

**Controls**

- Visually inspect the cylinder prior to and after use for any damage. Report any damage to the vendor for direction.
- Ensure that cylinders are clearly identified. Labels must not be defaced or removed.
- Leave valve protection caps in place (if provided) until cylinders are secured and connected for use.
- Keep cylinder valves closed except when the cylinder is being used.
- When opening a cylinder valve, stand so the valve outlet is pointed away from yourself and all other employees. Open valves slowly.
- Replace protective caps and outlet caps or plugs before returning empty cylinders to the supplier.
- Never tamper with or alter cylinders, valves, or safety relief devices.
- Do not tighten connections or leaking fittings or attempt repairs while the system is under pressure.
- Do not subject cylinders to artificially low temperatures or temperatures above 125 F. Do not place them next to heat sources or allow a flame to contact any part of the cylinder.
- Avoid dragging or sliding cylinders. Do not lift cylinders by the caps.
- Firmly secure the cylinder and move with a suitable hand truck, lift truck, or crane with a cradle or platform.

**Storage**

- Provide adequate space or segregate by partitions and post a conspicuous sign that identifies the gas or hazard class.
- Storage areas should be dry, well-drained, ventilated, and fire resistant.
- Cylinders can be stored in the open, but they should be protected from the ground or continuous dampness to prevent rusting.
- Cylinders can usually be stored in the sun; but, cylinders must not exceed temperatures >125 F.
- Always refer to the manufacturers' storage requirements and SDSs.
- Storage areas should protect cylinders from damage. Do not store on unprotected platform edges or obstruct walkways or exits.
- Use brackets, chains, or straps around the upper third of the cylinder to secure cylinders in storage or in use.

**Transport**

- Cylinders must be stored upright, firmly secured, and be capped during transport.

## Congested Areas

Working in congested areas can expose both workers and the public to a wide range of hazards depending upon the specific activities taking place. Staff Members need to understand the work scope, work areas, equipment on-site, and internal traffic patterns to minimize or eliminate exposure potential.

DRAFT



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

**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.

## Cranes/ Lifting Equipment

Lifting operations is considered a high-risk activity and a permit to work may be required in certain situations. When performing work activities requiring cranes or lifting equipment, a hazard analysis of the lift shall be completed in line with the Lift Plan Analysis Form during the project and job phases. The two types of lifts common on projects include:

**Incidental Lift**

The use of equipment such as backhoes, track hoes, front-end loaders, side loaders and similar earth-moving equipment for lifting per its design. These types of lifts present many, if not more hazards than traditional critical lifts because they often do not get the same level of attention.

**Critical Lift**

A lift in which the dropping, upset or collision of parts, components or assemblies could present a significant risk of personal injury or property damage. A lift can also be designated as critical by the Project Manager, Lifting Subcontractor, or Client because of special circumstances or hazards. No critical lift may proceed without a *Lifting Operations Permit* signed and accepted by the Lift Leader and reviewed with the Project Manager.

See OP1049 Lifting Operations and OP 1070 Rigging Safety for additional information.

**Controls**

- Complete the Lift Plan Analysis Form and if required Critical Lift Permit
- Only competent operators, Lift Leaders and Riggers shall perform lifting operations.
- All personnel not involved with the lift shall be kept at no less than 3 times the length of the boom.
- Employees shall not work or walk under a suspended load.
- The Lift Leader shall consider the stability of the ground prior to each lift.
- All lifting equipment, slinging, and rigging shall be inspected and the inspection documented.
- Suspended loads shall be attended unless physically secured to prevent unintended movement.

Lifting shall not commence:

- If the load exceeds the dynamic or static capacities of the lifting equipment.
- Unless all safety devices installed on the lifting equipment are operational.
- Unless the Lift Leader has visually examined all lifting devices and equipment prior to use.

DRAFT



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

- Unless a visual assessment of the lift has been completed, and the Lift Leader has determined the lift method and equipment are safe and ready for use.

## 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.
- 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

DRAFT



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

## 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.
- Upon completion of filling the waste container, the container should be inspected for leaks and an appropriate seal.

DRAFT



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

## 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.

DRAFT



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

- 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.

## Hot Work

Hot work is any work that could produce a source of ignition or temperature high enough to cause the ignition of flammable gases and combustible materials. Hot work activities include burning, welding, grinding, braising, soldering, using fire or spark-producing tools. The main hazards associated with hot work are getting burned directly by the hot work activity or by fires or explosions that result from an accumulation of combustible materials in the work area.

Performing hot work in Classified and Non-Classified areas are considered a hazardous activity, and a Permit to Work may be required. In general, the Hot Work Permit has five purposes:

- To serve as written permission to do the work;
- To provide a minimum checklist prior to the commencement of hot work;
- To outline the steps necessary for making the work site safe for conducting hot work;
- To alert operating personnel to the hot work in progress; and
- To provide a record of safe work practices performed during the permitted activity.

Work shall be conducted in accordance with OP1034 Hot Work.

**Controls**

- Hot Work Permit must be completed.

DRAFT



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

- Conduct a risk assessment of the proposed work area to identify combustible or flammable material.
- If potential for flammable gases exists in the work area they must be monitored with a gas detector prior to starting any hot work.
- The hot work equipment shall be in satisfactory operating condition and in good repair.
- All combustible and flammable materials shall be relocated at least 35' in all directions from the work site.

If relocating these materials is impractical, the following precautions shall be taken:

- Materials shall be shielded with fire-retardant covers or metal or fire-retardant guards or curtains.
- The edges of covers at the floor shall be tight to prevent the entrance of sparks, including at the point where several covers overlap when a large pile is being protected.
- A fire watch may be required.
- A fully charged and operable fire extinguisher appropriate for the type of potential fire shall be available for use in the work area (20lbs minimum).
- A nonflammable, impervious material shall seal sewer openings, ducts and drains. Where sealing is insecure or impractical, water spray or stream should be directed across openings.
- The location of the hot work relative to combustible and flammable materials and classified areas shall determine the need for a fire watch
- Personnel within the vicinity of the hot work shall be suitably protected against such dangers as heat, sparks, flash and slag.

## Inadequate Lighting

Work may be conducted during off-hours when natural light is limited or nonexistent. Reduced or inadequate lighting limits one's ability to see which may increase the risk of an accident or injury. Regulations require work that is conducted at night meet specific requirements regarding project site illumination. Staff may also find themselves working in buildings or locations where the power has been cutoff or where only emergency lighting is operational. It is important that staff have appropriate means of lighting to ensure work and access to the site is done safely.

**Controls**

- Nighttime project sites conducted on a roadway must have appropriate lighting consistent with the MUTCD. Contact the PM if lighting is not sufficient and poses a hazard.
- Non roadway projects must have an appropriate level of lighting that allows work to be completed safely and effectively. Staff should bring additional means of lighting (e.g., flashlight) as a precaution when working at night or areas that require illumination for the work to be conducted safely.

## Ladders (Fixed/Portable)

Working on and around stairways and ladders can be hazardous. They are major sources of injuries and fatalities among construction workers, for example, many of the injuries are serious enough to require time off the job. Rules apply to all stairways and ladders used in construction, alteration, repair, painting, and demolition of worksites.



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

See OP1027 Ladder Safety for additional information.

**Controls**

- Always maintain three points of contact when using a ladder.
- Only use ladders on a smooth and level surface.
- Do not exceed the maximum load rating of the ladder.
- Ladders shall always be maintained in good condition.
- Metal bearings of locks, wheels, pulleys, etc., shall be frequently lubricated.
- Frayed or badly worn rope shall be replaced.
- Safety feet and other auxiliary equipment shall be kept in good condition to ensure proper performance.
- Ladders shall be inspected prior to use, any which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."
- Rungs should be kept free of grease and oil.
- Fixed ladders that equal or exceed 24 feet must be equipped with ladder safety devices; or self-retracting lifelines and rest platforms at intervals not to exceed 150 feet; or a cage or well and multiple ladder sections with each ladder section not to exceed 50 feet in length.
- Side rails of through or side-step fixed ladders must extend 42 inches above the top level or landing platform served by the ladder

## 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.

DRAFT



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

## Manual Lifting/Moving

Most materials associated with investigation, remedial, or construction-related activities are moved by hand. The human body is subject to damage in the forms of back injury, muscle strains, and hernia if caution is not observed in the handling process.

**Controls**

- Under no circumstances should any one person lift more than 49 pounds unassisted.
- Always push, not pull, the object when possible.
- Size up the load before lifting. If it is heavy or clumsy, get a mechanical aid or help from a worker.
- Bend the knees; it is the single most important aspect of lifting.
- 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 ***

DRAFT



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

| Normal System Voltage Kilovolts (kV) | Required Minimal Radial Clearance Distance (feet/meters) |
|---|---|
| 0 – 50 | 10/3.05 |
| 51 – 100 | 12/3.66 |
| 101 – 200 | 15/4.57 |
| 201 – 300 | 10/6.1 |
| 301 – 500 | 25/7.62 |
| 501 – 750 | 35/10.67 |
| 750 - 1000 | 45/13.72 |

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

Controls

- 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.

DRAFT

## Repetitive Motion

Repetitive Motion or Strain Injuries are injuries effecting muscles, nerves, and tendons by repetitive movement and overuse. Almost any kind of awkward or repetitive motion you make could lead to an injury over time. Actions like bending or twisting of the wrists, reaching for materials, working with your hands above shoulder level, or grasping objects can increase wear and tear on the body. The condition mostly effects the upper body.

**Controls**

- Arrange your work zone, supplies and tools as much as possible to avoid reaching, leaning, bending and twisting your waist or wrists.
- During rest breaks, use stretches to loosen up your body.
- Vary tasks if you can so that you are not making the same movement repeatedly over for a long period.

## Rotating Equipment

Exposure to rotating parts can occur when working near a drilling rig, or other similar equipment. All rotating parts should be covered with guards to prevent access by workers. When performing maintenance activities that require the rotating parts to be exposed, workers should not allow loose



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

clothing, hands, or tools to approach the rotating parts. Energy isolation procedures must be followed, and guards must be replaced as soon as possible after completing the maintenance task.

Operation of drilling equipment also creates hazards associated with pinch points and rotating equipment. These are hazards where the body and extremities, especially the hands, can be caught in moving equipment and crushed.

**Controls**

- Evaluate work procedures to avoid placing the body and extremities in the path of rotating equipment and tools to avoid being struck by moving equipment, tools and machinery.
- Evaluate equipment and tool use to identify pinch points and develop procedures to avoid placing body parts in a position where they can be caught in moving equipment, tools and machinery.
- Follow energy isolation procedures if required
- Do not work near rotating equipment with long loose hair, loose clothing or jewelry.

## Sharp Objects

Workers who handle sharp edged objects like sheets of steel or glass are at risk of cuts. Workers who handle sharp edged objects are also at risk of cuts. Injuries may occur to hands, fingers, or legs when they are in the way of the blade, when the blade slips, or if an open blade is handled unexpectedly. Other hazards at job sites include stepping on sharp objects (e.g. wooden boards with protruding nails, sharp work-tools, chisels, etc.) and colliding with sharp and/or protruding objects.

**Controls**

Always be alert when handling sharps. Never look away or become distracted while handling sharp objects. Use caution when working with tools; use right tool for the job. Keep tools sharp, dull blades are a safety hazard, requiring more force to make cuts which can lead to tool slippage. Wear appropriate PPE and do not handle sharp objects (i.e., broken glass) with bare hands. Use mechanical devices, when possible. Stay away from building debris; avoid handling site debris or placing your hand where you cannot see. Watch out for barbed wire and electrical fences; cover with a car mat or equivalent to cross or walk around; use the buddy system to avoid entanglement; wear gloves. Do not leave unprotected sharps unattended. Use protective shields, cases, styrofoam blocks, etc. Pass a sharp by handing it over carefully by the handle with the blade down or retracted. Fixed open blades are prohibited. Always cut away from the body, making several passes when cutting thicker materials. Make sure blades are fitted properly into the knife. Never cut items with a blade or other sharp object on your lap. Never try to catch a blade or cutting tool that is falling.

## Slippery Surfaces

Both slips and trips result from unintended or unexpected change in the contact between the feet and ground or walking surface. Good housekeeping, quality of walking surfaces, selection of proper 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.

DRAFT



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

Common causes of slips are wet or oily surfaces, spills, weather hazards, loose unanchored rugs or mats and flooring or other walking surfaces that do not have same degree of traction in all areas.

Weather-related slips and falls become a serious hazard as winter conditions often make for wet or icy surfaces outdoors. Even wet organic material or mud can create hazardous walking conditions. Spills and leaks can also lead to slips and falls.

**Controls**

- Evaluate the work area to identify any conditions that may pose a slip hazard.
- Address any spills, drips or leaks immediately.
- Mark areas where slippery conditions exist.
- Select proper footwear or enhance traction with additional PPE.
- Where conditions are uncertain or environmental conditions result in slippery surfaces walk slowly, take small steps, and slide feet on wet or slippery surfaces.

## Traffic

To ensure worker protection and the safe passage of traffic through and around job sites, Site Traffic Control procedures may need to be implemented on project sites. Job zone control and traffic management are necessary when Simultaneous Operations (SIMOPS) or third parties could be at risk of injury by entering the work zone, or when the work crew is at risk of injury by other operations.

Traffic patterns shall be evaluated. Conditions such as high pedestrian traffic, peak periods, daily deliveries or SIMOPS known, Heavy equipment traffic volume and light duty traffic volume shall be evaluated

Early identification and planning for site operations that require job zone control and traffic management, including SIMOPS, is the responsibility of the Project Manager and primary contractor manager. Traffic control plans shall be consistent with the Manual on Uniform Traffic Control Devices.

See OP1025 Signs, Signals, and Barricades and/or OP1043 Site Traffic Control for more information.

**Controls**

- Alternate walkways where possible.
- Use of the local police to direct traffic.
- Use of an air horn to alert drivers or other workers.
- Maintain good housekeeping and clean the area as work is completed.
- Use the ‘buddy’ or ‘watchperson’ system while performing work.
- Use a spotter for backing, tight maneuvers and bin/tank/equipment drop-offs.
- Use traffic control devices, field vehicles and barricades and avoid the use of caution tape.
- Park all vehicles (with wheels in a safe direction away from work) to block traffic with a flashing yellow light. Park so that access to the vehicle is away from oncoming traffic while working.
- When parking a vehicle and equipment, utilize a ‘first move forward’ driving practice.
- Work in an upright position, face traffic and make eye contact with drivers when possible.
- Minimize work time in traffic.

DRAFT



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

- Establish a 'Stop Work' hand signal.
- Personnel shall always wear high visibility vest

If public sites, such as public roads, bicycle paths or footpaths, are closed or rerouted, local and regulatory requirements shall be followed and traffic control permits shall be put in place. Proper traffic guiding equipment includes stop/slow paddle signs, flaggers, flashing lights and directional signs.

All personnel on-site should be aware of the plan of the day and the Traffic Control Plan should be communicated with all parties involved during the pre-shift meeting.

## 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.

## Working at Heights

Workers who are 4' or more above lower levels are at risk for serious injury or death if they should fall. Fall protection is required when "working at heights" which is defined as all work undertaken at 4' or more above the lower level. This can include work near unprotected embankments, retaining walls and holes/excavations (where the excavation is not readily visible). Fall protection is also required when working over dangerous equipment and machinery, regardless of the fall distance.

See OP 1022 Fall Protection for additional information.

**Controls**

- Fall protection such as guardrail systems, safety net systems, or personal fall arrest systems can be used to protect staff while working at height.



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

DRAFT

- Staff required to wear fall arrest systems shall have received appropriate training and will inspect their gear prior to use to ensure it is in good working order.
- Working at Heights permit shall be completed before work can begin.

## 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 (Excavation, Soil/C&D Export, Backfill Import) | Groundwater Dewatering Oversight and Influent Sampling | Endpoint/Waste Characterization Soil Sampling | Enter task description. |
| Hard hat | ☒ | ☒ | ☒ | ☐ |
| Safety Glasses | ☒ | ☒ | ☒ | ☐ |
| Safety Toed Shoes | ☒ | ☒ | ☒ | ☐ |
| Class 2 Safety Vest | ☒ | ☒ | ☒ | ☐ |
| Hearing Protection | ☒ | ☐ | ☒ | ☐ |
| Nitrile Gloves | ☒ | ☒ | ☒ | ☐ |
| Cut-Resistant Gloves | ☒ | ☒ | ☒ | ☐ |
| Level of protection required | D | D | D | Select |
| **Required Safety Equipment** | | | | |
| First Aid Kit | ☒ | ☒ | ☒ | ☐ |

DRAFT



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

## 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) |

| Task Specific Training Requirements | | | | |
|---|---|---|---|---|
| **Required Training Type** | **Task 1** | **Task 2** | **Task 3** | **Task 4** |
| | Remedial Oversight (Excavation, Soil/C&D Export, Backfill Import) | Groundwater Dewatering Oversight and Influent Sampling | Endpoint/Waste Characterization Soil Sampling | Enter task description. |
| DOT HAZMAT Transporter Training | ☒ | ☒ | ☒ | ☐ |
| RCRA Haz Waste Generator | ☒ | ☒ | ☒ | ☐ |
| NYC SST | ☒ | ☒ | ☒ | ☐ |

DRAFT



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

## 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? No

Air monitoring plan not applicable Yes

### Air Monitoring/Screening Equipment Requirements

Photo-Ionization Detector (PID) 10.6eV

Dust Monitor (RAM)

**The required equipment listed above must be on site. Work shall not commence unless the equipment is present and in working order.**

### Monitoring Plans

| Parameter/ Contaminant | Equipment | Action Level | Response Activity |
|---|---|---|---|
| VOCs | PID 10.6 eV | < 5 ppm | Continue work and monitoring. |
| | | >5 ppm for 5 minutes | Clear Instrument and Re-Monitor the Area. Implement PPE upgrades |
| | | >5 ppm for >5 minutes | Evacuate the area and call the RHSM 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.**

## 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.)

DRAFT



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

| Parameter/ Contaminant | Equipment | Action Level* | Response Activity |
|---|---|---|---|
| VOCs | PID 10.6 eV | 5 ppm | Clear Instrument and Re-Monitor the Area. Implement PPE upgrades |

| Zone Location | | Monitoring Interval |
|---|---|---|
| Edge of Exclusion Zone | Choose an item. | Continual |

| Parameter/ Contaminant | Equipment | Action Level* | Response Activity |
|---|---|---|---|
| Particulate Matter | Dust Monitor | >100 mg/m^3 above background | Stop work and dampen work areas with fresh water |

| Zone Location | | Monitoring Interval |
|---|---|---|
| Choose an item. | Choose an item. | Choose an item. |

## 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 established during Site kick-off meeting.

DRAFT



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

## 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.

DRAFT



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

## 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.

Any additional requirements that are designated by the workplan or by client specifications should be entered here.

DRAFT



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

# 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.

Staff need to check in at general contractor trailer/office space and conduct orientation with Site Safety Manager.

## Zoning

**Work Zone**
The work zone will be clearly delineated to ensure that the general public or unauthorized worker access is prevented. The following will be used:

Cones
Barricades
Temporary Fencing

DRAFT



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

## 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

DRAFT



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

| **Table 9.1 Emergency Equipment and Emergency PPE** | | | |
|---|---|---|---|
| **Emergency Equipment** | **Specific Type** | **Quantity Stocked** | **Location Stored** |
| First Aid Kit | ANSI | 1 Kit | With H&A Staff |
| **Emergency PPE** | **Specific Type** | **Quantity Stocked** | **Location Stored** |
| Gloves | Nitrile | 1+ Box | With H&A Sta |

| **EVACUATION ALARMff** |
|---|
| 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. |

DRAFT



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

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*<br>Will be given location after site-specific training | | *SHELTER LOCATION*<br>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. | | | |

DRAFT



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

## 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 |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

DRAFT



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

DRAFT

**ATTACHMENT A**
**HASP AMENDMENT FORM**



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

## HASP AMENDMENT FORM

This form is to be used whenever there is an immediate change in the project scope that will require an amendment to the HASP. For project scope changes associated with "add-on" tasks, the changes must be made in the body of the HASP. Before changes can be made, a review of the potential hazards must be initiated by the Haley & Aldrich Project Manager.

This original form must remain on site with the original HASP. If additional copies of this HASP have been distributed, it is the Project Manager's responsibility to forward a signed copy of this amendment to those who have copies.

| | |
|---|---|
| Amendment No. | |
| Site Name | |
| Work Assignment No. | |
| Date | |
| Type of Amendment | |
| Reason for Amendment | |
| Alternate Safeguard Procedures | |
| Required Changes in PPE | |

| Project Manager Name (Print) | Project Manager Signature | Date |
|---|---|---|
| | | |

| Health & Safety Approver Name (Print) | Health & Safety Approver Signature | Date |
|---|---|---|
| | | |

DRAFT



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

DRAFT

# 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

DRAFT



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

DRAFT

# 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.

DRAFT



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

- 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

DRAFT



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

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.

DRAFT



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

DRAFT

# ATTACHMENT D
# JOB SAFETY ANALYSES



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

# 291 WALLABOUT STREET

**KEY TASK 1:** Remedial Oversight

| Subtask Category | Potential Hazards | Controls |
|---|---|---|
| Site Walk | Slips, Trips, and Falls | • Take your time and pay attention to where you are going<br>• Adjust your stride to a pace that is suitable for the walking surface and the tasks you are doing<br>• Check the work area to identify hazards - beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain<br>• Establish and utilize a pathway free of slip and trip hazards<br>• Choose a safer walking route.<br>• Carry loads you can see over<br>• Keep work areas clean and free of clutter<br>• Communicate hazards to on-site personnel – remove hazards as appropriate |
| Site Walk | Vehicle traffic/safety | Alternate walkways where possible.<br>• Use of the local police to direct traffic.<br>• Use of an air horn to alert drivers or other workers<br>• Maintain good housekeeping and clean the area as work is completed.<br>• Use the ´buddy´ or ´watchperson´ system while performing work<br>• Use a spotter for backing, tight maneuvers and bin/tank/equipment |

DRAFT



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

| | | |
|---|---|---|
| | | drop-offs.<br>• Use traffic control devices, field vehicles and barricades and avoid the use of caution tape.<br>• Park all vehicles (with wheels in a safe direction away from fieldwork) to block traffic with a flashing yellow light. Also, park so that access to the vehicle is away from oncoming traffic while you are working.<br>• When parking a vehicle and equipment utilized a ´first move forward´ driving practice.<br>• Work in an upright position, facing traffic when possible.<br>• Make eye contact with vehicle drivers so that they can recognize your presence.<br>• Minimize work time in traffic.<br>• Establish a ´Stop Work´ hand signal. |
| Drilling | Heavy equipment | • Personal protective equipment, licensed drill rig operators |
| Drilling | Noise reduction | Administrative controls include:<br>• identifying hearing protection zones and clearly sign-posting noisy areas<br>• increasing the distance between noise sources and workers the further away the noise source is, the less harmful its effect on workers will be<br>• minimizing the number of individuals working in a noisy area keeping individuals out of the area if their job does not require them to be there<br>• providing rest breaks in areas away from a noisy work environment<br>• providing sufficient information, instructions and training to the workers for the proper use of work equipment.<br>• PPE Measures include:<br>• Wear hearing protection while drilling in progress. |

DRAFT



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

| **KEY TASK** 2: Dewatering Oversight and Groundwater Sampling | | |
|---|---|---|
| **Subtask Category** | **Potential Hazards** | **Controls** |
| Water Sampling | Lifting | • You know where you are going<br>• The area around the load is clear of obstacles<br>• Doors are open and there is nothing on the floor that could trip someone or make them slip<br>• You have a good grip on the load<br>• Your hands, the load and any handles are not slippery<br>• If you are lifting with someone else, both of you know what you are doing before you start |
| Water Sampling | Slips, trips, and falls | • See above. |
| **KEY TASK** 3: Endpoint/Waste Characterization Soil Sampling | | |
| **Subtask Category** | **Potential Hazards** | **Controls** |
| Soil Sampling | Lifting | • See above. |
| Soil Sampling | Slips, trips, and falls | • See above. |

DRAFT



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

DRAFT

**ATTACHMENT E**
**PROJECT SITE FORMS**



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

DRAFT

# ATTACHMENT F
# SITE-SPECIFIC OPERATING PROCEDURES



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

# APPENDIX E
# NYSDEC Request to Import/Reuse Form

DRAFT

**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.*

DRAFT

## 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:

DRAFT

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

DRAFT

# APPENDIX F
# Citizen Participation Plan

DRAFT

NEW YORK STATE | Department of Environmental Conservation

# Brownfield Cleanup Program

## Citizen Participation Plan
**for**
## 291 Wallabout Street Site

February 2025

DRAFT

BCP Site C224416
291 Wallabout Street
Brooklyn
NY 11206

## 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 ..... 10**

**Appendix A - Project Contacts and Locations of Reports and Information ..... 14**

**Appendix B - Site Contact List..... 16**

**Appendix C - Site Location Map..... 32**

**Appendix D - Brownfield Cleanup Program Process ..... 33**


* * * * *

**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.

DRAFT

Applicant: **291 Wallabout Realty LLC ("Applicant")**
Site Name: **291 Wallabout Street ("Site")**
Site Address: **291 Wallabout Street, Brooklyn, NY 11206**
Site County: **Kings**
Site Number: **C224416**

## 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:

DRAFT

- 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.

DRAFT

*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

DRAFT

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.

DRAFT

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/search?text=technical+assistance+grants

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

DRAFT

| Citizen Participation Activities | Timing of CP Activity(ies) |
|---|---|
| **Application Process:** | |
| • Prepare site contact list<br>• 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<br>• Publish above ENB content in local newspaper<br>• Mail above ENB content to site contact list<br>• 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<br>**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<br>• 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<br>• Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager)<br>• 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<br>• 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.<br>**Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC. |

DRAFT

## 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.

The primary contaminants of concern at the site are metals and volatile organic compounds (VOCs) in soil; VOCs in groundwater, and petroleum VOCs and chlorinated VOCs (CVOCs) in soil vapor. To further characterize the impacts to the site's subsurface, a supplemental remedial investigation will be conducted in February 2025 in accordance with a work plan to be approved by NYSDEC. During ground intrusive activities, the community will be protected from contamination migration using air monitoring protocols and management of investigation derived waste as detailed in the Remedial Investigation Work Plan approved by NYSDEC and available in the document repositories. Additional details are provided in Section 4.

The Site is located in an Environmental Justice Area. 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.

Although the Site is located in an Environmental Justice Area, there is no need to translate into another language.

For additional information visit: https://statisticalatlas.com/tract/New-York/Kings-County/050700/Race-and-Ethnicity

## 4. Site Information

Appendix C contains a map identifying the location of the site.

*Site Description*

The 0.11 acre "Site" consists of one tax parcel (3-2250-46) with an address of 291 Wallabout Street, Brooklyn, NY.

| Section | Block | Lot | Official Address | Acreage |
|---|---|---|---|---|
| 3 | 2250 | 46 | 291 Wallabout Street | 0.11 |

DRAFT

The Site is located to the north of Wallabout Street between Throop Avenue and Harrison Avenue. Adjacent properties include:

| Direction | Adjoining Property | Surrounding Properties |
|---|---|---|
| North | Residential apartment building. | Residential apartment buildings and warehouses. |
| South | Residential apartment building. | Residential apartment buildings, Hebrew school and parking lots. |
| East | Wallabout Street beyond which there are residential apartment buildings. | Residential apartment buildings and parking lots. |
| West | Warehouse/manufacturing building. | Intermediate School 318. |

*History of Site Use, Investigation, and Cleanup*

The Site was developed by 1918 with a warehouse labeled as “Wheelwright” on the 1918 Sanborn Fire Insurance Map. The Site remained relatively unchanged until the late 1940s, when the building became occupied by “John Koerners Sons, Inc. Truck Body Building” and woodworking. These operations extended north to the southern side of Walton Street. The Site remained relatively unchanged until the mid-1980s, when the property appeared vacant and remained developed with the warehouse. The 2014, 2017, and 2020 City Directories indicate that the Site was occupied by “AZ Plastic.” The Site is currently vacant and developed with a one-story garage encompassing the entire Site footprint.

A Phase I Environmental Site Assessment (ESA) report was completed in July 2021 and a Phase II Environmental Investigation (Phase II) was completed in June 2024 by Haley & Aldrich of New York. Based on the results of the previous investigations the primary contaminants of concern for the Site are metals and VOCS in soil; VOCs in groundwater; and chlorinated VOCs and petroleum-VOCs in soil vapor. A draft Remedial Investigation Work Plan (RIWP) has been submitted to the NYSDEC.

**5. Investigation and Cleanup Process**

*Application*

The Applicant has applied for and been accepted into New York’s Brownfield Cleanup

DRAFT

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 that the site will be used for unrestricted purposes.

To achieve this goal, the Applicant will conduct investigation and 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 partial site investigation before it entered into the BCP. For the partial investigation, NYSDEC will determine if the data are useable.

The Applicant will conduct an investigation of the site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) Define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) Identify the source(s) of the contamination;
3) Assess the impact of the contamination on public health and the environment; and
4) Provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft "Remedial Investigation Work Plan" to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

DRAFT

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

DRAFT

(NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

*Certificate of Completion*

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the FER. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

*Site Management*

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan (SMP).

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

DRAFT

## 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):**

**Meghan Medwid**
Project Manager
NYSDEC (Remedial Bureau B)
Division of Environmental Remediation
625 Broadway 12th Floor
Albany, NY 12233
518-402-8610
Email: meghan.medwid@dec.ny.gov

**Thomas V. Panzone**
Public Participation Specialist
Division of Communication, Education and Engagement
NYSDEC – Region 2
47-40 21st Street
Long Island City, NY 11101
Thomas.panzone@dec.ny.gov
718-482-4953

**New York State Department of Health (NYSDOH):**
**Megan Rivera**
Project Manager
Bureau of Environmental Exposure Investigation
NYSDOH
Corning Tower, Room 1787
Albany, NY 12237
518-402-7860
Email: beei@health.ny.gov

**NYSDEC InfoTracker**
http://gisservices.dec.ny.gov/gis/dil

### Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

DRAFT

**Brooklyn Public Library – Bushwick Branch**
340 Bushwick Avenue
Brooklyn, NY 11206
Attn: Marc Waldron – Managing Librarian
Phone: 718-602-1348

Stephen Chesler, Chairperson
Environmental Protection Committee
Phone: 718-389-0009
Email: bk01@cb.nyc.gov

| Days of week | Open hours |
|---|---|
| Monday | 10 AM - 6 PM |
| Tuesday | 1 PM - 8 PM |
| Wednesday | 10 AM - 6 PM |
| Thursday | 10 AM - 8 PM |
| Friday | 10 AM - 6 PM |
| Saturday | 10 PM - 5 PM |
| Sunday | Closed |

**Brooklyn Community Board 1**
435 Graham Avenue
Brooklyn, NY 11211
Attn: Ms. Johana Pulgarin, District Manager
Dealice Fuller, Chairperson

DRAFT

## Appendix B - Site Contact List

### Local Government and Elected Officials:

Mayor Eric Adams
NYC Mayor
City Hall
New York, NY 10007

David Gold, Esq.
Commissioner
NYC Department of City Planning
120 Broadway 31st Floor
New York, NY 10271

Hon. Antonio Reynoso
Brooklyn Borough President
Brooklyn Borough Hall
209 Joralemon Street
Brooklyn, NY 11201

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

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

DRAFT

Hon Charles Schumer
U.S. Senator
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten Gillibrand
U.S. Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Nancy T. Sunshine
Kings County Clerk
360 Adams Street, Room 189
Brooklyn, NY 11201

New York City Municipal Water Finance Authority
Philip Wasserman - Executive Director
255 Greenwich Street, 6th Floor
New York, NY 10007

New York City Water Board
NYC Department of Environmental Protection
Alfonso L. Carney, Jr., Chairperson
59-17 Junction Boulevard, 8th Floor
Flushing, NY 11373

Hon. Lincoln Restler
NYC Councilmember
410 Atlantic Avenue
Brooklyn, NY 11217

Hon. Maritza Davila
NYS Assemblymember
673 Hart Street Unit C2
Brooklyn, NY 11221

Hon. Julia Salazaar
NYS Senator
212 Evergreen Avenue
Brooklyn, NY 11221

DRAFT

Hon. Nydia Velazquez
U.S. House of Representatives
266 Broadway, Suite 201
Brooklyn, NY 11211

## Owners, Residents, Occupants:

Cheskel Schwimmer
291 Wallabout Realty LLC
59 Montrose Avenue
Brooklyn, NY 11206

## Adjacent Properties:

| Owner/Entity Name | Contact Name | Site Use | Property Address | Owner Mailing Address |
|---|---|---|---|---|
| Wallabout 295 Group LLC | Not Available | Multi-Family Elevator Buildings | 297 Wallabout Street, Brooklyn, NY 11206 | 670 Myrtle Avenue, Suite 388, Brooklyn, NY 11205 |
| Not Available | Not Available | Multi-Family Elevator Buildings | 376 Wallabout Street, Brooklyn, NY 11206 | Not Available |
| Joel Rubinfeld | Not Available | Vacant Land | 289 Wallabout Street, Brooklyn, NY 11206 | Not Available |
| Walton Palace LLC | Not Available | Multi-Family Walk-Up Buildings | 92 Walton Street, Brooklyn, NY 11206 | 100A Broadway, Suite 199, Brooklyn, NY 11249 |
| HOO Corp | Blossom Rosenwasser | Industrial & Manufacturing | 94 Walton Street, Brooklyn, NY 11206 | C/O Rosenwasser, 200 Hewes Street, Brooklyn, NY 11211 |

## Local News and Media:

The Brooklyn Daily Eagle
195 Montague Street, Suite 1414
Brooklyn, NY 11201

New York Post
1211 Avenue of the Americas
New York, NY 10036

New York Daily News
PO Box 7180
New York, NY 10008

Spectrum 1 News
75 Ninth Avenue
New York, NY 10011

DRAFT

Courier-Life Publications
Schneps Media
15 Metrotech Center
Brooklyn, NY 11201

The Brooklyn Papers
15 Metrotech Center
Brooklyn, NY 11201

**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:

Beginning with Children Charter School 2 - Elementary School
President/Executive Director/Principal
https://bwccs2.org/
718-302-7700
215 Heyward Street
Brooklyn, NY 11206

Success Academy Charter School - Bed-Stuy Middle School
President/Executive Director/Principal
718-635-3296
https://www.successacademies.org/school/bed-stuy-middle-school/
70 Tompkins Ave 2nd Floor,
Brooklyn, NY 11206

Success Academy Charter School - High School of the Liberal Arts-Brooklyn
President/Executive Director/Principal
https://www.successacademies.org/school/hsla-brooklyn/
718-635-3294
70 Tompkins Ave 2nd Floor,
Brooklyn, NY 11206

PS 380 John Wayne Elementary School
President/Executive Director/Principal
https://www.ps380brooklyn.com/
718-388-0607
370 Marcy Avenue
Brooklyn, NY 11206

K71 Juan Morel Campos Secondary School
President/Executive Director/Principal

DRAFT

https://www.juanmorelcampos.com/
718-302-7900
215 Heyward Street
Brooklyn, NY 11206

I.S. 318 Eugenio Maria De Hostos
President/Executive Director/Principal
https://insideschools.org/school/14K318
718-782-0589
101 Walton Street
Brooklyn, NY 11206

BWCCS2 Middle School
President/Executive Director/Principal
https://bwccs2.org/middle-overview/
718-599-2924
11 Bartlett Street
Brooklyn, NY 11206

The Baby Place Preschool
President/Executive Director/Principal
https://thebabyplayplace.com/
347-987-4905/332-777-1880
25 Boerum Street, Ste 7S
Brooklyn, NY 11206

P.S. 257 John F. Hylan School
President/Executive Director/Principal
https://www.magnetschool257.org/contact-us
718-384-7128
60 Cook Street
Brooklyn, NY 11206

United Academy
President/Executive Director/Principal
https://insideschools.org/school/14KBKI
718-935-9848
60 Harrison Avenue
Brooklyn, NY 11206

DRAFT

P.S. 297 - The Stockton Community School
President/Executive Director/Principal
https://www.ps297k.com/
718-388-4581
700 Park Avenue
Brooklyn, NY 11206

Kiddies Daycare NY
President/Executive Director/Principal
(929) 647-2644
58 Union Ave #1A
Brooklyn, NY 11206

Torres Day Care Daycare
President/Executive Director/Principal
(551) 313-9446
50 Manhattan Ave apt 5d
Brooklyn, NY 11206

4 Future Generations Daycare
President/Executive Director/Principal
(917) 737-5947
744 Park Ave #12b
Brooklyn, NY 11206

NYCHA Marcy Houses
President/Executive Director/Principal
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Marcy.pdf
DAY CARE CENTER
Day Care Center
494 Marcy Avenue
Brooklyn, NY 11206

New York City Housing Authority's Tompkins Day Care Center
President/Executive Director/Principal
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Tompkins.pdf
730 Park Ave,
Brooklyn, NY 11206

DRAFT

Kirindy Family Daycare & Wonderschool
President/Executive Director/Principal
(917) 933-8840
534 Flushing Ave #4B
Brooklyn, NY 11206

Bedford Harrison Day Care Center
President/Executive Director/Principal
(718) 387-8837
60 Harrison Ave
Brooklyn, NY 11211

UTA Satmar Boy's School
President/Executive Director/Principal
(718) 963-9260
110 Throop Ave,
Brooklyn, NY 11206

PS 141K
President/Executive Director/Principal
(718) 388-4800
https://www.p141k.org/sitecontacts.html
370 Marcy Avenue
Brooklyn, NY 11206

PS 250 George H. Lindsay School
President/Executive Director/Principal
https://www.ps250k.com/
718-384-0890
108 Montrose Ave
Brooklyn, NY 11206

Whipple Learning Cove
President/Executive Director/Principal
48 Whipple St Apt 1f,
Brooklyn, NY 11206
(718) 218-5994

DRAFT

PS 380 John Wayne Elementary School
President/Executive Director/Principal
https://www.ps380brooklyn.com/
718-388-0607
370 Marcy Avenue
Brooklyn, NY 11206

BWCCS2 Middle School
President/Executive Director/Principal
https://bwccs2.org/middle-overview/
718-599-2924
11 Bartlett Street
Brooklyn, NY 11206

P.S. 373 - Brooklyn Transition Center
President/Executive Director/Principal
https://www.p373kbtc.org/
718-782-6800
185 Ellery Street
Brooklyn, NY 11206

Uncommon Williamsburg Elementary School
President/Executive Director/Principal
https://nyc.uncommonschools.org/williamsburg-elementary/
718-489-0940
140 Montrose Avenue
Brooklyn, NY 11206

Young Women's Leadership School of Brooklyn
President/Executive Director/Principal
https://www.tywlsbrooklyn.org/contact-us
718-387-5641
325 Bushwick Avenue
Brooklyn, NY 11206

The Baby Play Place Preschool
President/Executive Director/Principal
(347) 987-4905
25 Boerum St STE 7S
Brooklyn, NY 11206

DRAFT

Tender Tots ChildCare, Preschool & Programs
President/Executive Director/Principal
(718) 298-3944
810 Flushing Ave
Brooklyn, NY 11206

Teodora Rodriguez Group Family Day Care Daycare
President/Executive Director/Principal
(908) 495-7245
130 Moore St apt 4d,4 floor
Brooklyn, NY 11206

Nuestros Ninos Child Development Center
President/Executive Director/Principal
(718) 963-1555
384 S 4th St
Brooklyn, NY 11211

Yve's Daycare
President/Executive Director/Principal
(551) 239-8524
130 Humboldt St apt 3H
Brooklyn, NY 11206

Rosaura M Tavarez Group Family Day Care Daycare
President/Executive Director/Principal
(908) 495-6815
212 Throop Ave apt 10h
Brooklyn, NY 11206

Luminous Early Childhood Learning Center
President/Executive Director/Principal
https://luminouschildcare.org/locations/fayette-st-daycare-brooklyn-ny/
718-298-3944
810 Flushing Ave
Brooklyn, NY 11206

Kiddieland Center
President/Executive Director/Principal
(718) 302-7530
869 Myrtle Ave
Brooklyn, NY 11206

DRAFT

Beautiful Garden Family Daycare LLC
President/Executive Director/Principal
(347) 489-0905
71 Nostrand Ave #5C
Brooklyn, NY 11206

Stagg Street Center for Children
President/Executive Director/Principal
https://insideschools.org/school/14KBLU
718-388-1395
77 Stagg St
Brooklyn, NY 11206

NYCHA Sumner Houses Day Care Center
President/Executive Director/Principal
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Sumner.pdf
860 Park Avenue
Brooklyn, NY 11206

**Community, Civic, Religious and Other Environmental Organizations:**
Johari Jenkins-Taylor
Director of Brooklyn Regional and Community Affairs
Consolidated Edison Corporate Affairs
30 Flatbush Avenue
Brooklyn, NY 11217

President Rosa Ortiz
90th Police Precinct Council
211 Union Avenue
Brooklyn, NY 11211

Battalion 35 Engine 216 Ladder 108
FDNY
187 Union Avenue
Brooklyn, NY 11211

DRAFT

New York City Housing Authority Borinquen Plaza
Senior Center
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Borinquen%20Plaza%20I.pdf
80 Seigel St,
Brooklyn, NY 11206

All Saints Roman Catholic Church
115 Throop Avenue
Brooklyn, NY 11206

NYCHA Marcy Houses
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Marcy.pdf
Community Center
492 Marcy Avenue
Brooklyn, NY 11206

NYCHA Tompkins Houses
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Tompkins.pdf
Community Center
736 Park Avenue
Brooklyn, NY 11206

Community United Brethren in Christ
115 Throop Ave,
Brooklyn, NY 11206

Iglesia De Dios Pentecostal Fuente De Vida Inc.
147 Walton St,
Brooklyn, NY 11206

Church of God Divine Outreach Inc
124 Manhattan Ave,
Brooklyn, NY 11206

Pentecostal Church El Eden
105 Montrose Ave
Brooklyn, NY 11206

DRAFT

Summit Church NYC
108 Manhattan Ave
Brooklyn, NY 11206

Central Brooklyn Spanish SDA Church
130 Boerum St
Brooklyn, NY 11206
Bethel Baptist Mission
85 Montrose Ave
Brooklyn, NY 11206

Iglesia Pentecostal El Buen Pastor Inc.
93 Moore St
Brooklyn, NY 11206

La Iglesia De Dios Inc.
108 Manhattan Ave
Brooklyn, NY 11206

Iglesia Pentecostal Nazaret Nazareth Pentecostal Church
88 Manhattan Ave
Brooklyn, NY 11206

Iglesia Cristiana Fuego Santo Inc.
47 Debevoise St
Brooklyn, NY 11206

Lee Gardens Shul
2 Lorimer St
Brooklyn, NY 11206

Cong. Tarnigrod
21 Throop Ave
Brooklyn, NY 11206

Bais Menachem Tzvi Wallabout
242 Wallabout St
Brooklyn, NY 11206

Satmar -Throop Shul
52 Bartlett St
Brooklyn, NY 11206

DRAFT

Congregation Sheima Shlomo D'Kozove
198 Middleton St
Brooklyn, NY 11206

Krula Beis Medrash
127 Wallabout St
Brooklyn, NY 11206
Congregation Beis Yakov
95 Harrison Ave
Brooklyn, NY 11206

Cong. Shaar Hatfilah Ruzle
133 Gerry St
Brooklyn, NY 11206

Rivnitz
62 Throop Ave
Brooklyn, NY 11206

Cong Ahavas Shulem
237 Lee Ave,
Brooklyn, NY 11206

Divrei Yoel Satmar
161 Harrison Ave,
Brooklyn, NY 11206

Kovetz Al Yad
274 Wallabout St
Brooklyn, NY 11206

Khal Chuna Duvid
66 Middleton St
Brooklyn, NY 11206

Cong. Lantzut לנצוט
565 Flushing Ave
Brooklyn, NY 11206

בית המדרש באלחוב
446 Marcy Ave
Brooklyn, NY 11206

DRAFT

בית הכנסת אור החיים (יואלי לאנדא)
321 Wallabout St,
Brooklyn, NY 11206

Graham Avenue Business Improvement District
80 Graham Ave # 2A,
Brooklyn, NY 11206
http://grahamavenuebid.org/
Alberto Valentin – Executive Director
info@grahamavenuebid.org

NYCHA Marcy Houses,
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Marcy.pdf
Development Management Office
648 Park Avenue
Brooklyn, NY 11206

NYCHA Tompkins Houses
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Tompkins.pdf
Development Management Office
105 Tompkins Avenue
Brooklyn, NY 11206

NYCHA Bushwick Houses
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Bushwick.pdf
Development Management Office
372 Bushwick Avenue
Brooklyn, NY 11206

NYCHA Bushwick Houses
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nyc.gov/assets/nycha/downloads/pdf/Bushwick.pdf
Community Center
50 Humboldt Street
Brooklyn, NY 11206

DRAFT

Most Holy Trinity - St. Mary Roman Catholic Church
138 Montrose Ave
Brooklyn, NY 11206

Community United Brethren in Christ
115 Throop Ave,
Brooklyn, NY 11206

Pentecostal Church of God
165 Humboldt St
Brooklyn, NY 11206

Little Zion Baptist Church
98 Scholes St,
Brooklyn, NY 11206

Fountain Christian Center
11 Marcus Garvey Blvd
Brooklyn, NY 11206

Transfiguration Roman Catholic Church
263 Marcy Ave
Brooklyn, NY 11211

Greater St. Stephen United Church Of God
874 Myrtle Ave
Brooklyn, NY 11206

Pentecostal Church of Jesus Christ of Brooklyn (IPJ Brooklyn)
21 Marcus Garvey Blvd
Brooklyn, NY 11206

Greater Free Gift Baptist Church
146 Stockton St,
Brooklyn, NY 11206

New Testament Church of God
904 Myrtle Ave
Brooklyn, NY 11206

CONG MEOR HATORAH WILLIAMSBURG SHUL INC
18 Warsoff Pl
Brooklyn, NY 11205

DRAFT

Satmar Seagate Shtiebel of Williamsburg
326 Marcy Ave
Brooklyn, NY 11211

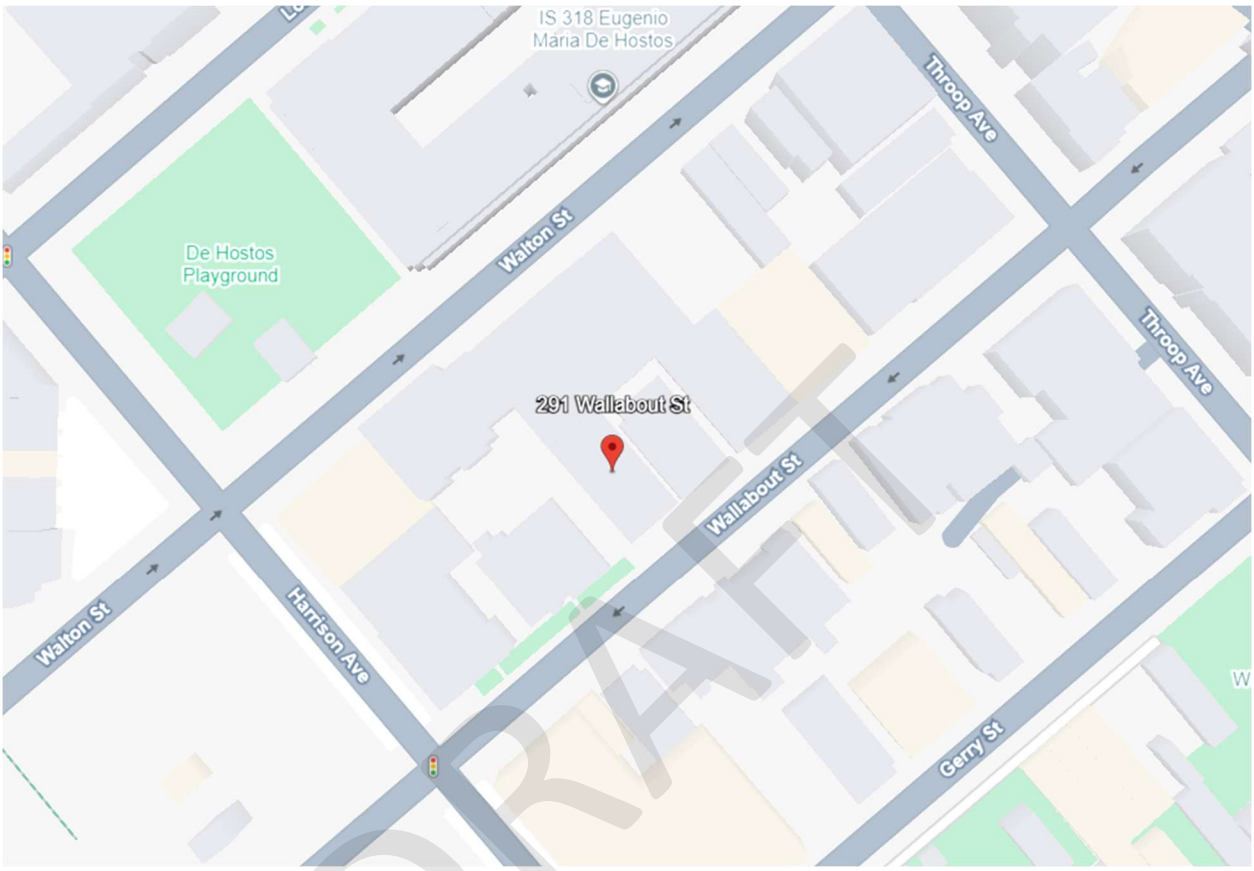
Cong Shefa Chaim Sanz of Williamsburg
20 Harrison Ave
Brooklyn, NY 11211

Cascade Shul
553 Marcy Ave
Brooklyn, NY 11206

Cong. Anshei Breslov
204 Lee Ave
Brooklyn, NY 11206

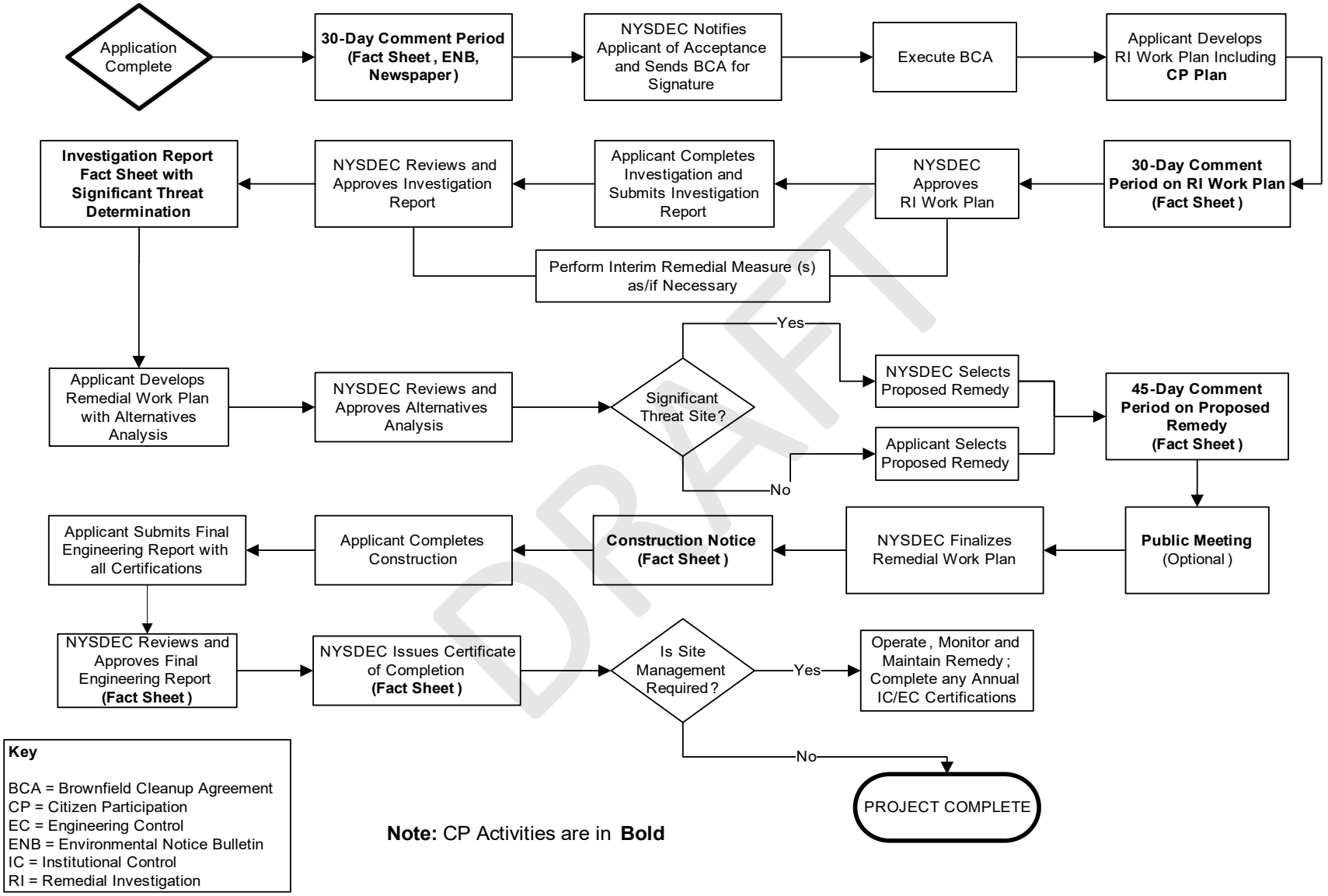
DRAFT

## Appendix C - Site Location Map




DRAFT

# 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**

DRAFT

DRAFT

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

**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.

DRAFT

## Part 2. List Important Information Needed From the Community, if Applicable.

- Can the community supplement knowledge about past/current uses of the site?
- Does the community have knowledge that the site may be significantly impacting nearby people, properties, natural resources, etc.?
- Are activities currently taking place at the site or at nearby properties that may need to be restricted?
- Who may be interested or affected by the site that has not yet been identified?
- Are there unique community characteristics that could affect how information is exchanged?
- Does the community and/or individuals have any concerns they want monitored?
- Does the community have information about other sources in the area for the contamination?

## Part 3. List Major Issues and Information That Need to be Communicated to the Community.

- Specific site investigation or remediation activities currently underway, or that will begin in the near future.
- The process and general schedule to investigate, remediate and, if applicable, redevelop the site.
- Current understanding about the site contamination and effects, if any, on public health and the environment.
- Site impacts on the community and any restrictions on the public's use of the site and/or nearby properties.
- Planned CP activities, their schedule, and how they relate to the site's remedial process.
- Ways for the community to obtain/provide information (document repositories, contacts, etc.).

## Part 4. Community Characteristics

**a. - e.** Obtain information from local officials, property owners and residents, site reports, site visits, "windshield surveys," other staff, etc.

**f.** Has the affected community experienced other **significant** present or past environmental problems unrelated to this site? Such experiences could significantly affect public concerns and perspectives about the site; how the community will relate to project staff; the image and credibility of project staff within the community; and the ways in which project staff communicate with the community.

**g.** In its remedial programs, DER seeks to integrate, and be consistent with, environmental justice principles set forth in *DEC Commissioner Policy 29 on Environmental Justice* and *DER 23 – Citizen Participation Handbook for Remedial Programs*. Is the site and/or affected community wholly or partly in an Environmental Justice (EJ) Area? Use the Search feature on DEC's public web site for "environmental justice". DEC's EJ pages define an EJ area, and link to county maps to help determine if the site and/or community are in an EJ area.

**h.** Consider factors such as:

- Is English the primary language of the affected community? If not, provisions should be considered regarding public outreach activities such as fact sheets, meetings, door-to-door visits and other activities to ensure their effectiveness.
- The age demographics of the community. For example, is there a significant number of senior citizens in the community? It may be difficult for some to attend public meetings and use document repositories. This may suggest adopting more direct interaction with the community with activities such as door-to-door visits, additional fact sheets, visits to community and church centers, nursing homes, etc.
- How do people travel about the community? Would most people drive to a public meeting or document repository? Is there adequate public transportation?

DRAFT

## 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

DRAFT

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

**Division of Environmental Remediation**

# Remedial Programs
# Scoping Sheet for Major Issues of Public Concern (see instructions)

**Site Name:** 291 Wallabout Street

**Site Number:** C224416

**Site Address and County:** 291 Wallabout Street, Brooklyn, NY 11206

**Remedial Party(ies):** 291 Wallabout Realty LLC

**Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.**

**Part 1.** List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs. **Use this information as an aid to prepare or update the Major Issues of Public Concern section of the site Citizen Participation Plan.**

Based on analytical results of the Phase II performed at the Site in June 2024, the primary contaminants of concern at the Site are metals and VOCS in soil; VOCs in groundwater; and chlorinated VOCs and petroleum- VOCs in soil vapor.

How were these issues and/or information needs identified?
These issues were identified through the previous subsurface investigation results.

**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.
N/A

How were these information needs identified?
N/A

**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 RI is winter of 2025. The Site is privately owned and vacant. All remedial actions will be in accordance with applicable regulations and contingent on NYSDEC and NYSDOH approvals of the aforementioned work plan. Additional communications will be made to the public as necessary.

How were these issues and/or information needs identified?
These issues were identified through review of the project schedule, site background and contaminants of concern.

**Part 4.** Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

**a.** Land use/zoning at and around site:
☒ **Residential** ☐ **Agricultural** ☐ **Recreational** ☒ **Commercial** ☐ **Industrial**

DRAFT

**b.** Residential type around site:
☒ **Urban** ☐ **Suburban** ☐ **Rural**

**c.** Population density around site:
☒ **High** ☐ **Medium** ☐ **Low**

**d.** Water supply of nearby residences:
☒ **Public** ☐ **Private Wells** ☐ **Mixed**

**e.** Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

**f.** Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

**g.** Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☒ **Yes** ☐ **No**

**h.** Special considerations:
☐ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

Explain any marked categories in **h:**
The Site is an Environmental Justice Area. No need to translate future fact sheets in another language.

**Part 5.** The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☐ **Non-Adjacent Residents/Property Owners:** Click here to enter text.

☒ **Local Officials:** Click here to enter text.

☒ **Media:** Click here to enter text.

☒ **Business/Commercial Interests:** Click here to enter text.

☐ **Labor Group(s)/Employees:** Click here to enter text.

☐ **Indian Nation:** Click here to enter text.

☒ **Citizens/Community Group(s):** Click here to enter text.

☐ **Environmental Justice Group(s):** Click here to enter text.

☐ **Environmental Group(s):** Click here to enter text.

☐ **Civic Group(s):** Click here to enter text.

☐ **Recreational Group(s):** Click here to enter text.

DRAFT

☐ **Other(s):** Click here to enter text.

**Prepared/Updated By:** Matthew Forshay **Date:** 2/5/25

**Reviewed/Approved By:** Zhan Shu **Date:** 2/6/25

DRAFT

# APPENDIX G
# Environmental Footprint Analyses and Climate Screening Checklist

DRAFT

# Climate Screening Checklist

## Background Information

- Project Manager: Suzanne M. Bell, P.E.
- Site Name: 291 Wallabout Site (the "Site")
- Site Number: C203170
- Site Location: 291 Wallabout Street, Brooklyn, New York
- Site Elevation (average above sea level): Approximately 15 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

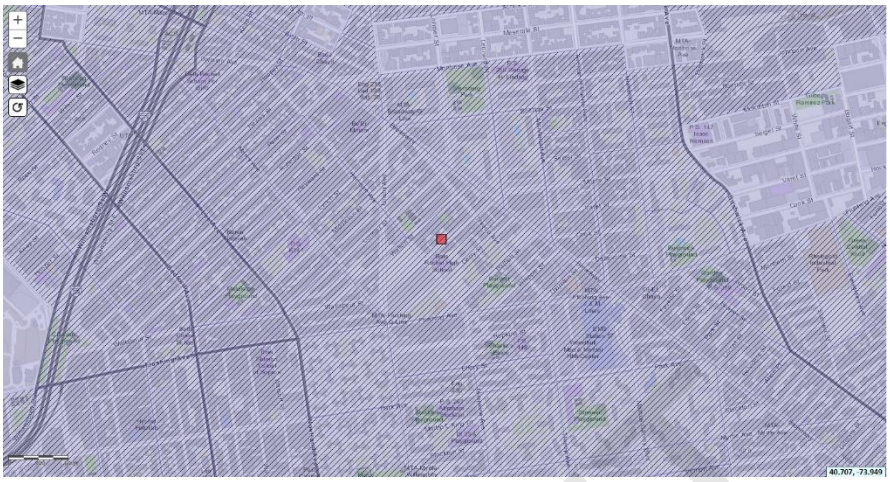
DRAFT

- Remedial Stage/Site Classification: Remediation
- Contamination - Media Impacted/ Contaminants of Concern: Soil - heavy metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs; specifically polycyclic aromatic hydrocarbons [PAHs]), and pesticides; soil vapor - VOCs; and, groundwater - SVOCs, specifically PAHs, and heavy metals.
- Proposed/Current Remedy: Track 1 remedy – remedy will consist of excavation, stockpiling, off-Site transport, and disposal of contaminated historical fill material and contaminated soil below the historic fill interval Site-wide that exceeded the Unrestricted Use Soil Cleanup Objectives (UUSCOs); dewatering, characterization, and treatment of water prior to discharge to a New York State Department of Environmental Conservation (NYSDEC)-approved sewer/sanitary line (pending permits), or localized dewatering with containerization, classification, and disposal at an approved facility; and removal of underground storage tanks (USTs) and/or associated appurtenances, if encountered, and decommissioning and off-Site disposal.
- 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 remedy is approximately three to four months. If Response Action Objectives (RAOs) are met, achieving a Track 1 cleanup in accordance with the NYSDEC Brownfield Cleanup Program (BCP), no engineering or institutional controls will be required, and no components of the remedy will be in place in 10+ years.
- 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. Two schools are located within a 500-foot radius of the Site: Bais Ruchel High School and I.S. 318 Eugenio Maria De Hostos.

DRAFT

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfolocator: DECinfo Locator (ny.gov))?

**X Yes ☐ No**



If the site is in a DAC or PEJA, will climate impacts be magnified? If yes, list how and why.

**☐ Yes X No**

Should thresholds of concern be lowered to account for magnification of impacts? If yes, indicate how lower thresholds will be used in the screening.

**☐ Yes X No**

DRAFT

## 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 | Y | None | 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.

DRAFT

## 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

DRAFT

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

DRAFT

# Environmental Footprint Summary

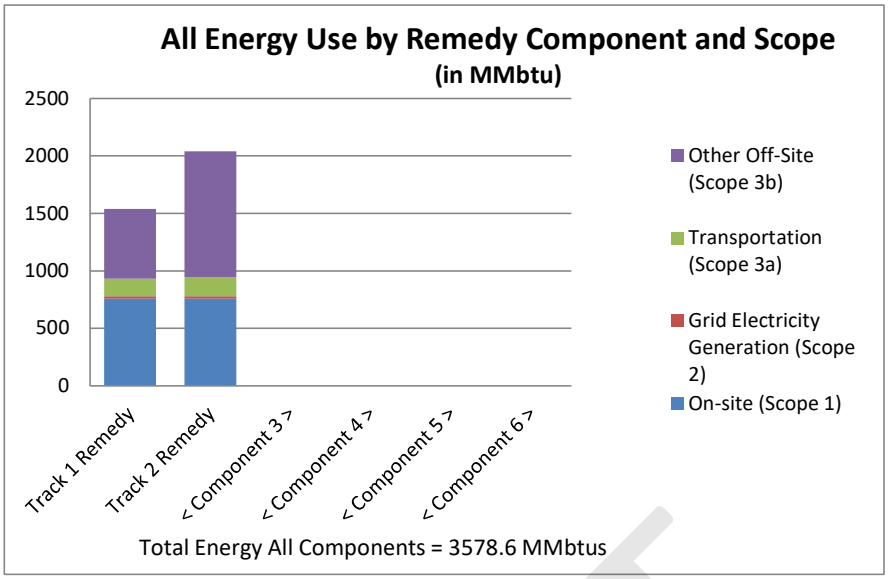
| Core Element | Metric | | Unit of Measure | Footprint | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Track 1 Remedy | Track 2 Remedy | < Component 3 > | < Component 4 > | < Component 5 > | < Component 6 > | Total |
| Materials & Waste | M&W-1 | Refined materials used on-site | Tons | 91.7 | 461.8 | 0.0 | 0.0 | 0.0 | 0.0 | 553.5 |
| | 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 | 214.0 | 213.8 | 0.0 | 0.0 | 0.0 | 0.0 | 427.8 |
| | M&W-6 | On-site non-hazardous waste disposed of off-site | Tons | 2,139.0 | 2,139.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4,278.1 |
| | M&W-7 | Recycled or reused waste | Tons | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | M&W-8 | % of total potential waste recycled or reused | % | 0.0% | 0.0% | | | | | 0.0% |
| Water (used on-site) | W-1 | Public water use | MG | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | W-2 | Groundwater use | MG | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| | 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 | 1,538.6 | 2,040.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3,578.6 |
| | 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 | 2.909 | 2.909 | 0.000 | 0.000 | 0.000 | 0.000 | 5.8 |
| Air | A-1 | On-site NOx, SOx, and PM emissions | Pounds | 606.7 | 606.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1,213.4 |
| | A-2 | On-site HAP emissions | Pounds | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| | A-3 | Total NOx, SOx, and PM emissions | Pounds | 2,494.7 | 3,223.1 | 0.0 | 0.0 | 0.0 | 0.0 | 5,717.8 |
| | A-3A | Total NOx emissions | Pounds | 1,141.3 | 1,377.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2,518.7 |
| | A-3B | Total SOx emissions | Pounds | 334.8 | 682.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1,017.4 |
| | A-3C | Total PM emissions | Pounds | 1,018.6 | 1,163.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2,181.8 |
| | A-4 | Total HAP emissions | Pounds | 17.8 | 52.9 | 0.0 | 0.0 | 0.0 | 0.0 | 70.7 |
| | A-5 | Total greenhouse gas emissions | Tons CO2e* | 118.4 | 141.5 | 0.0 | 0.0 | 0.0 | 0.0 | 259.8 |
| Land & Ecosystems | Qualitative Description | | | | | | | | | |

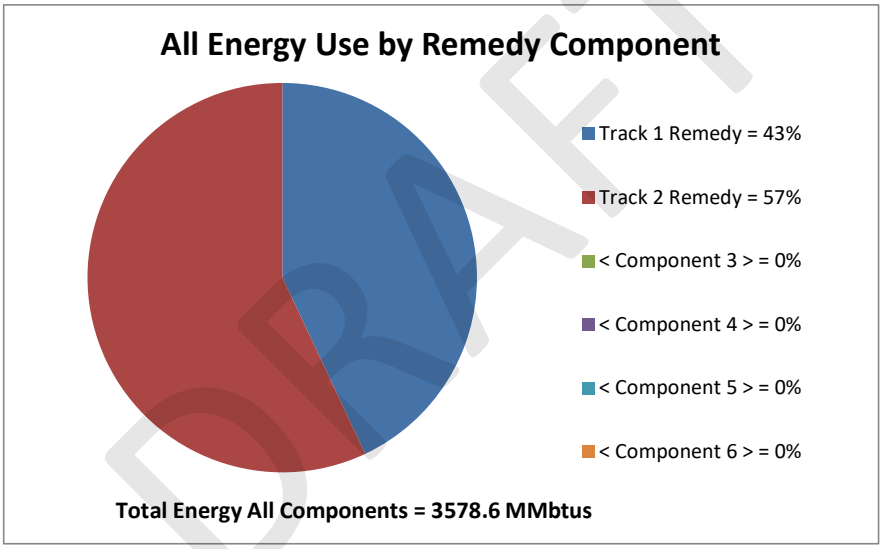
** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
*"MMBtu" = millions of Btus*
*"MG" = millions of gallons*
*"CO2e" = carbon dioxide equivalents of global warming potential*
*"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)*
*"Tons" = short tons (2,000 pounds)*

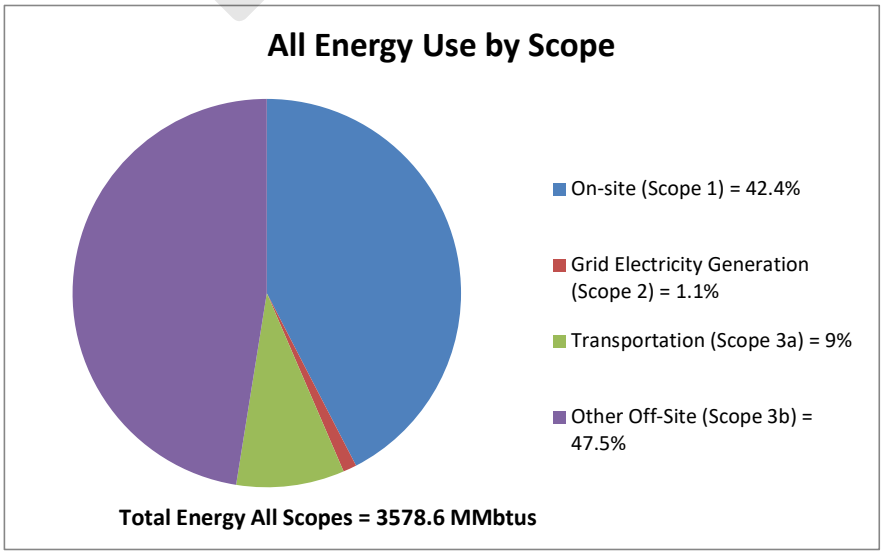
*The above metrics are consistent with EPA's Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February 2012*

Notes:

DRAFT


All Energy Use by Remedy Component and Scope
(in MMbtu)
2500
2000
1500
1000
500
0
Track 1 Remedy
Track 2 Remedy
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 3578.6 MMbtus


All Energy Use by Remedy Component
Track 1 Remedy = 43%
Track 2 Remedy = 57%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
Total Energy All Components = 3578.6 MMbtus


All Energy Use by Scope
On-site (Scope 1) = 42.4%
Grid Electricity Generation (Scope 2) = 1.1%
Transportation (Scope 3a) = 9%
Other Off-Site (Scope 3b) = 47.5%
Total Energy All Scopes = 3578.6 MMbtus

DRAFT

Total Energy
MMbtus

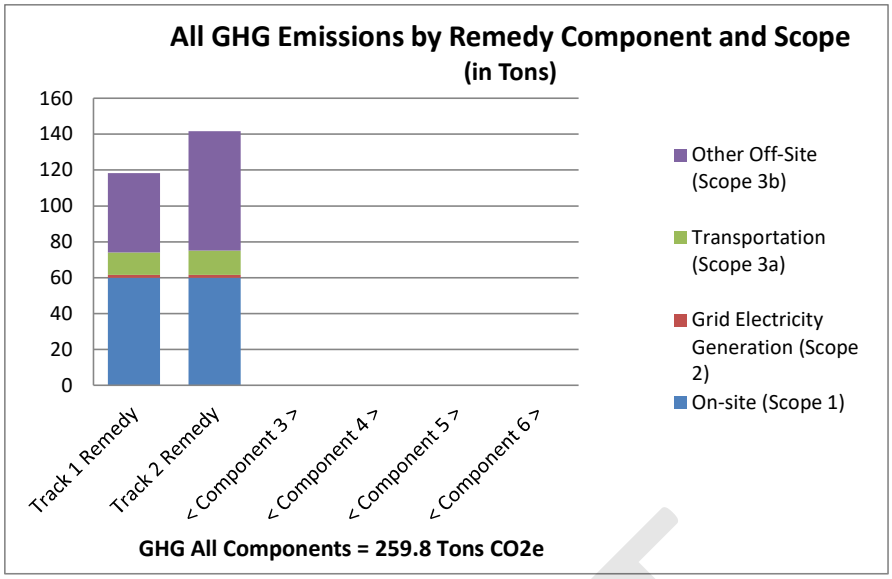
| | Track 1 Re | Track 2 Re | < Compon | < Compon | < Compon | < Compon | Total | |
|---|---|---|---|---|---|---|---|---|
| On-site (Scope 1) | 758.8 | 758.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1,517.5 | |
| Generation (Scope 2) | 20.2 | 20.2 | 0.0 | 0.0 | 0.0 | 0.0 | 40.3 | d Electricity |
| nsportation (Scope 3a) | 154.1 | 168.3 | 0.0 | 0.0 | 0.0 | 0.0 | 322.4 | Tran |
| ner Off-Site (Scope 3b) | 605.5 | 1,092.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1,698.3 | Oth |
| Total | 1,538.6 | 2,040.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3,578.6 | |

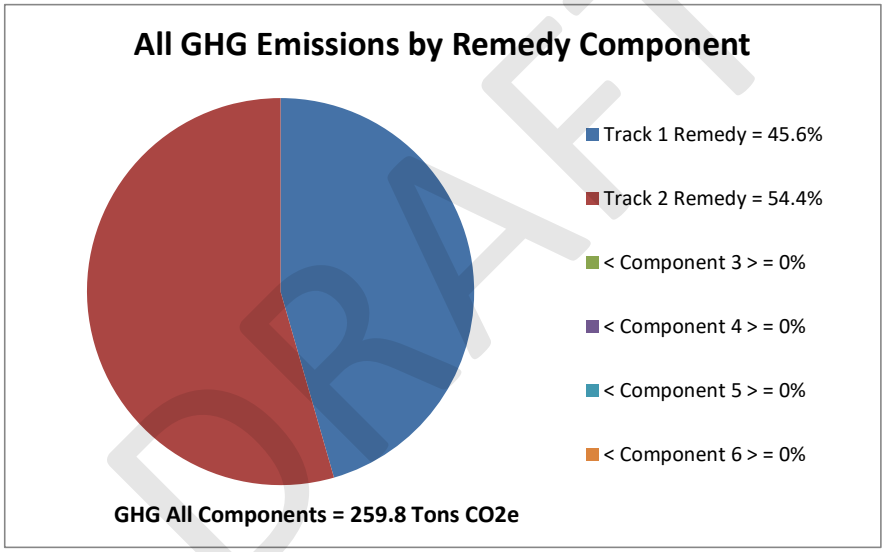
Track 1 Remedy = 43%
Track 2 Remedy = 57%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

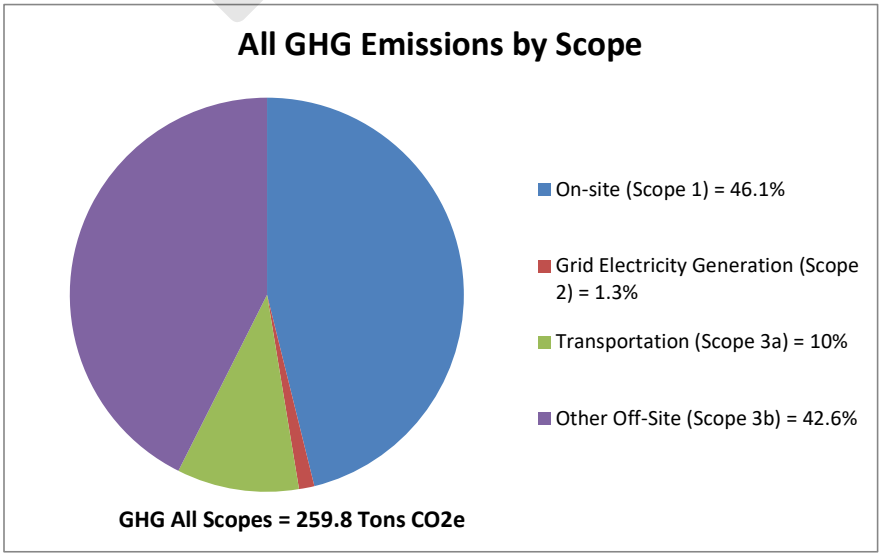
On-site (Scope 1) = 42.4%
Grid Electricity Generation (Scope 2) = 1.1%
Transportation (Scope 3a) = 9%
Other Off-Site (Scope 3b) = 47.5%

Total Energy All Components = 3578.6 MMbtus
Total Energy All Scopes = 3578.6 MMbtus

DRAFT


All GHG Emissions by Remedy Component and Scope
(in Tons)
160
140
120
100
80
60
40
20
0
Track 1 Remedy
Track 2 Remedy
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 259.8 Tons CO2e


All GHG Emissions by Remedy Component
Track 1 Remedy = 45.6%
Track 2 Remedy = 54.4%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
GHG All Components = 259.8 Tons CO2e


All GHG Emissions by Scope
On-site (Scope 1) = 46.1%
Grid Electricity Generation (Scope 2) = 1.3%
Transportation (Scope 3a) = 10%
Other Off-Site (Scope 3b) = 42.6%
GHG All Scopes = 259.8 Tons CO2e

DRAFT

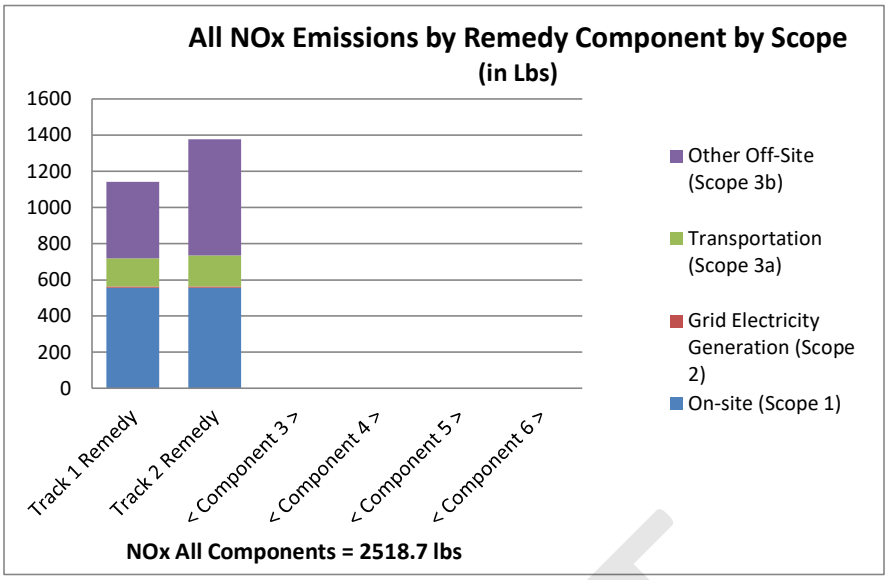
| GHG Tons CO2e | Track 1 Rei | Track 2 Rei | < Compon | < Compon | < Compon | < Compon | Total | |
|---|---|---|---|---|---|---|---|---|
| On-site (Scope 1) | 59.9 | 59.9 | 0.0 | 0.0 | 0.0 | 0.0 | 119.9 | |
| Generation (Scope 2) | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | d Electricity |
| ısportation (Scope 3a) | 12.4 | 13.6 | 0.0 | 0.0 | 0.0 | 0.0 | 26.0 | Tran |
| ıer Off-Site (Scope 3b) | 44.4 | 66.3 | 0.0 | 0.0 | 0.0 | 0.0 | 110.7 | Oth |
| Total | 118.4 | 141.5 | 0.0 | 0.0 | 0.0 | 0.0 | 259.8 | |

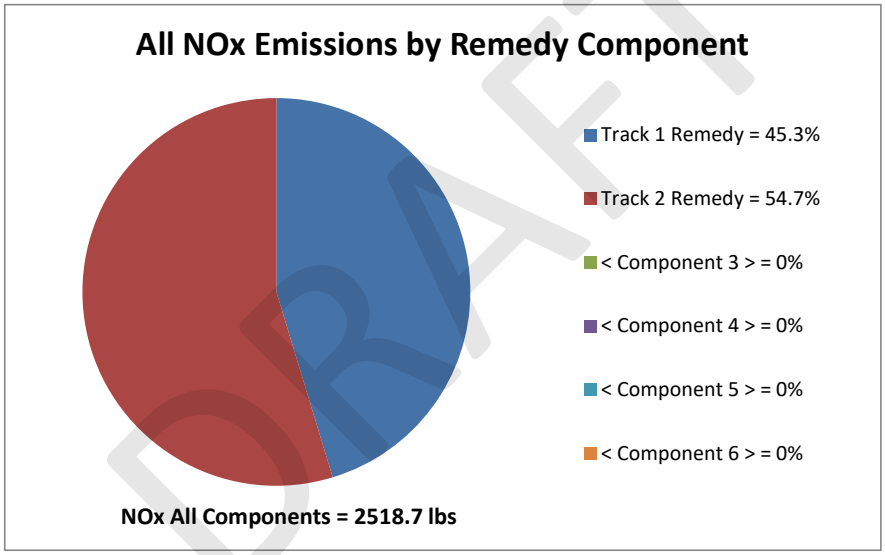
Track 1 Remedy = 45.6%
Track 2 Remedy = 54.4%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

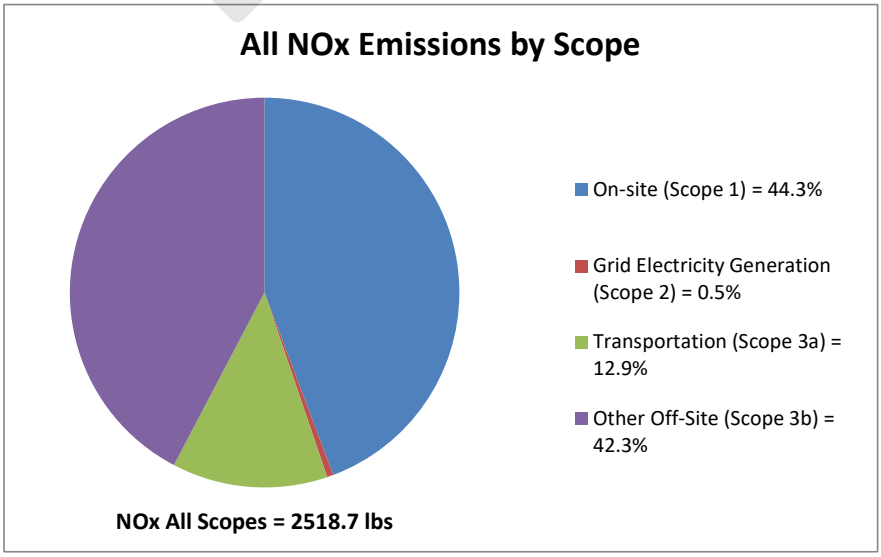
On-site (Scope 1) = 46.1%
Grid Electricity Generation (Scope 2) = 1.3%
Transportation (Scope 3a) = 10%
Other Off-Site (Scope 3b) = 42.6%

GHG All Components = 259.8 Tons CO2e
GHG All Scopes = 259.8 Tons CO2e

DRAFT


All NOx Emissions by Remedy Component by Scope
(in Lbs)
1600
1400
1200
1000
800
600
400
200
0
Track 1 Remedy
Track 2 Remedy
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 2518.7 lbs


All NOx Emissions by Remedy Component
Track 1 Remedy = 45.3%
Track 2 Remedy = 54.7%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
NOx All Components = 2518.7 lbs


All NOx Emissions by Scope
On-site (Scope 1) = 44.3%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 12.9%
Other Off-Site (Scope 3b) = 42.3%
NOx All Scopes = 2518.7 lbs

DRAFT

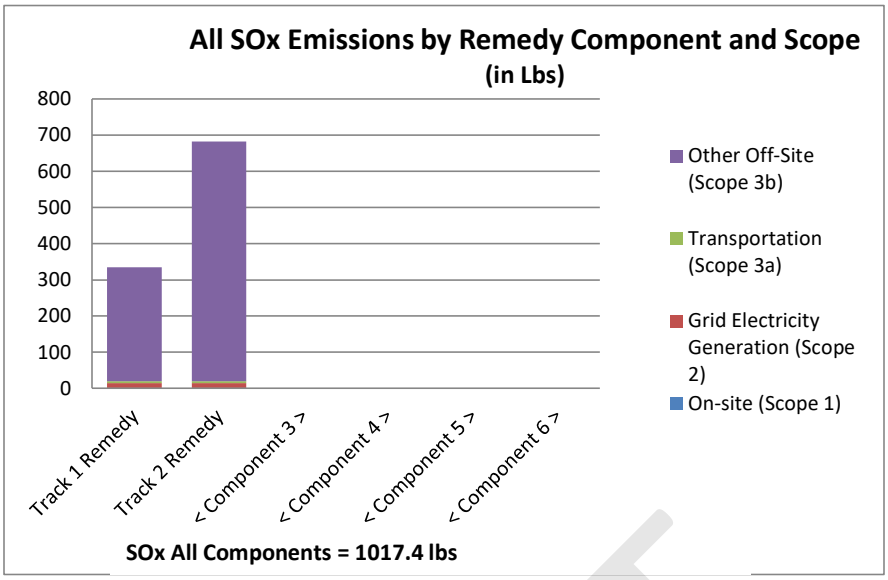
| NOx lbs | Track 1 Rei | Track 2 Rei | < Compon | < Compon | < Compon | < Compon | Total | |
|---|---|---|---|---|---|---|---|---|
| On-site (Scope 1) | 557.6 | 557.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1,115.1 | |
| Generation (Scope 2) | 6.5 | 6.5 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | d Electricity |
| ısportation (Scope 3a) | 154.9 | 170.2 | 0.0 | 0.0 | 0.0 | 0.0 | 325.0 | Tran |
| ıer Off-Site (Scope 3b) | 422.4 | 643.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1,065.4 | Oth |
| Total | 1,141.3 | 1,377.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2,518.7 | |

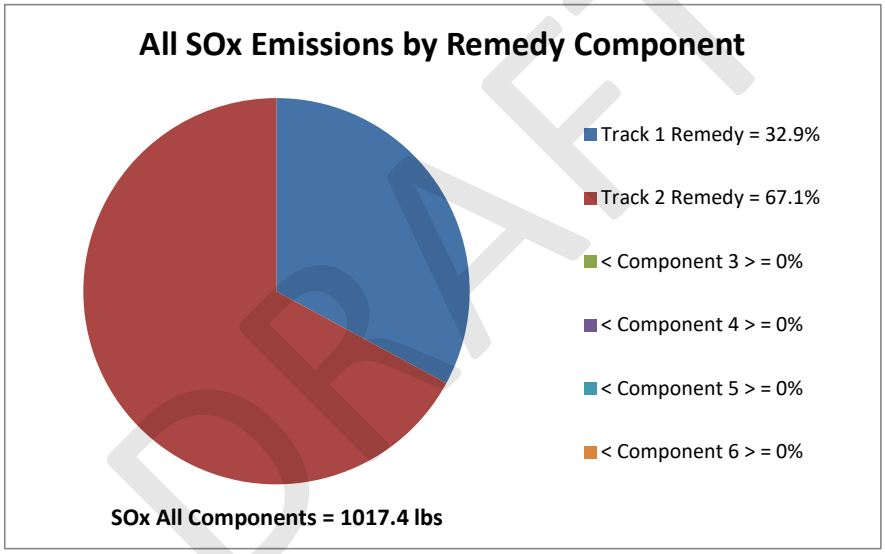
Track 1 Remedy = 45.3%
Track 2 Remedy = 54.7%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

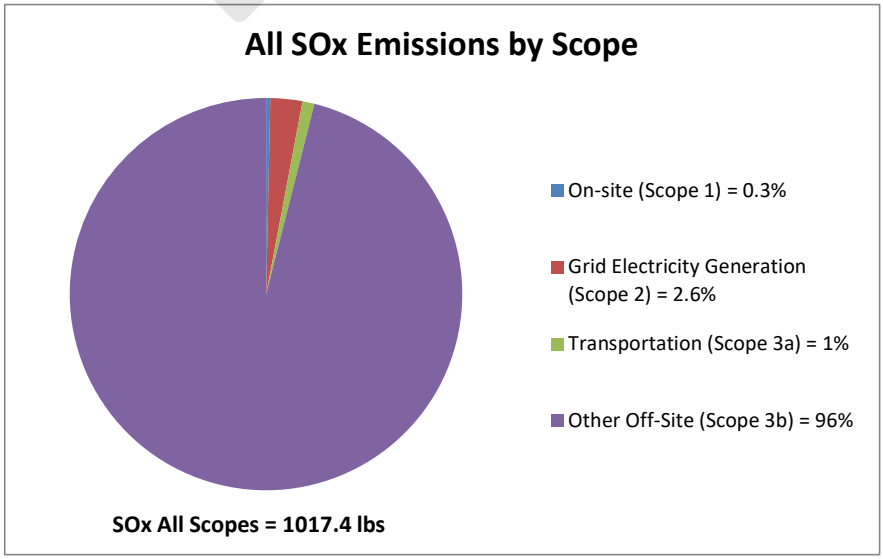
On-site (Scope 1) = 44.3%
Grid Electricity Generation (Scope 2) = 0.5%
Transportation (Scope 3a) = 12.9%
Other Off-Site (Scope 3b) = 42.3%

NOx All Components = 2518.7 lbs
NOx All Scopes = 2518.7 lbs

DRAFT


All SOx Emissions by Remedy Component and Scope
(in Lbs)
800
700
600
500
400
300
200
100
0
Track 1 Remedy
Track 2 Remedy
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 1017.4 lbs


All SOx Emissions by Remedy Component
Track 1 Remedy = 32.9%
Track 2 Remedy = 67.1%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
SOx All Components = 1017.4 lbs


All SOx Emissions by Scope
On-site (Scope 1) = 0.3%
Grid Electricity Generation (Scope 2) = 2.6%
Transportation (Scope 3a) = 1%
Other Off-Site (Scope 3b) = 96%
SOx All Scopes = 1017.4 lbs

DRAFT

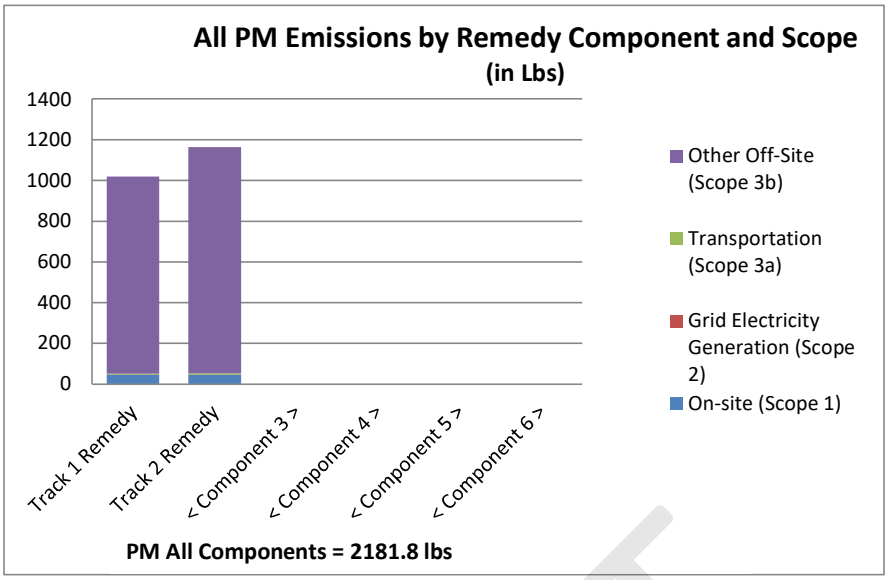
| SOx lbs | Track 1 Rei | Track 2 Rei | < Compon | < Compon | < Compon | < Compon | Total | |
|---|---|---|---|---|---|---|---|---|
| On-site (Scope 1) | 1.7 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | |
| Generation (Scope 2) | 13.4 | 13.4 | 0.0 | 0.0 | 0.0 | 0.0 | 26.8 | d Electricity |
| ısportation (Scope 3a) | 4.8 | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | Tran |
| ıer Off-Site (Scope 3b) | 314.9 | 662.2 | 0.0 | 0.0 | 0.0 | 0.0 | 977.1 | Oth |
| Total | 334.8 | 682.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1,017.4 | |

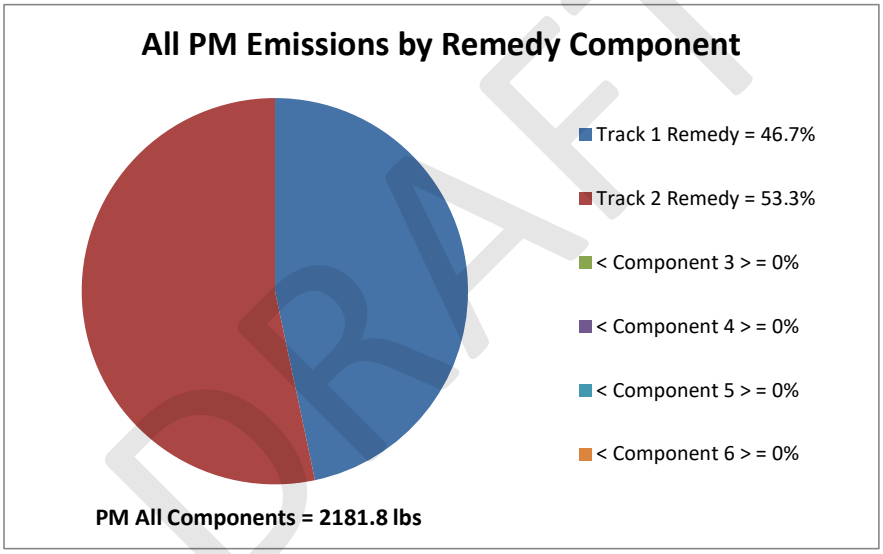
Track 1 Remedy = 32.9%
Track 2 Remedy = 67.1%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

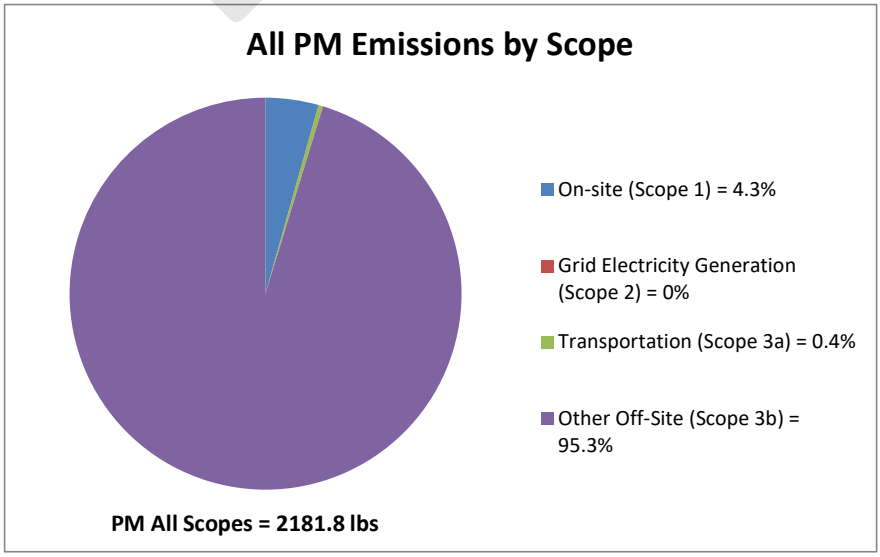
SOx All Components = 1017.4 lbs
SOx All Scopes = 1017.4 lbs

On-site (Scope 1) = 0.3%
Grid Electricity Generation (Scope 2) = 2.6%
Transportation (Scope 3a) = 1%
Other Off-Site (Scope 3b) = 96%

DRAFT


All PM Emissions by Remedy Component and Scope
(in Lbs)
1400
1200
1000
800
600
400
200
0
Track 1 Remedy
Track 2 Remedy
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 2181.8 lbs


All PM Emissions by Remedy Component
Track 1 Remedy = 46.7%
Track 2 Remedy = 53.3%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
PM All Components = 2181.8 lbs


All PM Emissions by Scope
On-site (Scope 1) = 4.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.4%
Other Off-Site (Scope 3b) = 95.3%
PM All Scopes = 2181.8 lbs

DRAFT

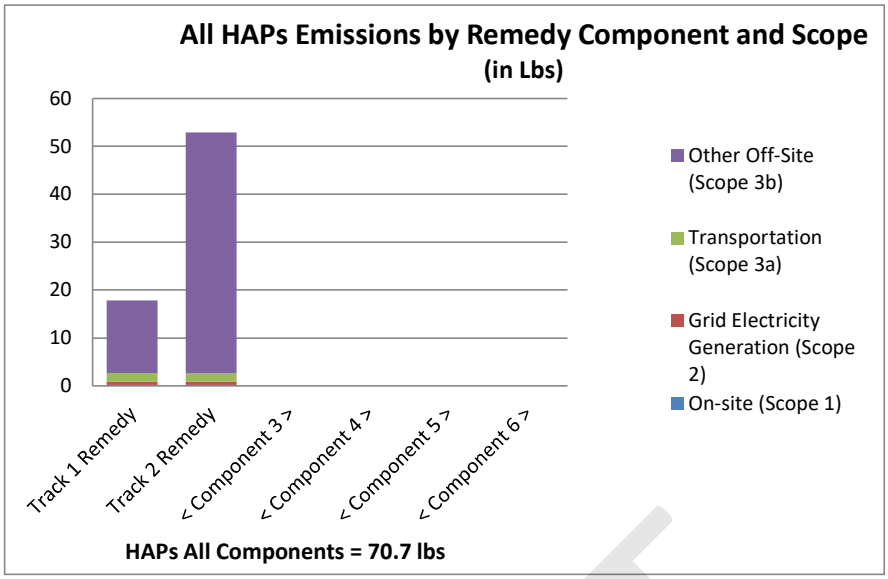
| PM lbs | Track 1 Rei | Track 2 Rei | < Compon | < Compon | < Compon | < Compon | Total | |
|---|---|---|---|---|---|---|---|---|
| On-site (Scope 1) | 47.4 | 47.4 | 0.0 | 0.0 | 0.0 | 0.0 | 94.8 | |
| Generation (Scope 2) | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | d Electricity |
| ısportation (Scope 3a) | 3.8 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | Tran |
| ıer Off-Site (Scope 3b) | 967.3 | 1,111.3 | 0.0 | 0.0 | 0.0 | 0.0 | 2,078.6 | Oth |
| Total | 1,018.6 | 1,163.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2,181.8 | |

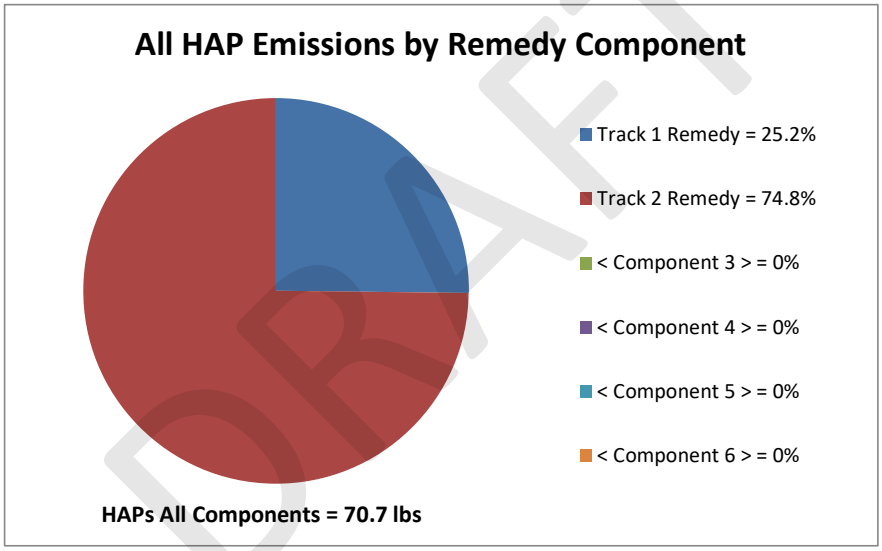
Track 1 Remedy = 46.7%
Track 2 Remedy = 53.3%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

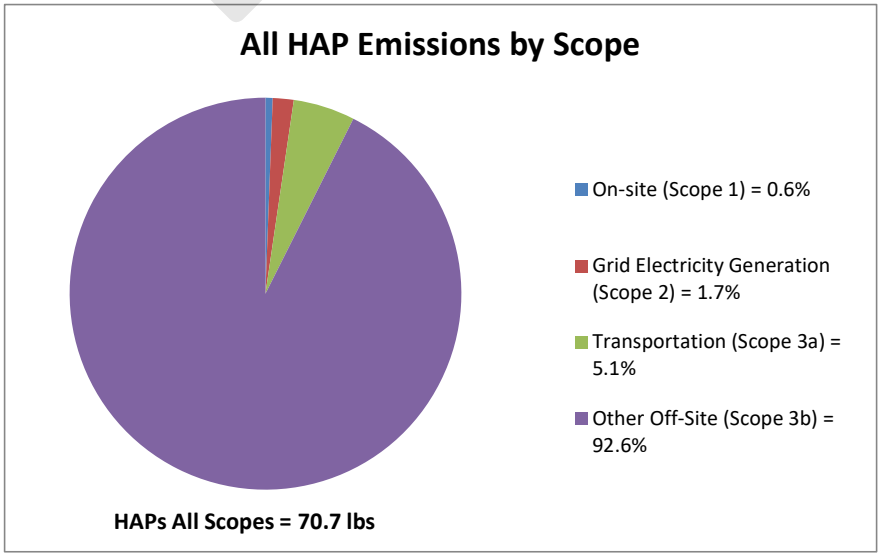
On-site (Scope 1) = 4.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.4%
Other Off-Site (Scope 3b) = 95.3%

PM All Components = 2181.8 lbs
PM All Scopes = 2181.8 lbs

DRAFT


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
60
50
40
30
20
10
0
Track 1 Remedy
Track 2 Remedy
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 70.7 lbs


All HAP Emissions by Remedy Component
Track 1 Remedy = 25.2%
Track 2 Remedy = 74.8%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
HAPs All Components = 70.7 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.6%
Grid Electricity Generation (Scope 2) = 1.7%
Transportation (Scope 3a) = 5.1%
Other Off-Site (Scope 3b) = 92.6%
HAPs All Scopes = 70.7 lbs

DRAFT

HAPs
lbs

| | Track 1 Rei | Track 2 Rei | < Compon | < Compon | < Compon | < Compon | Total |
|---|---|---|---|---|---|---|---|
| On-site (Scope 1) | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| Generation (Scope 2) | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| ısportation (Scope 3a) | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 |
| ıer Off-Site (Scope 3b) | 15.2 | 50.3 | 0.0 | 0.0 | 0.0 | 0.0 | 65.4 |
| Total | 17.8 | 52.9 | 0.0 | 0.0 | 0.0 | 0.0 | 70.7 |

Track 1 Remedy = 25.2%
Track 2 Remedy = 74.8%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

On-site (Scope 1) = 0.6%
Grid Electricity Generation (Scope 2) = 1.7%
Transportation (Scope 3a) = 5.1%
Other Off-Site (Scope 3b) = 92.6%

HAPs All Components = 70.7 lbs
HAPs All Scopes = 70.7 lbs

DRAFT

*Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019*
*291 Wallabout Street Redevelopment Site - BCP Remedial Action*

**Input Summary**

| Remedy Component Number → | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 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) | | | | | | | | | | | | | | Remedy Component Subtotals | | | | | | |
| Item | | Track 1 | Track 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 |
| Landfill gas combusted on-site for energy use | ccf $CH_4$ | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-site biodiesel use | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-site biodiesel use - Other | gal | 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 |
| User-defined on-site renewable energy use #2 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | |
| *On-Site Conventional Energy* | | | | | | | | | | | | | | | | | | | | | | |
| Grid electricity | MWh | 2.9094 | 2.9094 | | | | | | | | | | | | | 2.9094 | 2.9094 | 0 | 0 | 0 | 0 | 5.8188 |
| On-site diesel use - Other | Gal | 195 | 195 | | | | | | | | | | | | | 195 | 195 | 0 | 0 | 0 | 0 | 390 |
| On-site diesel use <75 hp | Gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-site diesel use 75<hp<750 | Gal | 5192.3077 | 5192.3077 | | | | | | | | | | | | | 5192.3077 | 5192.3077 | 0 | 0 | 0 | 0 | 10384.615 |
| On-site diesel use >750 hp | Gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-site gasoline use - Other | Gal | 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 |
| On-site gasoline use >25 hp | Gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-site natural gas use | ccf | 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 |
| On-site compressed natural gas use | ccf | 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 |
| On-site liquified petroleum gas use | gal | 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 |
| Other forms of on-site conventional energy use #2 | TBD | 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 |
| On-site GHG emissions | Lbs CO2e | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-site carbon storage | Lbs CO2e | 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 |
| Other on-site NOx emissions or reductions | Lbs | 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 |
| Other on-site PM emissions or reductions | Lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Electricity Generation** | | | | | | | | | | | | | | | | | | | | | | |
| Grid electricity | MWh | 2.9094 | 2.9094 | | | | | | | | | | | | | 2.9094 | 2.9094 | 0 | 0 | 0 | 0 | 5.8188 |
| Voluntary purchase of renewable electricity | MWh | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Voluntary purchase of RECs | MWh | 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 |
| Biodiesel use - Personnel Transport - User Defined | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Biodiesel use - Equipment Transport | gal | 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 |
| Biodiesel use - Material Transport | gal | 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 |
| Biodiesel use - Waste Transport | gal | 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 |
| Diesel use - Personnel Transport - other vehicles | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel use - Personnel Transport - car | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel use - Personnel Transport - passenger truck | gal | 0 | 43.7 | | | | | | | | | | | | | 0 | 43.7 | 0 | 0 | 0 | 0 | 43.7 |
| Diesel use - Personnel Transport - User Defined | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel use - Equipment Transport | gal | 19.3 | 19.3 | | | | | | | | | | | | | 19.3 | 19.3 | 0 | 0 | 0 | 0 | 38.6 |
| Diesel use - Equipment Transport - User Defined | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel use - Material Transport | gal | 33.5 | 114.167 | | | | | | | | | | | | | 33.5 | 114.167 | 0 | 0 | 0 | 0 | 147.667 |
| Diesel use - Material Transport - User Defined | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel use - Waste Transport | gal | 813.3 | 813.3 | | | | | | | | | | | | | 813.3 | 813.3 | 0 | 0 | 0 | 0 | 1626.6 |
| Diesel use - Waste Transport - User Defined | gal | 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 |
| Gasoline use - Personnel Transport - car | gal | 237 | 247 | | | | | | | | | | | | | 237 | 247 | 0 | 0 | 0 | 0 | 484 |
| Gasoline use - Personnel Transport - passenger truck | gal | 34.9 | 0 | | | | | | | | | | | | | 34.9 | 0 | 0 | 0 | 0 | 0 | 34.9 |
| Gasoline use - Personnel Transport - User Defined | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gasoline use - Equipment Transport | gal | 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 |
| Natural Gas use - Personnel Transport | ccf | 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 |
| Natural Gas use - Equipment Transport | ccf | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | |

DRAFT

*Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019*
*291 Wallabout Street Redevelopment Site - BCP Remedial Action*

**Input Summary**

| Remedy Component Number → | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | 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 | | Track 1 | Track 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 | 866.1 | 990.467 | | | | | | | | | | | | | 866.1 | 990.467 | 0 | 0 | 0 | 0 | 1856.567 |
| Transportation gasoline use | gal | 271.9 | 247 | | | | | | | | | | | | | 271.9 | 247 | 0 | 0 | 0 | 0 | 518.9 |
| Transportation natural gas use | ccf | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined conventional energy transportation #1 | TBD | 10 | 10 | | | | | | | | | | | | | 10 | 10 | 0 | 0 | 0 | 0 | 20 |
| User-defined conventional energy transportation #2 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Renewable Energy* | | | | | | | | | | | | | | | | | | | | | | |
| Transportation biodiesel use | gal | 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 |
| User-defined renewable energy transportation #2 | TBD | 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 |
| Asphalt, mastic | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Asphalt, paving-grade | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethanol, Corn, 95% | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethanol, Corn, 99.7% | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethanol, Petroleum, 99.7% | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gravel/Sand Mix, 65% Gravel | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gravel/sand/clay | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| HDPE | lb | 0 | 608 | | | | | | | | | | | | | 0 | 608 | 0 | 0 | 0 | 0 | 608 |
| Photovoltaic system (installed) | W | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PVC | lb | 3050 | 0 | | | | | | | | | | | | | 3050 | 0 | 0 | 0 | 0 | 0 | 3050 |
| Portland cement, US average | lb | 0 | 0 | | | | | | | | | | | | | | | | | | | |
| Ready-mixed concrete, 20 MPa | ft3 | 0 | 2500 | | | | | | | | | | | | | 0 | 2500 | 0 | 0 | 0 | 0 | 2500 |
| Round Gravel | lb | 180000 | 180000 | | | | | | | | | | | | | 180000 | 180000 | 0 | 0 | 0 | 0 | 360000 |
| Sand | lb | 0 | 555555.56 | | | | | | | | | | | | | 0 | 555555.56 | 0 | 0 | 0 | 0 | 555555.56 |
| Stainless Steel | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Steel | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other refined construction materials | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other unrefined construction materials | lb | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Treatment Materials & Chemicals* | | | | | | | | | | | | | | | | | | | | | | |
| Cheese Whey | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Emulsified vegetable oil | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Granular activated carbon, primary | lbs | 340 | 0 | | | | | | | | | | | | | 340 | 0 | 0 | 0 | 0 | 0 | 340 |
| Granular activated carbon, regenerated | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hydrogen Peroxide, 50% in H2O | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Iron (II) Sulfate | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lime, Hydrated, Packed | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Molasses | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphoric Acid, 70% in H2O | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Potassium Permanganate | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sodium Hydroxide, 50% in H2O | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Treatment Chemicals & Materials | lbs | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Material Type* | | | | | | | | | | | | | | | | | | | | | | |
| Total Virgin Refined Materials | tons | 91.695 | 461.83178 | | | | | | | | | | | | | 91.695 | 461.83178 | 0 | 0 | 0 | 0 | 553.52678 |
| Total Recycled Refined Materials | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Reused Refined Materials | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Refined Material | tons | 91.695 | 461.83178 | | | | | | | | | | | | | 91.695 | 461.83178 | 0 | 0 | 0 | 0 | 553.52678 |
| Total Virgin Unrefined Materials | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Recycled Unrefined Materials | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Reused Unrefined Materials | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Unrefined Material | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Fuel Processing* | | | | | | | | | | | | | | | | | | | | | | |
| Biodiesel produced | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel produced | gal | 6253.4077 | 6377.7747 | | | | | | | | | | | | | 6253.4077 | 6377.7747 | 0 | 0 | 0 | 0 | 12631.182 |
| Gasoline produced | gal | 271.9 | 247 | | | | | | | | | | | | | 271.9 | 247 | 0 | 0 | 0 | 0 | 518.9 |
| Compressed natural gas produced | ccf | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Liquified petroleum gas produced | gal | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Natural gas produced | ccf | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Water Use* | | | | | | | | | | | | | | | | | | | | | | |
| Public Water Supply | gal x 1000 | 6.36 | 2.19 | | | | | | | | | | | | | 6.36 | 2.19 | 0 | 0 | 0 | 0 | 8.55 |
| Extracted Groundwater | gal x 1000 | 90 | 90 | | | | | | | | | | | | | 90 | 90 | 0 | 0 | 0 | 0 | 180 |
| Surface Water | gal x 1000 | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reclaimed Water | gal x 1000 | 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 |
| User-defined water resource #1 | gal x 1000 | 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 |

DRAFT

*Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019*
*291 Wallabout Street Redevelopment Site - BCP Remedial Action*

**Input Summary**

| Remedy Component Number → | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | 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 | | Track 1 | Track 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 |
| Off-site waste water treatment (POTW) | gal x 1000 | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Off-site non-hazardous waste landfill | tons | 2139.025 | 2139.025 | | | | | | | | | | | | | 2139.025 | 2139.025 | 0 | 0 | 0 | 0 | 4278.05 |
| Off-site hazardous waste landfill | tons | 214 | 213.75 | | | | | | | | | | | | | 214 | 213.75 | 0 | 0 | 0 | 0 | 427.75 |
| Recycled/Reused On-Site | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Recycled/Reused Off-Site | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Solid Waste Totals* | | | | | | | | | | | | | | | | | | | | | | |
| Total Non-Hazardous Waste | tons | 2139.025 | 2139.025 | | | | | | | | | | | | | 2139.025 | 2139.025 | 0 | 0 | 0 | 0 | 4278.05 |
| Total Hazardous Waste | tons | 214 | 213.75 | | | | | | | | | | | | | 214 | 213.75 | 0 | 0 | 0 | 0 | 427.75 |
| Total Recycled/Reused | tons | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Waste (all types) | tons | 2353.025 | 2352.775 | | | | | | | | | | | | | 2353.025 | 2352.775 | 0 | 0 | 0 | 0 | 4705.8 |
| *Lab Services* | | | | | | | | | | | | | | | | | | | | | | |
| Off-site Laboratory Analysis - Other | sample | 20 | 26 | | | | | | | | | | | | | 20 | 26 | 0 | 0 | 0 | 0 | 46 |
| Off-site Laboratory Analysis - Metals | sample | 10 | 13 | | | | | | | | | | | | | 10 | 13 | 0 | 0 | 0 | 0 | 23 |
| Off-site Laboratory Analysis - Mercury | sample | 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 |
| Off-site Laboratory Analysis - Alkalinity | sample | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Off-site Laboratory Analysis - Perchlorate | sample | 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 |
| Off-site Laboratory Analysis - Sulfate | sample | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Off-site Laboratory Analysis - PCBs | sample | 10 | 13 | | | | | | | | | | | | | 10 | 13 | 0 | 0 | 0 | 0 | 23 |
| Off-site Laboratory Analysis - VOCs | sample | 13 | 16 | | | | | | | | | | | | | 13 | 16 | 0 | 0 | 0 | 0 | 29 |
| Off-site Laboratory Analysis - SVOCs | sample | 10 | 13 | | | | | | | | | | | | | 10 | 13 | 0 | 0 | 0 | 0 | 23 |
| *Resource Extraction for Electricity* | | | | | | | | | | | | | | | | | | | | | | |
| Coal extraction and processing | MWh | 0.887367 | 0.887367 | | | | | | | | | | | | | 0.887367 | 0.887367 | 0 | 0 | 0 | 0 | 1.774734 |
| Natural gas extraction and processing | MWh | 0.9862866 | 0.9862866 | | | | | | | | | | | | | 0.9862866 | 0.9862866 | 0 | 0 | 0 | 0 | 1.9725732 |
| Nuclear fuel extraction and processing | MWh | 0.5760612 | 0.5760612 | | | | | | | | | | | | | 0.5760612 | 0.5760612 | 0 | 0 | 0 | 0 | 1.1521224 |
| Oil extraction and processing | MWh | 0.0203658 | 0.0203658 | | | | | | | | | | | | | 0.0203658 | 0.0203658 | 0 | 0 | 0 | 0 | 0.0407316 |
| Other fuel extraction and processing | MWh | 0.0029094 | 0.0029094 | | | | | | | | | | | | | 0.0029094 | 0.0029094 | 0 | 0 | 0 | 0 | 0.0058188 |
| *Electricity Transmission* | | | | | | | | | | | | | | | | | | | | | | |
| Transmission and distribution losses | MWh | 2.9094 | 2.9094 | | | | | | | | | | | | | 2.9094 | 2.9094 | 0 | 0 | 0 | 0 | 5.8188 |

DRAFT

**Input Summary**

| Remedy Component Number → | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | 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 | | Track 1 | Track 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 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #2 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #3 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #4 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #5 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #6 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #7 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #8 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #9 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #10 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #11 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #12 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #13 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #14 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #15 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #16 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #17 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #18 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #19 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined material #20 | TBD | 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 |
| User-defined recycled/reused on-site #2 | TBD | 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 |
| User-defined recycled/reused off-site #1 | TBD | 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 |
| User-defined recycled/reused off-site #3 | TBD | 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 |
| User-defined non-hazardous waste destination #2 | TBD | 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 |
| User-defined hazardous waste destination #1 | TBD | 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 |
| User-defined hazardous waste destination #3 | TBD | 0 | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

DRAFT

## Track 1 Remedy - On-Site Footprint (Scope 1)

| Contributors to Footprints | Units | Usage | Energy | | GHG | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| **On-Site** | | | | | | | | | | | | | | |
| *On-site Renewable Energy* | | | | | | | | | | | | | | |
| Renewable electricity generated on-site | MWh | 0 | 3.413 | 0 | | | | | | | | | | |
| Landfill gas combusted on-site for energy use | ccf CH4 | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| On-site biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| On-site biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| User-defined on-site renewable energy use #1 | gal | 0 | 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 | 0 |
| **On-site Renewable Energy Subtotals** | | | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| *On-site Conventional Energy* | | | | | | | | | | | | | | |
| On-site grid electricity | MWh | 2.9094 | 3.413 | 9.929782 | | | | | | | | | | |
| On-site diesel use - Other | Gal | 195 | 0.139 | 27.105 | 22.5 | 4387.5 | 0.17 | 33.15 | 0.0054 | 1.053 | 0.0034 | 0.663 | 5.2E-06 | 0.001014 |
| On-site diesel use <75 hp | Gal | 0 | 0.139 | 0 | 22.21 | 0 | 0.1565 | 0 | 0.000145 | 0 | 0.0145 | 0 | 0.00004 | 0 |
| On-site diesel use 75<hp<750 | Gal | 5192.308 | 0.139 | 721.7308 | 22.24 | 115476.9 | 0.101 | 524.4231 | 0.00013 | 0.675 | 0.009 | 46.73077 | 0.00004 | 0.207692 |
| On-site diesel use >750 hp | Gal | 0 | 0.139 | 0 | 22.24 | 0 | 0.149 | 0 | 0.00013 | 0 | 0.006 | 0 | 0.00004 | 0 |
| On-site gasoline use - Other | Gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| On-site gasoline use <25 hp | Gal | 0 | 0.124 | 0 | 17.48 | 0 | 0.037 | 0 | 0.00025 | 0 | 0.165 | 0 | 0.00008 | 0 |
| On-site gasoline use >25 hp | Gal | 0 | 0.124 | 0 | 19.93 | 0 | 0.032 | 0 | 0.00029 | 0 | 0.002 | 0 | 0.00009 | 0 |
| On-site natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| On-site compressed natural gas use - Other | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| On-site compressed natural gas use | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| On-site liquified petroleum gas use - Other | gal | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 0 | 0 | 0 |
| On-site liquified petroleum gas use | gal | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 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 | 0 |
| Other forms of on-site conventional energy use #2 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **On-site Conventional Energy Subtotals** | | | | **759** | | **119,864** | | **558** | | **2** | | **47** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| *Other On-site Emissions* | | | | | | | | | | | | | | |
| On-site HAP process emissions | lbs | 0 | | | | | | | | | | | 1 | 0 |
| On-site GHG emissions | lbs CO2e | 0 | | | 1 | 0 | | | | | | | | |
| On-site carbon storage | lbs CO2e | 0 | | | 1 | 0 | | | | | | | | |
| GHG avoided by flaring on-site landfill methane | Lbs | 0 | | | -262 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Other on-site NOx emissions or reductions | lbs | 0 | | | | | 1 | 0 | | | | | | |
| Other on-site SOx emissions or reductions | lbs | 0 | | | | | | | 1 | 0 | | | | |
| Other on-site PM emissions or reductions | lbs | 0 | | | | | | | | | 1 | 0 | | |
| User-defined recycled/reused on-site #2 | TBD | 0 | 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 | 0 |
| User-defined recycled/reused off-site #1 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Notes: | | | | | | | | | | | | | | |
| **On-site Totals** | | | | **758.77** | | **119,864** | | **558** | | **2** | | **47** | | **0** |

DRAFT

## Track 1 Remedy - Electricity Generation Footprint (Scope 2)

| Contributors to Footprints | Units | Usage | Energy | | GHG | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Electricity Generation* | | | | | | | | | | | | | | |
| Grid electricity | MWh | 2.9094 | 6.929 | 20.15923 | 1124.3 | 3271.038 | 2.2421 | 6.523166 | 4.607887 | 13.40619 | 0.057518 | 0.167343 | 0.210237 | 0.611664 |
| | | | | | | | | | | | | | | |
| Voluntary purchase of renewable electricity | MWh | 0 | | | | | | | | | | | | |
| Voluntary purchase of RECs | MWh | 0 | | | | | | | | | | | | |
| Notes: | | | | | | | | | | | | | | |

DRAFT

## Track 1 Remedy - Transportation Footprint (Scope 3a)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Conventional Energy* | | | | | | | | | | | | | | |
| Transportation diesel use | gal | 866.1 | 0.139 | 120.3879 | 22.5 | 19487.25 | 0.17 | 147.237 | 0.0054 | 4.67694 | 0.0034 | 2.94474 | 5.2E-06 | 0.004504 |
| Transportation diesel use - car | gal | 0 | 0.139 | 0 | 22.57 | 0 | 0.015 | 0 | 0.0002 | 0 | 0.003 | 0 | 0.00252 | 0 |
| Transportation diesel use - passenger truck | gal | 0 | 0.139 | 0 | 22.545 | 0 | 0.0585 | 0 | 0.0002 | 0 | 0.007 | 0 | 0.002605 | 0 |
| Transportation diesel use - User Defined | gal | 0 | 0.139 | 0 | 22.5 | 0 | 0.17 | 0 | 0.0054 | 0 | 0.0034 | 0 | 5.2E-06 | 0 |
| Transportation gasoline use | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Transportation gasoline use - car | gal | 237 | 0.124 | 29.388 | 19.77 | 4685.49 | 0.027 | 6.399 | 0.00036 | 0.08532 | 0.003 | 0.711 | 0.0067 | 1.5879 |
| Transportation gasoline use - passenger truck | gal | 34.9 | 0.124 | 4.3276 | 19.79 | 690.671 | 0.035 | 1.2215 | 0.00036 | 0.012564 | 0.003 | 0.1047 | 0.00661 | 0.230689 |
| Transportation gasoline use - User Defined | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Transportation natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Transportation natural gas use - User Defined | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| User-defined conventional energy transportation #1 | TBD | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined conventional energy transportation #2 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Conventional Energy Subtotals** | | | | **154** | | **24,863** | | **155** | | **5** | | **4** | | **2** |
| Notes: | | | | | | | | | | | | | | |
| *Renewable Energy* | | | | | | | | | | | | | | |
| Transportation biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Transportation biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| User-defined renewable energy transportation #1 | TBD | 0 | Biodiesel | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ref. | |
| User-defined renewable energy transportation #2 | TBD | 0 | mpg or pmp | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Renewable Energy Subtotals** | | | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| **Transportation Totals** | | | | **154** | | **24863** | | **155** | | **5** | | **4** | | **2** |

DRAFT

## Track 1 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Construction Materials* | | | | | | | | | | | | | | |
| Aluminum, Rolled Sheet | lb | 0 | 0.0633 | 0 | 9.15 | 0 | 0.0148 | 0 | 0.0283 | 0 | 0.0088 | 0 | 0.00102 | 0 |
| Asphalt, mastic | lb | 0 | 0.0412 | 0 | 0.85 | 0 | 0.00271 | 0 | 0.00798 | 0 | 0.000766 | 0 | 0.00107 | 0 |
| Asphalt, paving-grade | lb | 0 | 0.5 | 0 | 8.58 | 0 | 0.0299 | 0 | 0.0969 | 0 | 0.0091 | 0 | 0.0133 | 0 |
| Ethanol, Corn, 95% | lb | 0 | 0.0318 | 0 | -0.0199 | 0 | 0.00425 | 0 | 0.00303 | 0 | 0.000469 | 0 | 8.46E-05 | 0 |
| Ethanol, Corn, 99.7% | lb | 0 | 0.0324 | 0 | 0.0591 | 0 | 0.00431 | 0 | 0.0031 | 0 | 0.000472 | 0 | 0.000087 | 0 |
| Ethanol, Petroleum, 99.7% | lb | 0 | 0.0205 | 0 | 1.25 | 0 | 0.00199 | 0 | 0.00214 | 0 | 0.000277 | 0 | 5.89E-05 | 0 |
| Gravel/Sand Mix, 65% Gravel | lb | 0 | 2.48E-05 | 0 | 0.0024 | 0 | 0.000018 | 0 | 4.52E-06 | 0 | 2.61E-06 | 0 | 3.08E-07 | 0 |
| Gravel/sand/clay | lb | 0 | 0.000028 | 0 | 0.00335 | 0 | 1.65E-05 | 0 | 0.000015 | 0 | 0.000002 | 0 | 2.05E-10 | 0 |
| HDPE | lb | 0 | 0.0332 | 0 | 1.94 | 0 | 0.00325 | 0 | 0.00409 | 0 | 0.000439 | 0 | 6.41E-05 | 0 |
| Photovoltaic system (installed) | W | 0 | 0.0336 | 0 | 4.47 | 0 | 0.015 | 0 | 0.032 | 0 | 0.00063 | 0 | 2.9E-06 | 0 |
| PVC | lb | 3050 | 0.0262 | 79.91 | 2.02 | 6161 | 0.004 | 12.2 | 0.00274 | 8.357 | 0.000372 | 1.1346 | 0.000375 | 1.14375 |
| Portland cement, US average | lb | 0 | 0.0139 | 0 | 1.34 | 0 | 0.00654 | 0 | 0.0104 | 0 | 0.00378 | 0 | 0.00097 | 0 |
| Ready-mixed concrete, 20 MPa | ft3 | 0 | 0.217 | 0 | 19.5 | 0 | 0.0975 | 0 | 0.154 | 0 | 0.057 | 0 | 0.0141 | 0 |
| Round Gravel | lb | 180000 | 2.48E-05 | 4.464 | 0.0024 | 432 | 0.000018 | 3.24 | 4.52E-06 | 0.8136 | 2.61E-06 | 0.4698 | 3.08E-07 | 0.05544 |
| Sand | lb | 0 | 2.48E-05 | 0 | 0.0024 | 0 | 0.000018 | 0 | 4.52E-06 | 0 | 2.61E-06 | 0 | 3.08E-07 | 0 |
| Stainless Steel | lb | 0 | 0.0116 | 0 | 3.4 | 0 | 0.0075 | 0 | 0.012 | 0 | 0.0044 | 0 | 0.000144 | 0 |
| Steel | lb | 0 | 0.0044 | 0 | 1.1 | 0 | 0.0014 | 0 | 0.0017 | 0 | 0.00056 | 0 | 0.000067 | 0 |
| Other refined construction materials | lb | 0 | 0.01885 | 0 | 2.115 | 0 | 0.004038 | 0 | 0.005133 | 0 | 0.001443 | 0 | 0.000163 | 0 |
| Other unrefined construction materials | lb | 0 | 0.000028 | 0 | 0.00335 | 0 | 1.65E-05 | 0 | 0.000015 | 0 | 0.000002 | 0 | 2.05E-10 | 0 |

Notes:

DRAFT

## Track 1 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Treatment Materials & Chemicals* | | | | | | | | | | | | | | |
| Cheese Whey | lbs | 0 | 0.0025 | 0 | 0.031 | 0 | 0.000062 | 0 | 0.000033 | 0 | 0.000002 | 0 | NP | |
| Emulsified vegetable oil | lbs | 0 | 0.0077 | 0 | 3.44 | 0 | 0.0066 | 0 | 0.0019 | 0 | 0.000033 | 0 | NP | |
| Granular activated carbon, primary | lbs | 340 | 0.0356 | 12.104 | 4.82 | 1638.8 | 0.0793 | 26.962 | 0.128 | 43.52 | 0.000987 | 0.33558 | 0.000657 | 0.22338 |
| Granular activated carbon, regenerated | lbs | 0 | 0.00873 | 0 | 1.7 | 0 | 0.00733 | 0 | 0.0129 | 0 | 0.000886 | 0 | 0.000671 | 0 |
| Hydrogen Peroxide, 50% in H2O | lbs | 0 | 0.00979 | 0 | 1.19 | 0 | 0.00142 | 0 | 0.0024 | 0 | 0.000308 | 0 | 6.29E-05 | 0 |
| Iron (II) Sulfate | lbs | 0 | 0.00147 | 0 | 0.167 | 0 | 0.000316 | 0 | 0.000589 | 0 | 0.000103 | 0 | 0.000023 | 0 |
| Lime, Hydrated, Packed | lbs | 0 | 0.00206 | 0 | 0.762 | 0 | 0.000513 | 0 | 0.000358 | 0 | 0.00013 | 0 | 6.57E-06 | 0 |
| Molasses | lbs | 0 | 0.0044 | 0 | 0.48 | 0 | 0.0011 | 0 | 0.00024 | 0 | 4.1E-06 | 0 | NP | |
| Phosphoric Acid, 70% in H2O | lbs | 0 | 0.0067 | 0 | 0.882 | 0 | 0.00282 | 0 | 0.0294 | 0 | 0.00171 | 0 | 0.000163 | 0 |
| Potassium Permanganate | lbs | 0 | 0.00981 | 0 | 1.16 | 0 | 0.00234 | 0 | 0.0032 | 0 | 0.000422 | 0 | 0.000122 | 0 |
| Sodium Hydroxide, 50% in H2O | lbs | 0 | 0.00977 | 0 | 1.09 | 0 | 0.00194 | 0 | 0.00352 | 0 | 0.000403 | 0 | 0.000129 | 0 |
| Other Treatment Chemicals & Materials | lbs | 0 | 0.015 | 0 | 1.67 | 0 | 0.003 | 0 | 0.0065 | 0 | 0.00061 | 0 | 0.000016 | 0 |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Fuel Processing* | | | | | | | | | | | | | | |
| Biodiesel produced | gal | 0 | 0.029 | 0 | -16.8 | 0 | 0.018 | 0 | 0.033 | 0 | 0.00082 | 0 | NP | |
| Diesel produced | gal | 6253.408 | 0.017 | 106.3079 | 3.02 | 18885.29 | 0.0051 | 31.89238 | 0.0062 | 38.77113 | 0.0017 | 10.63079 | 0.0011 | 6.878748 |
| Gasoline produced | gal | 271.9 | 0.033 | 8.9727 | 2.8 | 761.32 | 0.0046 | 1.25074 | 0.005 | 1.3595 | 0.0015 | 0.40785 | 0.001 | 0.2719 |
| Liquefied Petroleum Gas Produced | gal | 0 | 0.088 | 0 | 1.47 | 0 | 0.0016 | 0 | 0.0024 | 0 | 0.0007 | 0 | 0.0003 | 0 |
| Natural Gas - Compressed Produced | ccf | 0 | 19.983 | 0 | 343.92 | 0 | 0.4732 | 0 | 2.1651 | 0 | 0.1846 | 0 | 0.2895 | 0 |
| Natural Gas Produced | ccf | 0 | 0.0052 | 0 | 2.2 | 0 | 0.0037 | 0 | 0.0046 | 0 | 0.000072 | 0 | 6.1E-06 | 0 |
| **Fuel Processing Subtotals** | | | | **115.2806** | | **19646.61** | | **33.14312** | | **40.13063** | | **11.03864** | | **7.150648** |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Public water* | gal x 1000 | 6.36 | 0.0092 | 0.058512 | 5 | 31.8 | 0.0097 | 0.061692 | 0.0059 | 0.037524 | 0.016 | 0.10176 | 0.000015 | 9.54E-05 |
| *User-defined water resource #1* | gal x 1000 | 0 | 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 | 0 |
| Notes: | | | | | | | | | | | | | | |

DRAFT

## Track 1 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Off-Site Services* | | | | | | | | | | | | | | |
| Hazardous waste incineration | lb | 0 | 0.00609 | 0 | 2.43 | 0 | 0.0016 | 0 | 0.00167 | 0 | 0.000209 | 0 | 0.000087 | 0 |
| Off-site waste water treatment (POTW) | gal x 1000 | 0 | 0.015 | 0 | 4.4 | 0 | 0.016 | 0 | 0.015 | 0 | NP | | NP | |
| Off-site non-hazardous waste landfill | ton | 2139.025 | 0.16 | 342.244 | 25 | 53475.63 | 0.14 | 299.4635 | 0.075 | 160.4269 | 0.4 | 855.61 | 0.0014 | 2.994635 |
| Off-site hazardous waste landfill | ton | 214 | 0.18 | 38.52 | 27.5 | 5885 | 0.154 | 32.956 | 0.0825 | 17.655 | 0.44 | 94.16 | 0.00154 | 0.32956 |
| Off-site Laboratory Analysis - Other | sample | 20 | 0.058071 | 1.161421 | 6.853438 | 137.0688 | 0.131402 | 2.628039 | 0.303876 | 6.077515 | 0.04557 | 0.911396 | 0.033017 | 0.660331 |
| Off-site Laboratory Analysis - Metals | sample | 10 | 0.212 | 2.12 | 27.4693 | 274.693 | 0.6423 | 6.423 | 1.5072 | 15.072 | 0.2264 | 2.264 | 0.1643 | 1.643 |
| Off-site Laboratory Analysis - Mercury | sample | 0 | 0.073171 | 0 | 9.325458 | 0 | 0.212744 | 0 | 0.49824 | 0 | 0.074736 | 0 | 0.054233 | 0 |
| Off-site Laboratory Analysis - Inorganic Anions | sample | 0 | 0.007402 | 0 | 0.645948 | 0 | 0.006768 | 0 | 0.014793 | 0 | 0.002202 | 0 | 0.001554 | 0 |
| Off-site Laboratory Analysis - Alkalinity | sample | 0 | 0.01744 | 0 | 1.338192 | 0 | 0.007011 | 0 | 0.01325 | 0 | 0.00194 | 0 | 0.001283 | 0 |
| Off-site Laboratory Analysis - Perchlorate | sample | 0 | 0.023885 | 0 | 1.871705 | 0 | 0.007981 | 0 | 0.014154 | 0 | 0.002055 | 0 | 0.001287 | 0 |
| Off-site Laboratory Analysis - Nitrogen/Nitrate | sample | 0 | 0.033648 | 0 | 4.29897 | 0 | 0.095459 | 0 | 0.222665 | 0 | 0.03351 | 0 | 0.024251 | 0 |
| Off-site Laboratory Analysis - Sulfate | sample | 0 | 0.014122 | 0 | 1.472673 | 0 | 0.007981 | 0 | 0.013602 | 0 | 0.00198 | 0 | 0.001202 | 0 |
| Off-site Laboratory Analysis - PCBs | sample | 10 | 0.051277 | 0.512769 | 5.224902 | 52.24902 | 0.083334 | 0.833339 | 0.190477 | 1.904774 | 0.028439 | 0.284393 | 0.021208 | 0.212083 |
| Off-site Laboratory Analysis - VOCs | sample | 13 | 0.076204 | 0.990658 | 9.016814 | 117.2186 | 0.104498 | 1.358475 | 0.227074 | 2.951959 | 0.033951 | 0.441361 | 0.023589 | 0.30666 |
| Off-site Laboratory Analysis - SVOCs | sample | 10 | 0.07156 | 0.715602 | 7.870422 | 78.70422 | 0.145945 | 1.459445 | 0.337304 | 3.373038 | 0.050485 | 0.504853 | 0.037258 | 0.372577 |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Resource Extraction for Electricity* | | | | | | | | | | | | | | |
| Coal extraction and processing | MWh | 0.887367 | 3.1 | 2.709841 | 180.0 | 159.7261 | 0.8 | 0.683273 | 0.2 | 0.133105 | 0.0 | 0.015973 | NP | |
| Natural gas extraction and processing | MWh | 0.986287 | 1.6 | 1.609422 | 270.0 | 266.2974 | 0.2 | 0.177532 | 13.0 | 12.82173 | 0.0 | 0.007003 | NP | |
| Nuclear fuel extraction and processing | MWh | 0.576061 | 0.2 | 0.089561 | 25.0 | 14.40153 | 0.2 | 0.086409 | 0.5 | 0.288031 | 0.0 | 0.000864 | NP | |
| Oil extraction and processing | MWh | 0.020366 | 2.3 | 0.046748 | 270.0 | 5.498766 | 1.7 | 0.034622 | 0.1 | 0.001405 | 0.0 | 0.000855 | NP | |
| Other fuel extraction and processing | MWh | 0.002909 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Resource Extraction Subtotals** | | | | **4.455573** | | **445.9237** | | **0.981835** | | **13.24427** | | **0.024695** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Electricity Transmission* | | | | | | | | | | | | | | |
| Transmission and distribution losses | MWh | 2.9094 | 1.0342 | 3.008901 | 112.43 | 327.1038 | 0.22421 | 0.652317 | 0.460789 | 1.340619 | 0.005752 | 0.016734 | 0.021024 | 0.061166 |
| Notes: | | | | | | | | | | | | | | |

DRAFT

## Track 1 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *User-defined Materials* | | | | | | | | | | | | | | |
| User-defined material #1 | TBD | 0 | 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 | 0 |
| User-defined material #3 | TBD | 0 | 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 | 0 |
| User-defined material #5 | TBD | 0 | 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 | 0 |
| User-defined material #7 | TBD | 0 | 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 | 0 |
| User-defined material #9 | TBD | 0 | 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 | 0 |
| User-defined material #11 | TBD | 0 | 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 | 0 |
| User-defined material #13 | TBD | 0 | 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 | 0 |
| User-defined material #15 | TBD | 0 | 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 | 0 |
| User-defined material #17 | TBD | 0 | 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 | 0 |
| User-defined material #19 | TBD | 0 | 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 | 0 |
| Notes: | | | | | | | | | | | | | | |
| *User-defined Waste Destinations* | | | | | | | | | | | | | | |
| User-defined recycled/reused off-site #1 | TBD | 0 | 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 | 0 |
| User-defined recycled/reused off-site #3 | TBD | 0 | y(MMBtu/u | | lbs CO2e/u | | Ox(lbs/unit) | | Ox(lbs/unit) | | M(lbs/unit) | | APs(lbs/unit | |
| User-defined non-hazardous waste destination #1 | TBD | 0 | 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 | 0 |
| User-defined non-hazardous waste destination #3 | TBD | 0 | 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 | 0 |
| User-defined hazardous waste destination #2 | TBD | 0 | 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 | 0 |
| Notes: | | | | | | | | | | | | | | |
| **Off-site Totals** | | | | **605.5461** | | **88703.8** | | **422.3628** | | **314.9048** | | **967.2978** | | **15.15333** |

DRAFT

## Track 1 Remedy - Intermediate Totals

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| **Total Grid Electricity Footprint** | | | | | | | | | | | | | | |
| On-site grid electricity | MWh | 2.9094 | 3.413 | 9.929782 | | | | | | | | | | |
| *Electricity Generation* | | | | | | | | | | | | | | |
| Grid electricity | MWh | 2.9094 | 6.929 | 20.15923 | 1124.3 | 3271.038 | 2.2421 | 6.523166 | 4.607887 | 13.40619 | 0.057518 | 0.167343 | 0.210237 | 0.611664 |
| *Resource Extraction for Electricity* | | | | | | | | | | | | | | |
| Coal extraction and processing | MWh | 0.887367 | 3.1 | 2.709841 | 180.0 | 159.7261 | 0.8 | 0.683273 | 0.2 | 0.133105 | 0.0 | 0.015973 | NP | |
| Natural gas extraction and processing | MWh | 0.986287 | 1.6 | 1.609422 | 270.0 | 266.2974 | 0.2 | 0.177532 | 13.0 | 12.82173 | 0.0 | 0.007003 | NP | |
| Nuclear fuel extraction and processing | MWh | 0.576061 | 0.2 | 0.089561 | 25.0 | 14.40153 | 0.2 | 0.086409 | 0.5 | 0.288031 | 0.0 | 0.000864 | NP | |
| Oil extraction and processing | MWh | 0.020366 | 2.3 | 0.046748 | 270.0 | 5.498766 | 1.7 | 0.034622 | 0.1 | 0.001405 | 0.0 | 0.000855 | NP | |
| Other fuel extraction and processing | MWh | 0.002909 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Electricity Transmission* | | | | | | | | | | | | | | |
| Transmission and distribution losses | MWh | 2.9094 | 1.0342 | 3.008901 | 112.43 | 327.1038 | 0.22421 | 0.652317 | 0.460789 | 1.340619 | 0.005752 | 0.016734 | 0.021024 | 0.061166 |
| **Total Grid Electricity Footprint** | | | | **38** | | **4044** | | **8** | | **28** | | **0** | | **1** |
| **Total Fuel Footprints** | | | | | | | | | | | | | | |
| Total Gasoline Footprint | | | | | | | | | | | | | | |
| On-site gasoline use - Other | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| On-site gasoline use <25 hp | gal | 0 | 0.124 | 0 | 17.48 | 0 | 0.037 | 0 | 0.00025 | 0 | 0.165 | 0 | 0.00008 | 0 |
| On-site gasoline use >25 hp | gal | 0 | 0.124 | 0 | 19.93 | 0 | 0.032 | 0 | 0.00029 | 0 | 0.002 | 0 | 0.00009 | 0 |
| Transportation gasoline use | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Transportation gasoline use - car | gal | 237 | 0.124 | 29.388 | 19.77 | 4685.49 | 0.027 | 6.399 | 0.00036 | 0.08532 | 0.003 | 0.711 | 0.0067 | 1.5879 |
| Transportation gasoline use - passenger truck | gal | 34.9 | 0.124 | 4.3276 | 19.79 | 690.671 | 0.035 | 1.2215 | 0.00036 | 0.012564 | 0.003 | 0.1047 | 0.00661 | 0.230689 |
| Transportation gasoline use - User Defined | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Gasoline produced | gal | 271.9 | 0.033 | 8.9727 | 2.8 | 761.32 | 0.0046 | 1.25074 | 0.005 | 1.3595 | 0.0015 | 0.40785 | 0.001 | 0.2719 |
| **Total Gasoline Footprint** | | **271.9** | | **42.6883** | | **6137.481** | | **8.87124** | | **1.457384** | | **1.22355** | | **2.090489** |
| Total Diesel Footprint | | | | | | | | | | | | | | |
| On-site diesel use - Other | gal | 195 | 0.139 | 27.105 | 22.5 | 4387.5 | 0.17 | 33.15 | 0.0054 | 1.053 | 0.0034 | 0.663 | 5.2E-06 | 0.001014 |
| On-site diesel use <75 hp | gal | 0 | 0.139 | 0 | 22.21 | 0 | 0.1565 | 0 | 0.000145 | 0 | 0.0145 | 0 | 0.00004 | 0 |
| On-site diesel use 75<hp<750 | gal | 5192.308 | 0.139 | 721.7308 | 22.24 | 115476.9 | 0.101 | 524.4231 | 0.00013 | 0.675 | 0.009 | 46.73077 | 0.00004 | 0.207692 |
| On-site diesel use >750 hp | gal | 0 | 0.139 | 0 | 22.24 | 0 | 0.149 | 0 | 0.00013 | 0 | 0.006 | 0 | 0.00004 | 0 |
| Transportation diesel use | gal | 866.1 | 0.139 | 120.3879 | 22.5 | 19487.25 | 0.17 | 147.237 | 0.0054 | 4.67694 | 0.0034 | 2.94474 | 5.2E-06 | 0.004504 |
| Transportation diesel use - car | gal | 0 | 0.139 | 0 | 22.57 | 0 | 0.015 | 0 | 0.0002 | 0 | 0.003 | 0 | 0.00252 | 0 |
| Transportation diesel use - passenger truck | gal | 0 | 0.139 | 0 | 22.545 | 0 | 0.0585 | 0 | 0.0002 | 0 | 0.007 | 0 | 0.002605 | 0 |
| Transportation diesel use - User Defined | gal | 0 | 0.139 | 0 | 22.5 | 0 | 0.17 | 0 | 0.0054 | 0 | 0.0034 | 0 | 5.2E-06 | 0 |
| Diesel produced | gal | 6253.408 | 0.017 | 106.3079 | 3.02 | 18885.29 | 0.0051 | 31.89238 | 0.0062 | 38.77113 | 0.0017 | 10.63079 | 0.0011 | 6.878748 |
| **Total Diesel Footprint** | | **6253.408** | | **975.5316** | | **158237** | | **736.7025** | | **45.17607** | | **60.9693** | | **7.091958** |
| Total Biodiesel Footprint | | | | | | | | | | | | | | |
| On-site biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| On-site biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Transportation biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Transportation biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Biodiesel produced | gal | 0 | 0.029 | 0 | -16.8 | 0 | 0.018 | 0 | 0.033 | 0 | 0.00082 | 0 | NP | |
| **Total Biodiesel Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Total Natural Gas Footprint | | | | | | | | | | | | | | |
| On-site natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Transportation natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Transportation natural gas use - User Defined | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Natural gas produced | ccf | 0 | 0.0052 | 0 | 2.2 | 0 | 0.0037 | 0 | 0.0046 | 0 | 0.000072 | 0 | 6.1E-06 | 0 |
| **Total Natural Gas Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Total Liquified Petroleum Gas Footprint | | | | | | | | | | | | | | |
| On-site liquified petroleum gas use - Other | ccf | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 0 | 0 | 0 |
| On-site liquified petroleum gas use | ccf | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 0 | 0 | 0 |
| Liquified petroleum gas produced | ccf | 0 | 0.088 | 0 | 1.47 | 0 | 0.0016 | 0 | 0.0024 | 0 | 0.0007 | 0 | 0.0003 | 0 |
| **Total Natural Gas Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Total Compressed Gas Footprint | | | | | | | | | | | | | | |
| On-site compressed gas use - Other | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| On-site compressed gas use | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| Compressed gas produced | ccf | 0 | 19.983 | 0 | 343.92 | 0 | 0.4732 | 0 | 2.1651 | 0 | 0.1846 | 0 | 0.2895 | 0 |
| **Total Natural Gas Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |

Notes:

***Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.***

Space below available for notes and calculations:

DRAFT

## Track 2 Remedy - On-Site Footprint (Scope 1)

| Contributors to Footprints | Units | Usage | Energy | | GHG | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| **On-Site** | | | | | | | | | | | | | | |
| *On-site Renewable Energy* | | | | | | | | | | | | | | |
| Renewable electricity generated on-site | MWh | 0 | 3.413 | 0 | | | | | | | | | | |
| Landfill gas combusted on-site for energy use | ccf CH4 | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| On-site biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| On-site biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| User-defined on-site renewable energy use #1 | gal | 0 | 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 | 0 |
| **On-site Renewable Energy Subtotals** | | | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| *On-site Conventional Energy* | | | | | | | | | | | | | | |
| On-site grid electricity | MWh | 2.9094 | 3.413 | 9.929782 | | | | | | | | | | |
| On-site diesel use - Other | Gal | 195 | 0.139 | 27.105 | 22.5 | 4387.5 | 0.17 | 33.15 | 0.0054 | 1.053 | 0.0034 | 0.663 | 5.2E-06 | 0.001014 |
| On-site diesel use <75 hp | Gal | 0 | 0.139 | 0 | 22.21 | 0 | 0.1565 | 0 | 0.000145 | 0 | 0.0145 | 0 | 0.00004 | 0 |
| On-site diesel use 75<hp<750 | Gal | 5192.308 | 0.139 | 721.7308 | 22.24 | 115476.9 | 0.101 | 524.4231 | 0.00013 | 0.675 | 0.009 | 46.73077 | 0.00004 | 0.207692 |
| On-site diesel use >750 hp | Gal | 0 | 0.139 | 0 | 22.24 | 0 | 0.149 | 0 | 0.00013 | 0 | 0.006 | 0 | 0.00004 | 0 |
| On-site gasoline use - Other | Gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| On-site gasoline use <25 hp | Gal | 0 | 0.124 | 0 | 17.48 | 0 | 0.037 | 0 | 0.00025 | 0 | 0.165 | 0 | 0.00008 | 0 |
| On-site gasoline use >25 hp | Gal | 0 | 0.124 | 0 | 19.93 | 0 | 0.032 | 0 | 0.00029 | 0 | 0.002 | 0 | 0.00009 | 0 |
| On-site natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| On-site compressed natural gas use - Other | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| On-site compressed natural gas use | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| On-site liquified petroleum gas use - Other | gal | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 0 | 0 | 0 |
| On-site liquified petroleum gas use | gal | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 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 | 0 |
| Other forms of on-site conventional energy use #2 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **On-site Conventional Energy Subtotals** | | | | **759** | | **119,864** | | **558** | | **2** | | **47** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| *Other On-site Emissions* | | | | | | | | | | | | | | |
| On-site HAP process emissions | lbs | 0 | | | | | | | | | | | 1 | 0 |
| On-site GHG emissions | lbs CO2e | 0 | | | 1 | 0 | | | | | | | | |
| On-site carbon storage | lbs CO2e | 0 | | | 1 | 0 | | | | | | | | |
| GHG avoided by flaring on-site landfill methane | Lbs | 0 | | | -262 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Other on-site NOx emissions or reductions | lbs | 0 | | | | | 1 | 0 | | | | | | |
| Other on-site SOx emissions or reductions | lbs | 0 | | | | | | | 1 | 0 | | | | |
| Other on-site PM emissions or reductions | lbs | 0 | | | | | | | | | 1 | 0 | | |
| User-defined recycled/reused on-site #2 | TBD | 0 | 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 | 0 |
| User-defined recycled/reused off-site #1 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Notes: | | | | | | | | | | | | | | |
| **On-site Totals** | | | | **758.77** | | **119,864** | | **558** | | **2** | | **47** | | **0** |

DRAFT

## Track 2 Remedy - Electricity Generation Footprint (Scope 2)

| Contributors to Footprints | Units | Usage | Energy | | GHG | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Electricity Generation* | | | | | | | | | | | | | | |
| Grid electricity | MWh | 2.9094 | 6.929 | 20.15923 | 1124.3 | 3271.038 | 2.2421 | 6.523166 | 4.607887 | 13.40619 | 0.057518 | 0.167343 | 0.210237 | 0.611664 |
| | | | | | | | | | | | | | | |
| Voluntary purchase of renewable electricity | MWh | 0 | | | | | | | | | | | | |
| Voluntary purchase of RECs | MWh | 0 | | | | | | | | | | | | |
| Notes: | | | | | | | | | | | | | | |

DRAFT

## Track 2 Remedy - Transportation Footprint (Scope 3a)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Conventional Energy* | | | | | | | | | | | | | | |
| Transportation diesel use | gal | 946.767 | 0.139 | 131.6006 | 22.5 | 21302.26 | 0.17 | 160.9504 | 0.0054 | 5.112542 | 0.0034 | 3.219008 | 5.2E-06 | 0.004923 |
| Transportation diesel use - car | gal | 0 | 0.139 | 0 | 22.57 | 0 | 0.015 | 0 | 0.0002 | 0 | 0.003 | 0 | 0.00252 | 0 |
| Transportation diesel use - passenger truck | gal | 43.7 | 0.139 | 6.0743 | 22.545 | 985.2165 | 0.0585 | 2.55645 | 0.0002 | 0.00874 | 0.007 | 0.3059 | 0.002605 | 0.113839 |
| Transportation diesel use - User Defined | gal | 0 | 0.139 | 0 | 22.5 | 0 | 0.17 | 0 | 0.0054 | 0 | 0.0034 | 0 | 5.2E-06 | 0 |
| Transportation gasoline use | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Transportation gasoline use - car | gal | 247 | 0.124 | 30.628 | 19.77 | 4883.19 | 0.027 | 6.669 | 0.00036 | 0.08892 | 0.003 | 0.741 | 0.0067 | 1.6549 |
| Transportation gasoline use - passenger truck | gal | 0 | 0.124 | 0 | 19.79 | 0 | 0.035 | 0 | 0.00036 | 0 | 0.003 | 0 | 0.00661 | 0 |
| Transportation gasoline use - User Defined | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Transportation natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Transportation natural gas use - User Defined | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| User-defined conventional energy transportation #1 | TBD | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| User-defined conventional energy transportation #2 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Conventional Energy Subtotals** | | | | **168** | | **27,171** | | **170** | | **5** | | **4** | | **2** |
| Notes: | | | | | | | | | | | | | | |
| *Renewable Energy* | | | | | | | | | | | | | | |
| Transportation biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Transportation biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| User-defined renewable energy transportation #1 | TBD | 0 | Biodiesel | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ref. | |
| User-defined renewable energy transportation #2 | TBD | 0 | mpg or pmp | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Renewable Energy Subtotals** | | | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| **Transportation Totals** | | | | **168** | | **27171** | | **170** | | **5** | | **4** | | **2** |

DRAFT

## Track 2 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Construction Materials* | | | | | | | | | | | | | | |
| Aluminum, Rolled Sheet | lb | 0 | 0.0633 | 0 | 9.15 | 0 | 0.0148 | 0 | 0.0283 | 0 | 0.0088 | 0 | 0.00102 | 0 |
| Asphalt, mastic | lb | 0 | 0.0412 | 0 | 0.85 | 0 | 0.00271 | 0 | 0.00798 | 0 | 0.000766 | 0 | 0.00107 | 0 |
| Asphalt, paving-grade | lb | 0 | 0.5 | 0 | 8.58 | 0 | 0.0299 | 0 | 0.0969 | 0 | 0.0091 | 0 | 0.0133 | 0 |
| Ethanol, Corn, 95% | lb | 0 | 0.0318 | 0 | -0.0199 | 0 | 0.00425 | 0 | 0.00303 | 0 | 0.000469 | 0 | 8.46E-05 | 0 |
| Ethanol, Corn, 99.7% | lb | 0 | 0.0324 | 0 | 0.0591 | 0 | 0.00431 | 0 | 0.0031 | 0 | 0.000472 | 0 | 0.000087 | 0 |
| Ethanol, Petroleum, 99.7% | lb | 0 | 0.0205 | 0 | 1.25 | 0 | 0.00199 | 0 | 0.00214 | 0 | 0.000277 | 0 | 5.89E-05 | 0 |
| Gravel/Sand Mix, 65% Gravel | lb | 0 | 2.48E-05 | 0 | 0.0024 | 0 | 0.000018 | 0 | 4.52E-06 | 0 | 2.61E-06 | 0 | 3.08E-07 | 0 |
| Gravel/sand/clay | lb | 0 | 0.000028 | 0 | 0.00335 | 0 | 1.65E-05 | 0 | 0.000015 | 0 | 0.000002 | 0 | 2.05E-10 | 0 |
| HDPE | lb | 608 | 0.0332 | 20.1856 | 1.94 | 1179.52 | 0.00325 | 1.976 | 0.00409 | 2.48672 | 0.000439 | 0.266912 | 6.41E-05 | 0.038973 |
| Photovoltaic system (installed) | W | 0 | 0.0336 | 0 | 4.47 | 0 | 0.015 | 0 | 0.032 | 0 | 0.00063 | 0 | 2.9E-06 | 0 |
| PVC | lb | 0 | 0.0262 | 0 | 2.02 | 0 | 0.004 | 0 | 0.00274 | 0 | 0.000372 | 0 | 0.000375 | 0 |
| Portland cement, US average | lb | 0 | 0.0139 | 0 | 1.34 | 0 | 0.00654 | 0 | 0.0104 | 0 | 0.00378 | 0 | 0.00097 | 0 |
| Ready-mixed concrete, 20 MPa | ft3 | 2500 | 0.217 | 542.5 | 19.5 | 48750 | 0.0975 | 243.75 | 0.154 | 385 | 0.057 | 142.5 | 0.0141 | 35.25 |
| Round Gravel | lb | 180000 | 2.48E-05 | 4.464 | 0.0024 | 432 | 0.000018 | 3.24 | 4.52E-06 | 0.8136 | 2.61E-06 | 0.4698 | 3.08E-07 | 0.05544 |
| Sand | lb | 555555.6 | 2.48E-05 | 13.77778 | 0.0024 | 1333.333 | 0.000018 | 10 | 4.52E-06 | 2.511111 | 2.61E-06 | 1.45 | 3.08E-07 | 0.171111 |
| Stainless Steel | lb | 0 | 0.0116 | 0 | 3.4 | 0 | 0.0075 | 0 | 0.012 | 0 | 0.0044 | 0 | 0.000144 | 0 |
| Steel | lb | 0 | 0.0044 | 0 | 1.1 | 0 | 0.0014 | 0 | 0.0017 | 0 | 0.00056 | 0 | 0.000067 | 0 |
| Other refined construction materials | lb | 0 | 0.01885 | 0 | 2.115 | 0 | 0.004038 | 0 | 0.005133 | 0 | 0.001443 | 0 | 0.000163 | 0 |
| Other unrefined construction materials | lb | 0 | 0.000028 | 0 | 0.00335 | 0 | 1.65E-05 | 0 | 0.000015 | 0 | 0.000002 | 0 | 2.05E-10 | 0 |

Notes:

DRAFT

## Track 2 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Treatment Materials & Chemicals* | | | | | | | | | | | | | | |
| Cheese Whey | lbs | 0 | 0.0025 | 0 | 0.031 | 0 | 0.000062 | 0 | 0.000033 | 0 | 0.000002 | 0 | NP | |
| Emulsified vegetable oil | lbs | 0 | 0.0077 | 0 | 3.44 | 0 | 0.0066 | 0 | 0.0019 | 0 | 0.000033 | 0 | NP | |
| Granular activated carbon, primary | lbs | 0 | 0.0356 | 0 | 4.82 | 0 | 0.0793 | 0 | 0.128 | 0 | 0.000987 | 0 | 0.000657 | 0 |
| Granular activated carbon, regenerated | lbs | 0 | 0.00873 | 0 | 1.7 | 0 | 0.00733 | 0 | 0.0129 | 0 | 0.000886 | 0 | 0.000671 | 0 |
| Hydrogen Peroxide, 50% in H2O | lbs | 0 | 0.00979 | 0 | 1.19 | 0 | 0.00142 | 0 | 0.0024 | 0 | 0.000308 | 0 | 6.29E-05 | 0 |
| Iron (II) Sulfate | lbs | 0 | 0.00147 | 0 | 0.167 | 0 | 0.000316 | 0 | 0.000589 | 0 | 0.000103 | 0 | 0.000023 | 0 |
| Lime, Hydrated, Packed | lbs | 0 | 0.00206 | 0 | 0.762 | 0 | 0.000513 | 0 | 0.000358 | 0 | 0.00013 | 0 | 6.57E-06 | 0 |
| Molasses | lbs | 0 | 0.0044 | 0 | 0.48 | 0 | 0.0011 | 0 | 0.00024 | 0 | 4.1E-06 | 0 | NP | |
| Phosphoric Acid, 70% in H2O | lbs | 0 | 0.0067 | 0 | 0.882 | 0 | 0.00282 | 0 | 0.0294 | 0 | 0.00171 | 0 | 0.000163 | 0 |
| Potassium Permanganate | lbs | 0 | 0.00981 | 0 | 1.16 | 0 | 0.00234 | 0 | 0.0032 | 0 | 0.000422 | 0 | 0.000122 | 0 |
| Sodium Hydroxide, 50% in H2O | lbs | 0 | 0.00977 | 0 | 1.09 | 0 | 0.00194 | 0 | 0.00352 | 0 | 0.000403 | 0 | 0.000129 | 0 |
| Other Treatment Chemicals & Materials | lbs | 0 | 0.015 | 0 | 1.67 | 0 | 0.003 | 0 | 0.0065 | 0 | 0.00061 | 0 | 0.000016 | 0 |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Fuel Processing* | | | | | | | | | | | | | | |
| Biodiesel produced | gal | 0 | 0.029 | 0 | -16.8 | 0 | 0.018 | 0 | 0.033 | 0 | 0.00082 | 0 | NP | |
| Diesel produced | gal | 6377.775 | 0.017 | 108.4222 | 3.02 | 19260.88 | 0.0051 | 32.52665 | 0.0062 | 39.5422 | 0.0017 | 10.84222 | 0.0011 | 7.015552 |
| Gasoline produced | gal | 247 | 0.033 | 8.151 | 2.8 | 691.6 | 0.0046 | 1.1362 | 0.005 | 1.235 | 0.0015 | 0.3705 | 0.001 | 0.247 |
| Liquefied Petroleum Gas Produced | gal | 0 | 0.088 | 0 | 1.47 | 0 | 0.0016 | 0 | 0.0024 | 0 | 0.0007 | 0 | 0.0003 | 0 |
| Natural Gas - Compressed Produced | ccf | 0 | 19.983 | 0 | 343.92 | 0 | 0.4732 | 0 | 2.1651 | 0 | 0.1846 | 0 | 0.2895 | 0 |
| Natural Gas Produced | ccf | 0 | 0.0052 | 0 | 2.2 | 0 | 0.0037 | 0 | 0.0046 | 0 | 0.000072 | 0 | 6.1E-06 | 0 |
| **Fuel Processing Subtotals** | | | | **116.5732** | | **19952.48** | | **33.66285** | | **40.7772** | | **11.21272** | | **7.262552** |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Public water* | gal x 1000 | 2.19 | 0.0092 | 0.020148 | 5 | 10.95 | 0.0097 | 0.021243 | 0.0059 | 0.012921 | 0.016 | 0.03504 | 0.000015 | 3.29E-05 |
| *User-defined water resource #1* | gal x 1000 | 0 | 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 | 0 |
| Notes: | | | | | | | | | | | | | | |

DRAFT

## Track 2 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *Off-Site Services* | | | | | | | | | | | | | | |
| Hazardous waste incineration | lb | 0 | 0.00609 | 0 | 2.43 | 0 | 0.0016 | 0 | 0.00167 | 0 | 0.000209 | 0 | 0.000087 | 0 |
| Off-site waste water treatment (POTW) | gal x 1000 | 0 | 0.015 | 0 | 4.4 | 0 | 0.016 | 0 | 0.015 | 0 | NP | | NP | |
| Off-site non-hazardous waste landfill | ton | 2139.025 | 0.16 | 342.244 | 25 | 53475.63 | 0.14 | 299.4635 | 0.075 | 160.4269 | 0.4 | 855.61 | 0.0014 | 2.994635 |
| Off-site hazardous waste landfill | ton | 213.75 | 0.18 | 38.475 | 27.5 | 5878.125 | 0.154 | 32.9175 | 0.0825 | 17.63438 | 0.44 | 94.05 | 0.00154 | 0.329175 |
| Off-site Laboratory Analysis - Other | sample | 26 | 0.058071 | 1.509847 | 6.853438 | 178.1894 | 0.131402 | 3.416451 | 0.303876 | 7.90077 | 0.04557 | 1.184815 | 0.033017 | 0.85843 |
| Off-site Laboratory Analysis - Metals | sample | 13 | 0.212 | 2.756 | 27.4693 | 357.1009 | 0.6423 | 8.3499 | 1.5072 | 19.5936 | 0.2264 | 2.9432 | 0.1643 | 2.1359 |
| Off-site Laboratory Analysis - Mercury | sample | 0 | 0.073171 | 0 | 9.325458 | 0 | 0.212744 | 0 | 0.49824 | 0 | 0.074736 | 0 | 0.054233 | 0 |
| Off-site Laboratory Analysis - Inorganic Anions | sample | 0 | 0.007402 | 0 | 0.645948 | 0 | 0.006768 | 0 | 0.014793 | 0 | 0.002202 | 0 | 0.001554 | 0 |
| Off-site Laboratory Analysis - Alkalinity | sample | 0 | 0.01744 | 0 | 1.338192 | 0 | 0.007011 | 0 | 0.01325 | 0 | 0.00194 | 0 | 0.001283 | 0 |
| Off-site Laboratory Analysis - Perchlorate | sample | 0 | 0.023885 | 0 | 1.871705 | 0 | 0.007981 | 0 | 0.014154 | 0 | 0.002055 | 0 | 0.001287 | 0 |
| Off-site Laboratory Analysis - Nitrogen/Nitrate | sample | 0 | 0.033648 | 0 | 4.29897 | 0 | 0.095459 | 0 | 0.222665 | 0 | 0.03351 | 0 | 0.024251 | 0 |
| Off-site Laboratory Analysis - Sulfate | sample | 0 | 0.014122 | 0 | 1.472673 | 0 | 0.007981 | 0 | 0.013602 | 0 | 0.00198 | 0 | 0.001202 | 0 |
| Off-site Laboratory Analysis - PCBs | sample | 13 | 0.051277 | 0.6666 | 5.224902 | 67.92373 | 0.083334 | 1.08334 | 0.190477 | 2.476207 | 0.028439 | 0.369711 | 0.021208 | 0.275707 |
| Off-site Laboratory Analysis - VOCs | sample | 16 | 0.076204 | 1.219272 | 9.016814 | 144.269 | 0.104498 | 1.671969 | 0.227074 | 3.633181 | 0.033951 | 0.543213 | 0.023589 | 0.377428 |
| Off-site Laboratory Analysis - SVOCs | sample | 13 | 0.07156 | 0.930282 | 7.870422 | 102.3155 | 0.145945 | 1.897279 | 0.337304 | 4.384949 | 0.050485 | 0.656309 | 0.037258 | 0.484351 |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Resource Extraction for Electricity* | | | | | | | | | | | | | | |
| Coal extraction and processing | MWh | 0.887367 | 3.1 | 2.709841 | 180.0 | 159.7261 | 0.8 | 0.683273 | 0.2 | 0.133105 | 0.0 | 0.015973 | NP | |
| Natural gas extraction and processing | MWh | 0.986287 | 1.6 | 1.609422 | 270.0 | 266.2974 | 0.2 | 0.177532 | 13.0 | 12.82173 | 0.0 | 0.007003 | NP | |
| Nuclear fuel extraction and processing | MWh | 0.576061 | 0.2 | 0.089561 | 25.0 | 14.40153 | 0.2 | 0.086409 | 0.5 | 0.288031 | 0.0 | 0.000864 | NP | |
| Oil extraction and processing | MWh | 0.020366 | 2.3 | 0.046748 | 270.0 | 5.498766 | 1.7 | 0.034622 | 0.1 | 0.001405 | 0.0 | 0.000855 | NP | |
| Other fuel extraction and processing | MWh | 0.002909 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Resource Extraction Subtotals** | | | | **4.455573** | | **445.9237** | | **0.981835** | | **13.24427** | | **0.024695** | | **0** |
| Notes: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| *Electricity Transmission* | | | | | | | | | | | | | | |
| Transmission and distribution losses | MWh | 2.9094 | 1.0342 | 3.008901 | 112.43 | 327.1038 | 0.22421 | 0.652317 | 0.460789 | 1.340619 | 0.005752 | 0.016734 | 0.021024 | 0.061166 |
| Notes: | | | | | | | | | | | | | | |

DRAFT

## Track 2 Remedy - Off-Site Footprint (Scope 3b)

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| *User-defined Materials* | | | | | | | | | | | | | | |
| User-defined material #1 | TBD | 0 | 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 | 0 |
| User-defined material #3 | TBD | 0 | 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 | 0 |
| User-defined material #5 | TBD | 0 | 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 | 0 |
| User-defined material #7 | TBD | 0 | 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 | 0 |
| User-defined material #9 | TBD | 0 | 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 | 0 |
| User-defined material #11 | TBD | 0 | 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 | 0 |
| User-defined material #13 | TBD | 0 | 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 | 0 |
| User-defined material #15 | TBD | 0 | 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 | 0 |
| User-defined material #17 | TBD | 0 | 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 | 0 |
| User-defined material #19 | TBD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Notes: | | | | | | | | | | | | | | |
| *User-defined Waste Destinations* | | | | | | | | | | | | | | |
| User-defined recycled/reused off-site #1 | TBD | 0 | 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 | 0 |
| User-defined recycled/reused off-site #3 | TBD | 0 | y(MMBtu/u | | lbs CO2e/u | | Ox(lbs/unit) | | Ox(lbs/unit) | | M(lbs/unit) | | APs(lbs/unit | |
| User-defined non-hazardous waste destination #1 | TBD | 0 | 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 | 0 |
| User-defined non-hazardous waste destination #3 | TBD | 0 | 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 | 0 |
| User-defined hazardous waste destination #2 | TBD | 0 | 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 | 0 |
| Notes: | | | | | | | | | | | | | | |
| **Off-site Totals** | | | | **1092.786** | | **132634.9** | | **643.0842** | | **662.2364** | | **1111.333** | | **50.2949** |

DRAFT

## Track 2 Remedy - Intermediate Totals

| Category | Units | Usage | Energy | | Greenhouse Gas | | NOx | | SOx | | PM | | HAPs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conv. Factor | MMBtus | Conv. Factor | lbs CO2e | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs | Conv. Factor | lbs |
| **Total Grid Electricity Footprint** | | | | | | | | | | | | | | |
| On-site grid electricity | MWh | 2.9094 | 3.413 | 9.929782 | | | | | | | | | | |
| *Electricity Generation* | | | | | | | | | | | | | | |
| Grid electricity | MWh | 2.9094 | 6.929 | 20.15923 | 1124.3 | 3271.038 | 2.2421 | 6.523166 | 4.607887 | 13.40619 | 0.057518 | 0.167343 | 0.210237 | 0.611664 |
| *Resource Extraction for Electricity* | | | | | | | | | | | | | | |
| Coal extraction and processing | MWh | 0.887367 | 3.1 | 2.709841 | 180.0 | 159.7261 | 0.8 | 0.683273 | 0.2 | 0.133105 | 0.0 | 0.015973 | NP | |
| Natural gas extraction and processing | MWh | 0.986287 | 1.6 | 1.609422 | 270.0 | 266.2974 | 0.2 | 0.177532 | 13.0 | 12.82173 | 0.0 | 0.007003 | NP | |
| Nuclear fuel extraction and processing | MWh | 0.576061 | 0.2 | 0.089561 | 25.0 | 14.40153 | 0.2 | 0.086409 | 0.5 | 0.288031 | 0.0 | 0.000864 | NP | |
| Oil extraction and processing | MWh | 0.020366 | 2.3 | 0.046748 | 270.0 | 5.498766 | 1.7 | 0.034622 | 0.1 | 0.001405 | 0.0 | 0.000855 | NP | |
| Other fuel extraction and processing | MWh | 0.002909 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| *Electricity Transmission* | | | | | | | | | | | | | | |
| Transmission and distribution losses | MWh | 2.9094 | 1.0342 | 3.008901 | 112.43 | 327.1038 | 0.22421 | 0.652317 | 0.460789 | 1.340619 | 0.005752 | 0.016734 | 0.021024 | 0.061166 |
| **Total Grid Electricity Footprint** | | | | **38** | | **4044** | | **8** | | **28** | | **0** | | **1** |
| **Total Fuel Footprints** | | | | | | | | | | | | | | |
| Total Gasoline Footprint | | | | | | | | | | | | | | |
| On-site gasoline use - Other | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| On-site gasoline use <25 hp | gal | 0 | 0.124 | 0 | 17.48 | 0 | 0.037 | 0 | 0.00025 | 0 | 0.165 | 0 | 0.00008 | 0 |
| On-site gasoline use >25 hp | gal | 0 | 0.124 | 0 | 19.93 | 0 | 0.032 | 0 | 0.00029 | 0 | 0.002 | 0 | 0.00009 | 0 |
| Transportation gasoline use | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Transportation gasoline use - car | gal | 247 | 0.124 | 30.628 | 19.77 | 4883.19 | 0.027 | 6.669 | 0.00036 | 0.08892 | 0.003 | 0.741 | 0.0067 | 1.6549 |
| Transportation gasoline use - passenger truck | gal | 0 | 0.124 | 0 | 19.79 | 0 | 0.035 | 0 | 0.00036 | 0 | 0.003 | 0 | 0.00661 | 0 |
| Transportation gasoline use - User Defined | gal | 0 | 0.124 | 0 | 19.6 | 0 | 0.11 | 0 | 0.0045 | 0 | 0.00054 | 0 | 0.000039 | 0 |
| Gasoline produced | gal | 247 | 0.033 | 8.151 | 2.8 | 691.6 | 0.0046 | 1.1362 | 0.005 | 1.235 | 0.0015 | 0.3705 | 0.001 | 0.247 |
| **Total Gasoline Footprint** | | **247** | | **38.779** | | **5574.79** | | **7.8052** | | **1.32392** | | **1.1115** | | **1.9019** |
| Total Diesel Footprint | | | | | | | | | | | | | | |
| On-site diesel use - Other | gal | 195 | 0.139 | 27.105 | 22.5 | 4387.5 | 0.17 | 33.15 | 0.0054 | 1.053 | 0.0034 | 0.663 | 5.2E-06 | 0.001014 |
| On-site diesel use <75 hp | gal | 0 | 0.139 | 0 | 22.21 | 0 | 0.1565 | 0 | 0.000145 | 0 | 0.0145 | 0 | 0.00004 | 0 |
| On-site diesel use 75<hp<750 | gal | 5192.308 | 0.139 | 721.7308 | 22.24 | 115476.9 | 0.101 | 524.4231 | 0.00013 | 0.675 | 0.009 | 46.73077 | 0.00004 | 0.207692 |
| On-site diesel use >750 hp | gal | 0 | 0.139 | 0 | 22.24 | 0 | 0.149 | 0 | 0.00013 | 0 | 0.006 | 0 | 0.00004 | 0 |
| Transportation diesel use | gal | 946.767 | 0.139 | 131.6006 | 22.5 | 21302.26 | 0.17 | 160.9504 | 0.0054 | 5.112542 | 0.0034 | 3.219008 | 5.2E-06 | 0.004923 |
| Transportation diesel use - car | gal | 0 | 0.139 | 0 | 22.57 | 0 | 0.015 | 0 | 0.0002 | 0 | 0.003 | 0 | 0.00252 | 0 |
| Transportation diesel use - passenger truck | gal | 43.7 | 0.139 | 6.0743 | 22.545 | 985.2165 | 0.0585 | 2.55645 | 0.0002 | 0.00874 | 0.007 | 0.3059 | 0.002605 | 0.113839 |
| Transportation diesel use - User Defined | gal | 0 | 0.139 | 0 | 22.5 | 0 | 0.17 | 0 | 0.0054 | 0 | 0.0034 | 0 | 5.2E-06 | 0 |
| Diesel produced | gal | 6377.775 | 0.017 | 108.4222 | 3.02 | 19260.88 | 0.0051 | 32.52665 | 0.0062 | 39.5422 | 0.0017 | 10.84222 | 0.0011 | 7.015552 |
| **Total Diesel Footprint** | | **6377.775** | | **994.9329** | | **161412.8** | | **753.6066** | | **46.39148** | | **61.76089** | | **7.34302** |
| Total Biodiesel Footprint | | | | | | | | | | | | | | |
| On-site biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| On-site biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Transportation biodiesel use | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Transportation biodiesel use - User Defined | gal | 0 | 0.127 | 0 | 22.3 | 0 | 0.2 | 0 | 0 | 0 | 0.00099 | 0 | NP | |
| Biodiesel produced | gal | 0 | 0.029 | 0 | -16.8 | 0 | 0.018 | 0 | 0.033 | 0 | 0.00082 | 0 | NP | |
| **Total Biodiesel Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Total Natural Gas Footprint | | | | | | | | | | | | | | |
| On-site natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Transportation natural gas use | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Transportation natural gas use - User Defined | ccf | 0 | 0.103 | 0 | 13.1 | 0 | 0.01 | 0 | 6.3E-06 | 0 | 0.00076 | 0 | 8.4E-06 | 0 |
| Natural gas produced | ccf | 0 | 0.0052 | 0 | 2.2 | 0 | 0.0037 | 0 | 0.0046 | 0 | 0.000072 | 0 | 6.1E-06 | 0 |
| **Total Natural Gas Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Total Liquified Petroleum Gas Footprint | | | | | | | | | | | | | | |
| On-site liquified petroleum gas use - Other | ccf | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 0 | 0 | 0 |
| On-site liquified petroleum gas use | ccf | 0 | NP | | 12.69 | 0 | 0.021 | 0 | 0.00013 | 0 | 0.001 | 0 | 0 | 0 |
| Liquified petroleum gas produced | ccf | 0 | 0.088 | 0 | 1.47 | 0 | 0.0016 | 0 | 0.0024 | 0 | 0.0007 | 0 | 0.0003 | 0 |
| **Total Natural Gas Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |
| Total Compressed Gas Footprint | | | | | | | | | | | | | | |
| On-site compressed gas use - Other | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| On-site compressed gas use | ccf | 0 | NP | | 1957.835 | 0 | 16.0325 | 0 | 0.023045 | 0 | 0.2775 | 0 | 0 | 0 |
| Compressed gas produced | ccf | 0 | 19.983 | 0 | 343.92 | 0 | 0.4732 | 0 | 2.1651 | 0 | 0.1846 | 0 | 0.2895 | 0 |
| **Total Natural Gas Footprint** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** | | **0** |

Notes:

***Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.***

Space below available for notes and calculations:

DRAFT

# APPENDIX H
## Project Personnel Resumes

DRAFT

# SUZANNE BELL, PE

Program Manager, Environmental Engineer

**EDUCATION**

BS, Biosystems Engineering, University of Arizona

**PROFESSIONAL REGISTRATIONS**

AZ: Environmental Engineer (Reg. No. 61995)
NY: Professional Engineer (Reg No. 106301)

**PROFESSIONAL COMMITTEES**

American Council of Engineering Companies of New York – New York State Department of Environmental Conservation Committee Member – 2024-2025

**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 17 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.

In New York, Suzanne has experience as an Engineer of Record in completing site closure documentation including Remedial Closure Reports reviewed by the Office of Environmental Remediation as well as Final Engineering Reports and Site Management Plans reviewed by the New York State Department of Environmental Conservation.

Suzanne has managed the investigation, remedial design, remediation and closeout of sites in the Brownfield Cleanup Program and petroleum spill case sites. Her background also includes developing and complying with approved site management plans overseeing the operation and maintenance of on-site engineering controls, such as soil vapor extraction systems, sub-slab depressurization systems, product recovery systems, and ensuring the protection of human health and the environment.

DRAFT

## RELEVANT PROJECT EXPERIENCE

**Bedford Beverly Redevelopment Site, Brooklyn, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plans for an approximately 5.31-acre non-contiguous property located in the Flatbush neighborhood in the borough of Brooklyn, New York under the New York State Brownfield Cleanup Program (NYSBCP). The remedy included removal of thirteen undocumented underground storage tanks (USTs), removal of over 115,000 tons of non-hazardous and hazardous soil, hotspot excavations, injections of zerovalent iron to treat tetrachlorethylene in groundwater, injection of alkaline-activated persulfate to treat petroleum-based volatile organic compounds in groundwater and establishing a Site Management Plan (SMP) for Institutional and Engineering Controls. The site is being redeveloped from a vacant auto service center, vast open air parking lots, and a vacant commercial building into a vibrant community development. In addition to new residential housing, which includes affordable units, and commercial spaces, the project has preserved the highly recognizable Sears Roebuck & Company Department Store. This includes maintaining its historical architecture, updating the building to meet modern standards, introducing commercial spaces that were previously underutilizing, and maintaining the character of the neighborhood.

**Development, EPA Site RCRA-02-2009-7306, NYSDEC Site 243016, Former Port Mobil Terminal, Staten Island, New York.** Engineer and project manager responsible for the preparation of the feasibility study, preparation of the Interim Remedial Report, completion of the Interim Remedial Measure, 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 approximately 240 acres with a planned development for commercial/industrial uses.

**Rogers Snyder Brownfield Site, 858 Rogers Avenue and 2605 Snyder Avenue, Brooklyn, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plan at the Rogers Snyder redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous and hazardous soil, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of the FER.

**Former Garone Bros Auto Service Center Site, 352-362 Shepherd Avenue, Brooklyn, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plan at the 352-362 Shepherd redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous soil, removal of USTs, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of the FER.

**Former Fielder Waterproofing & Masonry Site, 91 Bruckner Boulevard, Bronx, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plan at the 91 Bruckner redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous and hazardous soil, removal of USTs, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of the FER and SMP.

**828 Metropolitan Avenue Site, 808-834 Metropolitan Avenue, Brooklyn, New York.** Suzanne served as project manager and engineer of record for execution of Remedial Action Work Plan at the 828 Metropolitan Avenue redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous soil, removal of USTs, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of Daily Field Reports (DFRs) and the Final Engineering Report (FER).

**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, removal of USTs, air monitoring, dewatering system installation support, communication with soil brokerage firm and environmental laboratory, preparation of DFRs and the 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.

**Multiple Clients, Remedial Action Work Plans, New York City, New York.** As project manager and engineer of record, Suzanne has prepared Remedial Action Work Plans for the NYSDEC for sites within the New York City boroughs.

DRAFT

**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 1 million gallons per day 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.

DRAFT

**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.

**Arizona Pollutant Discharge Elimination System (AZPDES) and National Pollutant Discharge Elimination System (NPDES) Permits, Arizona.** Suzanne prepared AZPDES and 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.

DRAFT

**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.

DRAFT

# BRIAN A. FERGUSON

Senior 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)

DRAFT

## 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.

DRAFT

# 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

DRAFT

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.

DRAFT

# MATTHEW FORSHAY, PE

Assistant Project Manager | Environmental Engineer

**EDUCATION**

MS, Environmental Engineering, New Jersey Institute of Technology
BS, Environmental Science, Rutgers University

**PROFESSIONAL REGISTRATIONS –**

2023/ New Jersey: Professional Engineer (PE License No. 24GE05950800)

**SPECIAL STUDIES AND COURSES**

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)
40-Hour NYC DOB Site Safety Training
8-Hour OSHA HAZWOPER Refresher Training
10-Hour OSHA Construction

Matthew is an environmental engineer with experience in site investigation and remediation. He has proven attention to detail and practical experience with research, data analysis, and remedial design and reporting. His field experience includes site/remedial investigations and remedial actions. He has completed soil, groundwater, and air sampling in the field. He also oversees groundwater monitoring well installation; underground storage tank (UST) closures; installation/ decommissioning/operation and maintenance (O&M) of soil and groundwater remediation systems and other remedial action activities; and soil excavations and transportation and disposal. He has also prepared bid specifications and NJDEP land use and air permits for remediation projects conducted at manufacturing facilities.

Since joining H&A, Matthew has focused on conducting site investigations for a variety of brownfield sites. He has also provided support in overseeing remedial excavations and preparing associated NYSDEC reports. At H&A, he will refine his skills in designing remedial injections, systems, and excavations. Additionally, he will prepare remedial and engineering reports for the NYSDEC.

## RELEVANT PROJECT EXPERIENCE

**138 Bruckner Realty LLC, 138 Bruckner Boulevard, Bronx, New York.** Matthew prepared waste class sampling plans and conducted soil sampling to investigate and characterize on-site soils. Once construction started, Matthew oversaw remedial action which included excavation activities; he also conducted air monitoring activities. During the project, he prepared daily reports for the NYSDEC which included work activities, sample collection, soil and debris disposal, and underground storage tank discovery and investigation. After the project, he prepared the Final Engineering Report for NYSDEC which detailed the remedial work including soil removed, backfill imported, and soil analytical results.

**295 W Holdings LLC, 295-297 Wallabout Street, Brooklyn, New York.** Matthew oversaw remedial action which included dewatering operations and excavation activities; Matthew also conducted air monitoring activities. During the project, he prepared daily reports for the NYSDEC which included work activities, sample collection, and soil and debris disposal. After the project, he prepared the Final Engineering Report for NYSDEC which detailed the remedial work including soil removed, backfill imported, soil analytical results, and engineering controls (i.e., vapor barrier installation).

**TA Realty LLC, 511 13th Street, Carlstadt, New Jersey.** Matthew prepared a passive SSDS design for a proposed warehouse development. The design work included piping and geovent layout, vent riser specifications, vapor barrier and monitoring point and leak test specifications, and SSDS air inlet ventilation specifications. Field oversight included overseeing and verifying the SSDS system layout and vapor barrier installation with the design drawings.

DRAFT

**Contact Industries, 641 Dowd Avenue, Elizabeth, New Jersey.** Matthew served as an environmental engineer for engineering services which included conducting a remedial investigation and remedial action for soil and groundwater remediation. The project included delineation of chlorinated compounds, pesticides, and polychlorinated biphenyl-impacted soils and groundwater in the shallow aquifer. The design effort included excavation of contaminated soil, chemical injections, and installation of permeable reactive barrier. As part of the design effort, Matthew developed cost estimates for the proposed excavation and chemical injection and considered remedial alternatives which included thermal treatment and institutional controls. Additionally, Matthew prepared the Permit by Rule for NJDEP.

**Standard Motor Products, Long Island City, New York.** Matthew served as an environmental engineer for engineering services that included operational and maintenance and performance monitoring for a soil vapor extraction, groundwater air sparge system and a sub slab depressurization system. Monitoring activities included vacuum reading collection and soil vapor and groundwater sampling. Project reporting included monthly progress reports, annual periodic review reports, and site management plan updates.

**Former B.H. Aircraft, Farmingdale, New York.** Matthew served as an environmental engineer for engineering services which included conducting operation and maintenance and performance monitoring for an on-site soil vapor extraction system. Monitoring activities included vacuum reading collection and soil vapor and groundwater sampling. Project reporting included data compilation, contaminant modeling, and annual periodic review report preparation.

**JPMorgan Chase, Brownfields Redevelopment, Orangetown, New York.** Matthew served as an environmental engineer for engineering services which included preparing a design, installation, and commissioning of a sub-slab depressurization system for an industrial site for vapor intrusion. Investigative results were used to define the basis of design and prepare design drawings for regulatory approval and permits. Following the installation, it was commissioned to confirm proper performance and conformance with the design. Reporting included preparing the site management plan for the construction of the IT Mod II building.

**Wyman-Gordon Company, McWilliams Forge, Rockaway, New Jersey.** Matthew served as an environmental engineer for engineering services which included remedial investigation, preparation of a remedial action work plan, a baseline ecological evaluation, wetland permitting, and preparation of an ecological risk assessment workplan. As an on-site field engineer, he implemented the investigation which included soil and concrete sampling. Following the investigation, he prepared bid specifications and associated construction drawings and NJDEP land use permit applications. During remedial implementation, he coordinated and reviewed contractor submittals, oversaw soil excavation activities, collected soil samples, and analyzed analytical results.

**Confidential Manufacturing Client.** Matthew served as an environmental engineer for engineering services which included odor investigation for a fragrance manufacturing facility. The investigation included volatile organic compound (VOC) and odor air modeling, a remedial action selection report, and a pilot study using a VOC concentrator wheel with secondary treatment. Implementing the remedy included preparing bid specifications and evaluating contractor bids for mechanical, electrical, plumbing, structural, roof, and civil work scopes and preparing air permits for the proposed air treatment technology installation.

DRAFT

# AMY K. MURPHY, LSRP

Senior Client Account Manager

**EDUCATION**

M.B.A., Rutgers Business School, 2012
B.S., Environmental Science, Cook College, Rutgers University, 1999
A.S., Biology, County College of Morris, 1997

**PROFESSIONAL REGISTRATIONS**

New Jersey Licensed Site Remediation Professional (LSRP) (Lic. No. 537112)
2008/New Jersey Department of Environmental Protection Subsurface Evaluator (Lic. No. 188249)

**SPECIAL STUDIES AND COURSES**

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training, May 1998
8-Hour OHSA HAZWOPER refresher courses 1999-2023
OSHA Supervisor Training, January 2004
10-hour OSHA Construction Safety Training, August 2007
NJDOT General Awareness Training, January 2005
New Jersey Transit Contractor Safety Training, June 2006 and January 2007
Radiation Worker Training and Plant Access Training, Oyster Creek Nuclear Generating Station, August 1999 and April 2002

Ms. Murphy is a New Jersey Licensed Site Remediation Professional (LSRP) with 25 years of experience in site investigation and remediation strategies at a variety of contaminated sites. She leads and supports all phases of investigation and remediation at diverse sites for industrial, real estate, utility, and municipal clients, mostly focused in New Jersey and New York City. She has extensive experience in implementing and managing preliminary assessments, site and remedial investigations, and remedial action projects under the New Jersey Department of Environmental Protection (NJDEP) Industrial Site Recovery Act (ISRA), Underground Storage Tank (UST), voluntary cleanup programs, and New York State Department of Conservation (NYSDEC) Brownfield Cleanup Program. Ms. Murphy is well-versed in preparing regulatory required submissions, including reports for preliminary assessment/site investigations, remedial investigations, remedial action selection, remedial action work plans, remedial action reports, final engineering reports, remedial action permit applications, and response action outcomes. She is experienced in the ASTM Standard Practice for Phase I Environmental Site Assessments, has conducted due diligence assessments primarily in New Jersey and New York City and provided strategic consulting related to transactional due diligence.

Ms. Murphy's regulatory experience has provided her with the ability to efficiently research and evaluate extensive historical key documents and data to quickly identify site issues and data gaps, prepare concise summaries and conclusions, and visualize information for litigation support and regulatory submittals.

## RELEVANT PROJECT EXPERIENCE

### Due Diligence

**Strategic Due Diligence Consulting Services, 34 property portfolio, New Jersey.** Ms. Murphy served as the New Jersey regulatory expert for strategic due diligence consulting services to a national real estate development client that transacts commercial properties in the Eastern United States. Services include preparation of due diligence reports (Phase I), third-party review of regulatory submittals (primarily remedial action reports, remedial action permit applications), technical evaluation of proposed remedial strategies and integration of proposed geotechnical ground improvements, review of NJDEP and U.S Army Corp of Engineers wetland permits and mitigation reports, and advised on environmental business risk during the transaction process. Ms. Murphy has remained involved with asset

DRAFT

management post-transaction to ensure tenant compliance with ISRA regulations, integration of on-going remediation and construction activities, and/or sub-slab depressurization system design and installation oversight.

**Due Diligence Environmental Compliance and Remediation Cost Review, East Hanover, New Jersey.** In support of the potential property acquisition, Ms. Murphy prepared a preliminary environmental compliance and remediation cost estimate to identify and characterize existing and potential environmental liabilities and NJDEP obligations, estimate the scope and associated compliance/remediation costs, develop an anticipated schedule for compliance activities, and identify data gaps that require further document review and/or investigation along with the associated cost contingency that should be assigned.

**Multiple Phase I Site Assessment Evaluations, Newark, New Jersey.** Ms. Murphy conducted ASTM Phase I Environmental Site Assessments and/or Phase I reports at a variety of commercial properties as part of due diligence activities for real estate transactions for a major American airline. She evaluated the site conditions and regulatory requirements as they related to the potential buyers' property use as a catering vehicle maintenance facility. She assisted with site reporting and compliance activities subsequent to the purchase of the property.

**Due Diligence Investigations, Nuclear Generating Station, Forked River, New Jersey.** Led the site investigation/remedial investigation at a nuclear power plant in support of a facility sale and ISRA compliance. Responsibilities included coordinating and supervising field activities during remedial investigation sampling activities and report preparation. Plant Access Training was required for escorting other untrained field personal while on-site. Radiation Worker Training was required for operations conducted within the Radiation Control Area.

**Phase II Environmental Site Assessments, Numerous Generating Stations and Substations, New Jersey and Pennsylvania.** Led the preparation of Phase II investigation reports of generating stations and substations in Pennsylvania and New Jersey. Responsibilities included data management, evaluation, and validation as well as participating in the writing and assembly of Phase II summary reports for 29 sites.

## Chlorinated Solvent

**Remedial Investigation and Remediation of Chlorinated Solvents, Piscataway, New Jersey.** Ms. Murphy is currently the LSRP of record for two chlorinated solvent sites at an active university with groundwater contamination in a complex, multiple aquifer bedrock setting. Groundwater contamination extends almost a mile horizontally and up to 300 feet in depth and is influenced by pumping of an on-site irrigation well that intersected multiple water-bearing bedrock zones. Remediation at the first site included the installation of bedrock injection wells to address chlorinated solvent contamination in groundwater in the source area. Designed the remedial action at two source areas using enhanced in-situ biodegradation (EISB) and zero valent iron (ZVI) at one source area, conducted electrical resistance heating (ERH) in a source area with concentrations of tetrachloroethene (PCE) above 300 parts per million (ppm) and carbon tetrachloride above 60 ppm. Following the ERH event, recirculation of groundwater and electron donors and bioaugmentation cultures were completed to allow for monitored natural attenuation (MNA) to occur. Remediation at the second site included implementation of In Situ chemical oxidation activities via alkaline activated sodium persulfate in bedrock followed by an EISB event to address remaining chlorinated solvent concentrations and allow for MNA.

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Hackensack, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and was responsible for oversight of environmental investigation and cleanup. She reviewed and certified implementation an in situ chemical oxidation (ISCO) remedy using two different oxidants (sodium permanganate and activated persulfate) for the residual dissolved plume outside the ERH treatment zone, as well as remedial phase report submittals including establishment of a groundwater Classification Exception Area (CEA). The case was transitioned to a long-term groundwater monitoring program with a Limited Restricted Use Entire-Site Response Action Outcome (RAO-E).

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Former Automobile Parts Manufacturing Plant, Ewing, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has responsibility for

DRAFT

oversight of environmental investigation, regulatory interaction, and remediation for an $18.9M New Jersey ISRA case at an 80-acre, 85-year-old facility. She was previously the field quality assurance officer and project coordinator to evaluate the potential for petroleum- and chlorinated solvent-impacted groundwater migration through soil and fractured sedimentary bedrock, with an emphasis of the distribution and migration pathways of dense non-aqueous phase liquid (DNAPL) in bedrock. Responsibilities included work plan development and revision for multiple field investigation stages; characterization of soil, hydrogeologic and environmental conditions; oversight of overburden and bedrock investigation activities in a complex hydrogeologic environment; along with overseeing preparation and submission of the Soil Remedial Investigation Report and Soil Remedial Action Report. Soils were closed out with a Remedial Action Permit (RAP) for institutional and engineering controls and Restricted Use Soils Only RAO to allow for the sale of the property. EISB via recirculation of groundwater and electron donors with the addition of a bioaugmentation culture to address elevated chlorinated solvent concentrations being implemented during Site redevelopment.

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Specialty Alloy Manufacturer, East Hanover, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has responsibility for oversight of environmental investigation and cleanup. She was also project manager for this investigation and remediation under the ISRA for surficial metals and chlorinated solvents and Toxic Substances Control Act (TSCA)-level polychlorinated biphenyls (PCBs). The extent of solvent contamination was delineated to the water table (over 40 feet deep) over a total area of over 5,000 square feet in four areas. Indoor air sampling and sub-slab soil vapor sampling was also conducted in several buildings to evaluate the vapor intrusion pathway, resulting in the discovery of large areas of chlorinated solvent vapor at very high concentrations. Additional subsurface investigation was conducted at the request of the NJDEP to determine if DNAPL was present, to further delineate contamination in two areas of concern, and to collect data for remedial design purposes. A remedial alternatives analysis was prepared, and an expanded sub-slab soil gas investigation is being conducted to collect additional data necessary for soil vapor extraction system design, construction and implementation. Ms. Murphy also designed and implemented a data gap investigation to for site-wide horizontal and vertical delineation in soil. As LSRP, Ms. Murphy also provides oversight of third-party investigation and remediation of groundwater impacts.

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Ridgefield, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has reviewed and certified remedial investigations completed at the Site which provided horizontal and vertical delineation and submittal of remedial phase reports which included statistical compliance evaluations. Majority of the impacted soils in the vicinity of a previously excavated source area; however, elevated concentrations remained due to building structural considerations. The limited extent of the soil exceedances are managed with institutional and engineering controls as established in the recorded Deed Notice. Trichloroethene (TCE) and its daughter products migrated to the deeper groundwater zone in the overburden. Groundwater also shows impacts from contaminants unrelated to the Site operations. The evaluation of the groundwater data indicates that conditions are viable for an MNA approach under a Groundwater RAP, and a CEA for groundwater was established. The case was transitioned to a long-term monitoring program with a Restricted Use RAO-E.

**Investigation of PCE Contamination at a Former Dry Cleaner, Morristown, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has responsibility for oversight of environmental investigation and cleanup. Her responsibilities include project management and developing/implementing investigation and remedial approaches for achieving compliance with the applicable New Jersey Ground Water Quality Standards (GWQS) at a former dry cleaning facility. Conducting feasibility evaluations of remedial techniques for groundwater contaminated with PCE, including numerous bio-remediation approaches as well as other conventional and innovative remedial technologies. Principal investigator for assessment of sub-slab and indoor air in retail tenant space in support of vapor intrusion investigation; successfully demonstrated incomplete pathway. Ms. Murphy issued an Unrestricted Use Soils Only RAO-A based on statistical compliance evaluations.

**ISRA Investigations, Various Generating Stations, North and Central, New Jersey.** Led the site and remedial investigations of 4 generating stations located in north and central New Jersey. Responsibilities included soil,

DRAFT

groundwater, and sediment sampling; contractor coordination and oversight; data management and evaluation; and preparing Remedial Investigation Reports.

## Manufactured Gas Plant

**Former MGP Site, Freehold, New Jersey.** Senior project manager and LSRP advisor for the assessment and characterization of a previously unknown manufactured gas plant (MGP). Assessment included developing the MGP-footprint and boundary based on historical documents and maps, and evaluation of adjacent receptors. Characterization included vapor intrusion (VI), soil and groundwater investigations; forensic petroleum and background metals data evaluation; and preparation of the Preliminary Assessment/Site Investigation Report.

**Former MGP Site, Long Branch, New Jersey.** Project manager for the VI investigation of an adjacent off-site, non-residential building located near potential petroleum hydrocarbon MGP source material and near dissolved and light non-aqueous phase liquid (LNAPL) non-MGP petroleum hydrocarbon contamination identified from an off-site source. Potential site contaminants of concern were not detected in the crawlspace indoor air samples tested successfully demonstrating an incomplete VI pathway. In addition, a groundwater investigation was conducted which included collection of additional characterization data for shallow groundwater quality and soil vapor biodegradation parameters to assess conditions related to the potential for VI for current surrounding properties adjacent to the Site as well as for assessment of VI potential for future development on the Site. Evidence of potential VI due to groundwater exceedances were not identified confirming the VI pathway is not complete for current property uses adjacent to the vacant Site.

**Former MGP Site, Toms River, New Jersey.** Involved in the implementation of a comprehensive remedial approach to address soil and non-aqueous phase liquid (NAPL) impacts from coal tar releases. Project involved reviewing multiple remedial investigation reports, developing a conceptual site model and 3-D visualization model, evaluating applicable remedial technologies, performing pre-design investigation to further assess technologies applicability, performing bench and pilot treatability studies on select technologies, and preparing a Remedial Action Selection Report. A key component of this project is developing a detailed understanding of the NAPL distribution to assess applicability of in-situ treatment technologies and the potential for product recoverability. Assessment of on- and off-site buildings in support of vapor intrusion investigation; successfully demonstrated incomplete pathway.

**Former MGP Site, Atlantic Highlands, New Jersey.** Project manager for the assessment of on- and off-site buildings in support of vapor intrusion investigation due to the presence of NAPL impacts from coal tar releases; successfully demonstrated incomplete pathway.

**Former MGP Site, Sea Isle City, New Jersey**. Principal investigator for assessment of former MGP site since developed as residential, commercial, and public open space properties. Evaluated shallow groundwater and crawl space indoor air in support of vapor intrusion investigation. Successfully demonstrated incomplete pathway.

**Former MGP Site, Cape May, New Jersey.** Principal investigator for assessment of former MGP site since developed as residential properties. Evaluated shallow soil gas and sub-slab soil gas in support of vapor intrusion investigation. Successfully demonstrated incomplete pathway.

**Site Closure, Former MGP, Manhattan, New York.** Planned/implemented the site investigation of a former MGP located on the lower east side of Manhattan. Responsibilities included regulatory interpretation, coordinating multiple project teams, contractor oversight, and community relations. Responsibilities also included supervising the excavation of test pits to investigate the locations of the former gas holders, coordinating post-excavation sampling activities, and database management for over 230 samples.

**Site Characterizations, Former MGPs within Residential Developments, Manhattan, New York.** Planned/implemented the site characterization work plans and CAMPs for 4 former MGPs within an 80-acre residential building complex located on the lower east side of Manhattan. Project challenges included limited site access, completing investigations under winter conditions, meeting a site access deadline imposed by the property owner, maintaining good working



DRAFT

relationships with residents and the facility management group, and conducting borings in underground garages. Responsibilities included regulatory interpretation, coordinating multiple project teams, contractor oversight, and community relations. Additional responsibilities included database management for over 1,000 samples, QA/QC sampling, managing investigation derived waste, and preparing the Site Characterization Reports.

## Brownfields Redevelopment/Underground Storage Tank

**Mixed-Use Development, Bronx, New York.** Senior Project Manager for remedial oversight and implementation of a Community Air Monitoring Program (CAMP) during concurrent remediation and development of an approximately 41,289 square foot Brownfield Cleanup Program (BCP) site located in Bronx, New York. Remediation strategy included soil excavation and offsite disposal of over 44,000 cubic yards non-hazardous and hazardous lead-impacted urban fill, and decommissioning and offsite disposal of one above ground storage tank and four underground storage tanks (USTs) in accordance with applicable NYSDEC UST closure requirements. Construction for the new development included a 12-story mixed-use commercial/residential building with a one-level cellar encompassing the entire Site footprint.

**Mixed-Use Development, Bronx, New York.** Senior Project Manager for remedial oversight and implementation of a CAMP during concurrent remediation and development of an approximately 50,625-square foot BCP site located in Bronx, New York. The site soil was contaminated with non-hazardous and hazardous lead-impacted urban fill, per-and polyfluoroalkyl substances (PFAS), and residual petroleum-impacted material originating from the adjacent gas station. Construction for the new development is currently ongoing and when completed, the Site was improved with a 12-story mixed-use commercial/residential building with a one-level cellar encompassing the entire Site footprint.

**Mixed Use Development, Brooklyn, New York.** Senior Project Manager for the remedial implementation at a former industrial site under the BCP as a Participant where elevated levels of TCE and PCE were encountered in soil and groundwater, in addition to comingled chlorinated solvent plumes originating from two adjacent properties. Remediation strategies include F-listed source removal to 15 feet below ground surface (bgs), injection of ZVI from 15 to 55 feet bgs in the center of the Site to treat saturated zone in the source area, injection of ZVI from 15 to 55 feet bgs to create permeable reactive barriers (PRBs) to address groundwater contamination entering the Site from upgradient sites/sources and to mitigate the off-site migration of the dissolved phase groundwater plume, and design and installation of a vapor mitigation system. The Site is currently in the remedial implementation phase with post-injection performance groundwater monitoring about to commence. The Site will be redeveloped through the construction of a four-story mixed-use commercial and community facility.

**Site Characterization, Source and Natural Attenuation Evaluation, Newark Liberty International Airport (EWR), Newark, New Jersey.** LSRP for site characterization, LNAPL source evaluation, and MNA groundwater evaluation for former UST discharges at an active aircraft maintenance hangar within the airport. Responsibilities include planning and coordination of three AOC investigations for petroleum hydrocarbons in soil and groundwater; worked with the project team on forensic LNAPL source evaluation; preparation and delivery of technical reports to NJDEP. Knowledge for navigating the extensive permitting and security clearance process that comes with working on an active international airport, including permits required through the Port Authority of New York and New Jersey and how to safely navigate around and work around active aircraft.

**Case Closure and Brownfields Redevelopment of Former Gasoline Station, Jersey City, New Jersey.** Lead project scientist for the remedial action of a former gasoline station later redeveloped as a new Fire Station. Discovered previously undocumented USTs and acquired NJDEP permission to register and remove them. Responsibilities for the remedial action activities included preparing a remedial action work plan and supervising site activities, including abandonment of monitoring wells, removing contaminated groundwater, excavating 900 tons of petroleum-contaminated soil and debris, closure and removal of nine USTs, collecting post-excavation soil samples, and excavation backfilling. Also responsible for preparing a Remedial Action Report with proposal for No Further Action (NFA) and interacting with the NJDEP.

**Case Closure of Office Building Heating Oil Tank, Edison, New Jersey.** Lead project scientist for the remediation of discharge from leaking piping for a 10,000 gallon No. 2 fuel oil UST and subsequent closure and removal of the UST

DRAFT

system. Responsibilities included the characterization and remediation of the discharge during ongoing operations at the 11-story commercial office building. Approximately 584 tons of excavated contaminated soil, 10 roll-off containers of waste concrete and asphalt, and 800 gallons of oil and water were removed from the fuel oil line discharge area. Her responsibilities also included database management and preparing a UST Remedial Investigation and Remedial Action Report. The NJDEP granted an NFA for soil and groundwater within one year of the project's inception.

**Case Closure of Residential Property, Secaucus, New Jersey.** Conducted remedial investigation to assess impact of a leaking fuel oil UST. Oversaw remedial action involving excavation of impacted soils and removal of impacted groundwater. Effectively maintained a good working relationship between the insured and the insurance company. Regularly prepared quarterly progress reports for the regulatory agency to obtain an NFA for soil and groundwater.

**Claim Coverage Determinations, Numerous Industrial Claims, New Jersey.** Conducted assessments of soil and groundwater conditions at various industrial properties to assist insurance companies in coverage decisions. Also, effectively cultivated a good working relationship between the insured and insurance company to achieve site objectives for the stakeholders.

## Superfund/RCRA Corrective Action

**Technical and Regulatory Review for Change-of-Land Use**, **Industrial Park, Bound Brook, New Jersey.** Ms. Murphy conducted a technical and regulatory review of available documents including the Record of Decision (ROD), Explanation of Significant Differences (ESD), and ISRA submittals to determine a path forward to transition the industrial park Superfund site from commercial to multi-family residential use. The process required a thorough understanding of the administrative processes and technical requirements required to transition the site use to multi-family residential, development of strategies/path forward for addressing those requirements, and identification of potential uncertainties/liabilities that would arise through the process.

**Environmental Investigation and Remediation, RCRA Corrective Action and New Jersey ISRA, Former Automobile Assembly Plant, Linden, New Jersey.** Implemented the environmental investigations for a U.S. Environmental Protection Agency (USEPA)-led RCRA Corrective Action in conjunction with New Jersey ISRA activities at a 94-acre, 2.6 million sf, 70-year-old facility. Site work included investigation of chlorinated solvents in a bedrock aquifer underlying the facility. The investigation included monitor well installation, bedrock coring and packer testing, and borehole geophysical evaluation. Also served as the field QA/QC officer for the project and conducted periodic health and safety audits during field work.

**RCRA Corrective Action Closures, Automotive Parts Manufacturing Facility, Kokomo, Indiana.** Ms. Murphy was instrumental in successful closure of RCRA six hazardous waste storage units at a site impacted by co-mingled chlorinated solvent plumes, DNAPL and PCBs. Responsibilities included compilation and evaluation of historical documents and data and preparation of RCRA Closure Certification Reports. Voluntary Performance-Based Corrective Action work conducted under IDEM oversight.

**ISRA Investigation, Former Chlorine Production Facility, Linden, New Jersey.** Implemented the performance of a preliminary assessment, site investigation, remedial investigation, and remedial action at a former chlorine production facility on the National Priorities List (NPL) for mercury contamination. Supported the delineation of the extent of contamination, and preparation of a remedial action work plan. Remedial actions included the cleanup of mercury-contaminated wastes.

**Remediation Costs Allocation, NPL Hazardous Waste Landfill, Chester Township, New Jersey.** Supported development of the expert opinion of cost of remediation and allocation of responsibility between over a hundred responsible parties. This project involved reviewing engineering completed for the closure of a large municipal and hazardous waste landfill. Analyzed a large volume of data and supported the understanding of the engineering properties of rock and soils, and the fate and transport of contaminants, to assess the source of contamination and the value of the engineered remediation system. This was a complicated project involving the engineering of

DRAFT

remediation systems to contain landfill materials, tracking and remediation of contaminated groundwater, and replacing drinking water resources for residential properties dependent on groundwater for potable water.

**Environmental Cost Recovery, CERCLA Case, Carteret, New Jersey.** Supported development of the expert opinion for investigation and cleanup costs incurred while addressing metals contamination on a chemical plant site adjacent to a former metals smelting and refining facility. Aerial photogrammetry was used in conjunction with historical aerial photographs of the site taken over a 60-year period to develop computer-generated surface contour maps that depicted excavation and fill activities at the site over time.

DRAFT

# ZHAN SHU, P.E., PH.D.

Senior Project Manager/Technical Specialist

**EDUCATION**

Ph.D., Environmental Engineering, New Jersey Institute of Technology (NJIT)
B.S., and M.S., Environmental Engineering, National Hua Chiao University, China

**PROFESSIONAL REGISTRATIONS**

2018/ NJ: Professional Engineer (Reg. No. 24GE05424500)

**PROFESSIONAL SOCIETIES**

American Society of Civil Engineering
American Chemical Society
New Jersey Society of Women Environmental Professionals
Reviewer, Journal of Environmental Engineering Science
Reviewer, Journal of Science of Total Environment
Reviewer, Journal of Environmental Engineering

**SPECIAL STUDIES AND COURSES**

OSHA - Hazardous Waste Operations and Emergency Response (OSHA 40-Hour HAZWOPER)
8-Hour OSHA Annual HAZWOPER Refresher
Application of Risk Assessment as a Decision-Making Tool for Contaminated Sites

Zhan has over 11 years of experience in project management, environmental consulting, remediation, engineering, and construction management. She is a licensed professional engineer (P.E.) in the state of New Jersey. She is a senior project manager with experience in soil and groundwater remediation, geochemistry, contaminant hydrogeology, contaminant attenuation and mobility, mechanistic and transport modeling, statistical data analysis, and waste characterization. She has delivered several presentations at professional gatherings, including the Annual International Conference on Soil, Water, Energy, and Air (AEHS) and other technical conferences.

## RELEVANT PROJECT EXPERIENCE

**Former Pesticide Manufacturing Facility, Site Investigation and Remediation, Middlesex, New Jersey.** The 57-acre site is composed of multiple properties that are impacted by former manufacturing activities involving arsenic compounds and other chemicals used as pesticide ingredients. A groundwater remediation system pumps and treats arsenic, pesticides, and volatile organic compounds (VOCs)-impacted groundwater in accordance with New Jersey Department of Environmental Protection (NJDEP) and Publicly Owned Treatment Work (POTW) permits. As project manager, performed a wide variety of tasks related to site investigation and remediation for this project, including:

- Assessed multimedia environmental data, delineated contaminant plumes, completed geologic mapping, and prepared conceptual site model (CSM) and associated interpretation;
- Prepared technical reports (RIR, RASR, RAW, and RAR) for clients and the NJDEP;
- Statistically developed surface water background threshold values (BTV) to evaluate the effectiveness of engineering controls;
- Statistically evaluated remedial alternatives to ensure environmental compliance;
- Assisted in groundwater treatment plant modification projects and feasibility studies, evaluated pilot study results and assessed feasibility of scaling up operations, and prepared associated engineering cost estimate; and

DRAFT

- Prepared engineering design, bid package, and assisted in permit application.

**Former Dry Cleaner Facility Remediation, Toms River, New Jersey.** As project manager, provided environmental engineering services for an in-site remediation project involving tetrachlorethene (PCE) vapor intrusion. Soil vapor extraction (SVE) and air sparging (AS), along with groundwater monitored natural attenuation (MNA) were applied to reduce contaminant residuals. Conceptually designed intuitional controls—Deed Notice and Classification Exception Area (CEA)—to address on-site residual soil and groundwater contamination.

**Active Waste Oil Recycling Facility, Elizabeth, New Jersey.** As project manager/project engineer, delineated previous and current light non-aqueous phase liquid (LNAPL) contaminant plume in the groundwater system. Updated facility's Storm Water Pollution Prevention Plan (SWPPP) according to New Jersey Pollution Discharge Elimination System (NJPDES) permit conditions.

**The Salvation Army, Asbury Park, New Jersey**. As project manager for this underground storage tank (UST) spill case, designed and performed the chemical injection to address petroleum-impacted groundwater and post-monitoring required to move this case toward regulatory closure. The objective of the in situ remediation is to destroy the VOCs in groundwater through chemical oxidation and enhance biodegradation within the source area.

**Soil Geobiochemistry Study at DuPont Chambers Works Site (CWKs), Deepwater, New Jersey**. As an external consultant for the DuPont Geobiochemistry group, developed protocols for collecting and processing soil core samples in an anaerobic condition, and analyzed the collected data to support the refinement of the site-wide CSM. Assisted in understanding the interactions and mechanisms at the interface as well as in explaining groundwater chemistry, redox conditions, Fe speciation, S speciation, and abiotic/biotic processes.

**Former Steel Fabrication Shop, Brownfield Redevelopment Brooklyn, New York.** As project manager/project engineer, provided environmental engineering services for a brownfield redevelopment site in the Williamsburg neighborhood of Brooklyn, New York. Previous remedial investigations had documented the presence of PCE in groundwater, soil, and soil gas. Performed a supplemental investigation to delineate the on-site and off-site PCE plumes. Performed the pilot study to evaluate the effectiveness of zero valent iron (ZVI) in treating the high concentrations of chlorinated volatile organic compounds (CVOCs) in groundwater. Also conducted strategic soil management (for hazardous [F-listed] and nonhazardous soil) and remediation as part of site redevelopment and building construction preferred. Reviewed site remedies, including soil excavation, ZVI wall injection, dewatering, in-situ chemical oxidation (ISCO)/in situ chemical reduction (ISCR), sub-slab depressurization system (SSDS), and other remedies.

**205 Park Avenue, Brownfield Redevelopment, Brooklyn, New York.** As project manager/project engineer, prepared Brownfield Cleanup Program Applications (BCA). Involved in each phase of the project including Phase I Environmental Site Assessment (ESAs), remedial investigations (for chlorinated solvents in soil, groundwater, and soil vapor), CSMs, remedial design (SSDS and ISCO), and long-term operations and maintenance of remedial systems. Prepared the remedial investigation, Remedial Action Work Plan, Site Management Plan (SMP), and Final Engineering Report (FER).

**Former Alpine Paper Box Manufacturing Site, Brooklyn, New York**. This project was under the jurisdiction of the New York City Office of Environmental Remediation (NYCOER), since an E-Designation for air quality, noise, and HAZMAT was placed on the subject property as part of a rezoning. As project manager/project engineer, performed a Phase I Preliminary Site Assessment, a Phase II Site Investigation, and prepared a Remedial Action Plan. Also prepared Brownfield Cleanup Program Applications and evaluated the potential tax credit for the client.

**Former Cascade Laundry Site, Brownfield Redevelopment, Brooklyn, New York.** The whole city block has been used as a commercial laundry beginning in the 1920s. USTs were observed, and the site had fuel oil/petroleum-related impacts to both soil and groundwater. As project manager/project engineer, conducted remedial investigation to delineate the vertical and horizontal extent of petroleum contamination in soil. Designed a vapor barrier and passive

DRAFT

SSDS system. Conducted ISCO to address the remaining CVOCs in groundwater. Negotiated with the New York State Department of Environmental Conservation (NYSDEC) to change the conditional track 1 to standard track 1 as the final remedy outcome to obtain more tax credits for the client.

**Former Dry Cleaner Site, Brownfield Redevelopment, Coney Island, Brooklyn, New York.** As project manager/project engineer, provided environmental services during the rehabilitation and expansion of the expansive, 1970s-era mixed-use complex. Facilitated the BCP applications for two adjacent parcels within the complex: the first for an existing retail space formerly occupied by a dry cleaner; the second application for an adjacent "historic" dry cleaner lot that had been razed as part of urban renewal in the 1960s. Previous site investigations had documented the presence of PCE in soil gas; the Remedial Investigation Work Plan (RIWP) outlined the work required to delineate the vertical and horizontal extent of the impacted soils, soil vapor, and groundwater at both BCP sites. A Remedial Action Work Plan was developed to address contaminated media. An SSDS was designed to protect residential and retail tenants, in conjunction with source area treatments.

**296 Wythe Avenue, E-Designation Site, Brooklyn, New York.** As project manager/project engineer, managed and oversaw the removal of three USTs and the excavation of non-hazardous soil/fill for off-site disposal. Designed a vapor barrier and passive SSDS. Prepared the OER and NYSDEC-required documents including daily/monthly report, Noise/Air Remedial Action Plan, and Remedial Action Report.

**Standard Motor Products, Brownfields Redevelopment, New York.** Low levels of chlorinated solvents were detected in the groundwater. As project engineer, contributed to AS and SVE system designed and implemented at the site. Project also entailed operating and managing the system, maintaining the right pressure and flow for the system to effectively remediate the contamination.

**JPMorgan Chase, Brownfields Redevelopment, Orangeburg, New York.** Served as project engineer. Investigation/remediation/oversight project at a 90+-year-old state hospital campus redeveloped as a database center. The 61-acre site consisted of 32 abandoned and derelict buildings, walkways, roads, and significantly overgrown landscape areas. Initial project work included the preparation of an NYSDEC BCP application and the design and implementation of a fast-track, comprehensive remedial investigation.

**Former Nuhart Plastics Site, New York State Superfund Site, Brooklyn, New York.** As project engineer, conducted a feasibility study and remedial planning for this former plasticizer facility with on-site and off-site pollutant concerns. Initial site investigations were conducted by others. Project is a high-profile New York State Superfund Site and requires regulatory compliance with NYSDEC and NYCOER, as well as close coordination with local government bodies.

**Junior High School 226 Queens (I.S. 226), Queens, New York**. As environmental engineer, managed construction support services related to soil management associated with the construction of a New York City school complex and associated utility corridors. Prepared Excavated Material Disposal Plans, reviewed potential disposal facilities, and conducted waste characterization soil sampling.

**599 Valley Health Plaza, SSDS, Paramus, New Jersey.** As environmental engineer, provided environmental services including a Phase I ESA, Vapor Encroachment Assessment, Phase II ESA, Remedial Action Plan, and Construction Health and Safety Plan. For active SSDS, designed and prepared bid specifications.

**2581 & 2587 Atlantic Avenue, 40-44 Georgia Avenue, Brooklyn, New York.** Served as environmental engineer and provided environmental services including a Phase I ESA, Vapor Encroachment Assessment, Phase II ESA, Remedial Action Plan, and Construction Health and Safety Plan. Designed the active and passive SSDS systems and prepared bid specifications.

**Steel Craft, Newark, New Jersey.** Served as environmental engineer and conducted groundwater sampling; delineated and differentiated the on-site and off-site PCE and Trichloroethylene (TCE) plumes.

DRAFT

**Oil Spill Risk Assessment, BP and National Oceanic and Atmospheric Administration (NOAA), Gulf of Mexico.** Performed risk assessment for oil spill contamination. Statistically evaluated the data obtained from the site. Reviewed reports and conducted associated research.

**Contaminant Mobility in Paint Waste during Bridge Rehabilitation, New York State Department of Transportation, New York State.** Collaborated with the New York State Department of Transportation (NYSDOT) to investigate the transport and mitigation of the heavy metal contamination from lead-based paint during bridge rehabilitation. Developed a mathematical model using a variety of statistical approaches to rapidly characterize paint waste during bridge rehabilitation. Nine task deliverables were submitted and presented to NYSDOT.

**Impact Study on Effects of Superstorm Sandy, National Science Foundation (NSF), Raritan Bay, New Jersey.** Investigated water quality, trace metals, nitrogen, phosphate, and related contaminants in the groundwater and sediment in the shorelines along Raritan Bay in New Jersey. Evaluated coastal ecosystem recovery and resilience potential after Superstorm Sandy.

**Bio-remediation of Tannery Sludge, China.** Conducted bio-remediation using indigenous sulfur-oxidizing bacteria present in the tannery sludge to reduce elevated hexavalent chromium in tannery sludge. Chromium removal rate of 90 percent was achieved.

**Fujian Petrochemical Industrial Group Co., Compliance Services, China.** Supported lead engineer in the preparation of planning documents and completion of regulatory permit applications. Assisted lead scientist in modifying related EHS programs and procedures to ensure compliance.

## PUBLICATIONS

"Field Methods for Rapidly Characterizing Paint Waste during Bridge Rehabilitation," with L. Axe, K. Jahan, and K.V. Ramanujachary, *Chemosphere* 134: 598-605, 2015.

"Metal Concentrations and Distribution in Paint Waste Generated during Bridge Rehabilitation in New York State," with L. Axe, K. Jahan, and K.V. Ramanujachary, *Science of the Total Environment* 526: 262-270, 2015.

"Monitoring Changes in Salinity and Metal Concentrations in New Jersey (USA) Coastal Ecosystems Post Hurricane Sandy," with Y.R. Personna, X. Geng, F. Saleh, N. Jackson, M. Weinstein, and M. Boufadel, *Environ Earth Science*, 73(3): 1169-1177. 2015

"Metal Leaching from the Bridge Paint Waste in the Presence of Steel Grit, ," with L. Axe, K Jahan, and K.V. Ramanujachary, Chemosphere 119, 1105–1112, 2015.

## INVITED LECTURER OR SPEAKER

"Thermal Enhanced Recovery for Phthalate-Cutting Oil Mixture Treatability Study – Former Plastic Manufacturing Facility," with D. Winslow, presented at 29th Annual International Conference on Soil, Water, Energy, & Air, March 18-21, 2019.

"Trace metal leaching from bridge paint waste in the presence of iron oxide surfaces," with L. Axe, K. Jahan, K.V. Ramanujachary, Division of Colloid and Surface Chemistry, 246th American Chemical Society (ACS) National Meeting, Indianapolis, Indiana, September 8-12, 2013.

DRAFT

"Leaching behavior of lead and chromium from bridge paint waste in the presence of steel grit," with L. Axe, K. Jahan, and K.V. Ramanujachary, session of Steel Bridges Committee, Transportation Research Board 92nd Annual Meeting, Washington, D.C., January 13-17, 2013.

"Field methods for rapidly characterizing paint waste during bridge rehabilitation," with L. Axe, K. Jahan, and K.V. Ramanujachary, session of Environmental Chemistry for a Sustainable World, 243rd American Chemical Society (ACS) National Meeting, San Diego, California, March 25-29, 2012.

DRAFT

# APPENDIX I
# Quality Assurance Project Plan

DRAFT

HALEY ALDRICH

www.haleyaldrich.com

# QUALITY ASSURANCE PROJECT PLAN
# 291 WALLABOUT STREET
# BROOKLYN, NEW YORK

DRAFT

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

for
291 Wallabout Realty LLC
Brooklyn, New York

File No. 0211139
July 2025

## Executive Summary

This Quality Assurance Project Plan outlines the scope of the quality assurance and quality control activities associated with the site monitoring activities associated with the Remedial Action Work Plan for 291 Wallabout Street in Brooklyn, New York.

Protocols for sample collection, sample handling and storage, chain-of-custody procedures, and laboratory and field analyses are described herein or specifically referenced to related project documents.

DRAFT

## Table of Contents


Page

**Executive Summary** i
**List of Tables** v
**List of Attachments** v

**1. Project Description** 1

1.1 PROJECT OBJECTIVES 1
1.2 SITE DESCRIPTION AND HISTORY 1
1.3 LABORATORY PARAMETERS 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 RESPONSIBILITIES 3
2.3.1 Quality Assurance Officer 4
2.3.2 Data Validation Staff 4
2.4 LABORATORY RESPONSIBILITIES 4
2.4.1 Laboratory Project Manager 4
2.4.2 Laboratory Operations Manager 4
2.4.3 Laboratory QA Officer 4
2.4.4 Laboratory Sample Custodian 5
2.4.5 Laboratory Technical Personnel 5
2.5 FIELD RESPONSIBILITIES 5
2.5.1 Field Coordinator 5
2.5.2 Field Team Personnel 6

**3. Sampling Procedures** 7

3.1 SAMPLE CONTAINERS 7
3.2 SAMPLE LABELING 7
3.3 FIELD QC SAMPLE COLLECTION 7
3.3.1 Field Duplicate Sample Collection 7
3.4 GENERAL DECONTAMINATION PROCEDURES 8

**4. Custody Procedures** 9

4.1 FIELD CUSTODY PROCEDURES 9
4.1.1 Field Procedures 10
4.1.2 Transfer of Custody and Shipment Procedures 10
4.2 LABORATORY CHAIN-OF-CUSTODY PROCEDURES 11
4.3 STORAGE OF SAMPLES 11
4.4 FINAL PROJECT FILES CUSTODY PROCEDURES 11


DRAFT

## Table of Contents


Page

**5. Calibration Procedures and Frequency 13**

5.1 FIELD INSTRUMENT CALIBRATION PROCEDURES 13
5.2 LABORATORY INSTRUMENT CALIBRATION PROCEDURES 13

**6. Analytical Procedures 14**

6.1 FIELD ANALYTICAL PROCEDURES 14
6.2 LABORATORY ANALYTICAL PROCEDURES 14
6.2.1 List of Project Target Compounds and Laboratory Detection Limits 14
6.2.2 List of Method-Specific Quality Control Criteria 14

**7. Internal Quality Control Checks 15**

7.1 FIELD QUALITY CONTROL 15
7.1.1 Field Blanks 15
7.1.2 Trip Blanks 15
7.2 LABORATORY PROCEDURES 15
7.2.1 Field Duplicate Samples 15
7.2.2 Matrix Spike Samples 16
7.2.3 Laboratory Control Sample Analyses 16
7.2.4 Surrogate Compound/Internal Standard Recoveries 16
7.2.5 Calibration Verification Standards 17
7.2.6 Laboratory Method Blank Analyses 17

**8. Data Quality Objectives 18**

8.1 PRECISION 18
8.1.1 Definition 18
8.1.2 Field Precision Sample Objectives 18
8.1.3 Laboratory Precision Sample Objectives 18
8.2 ACCURACY 19
8.2.1 Definition 19
8.2.2 Field Accuracy Objectives 19
8.3 LABORATORY ACCURACY OBJECTIVES 19
8.4 REPRESENTATIVENESS 19
8.4.1 Definition 19
8.4.2 Measures to Ensure Representativeness of Field Data 20
8.5 COMPLETENESS 20
8.5.1 Definition 20
8.5.2 Field Completeness Objectives 20
8.5.3 Laboratory Completeness Objectives 20
8.6 COMPARABILITY 20
8.6.1 Definition 20
8.6.2 Measures to Ensure Comparability of Laboratory Data 21


DRAFT

## Table of Contents


Page

8.7 LEVEL OF QUALITY CONTROL EFFORT 21

**9. Data Reduction, Validation, and Reporting 22**

9.1 DATA REDUCTION 22
9.1.1 Field Data Reduction Procedures 22
9.1.2 Laboratory Data Reduction Procedures 22
9.1.3 Quality Control Data 22
9.2 DATA VALIDATION 22
9.3 DATA REPORTING 23

**10. Performance and System Audits 24**

10.1 FIELD PERFORMANCE AND SYSTEM AUDITS 24
10.1.1 Internal Field Audit Responsibilities 24
10.1.2 External Field Audit Responsibilities 24
10.2 LABORATORY PERFORMANCE AND SYSTEM AUDITS 24
10.2.1 Internal Laboratory Audit Responsibilities 24
10.2.2 External Laboratory Audit Responsibilities 25

**11. Preventive Maintenance 26**

11.1 FIELD INSTRUMENT PREVENTIVE MAINTENANCE 26
11.2 LABORATORY INSTRUMENT PREVENTIVE MAINTENANCE 26

**12. Specific Routine Procedures Used to Assess Data Precision, Accuracy, and Completeness 27**

12.1 FIELD MEASUREMENTS 27
12.2 LABORATORY DATA 27

**13. Quality Assurance Reports 28**

**References 29**


DRAFT

## List of Tables


| Table No. | Title |
|---|---|
| I | Summary of Analysis Method, Preservation Method, Holding Time, Sample Size Requirements, and Sample Containers |


## List of Attachments


| Attachment | Title |
|---|---|
| A | Project Team Resumes |


DRAFT

# 1. Project Description

This Quality Assurance Project Plan (QAPP) has been prepared as a component of the Remedial Action Work Plan (RAWP) for the property located at 291 Wallabout Street in Brooklyn, New York (Site).

## 1.1 PROJECT OBJECTIVES

The primary objective for data collection activities is to collect sufficient data necessary to characterize the subsurface conditions at the Site and determine the nature and extent of contamination.

## 1.2 SITE DESCRIPTION AND HISTORY

The general Site description and Site history are provided in the Site Description and History Summary that accompanies the RAWP appended to the Brownfield Cleanup Program (BCP) application for the Site and incorporated herein by reference.

## 1.3 LABORATORY PARAMETERS

The laboratory parameters for soil include:

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

*Note: PFAS will be collected in accordance with the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER), "Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Program, April 2023."*

The laboratory parameters for groundwater, if necessary, include:

- TCL VOCs using EPA Method 8260C

During the collection of groundwater samples, pH, specific conductivity, temperature, dissolved oxygen (DO), and oxidation-reduction potential (ORP) will be measured until stabilized, as necessary.

The analytical laboratory parameters for soil vapor samples, as necessary, include:

- VOCs using EPA Method TO-15

DRAFT

Laboratory parameters for disposal samples will be determined by the disposal facility after an approved facility has been determined.

### 1.4 SAMPLING LOCATIONS

The RAWP provides the locations of soil borings, soil vapor implants, and groundwater monitoring wells that will be sampled (as applicable).

DRAFT

# 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 | Meghan Medwid |
| NYSDOH Case Manager | Megan Rivera |
| Qualified Environmental Professional | Amy K. Murphy |
| Engineer of Record | Suzanne M. Bell, P.E. |
| Project Manager | Zhan Shu |
| Haley & Aldrich of New York* Health & Safety Director | Brian Fitzpatrick, CHMM |
| Health and Safety Officer (HSO) | Brian Ferguson |
| Quality Assurance (QA) Officer | Matthew Forshay |
| 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 quality control (QC) and project oversight. The Project Manager's responsibilities include the following:

- Acquiring and applying technical and corporate resources as needed to ensure performance within budget and schedule restraints;
- Reviewing work performed to ensure quality, responsiveness, and timeliness;
- Communicating with the client point of contact concerning the progress of the monitoring activities;
- Assuring corrective actions are taken for deficiencies cited during audits of RAWP monitoring activities; and,
- Assuring compliance with the Site Health and Safety Plan (HASP).

## 2.3 QUALITY ASSURANCE RESPONSIBILITIES

The QA team will consist of a QA Officer and the Data Validation Staff. QA responsibilities are described as follows.

DRAFT

### 2.3.1 Quality Assurance Officer

The QA Officer reports directly to the Project Manager and will be responsible for overseeing the review of field and laboratory data. Additional responsibilities include the following:

- Assuring the application and effectiveness of the QAPP by the analytical laboratory and the project staff;
- Providing input to the Project Manager as to corrective actions that may be required as a result of the above-mentioned evaluations; and,
- Preparing and/or reviewing data validation and audit reports.

The QA Officer will be assisted by the Data Validation Staff in the evaluation and validation of field and laboratory-generated data.

### 2.3.2 Data Validation Staff

The Data Validation Staff will be independent of the laboratory and familiar with the analytical procedures performed. The validation will include a review of each validation criterion as prescribed by the guidelines presented in Section 9.2 of this document and will be presented in a Data Usability Summary Report (DUSR) for submittal to the QA Officer.

## 2.4 LABORATORY RESPONSIBILITIES

The Environmental Laboratory Approval 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.

### 2.4.2 Laboratory Operations Manager

The Laboratory Operations Manager will report to the Laboratory Project Manager and will be responsible for coordinating laboratory analysis, supervising in-house chain-of-custody reports, scheduling sample analyses, overseeing data review, and overseeing the preparation of analytical reports.

### 2.4.3 Laboratory QA Officer

The Laboratory QA Officer will have sole responsibility for the review and validation of the analytical laboratory data. The Laboratory QA Officer will provide Case Narrative descriptions of any data quality issues encountered during the analyses conducted by the laboratory. The QA Officer will also define appropriate QA procedures, overseeing QA/QC documentation.

DRAFT

### 2.4.4 Laboratory Sample Custodian

The Laboratory Sample Custodian will report to the Laboratory Operations Manager and will be responsible for the following:

- Receiving and inspecting the incoming sample containers;
- Recording the condition of the incoming sample containers;
- Signing appropriate documents;
- Verifying chain-of-custody and its correctness;
- Notifying the Project Manager and Operations Manager of sample receipt and inspection;
- Assigning a unique identification number and entering each into the sample receiving log;
- Initiating transfer of samples to laboratory analytical sections; and,
- Controlling and monitoring access/storage of samples and extracts.

### 2.4.5 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 HASP. The Field Coordinator will facilitate communication and coordinate efforts between the Project Manager and the field team members.

Other responsibilities include the following:

- Developing and implementing field-related work plans, ensuring schedule compliance, and adhering to management-developed project requirements;
- Coordinating and managing field staff;
- Performing field system audits;
- Overseeing QC for technical data provided by the field staff;
- Preparing and approving text and graphics required for field team efforts;
- Coordinating and overseeing the technical efforts of subcontractors assisting the field team;
- Identifying problems in the field, resolving difficulties in consultation with the Project QA Officer and Project Manager, and implementing and documenting corrective action procedures; and,
- Participating in the preparation of the final reports.

DRAFT

### 2.5.2 Field Team Personnel

Field Team Personnel will be responsible for the following:

- Performing field activities as detailed in the RAWP and in compliance with the Field Sampling Plan (FSP) and QAPP.
- Immediately reporting any accidents and/or unsafe conditions to the Site HSO and taking reasonable precautions to prevent injury.

DRAFT

# 3. Sampling Procedures

The FSP provides the SOPs for sampling required by the RAWP. Sampling will be conducted in general accordance with the NYSDEC's "Technical Guidance for Site Investigation and Remediation (DER-10)" and the "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs (April 2023)" when applicable.

## 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 will be maintained by the laboratory.

The appropriate sample containers, preservation methods, maximum holding times, and handling requirements for each 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 will also be numbered with a unique sample identifier to prevent analytical bias of field QC samples.

Refer to the FSP for the sample labeling procedures.

## 3.3 FIELD QC SAMPLE COLLECTION

### 3.3.1 Field Duplicate Sample Collection

#### *3.3.1.1 Water Samples*

Field duplicate samples will be collected by filling the first sample container to the proper level and sealing and then repeating for the second set of sample containers.

1. The samples are properly labeled as specified in Section 3.2.
2. Steps 1 through 4 are repeated for the bottles for each analysis. The samples are collected in order of decreasing analyte volatility as detailed in Section 3.3.1.
3. Chain-of-custody documents are executed.
4. The samples will be handled as specified in Table I.

#### *3.3.1.2 Soil Samples*

Soil field duplicates will be collected as specified in the following procedure:

1. Soils will be sampled directly from acetate liners.

DRAFT

2. Soil for VOC analysis will be removed from the sampling device as specified in the FSP.
3. Soil for non-VOC analysis will be removed from the sampling device and collected into clean laboratory-provided containers.

## 3.4 GENERAL DECONTAMINATION PROCEDURES

Care must be taken to minimize the potential for the 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 the removal of gross material (dirt, grease, oil, etc.), washing with a detergent, and multiple rinsing steps. In lieu of a series of wash 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 the 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.

DRAFT

# 4. Custody Procedures

Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final project files. The custody of a sample begins when it is collected by or transferred to an individual and ends when that individual relinquishes or disposes of the sample.

A sample is under custody if:

1. The item is in actual possession of a person;
2. The item is in the view of the person after being in actual possession of the person;
3. The item was in actual possession and subsequently stored to prevent tampering; or,
4. The item is in a designated and identified secure area.

## 4.1 FIELD CUSTODY PROCEDURES

Field personnel will keep written records of field activities on applicable preprinted field forms or in a bound field notebook to record data-collecting activities. These records will be written legibly in ink and will contain pertinent field data and observations. Entry errors or changes will be crossed out with a single line, dated, and initialed by the person making the correction. Field forms and notebooks will be periodically reviewed by the Field Coordinator.

The beginning of each entry in the logbook or preprinted field form will contain the following information:

- Date;
- Start time;
- Weather;
- Names of field personnel (including subcontractors);
- Level of personal protective equipment (PPE) 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 the sample or make the 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.

DRAFT

### 4.1.1 Field Procedures

The following procedure describes the process to maintain the integrity of the samples:

- Upon collection, samples are placed in the proper containers. In general, samples collected for organic analysis will be placed in pre-cleaned glass containers, and samples collected for inorganic analysis will be placed in pre-cleaned plastic (polyethylene) bottles. Refer to the FSP for sample packaging procedures.
- Samples will be assigned a unique sample number and will be affixed to a sample label. Refer to the FSP for sample labeling procedures.
- Samples will be properly and appropriately preserved by field personnel in order to minimize loss of the constituent(s) of interest due to physical, chemical, or biological mechanisms.
- Appropriate volumes will be collected to ensure that the appropriate reporting limits can be successfully achieved and that the required QC sample analyses can be performed.

### 4.1.2 Transfer of Custody and Shipment Procedures

- A chain-of-custody record will be completed at the time of sample collection and will accompany each shipment of project samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until the samples are relinquished to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date, and note the time of sample transfer on the chain-of-custody record.
- Samples will be shipped or delivered in a timely fashion to the laboratory so that holding times and/or analysis times as prescribed by the methodology can be met.
- Samples will be transported in containers (coolers) which will maintain the refrigeration temperature for those parameters for which refrigeration is required in the prescribed preservation protocols.
- Samples will be placed in an upright position and limited to one layer of samples per cooler. Additional bubble wrap or packaging material will be added to fill the cooler. Shipping containers will be secured with strapping tape and custody tape for shipment to the laboratory.
- When samples are split with the NYSDEC representatives, a separate chain-of-custody will be prepared and marked to indicate with whom the samples are shared. The person relinquishing the samples will require the representative's signature acknowledging sample receipt.
- If samples are sent by a commercial carrier, a bill of lading will be used. A copy of the bill of lading will be retained as part of the permanent record. Commercial carriers will not sign the custody record as long as the custody record is sealed inside the sample cooler and the custody tape remains intact.
- Samples will be picked up by a laboratory courier or transported to the laboratory the same day they are collected, unless collected on a weekend or holiday. In these cases, the samples will be stored in a secure location until delivery to the laboratory. Additional ice will be added to the cooler as needed to maintain proper preservation temperatures.

DRAFT

## 4.2 LABORATORY CHAIN-OF-CUSTODY PROCEDURES

A Sample Custodian will be designated by the laboratory and will have the responsibility to receive all incoming samples. Once received, the Sample Custodian will document if the sample is received in good condition (i.e., unbroken, cooled, etc.) and that the associated paperwork, such as chain-of-custody forms, has been completed. The custodian will sign the chain-of-custody forms.

The custodian will also document if sufficient sample volume has been received to complete the analytical program. The Sample Custodian will then place the samples into secure, limited-access storage (refrigerated storage, if required). They will assign a unique number to each incoming sample for use in the laboratory. The unique number will then be entered into the sample-receiving log with the verified time and date of receipt also noted.

Consistent with the analyses requested on the chain-of-custody form, analyses by the laboratory's analysts will begin in accordance with the appropriate methodologies. Samples will be removed from secure storage with internal chain-of-custody sign-out procedures followed.

## 4.3 STORAGE OF SAMPLES

Empty sample bottles will be returned to secure and limited-access storage after the available volume has been consumed by the analysis. Upon completion of the entire analytical work effort, samples will be disposed of by the Sample Custodian. The length of time that samples are held will be at least 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 chain-of-custody documentation;
- Correspondence;
- References, literature;
- Laboratory data deliverables;
- Data validation and assessment reports;
- Progress reports, QA reports; and,

DRAFT

- A final report.

The laboratory will be responsible for maintaining analytical logbooks, laboratory data, and sample chain-of-custody documents. Raw laboratory data files and copies of hard copy reports will be inventoried and maintained by the laboratory for a period of six years, at which time the laboratory will contact the Haley & Aldrich of New York Project Manager regarding the disposition of the project-related files.

DRAFT

# 5. Calibration Procedures and Frequency

## 5.1 FIELD INSTRUMENT CALIBRATION PROCEDURES

Several field instruments will be used for both on-Site screening of samples and health and safety monitoring, as described in the HASP. On-Site air monitoring for health and safety purposes may be accomplished using a vapor detection device, such as a photoionization detector (PID).

Field instruments will be calibrated at the beginning of each day and checked during field activities to verify performance. Instrument-specific calibration procedures will be performed in accordance with the instrument manufacturer's requirements.

## 5.2 LABORATORY INSTRUMENT CALIBRATION PROCEDURES

Reference materials of known purity and quality will be utilized for the analysis of environmental samples. The laboratory will carefully monitor the preparation and use of reference materials, including solutions, standards, and reagents, through well-documented procedures.

All solid chemicals and acids/bases used by the laboratory will be rated as "reagent grade" or better. All gases will be "high" purity or better. All Standard Reference Materials (SRMs) or Performance Evaluation (PE) materials will be obtained from approved vendors of the National Institute of Standards and Technology (NIST; formerly National Bureau of Standards), the EPA Environmental Monitoring Support Laboratories (EMSL), or reliable Cooperative Research and Development Agreement (CRADA)-certified commercial sources.

DRAFT

# 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, ORP, 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 limit (MDL) 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 Quality Control Criteria

The laboratory SOPs include a section that presents the minimum QC requirements for the project analyses. Section 7.0 references the frequency of the associated QC samples for each sampling effort and matrix.

DRAFT

# 7. Internal Quality Control Checks

This section presents the internal QC checks that will be employed for field and laboratory measurements.

## 7.1 FIELD QUALITY CONTROL

### 7.1.1 Field Blanks

Internal QC checks will include analysis of field blanks to validate equipment cleanliness. Whenever possible, dedicated equipment will be employed to reduce the possibility of cross-contamination of samples.

### 7.1.2 Trip Blanks

Trip blank samples will be prepared by the project laboratory using American Society for Testing and Materials (ASTM) Type II or equivalent water placed within pre-cleaned 40-milliliter (mL) VOC vials equipped with Teflon™ septa. Trip blanks will accompany each sample delivery group (SDG) of environmental samples collected for analysis of VOCs.

Trip blank samples will be placed in each cooler that stores and transports project samples that are to be analyzed for VOCs.

## 7.2 LABORATORY PROCEDURES

Procedures that contribute to the 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 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]). 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.

DRAFT

### 7.2.2 Matrix Spike Samples

Ten percent of each project sample matrix for each analytical method performed will be spiked with known concentrations of the specific target compounds/analytes.

The amount of the compound recovered from the sample compared to the amount added will be expressed as a percent recovery. The percent recovery of an analyte is an indication of the accuracy of an analysis within the site-specific sample matrix. Percent recovery will be calculated for matrix spike and matrix spike duplicate (MS/MSD) samples using the following equation.

$$\%\ Recovery = \frac{Spiked\ Sample - Background}{Known\ Value\ of\ Spike} x100\%$$

If the QC value falls outside the control limits (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/Internal Standard Recoveries

For VOCs, surrogates will be added to each sample prior to analysis to establish purge and trap efficiency. Quantitation will be accomplished via internal standardization techniques.

DRAFT

The recovery of surrogate compounds and internal standards will be monitored by laboratory personnel to assess possible Site-specific matrix effects on instrument performance.

For SVOC analyses, surrogates will be added to the raw sample to assess extraction efficiency. Internal standards will be added to all sample extracts and instrument calibration standards immediately before analysis for quantitation via internal standardization techniques.

Method-specific QC limits are provided in the attached laboratory method SOPs. Surrogate compound/internal standard recoveries that do not fall within accepted QC limits for the analytical methodology performed will have the analytical results flagged with data qualifiers as appropriate by the laboratory and will not be noted in the laboratory report Case Narrative.

To ascertain the effect that non-compliant surrogate compound/internal standard recoveries may have on the reported results, the recovery data will be evaluated as part of the validation process. The Data Validator will provide recommendations for corrective actions, including but not limited to additional data qualification.

### 7.2.5 Calibration Verification Standards

Calibration verification (CV) standards will be utilized to confirm instrument calibrations and performance throughout the analytical process. CV standards will be prepared as prescribed by the respective analytical protocols. Continuing calibration will be verified by compliance with method-specific criteria prior to additional analysis of project samples.

Non-compliant analysis of CV standards will require immediate corrective action by the project Laboratory QA Officer and/or designated personnel. Corrective action may include a re-analysis of each affected project sample, a detailed description of the problem, the corrective action undertaken, the person who performed the action, and the resolution of the problem.

### 7.2.6 Laboratory Method Blank Analyses

Method blank sample analysis will be performed as part of each analytical batch for each methodology performed. If target compounds are detected in the method blank samples, the reported results will be flagged by the laboratory in accordance with SOPs. The Data Validator will provide recommendations for corrective actions, including but not limited to additional data qualification.

DRAFT

# 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 of assessing 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 the 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, which is defined as the absolute difference of duplicate measurements divided by the mean of these analyses, normalized to a percentage.

### 8.1.2 Field Precision Sample Objectives

Field precision will be assessed through the 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 “plus or minus 100 percent for soil” and “plus or minus 35 percent for groundwater” for parameters of analysis detected at concentrations greater than five times the laboratory RL.

### 8.1.3 Laboratory Precision Sample Objectives

Laboratory precision will be assessed through the analysis of LCS and laboratory control sample duplicates (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 “plus or minus 35 percent” for parameters of analysis detected at concentrations greater than five times the laboratory RL.

DRAFT

## 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 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.

DRAFT

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 is 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 number of valid measurements obtained from measurements taken in this project versus the number planned. The field completeness objective for this project will be greater than 90 percent.

### 8.5.3 Laboratory Completeness Objectives

The laboratory data completeness objective is a measure of the amount of valid data obtained from laboratory measurements. The evaluation of the data completeness will be performed at the conclusion of each sampling and analysis effort.

The completeness of the data generated will be determined by comparing the amount of valid data, based on independent validation, with the total laboratory data set. The completeness goal will be 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.

DRAFT

### 8.6.2 Measures to Ensure Comparability of Laboratory Data

Comparability of laboratory data will be measured from the analysis of SRM obtained from either EPA CRADA suppliers or 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).
- Aqueous Matrices – nanograms per liter (ng/L) for PFAS analyses, micrograms per liter (µg/L) of media for organic analyses, and milligrams per liter (mg/L) for inorganic analyses.

## 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. (Note: If dedicated or disposable sampling equipment is used, equipment rinse samples will not be collected as part of that field effort.)

Trip blanks will be used to assess the potential for contamination during sample storage and shipment. Trip blanks will be provided with the sample containers to be used for the collection of groundwater samples for the analysis of VOC. Trip blanks will be preserved and handled in the same manner as the project samples. One trip blank will be included along with each shipping container containing project samples to be analyzed for 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 samples 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. Aqueous MS/MSD samples require triple the normal sample volume for VOC analysis and double the volume for the remaining parameters.)

DRAFT

# 9. Data Reduction, Validation, and Reporting

Data generated by the laboratory operation will be reduced and validated prior to reporting in accordance with the following procedures:

## 9.1 DATA REDUCTION

### 9.1.1 Field Data Reduction Procedures

Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. The pH, conductivity, temperature, turbidity, DO, ORP, and breathing zone VOC readings collected in the field will be generated from direct-read instruments. The data will be written into field logbooks immediately after measurements are taken. If errors are made, data will be legibly crossed out, initialed and dated by the field member, and corrected in a space adjacent to the original entry.

### 9.1.2 Laboratory Data Reduction Procedures

Laboratory data reduction procedures are provided by the appropriate chapter of the 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. Data determined to be acceptable will be entered into the laboratory information management system.

Unacceptable data will be appropriately qualified in the project report. Case Narratives will be prepared, which will include information concerning data that fell outside acceptance limits and any other anomalous conditions encountered during sample analysis.

## 9.2 DATA VALIDATION

Data validation procedures of the analytical data will be performed by the Haley & Aldrich 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.

DRAFT

- 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.

DRAFT

# 10. Performance and System Audits

A performance audit is an independent quantitative comparison with data routinely obtained in the field or the laboratory. Performance audits include two separate, independent parts: internal and external audits.

## 10.1 FIELD PERFORMANCE AND SYSTEM AUDITS

### 10.1.1 Internal Field Audit Responsibilities

Internal audits of field activities will be initiated at the discretion of the Project Manager and will include the review of sampling and field measurements. The audits will verify that all procedures are being followed. Internal field audits will be conducted periodically during the project. The audits will include an examination of the following:

- Field sampling records, screening results, and instrument operating records;
- Sample collection;
- Handling and packaging in compliance with procedures;
- Maintenance of QA procedures; and,
- Chain-of-custody reports.

### 10.1.2 External Field Audit Responsibilities

External audits may be conducted by the Project Coordinator at any time during the field operations. These audits may or may not be announced and are at the discretion of the NYSDEC. The external field audits can include (but are not limited to) the following:

- Sampling equipment decontamination procedures;
- Sample bottle preparation procedures;
- Sampling procedures;
- Examination of 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, chain-of-custody procedures, sample preparation and analysis, and instrument operating records.

DRAFT

At the conclusion of internal system audits, reports will be provided to the laboratory's operating divisions for appropriate comment and remedial/corrective action where necessary. Records of audits and corrective actions will be maintained by the Laboratory QA Officer.

### 10.2.2 External Laboratory Audit Responsibilities

External audits will be conducted as required by the NYSDOH or designee. External audits may include any of the following:

- Review of laboratory analytical procedures;
- Laboratory on-site visits; and/or,
- Submission of performance evaluation samples for analysis.

Failure of any of the above audit procedures can lead to laboratory decertification. An audit may consist of, but not be 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/or,
- 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 the 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/or,
- Assurance that samples are run within holding times.

DRAFT

# 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 the manufacturer's specifications by laboratory personnel.

DRAFT

# 12. Specific Routine Procedures Used to Assess Data Precision, Accuracy, and Completeness

## 12.1 FIELD MEASUREMENTS

Field-generated information will be reviewed by the Field Coordinator and typically includes evaluation of bound logbooks/forms, data entry, and calculation checks. Field data will be assessed by the Project Coordinator, who will review the field results for compliance with the established QC criteria that are specified in Sections 7 and 8 of this QAPP. The accuracy of pH and specific conductance will be assessed using daily instrument calibration, calibration checks, and blank data. Accuracy will be measured by determining the percent recovery (%R) of calibration check standards. The precision of the pH and specific conductance measurements will be assessed on the basis of the reproducibility of duplicate readings of a field sample and will be measured by determining the RPD. The accuracy and precision of the soil VOC screening will be determined using duplicate readings of calibration checks. Field data completeness will be calculated using the following equation:

$$Completeness = \frac{Valid\ (usable)\ Data\ Obtained}{Total\ Data\ Planned} \ X\ 100$$

## 12.2 LABORATORY DATA

Laboratory data will be assessed by the Haley & Aldrich of New York QA Officer or designee, who will review the laboratory results for compliance with the established QC criteria that are specified in Sections 7 and 8 of this QAPP.

DRAFT

## 13. Quality Assurance Reports

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,
- Daily 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 the laboratory management.

DRAFT

## References


1. New York State Department of Environmental Conservation, NYSDEC Analytical Services Protocol (ASP), Bureau of Environmental Investigation, 1991 with updates.

2. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Technical Guidance for Site Investigation and Remediation, DER-10, May 2010.

3. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program, April 2023.

4. United States Environmental Protection Agency (1991). Preparation Aids for the Development of Category I Quality Assurance Project Plans. U.S. EPA/600/8-91/003, Risk Reduction Engineering Laboratory, Office of Research and Development, Cincinnati, Ohio, February 1991.

5. United States Environmental Protection Agency, (1992). Specifications and Guidance for Contaminant-Free Sample Containers. OSWER Directive 9240.0-05A, April 1992.

6. United States Environmental Protection Agency, (1993). Data Quality Objectives Process for Superfund Interim Final Guidance. U.S. EPA/540/R-93-071, Office of Solid Waste and Emergency Response (OSWER), September 1993.

7. United States Environmental Protection Agency, (1999). EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations. EPA QA/R-5 Interim Final, November 1999.

8. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Office of Solid Waste, U.S. EPA, SW-846, November 1986, with updates.

9. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-002.

10. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-001.




DRAFT

DRAFT

# TABLE

**TABLE I**
**SUMMARY OF ANALYSIS METHOD, PRESERVATION METHOD, HOLDING TIME, SAMPLE SIZE REQUIREMENTS AND SAMPLE CONTAINERS**
291 WALLABOUT STREET REDEVELOPMENT SITE
BROOKLYN, NEW YORK

| Analysis/Method[3] | Sample Type | Preservation | Holding Time | Volume/Weight | Container[4] |
|---|---|---|---|---|---|
| Volatile Organic Compounds/8260C | Soil | 1 - 1 Vial MeOH/2 Vial Water, Cool, 4 ± 2 °C | 14 days[1] | 120 mL | 3 - 40ml glass vials |
| Semivolatile Organic Compounds/8270D | Soil | Cool, 4 ± 2 °C | 14 days extraction / 40 days analysis | 250 mL | 1 - 8 oz Glass |
| Pesticides/8081B | Soil | Cool, 4 ± 2 °C | 14 days extraction / 40 days analysis | 250 mL | 1 - 4 oz Glass |
| Polychlorinated Biphenyls/8082A | Soil | Cool, 4 ± 2 °C | 14 days extraction / 40 days analysis | 250 mL | 1 - 4 oz Glass |
| Metals/6010D | 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 |
| Volatile Organic Compounds/8260C | Groundwater | HCl, Cool, 4 ± 2 °C | 14 days | 120 mL | 3 - 40 mL glass vials |
| Semivolatile Organic Compounds/8270D | Groundwater | Cool, 4 ± 2 °C | 7 days extraction / 40 days analysis | 500 mL | 2 - 250 mL amber glass |
| TAL Metals/6020 | Groundwater | $HNO_3$Cool, 4 ± 2 °C | 180 days | 500 mL | 1 - 500 mL plastic bottle |
| PFAS/1633 | Groundwater | H2O Cool, 4 ± 2 °C | 28 days extraction / 28 days analysis | To be determined by laboratory | 2 - HDPE container |
| 1,4-Dioxane/8270SIM | Groundwater | Cool, 4 ± 2 °C | 7 days extraction / 40 days analysis | 500 mL | 1 - 500 mL plastic bottle |
| Volatile Organic Compounds/TO-15 | Soil Vapor | N/A | 30 days | 2.7 - 6 L | 1 - 2.7 L Summa Canister |

DRAFT

***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.*

# ATTACHMENT A
## Project Team Resumes

DRAFT

# SUZANNE BELL, PE

Program Manager, Environmental Engineer

**EDUCATION**

BS, Biosystems Engineering, University of Arizona

**PROFESSIONAL REGISTRATIONS**

AZ: Environmental Engineer (Reg. No. 61995)
NY: Professional Engineer (Reg No. 106301)

**PROFESSIONAL COMMITTEES**

American Council of Engineering Companies of New York – New York State Department of Environmental Conservation Committee Member – 2024-2025

**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 17 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.

In New York, Suzanne has experience as an Engineer of Record in completing site closure documentation including Remedial Closure Reports reviewed by the Office of Environmental Remediation as well as Final Engineering Reports and Site Management Plans reviewed by the New York State Department of Environmental Conservation.

Suzanne has managed the investigation, remedial design, remediation and closeout of sites in the Brownfield Cleanup Program and petroleum spill case sites. Her background also includes developing and complying with approved site management plans overseeing the operation and maintenance of on-site engineering controls, such as soil vapor extraction systems, sub-slab depressurization systems, product recovery systems, and ensuring the protection of human health and the environment.

DRAFT

## RELEVANT PROJECT EXPERIENCE

**Bedford Beverly Redevelopment Site, Brooklyn, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plans for an approximately 5.31-acre non-contiguous property located in the Flatbush neighborhood in the borough of Brooklyn, New York under the New York State Brownfield Cleanup Program (NYSBCP). The remedy included removal of thirteen undocumented underground storage tanks (USTs), removal of over 115,000 tons of non-hazardous and hazardous soil, hotspot excavations, injections of zerovalent iron to treat tetrachlorethylene in groundwater, injection of alkaline-activated persulfate to treat petroleum-based volatile organic compounds in groundwater and establishing a Site Management Plan (SMP) for Institutional and Engineering Controls. The site is being redeveloped from a vacant auto service center, vast open air parking lots, and a vacant commercial building into a vibrant community development. In addition to new residential housing, which includes affordable units, and commercial spaces, the project has preserved the highly recognizable Sears Roebuck & Company Department Store. This includes maintaining its historical architecture, updating the building to meet modern standards, introducing commercial spaces that were previously underutilizing, and maintaining the character of the neighborhood.

**Development, EPA Site RCRA-02-2009-7306, NYSDEC Site 243016, Former Port Mobil Terminal, Staten Island, New York.** Engineer and project manager responsible for the preparation of the feasibility study, preparation of the Interim Remedial Report, completion of the Interim Remedial Measure, 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 approximately 240 acres with a planned development for commercial/industrial uses.

**Rogers Snyder Brownfield Site, 858 Rogers Avenue and 2605 Snyder Avenue, Brooklyn, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plan at the Rogers Snyder redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous and hazardous soil, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of the FER.

**Former Garone Bros Auto Service Center Site, 352-362 Shepherd Avenue, Brooklyn, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plan at the 352-362 Shepherd redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous soil, removal of USTs, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of the FER.

**Former Fielder Waterproofing & Masonry Site, 91 Bruckner Boulevard, Bronx, New York.** Suzanne served as engineer of record for execution of Remedial Action Work Plan at the 91 Bruckner redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous and hazardous soil, removal of USTs, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of the FER and SMP.

**828 Metropolitan Avenue Site, 808-834 Metropolitan Avenue, Brooklyn, New York.** Suzanne served as project manager and engineer of record for execution of Remedial Action Work Plan at the 828 Metropolitan Avenue redevelopment project under the NYSBCP. Responsible for remedial oversight of excavation and removal of non-hazardous soil, removal of USTs, endpoint sample collection, air monitoring, communication with soil brokerage firm and environmental laboratory, preparation of Daily Field Reports (DFRs) and the Final Engineering Report (FER).

**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, removal of USTs, air monitoring, dewatering system installation support, communication with soil brokerage firm and environmental laboratory, preparation of DFRs and the 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.

**Multiple Clients, Remedial Action Work Plans, New York City, New York.** As project manager and engineer of record, Suzanne has prepared Remedial Action Work Plans for the NYSDEC for sites within the New York City boroughs.

DRAFT

**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 1 million gallons per day 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.

DRAFT

**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.

**Arizona Pollutant Discharge Elimination System (AZPDES) and National Pollutant Discharge Elimination System (NPDES) Permits, Arizona.** Suzanne prepared AZPDES and 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.

DRAFT

**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.

DRAFT

# BRIAN A. FERGUSON

Senior 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)

DRAFT

## 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.

DRAFT

# 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

DRAFT

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.

DRAFT

# MATTHEW FORSHAY, PE

Assistant Project Manager | Environmental Engineer

**EDUCATION**

MS, Environmental Engineering, New Jersey Institute of Technology
BS, Environmental Science, Rutgers University

**PROFESSIONAL REGISTRATIONS –**

2023/ New Jersey: Professional Engineer (PE License No. 24GE05950800)

**SPECIAL STUDIES AND COURSES**

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training (29 CFR 1910.120)
40-Hour NYC DOB Site Safety Training
8-Hour OSHA HAZWOPER Refresher Training
10-Hour OSHA Construction

Matthew is an environmental engineer with experience in site investigation and remediation. He has proven attention to detail and practical experience with research, data analysis, and remedial design and reporting. His field experience includes site/remedial investigations and remedial actions. He has completed soil, groundwater, and air sampling in the field. He also oversees groundwater monitoring well installation; underground storage tank (UST) closures; installation/ decommissioning/operation and maintenance (O&M) of soil and groundwater remediation systems and other remedial action activities; and soil excavations and transportation and disposal. He has also prepared bid specifications and NJDEP land use and air permits for remediation projects conducted at manufacturing facilities.

Since joining H&A, Matthew has focused on conducting site investigations for a variety of brownfield sites. He has also provided support in overseeing remedial excavations and preparing associated NYSDEC reports. At H&A, he will refine his skills in designing remedial injections, systems, and excavations. Additionally, he will prepare remedial and engineering reports for the NYSDEC.

## RELEVANT PROJECT EXPERIENCE

**138 Bruckner Realty LLC, 138 Bruckner Boulevard, Bronx, New York.** Matthew prepared waste class sampling plans and conducted soil sampling to investigate and characterize on-site soils. Once construction started, Matthew oversaw remedial action which included excavation activities; he also conducted air monitoring activities. During the project, he prepared daily reports for the NYSDEC which included work activities, sample collection, soil and debris disposal, and underground storage tank discovery and investigation. After the project, he prepared the Final Engineering Report for NYSDEC which detailed the remedial work including soil removed, backfill imported, and soil analytical results.

**295 W Holdings LLC, 295-297 Wallabout Street, Brooklyn, New York.** Matthew oversaw remedial action which included dewatering operations and excavation activities; Matthew also conducted air monitoring activities. During the project, he prepared daily reports for the NYSDEC which included work activities, sample collection, and soil and debris disposal. After the project, he prepared the Final Engineering Report for NYSDEC which detailed the remedial work including soil removed, backfill imported, soil analytical results, and engineering controls (i.e., vapor barrier installation).

**TA Realty LLC, 511 13th Street, Carlstadt, New Jersey.** Matthew prepared a passive SSDS design for a proposed warehouse development. The design work included piping and geovent layout, vent riser specifications, vapor barrier and monitoring point and leak test specifications, and SSDS air inlet ventilation specifications. Field oversight included overseeing and verifying the SSDS system layout and vapor barrier installation with the design drawings.

DRAFT

**Contact Industries, 641 Dowd Avenue, Elizabeth, New Jersey.** Matthew served as an environmental engineer for engineering services which included conducting a remedial investigation and remedial action for soil and groundwater remediation. The project included delineation of chlorinated compounds, pesticides, and polychlorinated biphenyl-impacted soils and groundwater in the shallow aquifer. The design effort included excavation of contaminated soil, chemical injections, and installation of permeable reactive barrier. As part of the design effort, Matthew developed cost estimates for the proposed excavation and chemical injection and considered remedial alternatives which included thermal treatment and institutional controls. Additionally, Matthew prepared the Permit by Rule for NJDEP.

**Standard Motor Products, Long Island City, New York.** Matthew served as an environmental engineer for engineering services that included operational and maintenance and performance monitoring for a soil vapor extraction, groundwater air sparge system and a sub slab depressurization system. Monitoring activities included vacuum reading collection and soil vapor and groundwater sampling. Project reporting included monthly progress reports, annual periodic review reports, and site management plan updates.

**Former B.H. Aircraft, Farmingdale, New York.** Matthew served as an environmental engineer for engineering services which included conducting operation and maintenance and performance monitoring for an on-site soil vapor extraction system. Monitoring activities included vacuum reading collection and soil vapor and groundwater sampling. Project reporting included data compilation, contaminant modeling, and annual periodic review report preparation.

**JPMorgan Chase, Brownfields Redevelopment, Orangetown, New York.** Matthew served as an environmental engineer for engineering services which included preparing a design, installation, and commissioning of a sub-slab depressurization system for an industrial site for vapor intrusion. Investigative results were used to define the basis of design and prepare design drawings for regulatory approval and permits. Following the installation, it was commissioned to confirm proper performance and conformance with the design. Reporting included preparing the site management plan for the construction of the IT Mod II building.

**Wyman-Gordon Company, McWilliams Forge, Rockaway, New Jersey.** Matthew served as an environmental engineer for engineering services which included remedial investigation, preparation of a remedial action work plan, a baseline ecological evaluation, wetland permitting, and preparation of an ecological risk assessment workplan. As an on-site field engineer, he implemented the investigation which included soil and concrete sampling. Following the investigation, he prepared bid specifications and associated construction drawings and NJDEP land use permit applications. During remedial implementation, he coordinated and reviewed contractor submittals, oversaw soil excavation activities, collected soil samples, and analyzed analytical results.

**Confidential Manufacturing Client.** Matthew served as an environmental engineer for engineering services which included odor investigation for a fragrance manufacturing facility. The investigation included volatile organic compound (VOC) and odor air modeling, a remedial action selection report, and a pilot study using a VOC concentrator wheel with secondary treatment. Implementing the remedy included preparing bid specifications and evaluating contractor bids for mechanical, electrical, plumbing, structural, roof, and civil work scopes and preparing air permits for the proposed air treatment technology installation.

DRAFT

# AMY K. MURPHY, LSRP

Senior Client Account Manager

**EDUCATION**

M.B.A., Rutgers Business School, 2012
B.S., Environmental Science, Cook College, Rutgers University, 1999
A.S., Biology, County College of Morris, 1997

**PROFESSIONAL REGISTRATIONS**

New Jersey Licensed Site Remediation Professional (LSRP) (Lic. No. 537112)
2008/New Jersey Department of Environmental Protection Subsurface Evaluator (Lic. No. 188249)

**SPECIAL STUDIES AND COURSES**

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training, May 1998
8-Hour OHSA HAZWOPER refresher courses 1999-2023
OSHA Supervisor Training, January 2004
10-hour OSHA Construction Safety Training, August 2007
NJDOT General Awareness Training, January 2005
New Jersey Transit Contractor Safety Training, June 2006 and January 2007
Radiation Worker Training and Plant Access Training, Oyster Creek Nuclear Generating Station, August 1999 and April 2002

Ms. Murphy is a New Jersey Licensed Site Remediation Professional (LSRP) with 25 years of experience in site investigation and remediation strategies at a variety of contaminated sites. She leads and supports all phases of investigation and remediation at diverse sites for industrial, real estate, utility, and municipal clients, mostly focused in New Jersey and New York City. She has extensive experience in implementing and managing preliminary assessments, site and remedial investigations, and remedial action projects under the New Jersey Department of Environmental Protection (NJDEP) Industrial Site Recovery Act (ISRA), Underground Storage Tank (UST), voluntary cleanup programs, and New York State Department of Conservation (NYSDEC) Brownfield Cleanup Program. Ms. Murphy is well-versed in preparing regulatory required submissions, including reports for preliminary assessment/site investigations, remedial investigations, remedial action selection, remedial action work plans, remedial action reports, final engineering reports, remedial action permit applications, and response action outcomes. She is experienced in the ASTM Standard Practice for Phase I Environmental Site Assessments, has conducted due diligence assessments primarily in New Jersey and New York City and provided strategic consulting related to transactional due diligence.

Ms. Murphy's regulatory experience has provided her with the ability to efficiently research and evaluate extensive historical key documents and data to quickly identify site issues and data gaps, prepare concise summaries and conclusions, and visualize information for litigation support and regulatory submittals.

## RELEVANT PROJECT EXPERIENCE

### Due Diligence

**Strategic Due Diligence Consulting Services, 34 property portfolio, New Jersey.** Ms. Murphy served as the New Jersey regulatory expert for strategic due diligence consulting services to a national real estate development client that transacts commercial properties in the Eastern United States. Services include preparation of due diligence reports (Phase I), third-party review of regulatory submittals (primarily remedial action reports, remedial action permit applications), technical evaluation of proposed remedial strategies and integration of proposed geotechnical ground improvements, review of NJDEP and U.S Army Corp of Engineers wetland permits and mitigation reports, and advised on environmental business risk during the transaction process. Ms. Murphy has remained involved with asset

DRAFT

management post-transaction to ensure tenant compliance with ISRA regulations, integration of on-going remediation and construction activities, and/or sub-slab depressurization system design and installation oversight.

**Due Diligence Environmental Compliance and Remediation Cost Review, East Hanover, New Jersey.** In support of the potential property acquisition, Ms. Murphy prepared a preliminary environmental compliance and remediation cost estimate to identify and characterize existing and potential environmental liabilities and NJDEP obligations, estimate the scope and associated compliance/remediation costs, develop an anticipated schedule for compliance activities, and identify data gaps that require further document review and/or investigation along with the associated cost contingency that should be assigned.

**Multiple Phase I Site Assessment Evaluations, Newark, New Jersey.** Ms. Murphy conducted ASTM Phase I Environmental Site Assessments and/or Phase I reports at a variety of commercial properties as part of due diligence activities for real estate transactions for a major American airline. She evaluated the site conditions and regulatory requirements as they related to the potential buyers' property use as a catering vehicle maintenance facility. She assisted with site reporting and compliance activities subsequent to the purchase of the property.

**Due Diligence Investigations, Nuclear Generating Station, Forked River, New Jersey.** Led the site investigation/remedial investigation at a nuclear power plant in support of a facility sale and ISRA compliance. Responsibilities included coordinating and supervising field activities during remedial investigation sampling activities and report preparation. Plant Access Training was required for escorting other untrained field personal while on-site. Radiation Worker Training was required for operations conducted within the Radiation Control Area.

**Phase II Environmental Site Assessments, Numerous Generating Stations and Substations, New Jersey and Pennsylvania.** Led the preparation of Phase II investigation reports of generating stations and substations in Pennsylvania and New Jersey. Responsibilities included data management, evaluation, and validation as well as participating in the writing and assembly of Phase II summary reports for 29 sites.

## Chlorinated Solvent

**Remedial Investigation and Remediation of Chlorinated Solvents, Piscataway, New Jersey.** Ms. Murphy is currently the LSRP of record for two chlorinated solvent sites at an active university with groundwater contamination in a complex, multiple aquifer bedrock setting. Groundwater contamination extends almost a mile horizontally and up to 300 feet in depth and is influenced by pumping of an on-site irrigation well that intersected multiple water-bearing bedrock zones. Remediation at the first site included the installation of bedrock injection wells to address chlorinated solvent contamination in groundwater in the source area. Designed the remedial action at two source areas using enhanced in-situ biodegradation (EISB) and zero valent iron (ZVI) at one source area, conducted electrical resistance heating (ERH) in a source area with concentrations of tetrachloroethene (PCE) above 300 parts per million (ppm) and carbon tetrachloride above 60 ppm. Following the ERH event, recirculation of groundwater and electron donors and bioaugmentation cultures were completed to allow for monitored natural attenuation (MNA) to occur. Remediation at the second site included implementation of In Situ chemical oxidation activities via alkaline activated sodium persulfate in bedrock followed by an EISB event to address remaining chlorinated solvent concentrations and allow for MNA.

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Hackensack, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and was responsible for oversight of environmental investigation and cleanup. She reviewed and certified implementation an in situ chemical oxidation (ISCO) remedy using two different oxidants (sodium permanganate and activated persulfate) for the residual dissolved plume outside the ERH treatment zone, as well as remedial phase report submittals including establishment of a groundwater Classification Exception Area (CEA). The case was transitioned to a long-term groundwater monitoring program with a Limited Restricted Use Entire-Site Response Action Outcome (RAO-E).

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Former Automobile Parts Manufacturing Plant, Ewing, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has responsibility for

DRAFT

oversight of environmental investigation, regulatory interaction, and remediation for an $18.9M New Jersey ISRA case at an 80-acre, 85-year-old facility. She was previously the field quality assurance officer and project coordinator to evaluate the potential for petroleum- and chlorinated solvent-impacted groundwater migration through soil and fractured sedimentary bedrock, with an emphasis of the distribution and migration pathways of dense non-aqueous phase liquid (DNAPL) in bedrock. Responsibilities included work plan development and revision for multiple field investigation stages; characterization of soil, hydrogeologic and environmental conditions; oversight of overburden and bedrock investigation activities in a complex hydrogeologic environment; along with overseeing preparation and submission of the Soil Remedial Investigation Report and Soil Remedial Action Report. Soils were closed out with a Remedial Action Permit (RAP) for institutional and engineering controls and Restricted Use Soils Only RAO to allow for the sale of the property. EISB via recirculation of groundwater and electron donors with the addition of a bioaugmentation culture to address elevated chlorinated solvent concentrations being implemented during Site redevelopment.

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Specialty Alloy Manufacturer, East Hanover, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has responsibility for oversight of environmental investigation and cleanup. She was also project manager for this investigation and remediation under the ISRA for surficial metals and chlorinated solvents and Toxic Substances Control Act (TSCA)-level polychlorinated biphenyls (PCBs). The extent of solvent contamination was delineated to the water table (over 40 feet deep) over a total area of over 5,000 square feet in four areas. Indoor air sampling and sub-slab soil vapor sampling was also conducted in several buildings to evaluate the vapor intrusion pathway, resulting in the discovery of large areas of chlorinated solvent vapor at very high concentrations. Additional subsurface investigation was conducted at the request of the NJDEP to determine if DNAPL was present, to further delineate contamination in two areas of concern, and to collect data for remedial design purposes. A remedial alternatives analysis was prepared, and an expanded sub-slab soil gas investigation is being conducted to collect additional data necessary for soil vapor extraction system design, construction and implementation. Ms. Murphy also designed and implemented a data gap investigation to for site-wide horizontal and vertical delineation in soil. As LSRP, Ms. Murphy also provides oversight of third-party investigation and remediation of groundwater impacts.

**Environmental Investigation and Remediation, Chlorinated Solvent Site, Ridgefield, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has reviewed and certified remedial investigations completed at the Site which provided horizontal and vertical delineation and submittal of remedial phase reports which included statistical compliance evaluations. Majority of the impacted soils in the vicinity of a previously excavated source area; however, elevated concentrations remained due to building structural considerations. The limited extent of the soil exceedances are managed with institutional and engineering controls as established in the recorded Deed Notice. Trichloroethene (TCE) and its daughter products migrated to the deeper groundwater zone in the overburden. Groundwater also shows impacts from contaminants unrelated to the Site operations. The evaluation of the groundwater data indicates that conditions are viable for an MNA approach under a Groundwater RAP, and a CEA for groundwater was established. The case was transitioned to a long-term monitoring program with a Restricted Use RAO-E.

**Investigation of PCE Contamination at a Former Dry Cleaner, Morristown, New Jersey.** Ms. Murphy is currently the LSRP of record for the project and has responsibility for oversight of environmental investigation and cleanup. Her responsibilities include project management and developing/implementing investigation and remedial approaches for achieving compliance with the applicable New Jersey Ground Water Quality Standards (GWQS) at a former dry cleaning facility. Conducting feasibility evaluations of remedial techniques for groundwater contaminated with PCE, including numerous bio-remediation approaches as well as other conventional and innovative remedial technologies. Principal investigator for assessment of sub-slab and indoor air in retail tenant space in support of vapor intrusion investigation; successfully demonstrated incomplete pathway. Ms. Murphy issued an Unrestricted Use Soils Only RAO-A based on statistical compliance evaluations.

**ISRA Investigations, Various Generating Stations, North and Central, New Jersey.** Led the site and remedial investigations of 4 generating stations located in north and central New Jersey. Responsibilities included soil,

DRAFT

groundwater, and sediment sampling; contractor coordination and oversight; data management and evaluation; and preparing Remedial Investigation Reports.

## Manufactured Gas Plant

**Former MGP Site, Freehold, New Jersey.** Senior project manager and LSRP advisor for the assessment and characterization of a previously unknown manufactured gas plant (MGP). Assessment included developing the MGP-footprint and boundary based on historical documents and maps, and evaluation of adjacent receptors. Characterization included vapor intrusion (VI), soil and groundwater investigations; forensic petroleum and background metals data evaluation; and preparation of the Preliminary Assessment/Site Investigation Report.

**Former MGP Site, Long Branch, New Jersey.** Project manager for the VI investigation of an adjacent off-site, non-residential building located near potential petroleum hydrocarbon MGP source material and near dissolved and light non-aqueous phase liquid (LNAPL) non-MGP petroleum hydrocarbon contamination identified from an off-site source. Potential site contaminants of concern were not detected in the crawlspace indoor air samples tested successfully demonstrating an incomplete VI pathway. In addition, a groundwater investigation was conducted which included collection of additional characterization data for shallow groundwater quality and soil vapor biodegradation parameters to assess conditions related to the potential for VI for current surrounding properties adjacent to the Site as well as for assessment of VI potential for future development on the Site. Evidence of potential VI due to groundwater exceedances were not identified confirming the VI pathway is not complete for current property uses adjacent to the vacant Site.

**Former MGP Site, Toms River, New Jersey.** Involved in the implementation of a comprehensive remedial approach to address soil and non-aqueous phase liquid (NAPL) impacts from coal tar releases. Project involved reviewing multiple remedial investigation reports, developing a conceptual site model and 3-D visualization model, evaluating applicable remedial technologies, performing pre-design investigation to further assess technologies applicability, performing bench and pilot treatability studies on select technologies, and preparing a Remedial Action Selection Report. A key component of this project is developing a detailed understanding of the NAPL distribution to assess applicability of in-situ treatment technologies and the potential for product recoverability. Assessment of on- and off-site buildings in support of vapor intrusion investigation; successfully demonstrated incomplete pathway.

**Former MGP Site, Atlantic Highlands, New Jersey.** Project manager for the assessment of on- and off-site buildings in support of vapor intrusion investigation due to the presence of NAPL impacts from coal tar releases; successfully demonstrated incomplete pathway.

**Former MGP Site, Sea Isle City, New Jersey**. Principal investigator for assessment of former MGP site since developed as residential, commercial, and public open space properties. Evaluated shallow groundwater and crawl space indoor air in support of vapor intrusion investigation. Successfully demonstrated incomplete pathway.

**Former MGP Site, Cape May, New Jersey.** Principal investigator for assessment of former MGP site since developed as residential properties. Evaluated shallow soil gas and sub-slab soil gas in support of vapor intrusion investigation. Successfully demonstrated incomplete pathway.

**Site Closure, Former MGP, Manhattan, New York.** Planned/implemented the site investigation of a former MGP located on the lower east side of Manhattan. Responsibilities included regulatory interpretation, coordinating multiple project teams, contractor oversight, and community relations. Responsibilities also included supervising the excavation of test pits to investigate the locations of the former gas holders, coordinating post-excavation sampling activities, and database management for over 230 samples.

**Site Characterizations, Former MGPs within Residential Developments, Manhattan, New York.** Planned/implemented the site characterization work plans and CAMPs for 4 former MGPs within an 80-acre residential building complex located on the lower east side of Manhattan. Project challenges included limited site access, completing investigations under winter conditions, meeting a site access deadline imposed by the property owner, maintaining good working



DRAFT

relationships with residents and the facility management group, and conducting borings in underground garages. Responsibilities included regulatory interpretation, coordinating multiple project teams, contractor oversight, and community relations. Additional responsibilities included database management for over 1,000 samples, QA/QC sampling, managing investigation derived waste, and preparing the Site Characterization Reports.

## Brownfields Redevelopment/Underground Storage Tank

**Mixed-Use Development, Bronx, New York.** Senior Project Manager for remedial oversight and implementation of a Community Air Monitoring Program (CAMP) during concurrent remediation and development of an approximately 41,289 square foot Brownfield Cleanup Program (BCP) site located in Bronx, New York. Remediation strategy included soil excavation and offsite disposal of over 44,000 cubic yards non-hazardous and hazardous lead-impacted urban fill, and decommissioning and offsite disposal of one above ground storage tank and four underground storage tanks (USTs) in accordance with applicable NYSDEC UST closure requirements. Construction for the new development included a 12-story mixed-use commercial/residential building with a one-level cellar encompassing the entire Site footprint.

**Mixed-Use Development, Bronx, New York.** Senior Project Manager for remedial oversight and implementation of a CAMP during concurrent remediation and development of an approximately 50,625-square foot BCP site located in Bronx, New York. The site soil was contaminated with non-hazardous and hazardous lead-impacted urban fill, per-and polyfluoroalkyl substances (PFAS), and residual petroleum-impacted material originating from the adjacent gas station. Construction for the new development is currently ongoing and when completed, the Site was improved with a 12-story mixed-use commercial/residential building with a one-level cellar encompassing the entire Site footprint.

**Mixed Use Development, Brooklyn, New York.** Senior Project Manager for the remedial implementation at a former industrial site under the BCP as a Participant where elevated levels of TCE and PCE were encountered in soil and groundwater, in addition to comingled chlorinated solvent plumes originating from two adjacent properties. Remediation strategies include F-listed source removal to 15 feet below ground surface (bgs), injection of ZVI from 15 to 55 feet bgs in the center of the Site to treat saturated zone in the source area, injection of ZVI from 15 to 55 feet bgs to create permeable reactive barriers (PRBs) to address groundwater contamination entering the Site from upgradient sites/sources and to mitigate the off-site migration of the dissolved phase groundwater plume, and design and installation of a vapor mitigation system. The Site is currently in the remedial implementation phase with post-injection performance groundwater monitoring about to commence. The Site will be redeveloped through the construction of a four-story mixed-use commercial and community facility.

**Site Characterization, Source and Natural Attenuation Evaluation, Newark Liberty International Airport (EWR), Newark, New Jersey.** LSRP for site characterization, LNAPL source evaluation, and MNA groundwater evaluation for former UST discharges at an active aircraft maintenance hangar within the airport. Responsibilities include planning and coordination of three AOC investigations for petroleum hydrocarbons in soil and groundwater; worked with the project team on forensic LNAPL source evaluation; preparation and delivery of technical reports to NJDEP. Knowledge for navigating the extensive permitting and security clearance process that comes with working on an active international airport, including permits required through the Port Authority of New York and New Jersey and how to safely navigate around and work around active aircraft.

**Case Closure and Brownfields Redevelopment of Former Gasoline Station, Jersey City, New Jersey.** Lead project scientist for the remedial action of a former gasoline station later redeveloped as a new Fire Station. Discovered previously undocumented USTs and acquired NJDEP permission to register and remove them. Responsibilities for the remedial action activities included preparing a remedial action work plan and supervising site activities, including abandonment of monitoring wells, removing contaminated groundwater, excavating 900 tons of petroleum-contaminated soil and debris, closure and removal of nine USTs, collecting post-excavation soil samples, and excavation backfilling. Also responsible for preparing a Remedial Action Report with proposal for No Further Action (NFA) and interacting with the NJDEP.

**Case Closure of Office Building Heating Oil Tank, Edison, New Jersey.** Lead project scientist for the remediation of discharge from leaking piping for a 10,000 gallon No. 2 fuel oil UST and subsequent closure and removal of the UST

DRAFT

system. Responsibilities included the characterization and remediation of the discharge during ongoing operations at the 11-story commercial office building. Approximately 584 tons of excavated contaminated soil, 10 roll-off containers of waste concrete and asphalt, and 800 gallons of oil and water were removed from the fuel oil line discharge area. Her responsibilities also included database management and preparing a UST Remedial Investigation and Remedial Action Report. The NJDEP granted an NFA for soil and groundwater within one year of the project's inception.

**Case Closure of Residential Property, Secaucus, New Jersey.** Conducted remedial investigation to assess impact of a leaking fuel oil UST. Oversaw remedial action involving excavation of impacted soils and removal of impacted groundwater. Effectively maintained a good working relationship between the insured and the insurance company. Regularly prepared quarterly progress reports for the regulatory agency to obtain an NFA for soil and groundwater.

**Claim Coverage Determinations, Numerous Industrial Claims, New Jersey.** Conducted assessments of soil and groundwater conditions at various industrial properties to assist insurance companies in coverage decisions. Also, effectively cultivated a good working relationship between the insured and insurance company to achieve site objectives for the stakeholders.

## Superfund/RCRA Corrective Action

**Technical and Regulatory Review for Change-of-Land Use**, **Industrial Park, Bound Brook, New Jersey.** Ms. Murphy conducted a technical and regulatory review of available documents including the Record of Decision (ROD), Explanation of Significant Differences (ESD), and ISRA submittals to determine a path forward to transition the industrial park Superfund site from commercial to multi-family residential use. The process required a thorough understanding of the administrative processes and technical requirements required to transition the site use to multi-family residential, development of strategies/path forward for addressing those requirements, and identification of potential uncertainties/liabilities that would arise through the process.

**Environmental Investigation and Remediation, RCRA Corrective Action and New Jersey ISRA, Former Automobile Assembly Plant, Linden, New Jersey.** Implemented the environmental investigations for a U.S. Environmental Protection Agency (USEPA)-led RCRA Corrective Action in conjunction with New Jersey ISRA activities at a 94-acre, 2.6 million sf, 70-year-old facility. Site work included investigation of chlorinated solvents in a bedrock aquifer underlying the facility. The investigation included monitor well installation, bedrock coring and packer testing, and borehole geophysical evaluation. Also served as the field QA/QC officer for the project and conducted periodic health and safety audits during field work.

**RCRA Corrective Action Closures, Automotive Parts Manufacturing Facility, Kokomo, Indiana.** Ms. Murphy was instrumental in successful closure of RCRA six hazardous waste storage units at a site impacted by co-mingled chlorinated solvent plumes, DNAPL and PCBs. Responsibilities included compilation and evaluation of historical documents and data and preparation of RCRA Closure Certification Reports. Voluntary Performance-Based Corrective Action work conducted under IDEM oversight.

**ISRA Investigation, Former Chlorine Production Facility, Linden, New Jersey.** Implemented the performance of a preliminary assessment, site investigation, remedial investigation, and remedial action at a former chlorine production facility on the National Priorities List (NPL) for mercury contamination. Supported the delineation of the extent of contamination, and preparation of a remedial action work plan. Remedial actions included the cleanup of mercury-contaminated wastes.

**Remediation Costs Allocation, NPL Hazardous Waste Landfill, Chester Township, New Jersey.** Supported development of the expert opinion of cost of remediation and allocation of responsibility between over a hundred responsible parties. This project involved reviewing engineering completed for the closure of a large municipal and hazardous waste landfill. Analyzed a large volume of data and supported the understanding of the engineering properties of rock and soils, and the fate and transport of contaminants, to assess the source of contamination and the value of the engineered remediation system. This was a complicated project involving the engineering of

DRAFT

remediation systems to contain landfill materials, tracking and remediation of contaminated groundwater, and replacing drinking water resources for residential properties dependent on groundwater for potable water.

**Environmental Cost Recovery, CERCLA Case, Carteret, New Jersey.** Supported development of the expert opinion for investigation and cleanup costs incurred while addressing metals contamination on a chemical plant site adjacent to a former metals smelting and refining facility. Aerial photogrammetry was used in conjunction with historical aerial photographs of the site taken over a 60-year period to develop computer-generated surface contour maps that depicted excavation and fill activities at the site over time.

DRAFT

# ZHAN SHU, P.E., PH.D.

Senior Project Manager/Technical Specialist

**EDUCATION**

Ph.D., Environmental Engineering, New Jersey Institute of Technology (NJIT)
B.S., and M.S., Environmental Engineering, National Hua Chiao University, China

**PROFESSIONAL REGISTRATIONS**

2018/ NJ: Professional Engineer (Reg. No. 24GE05424500)

**PROFESSIONAL SOCIETIES**

American Society of Civil Engineering
American Chemical Society
New Jersey Society of Women Environmental Professionals
Reviewer, Journal of Environmental Engineering Science
Reviewer, Journal of Science of Total Environment
Reviewer, Journal of Environmental Engineering

**SPECIAL STUDIES AND COURSES**

OSHA - Hazardous Waste Operations and Emergency Response (OSHA 40-Hour HAZWOPER)
8-Hour OSHA Annual HAZWOPER Refresher
Application of Risk Assessment as a Decision-Making Tool for Contaminated Sites

Zhan has over 11 years of experience in project management, environmental consulting, remediation, engineering, and construction management. She is a licensed professional engineer (P.E.) in the state of New Jersey. She is a senior project manager with experience in soil and groundwater remediation, geochemistry, contaminant hydrogeology, contaminant attenuation and mobility, mechanistic and transport modeling, statistical data analysis, and waste characterization. She has delivered several presentations at professional gatherings, including the Annual International Conference on Soil, Water, Energy, and Air (AEHS) and other technical conferences.

## RELEVANT PROJECT EXPERIENCE

**Former Pesticide Manufacturing Facility, Site Investigation and Remediation, Middlesex, New Jersey.** The 57-acre site is composed of multiple properties that are impacted by former manufacturing activities involving arsenic compounds and other chemicals used as pesticide ingredients. A groundwater remediation system pumps and treats arsenic, pesticides, and volatile organic compounds (VOCs)-impacted groundwater in accordance with New Jersey Department of Environmental Protection (NJDEP) and Publicly Owned Treatment Work (POTW) permits. As project manager, performed a wide variety of tasks related to site investigation and remediation for this project, including:

- Assessed multimedia environmental data, delineated contaminant plumes, completed geologic mapping, and prepared conceptual site model (CSM) and associated interpretation;
- Prepared technical reports (RIR, RASR, RAW, and RAR) for clients and the NJDEP;
- Statistically developed surface water background threshold values (BTV) to evaluate the effectiveness of engineering controls;
- Statistically evaluated remedial alternatives to ensure environmental compliance;
- Assisted in groundwater treatment plant modification projects and feasibility studies, evaluated pilot study results and assessed feasibility of scaling up operations, and prepared associated engineering cost estimate; and

DRAFT

- Prepared engineering design, bid package, and assisted in permit application.

**Former Dry Cleaner Facility Remediation, Toms River, New Jersey.** As project manager, provided environmental engineering services for an in-site remediation project involving tetrachlorethene (PCE) vapor intrusion. Soil vapor extraction (SVE) and air sparging (AS), along with groundwater monitored natural attenuation (MNA) were applied to reduce contaminant residuals. Conceptually designed intuitional controls—Deed Notice and Classification Exception Area (CEA)—to address on-site residual soil and groundwater contamination.

**Active Waste Oil Recycling Facility, Elizabeth, New Jersey.** As project manager/project engineer, delineated previous and current light non-aqueous phase liquid (LNAPL) contaminant plume in the groundwater system. Updated facility's Storm Water Pollution Prevention Plan (SWPPP) according to New Jersey Pollution Discharge Elimination System (NJPDES) permit conditions.

**The Salvation Army, Asbury Park, New Jersey**. As project manager for this underground storage tank (UST) spill case, designed and performed the chemical injection to address petroleum-impacted groundwater and post-monitoring required to move this case toward regulatory closure. The objective of the in situ remediation is to destroy the VOCs in groundwater through chemical oxidation and enhance biodegradation within the source area.

**Soil Geobiochemistry Study at DuPont Chambers Works Site (CWKs), Deepwater, New Jersey**. As an external consultant for the DuPont Geobiochemistry group, developed protocols for collecting and processing soil core samples in an anaerobic condition, and analyzed the collected data to support the refinement of the site-wide CSM. Assisted in understanding the interactions and mechanisms at the interface as well as in explaining groundwater chemistry, redox conditions, Fe speciation, S speciation, and abiotic/biotic processes.

**Former Steel Fabrication Shop, Brownfield Redevelopment Brooklyn, New York.** As project manager/project engineer, provided environmental engineering services for a brownfield redevelopment site in the Williamsburg neighborhood of Brooklyn, New York. Previous remedial investigations had documented the presence of PCE in groundwater, soil, and soil gas. Performed a supplemental investigation to delineate the on-site and off-site PCE plumes. Performed the pilot study to evaluate the effectiveness of zero valent iron (ZVI) in treating the high concentrations of chlorinated volatile organic compounds (CVOCs) in groundwater. Also conducted strategic soil management (for hazardous [F-listed] and nonhazardous soil) and remediation as part of site redevelopment and building construction preferred. Reviewed site remedies, including soil excavation, ZVI wall injection, dewatering, in-situ chemical oxidation (ISCO)/in situ chemical reduction (ISCR), sub-slab depressurization system (SSDS), and other remedies.

**205 Park Avenue, Brownfield Redevelopment, Brooklyn, New York.** As project manager/project engineer, prepared Brownfield Cleanup Program Applications (BCA). Involved in each phase of the project including Phase I Environmental Site Assessment (ESAs), remedial investigations (for chlorinated solvents in soil, groundwater, and soil vapor), CSMs, remedial design (SSDS and ISCO), and long-term operations and maintenance of remedial systems. Prepared the remedial investigation, Remedial Action Work Plan, Site Management Plan (SMP), and Final Engineering Report (FER).

**Former Alpine Paper Box Manufacturing Site, Brooklyn, New York**. This project was under the jurisdiction of the New York City Office of Environmental Remediation (NYCOER), since an E-Designation for air quality, noise, and HAZMAT was placed on the subject property as part of a rezoning. As project manager/project engineer, performed a Phase I Preliminary Site Assessment, a Phase II Site Investigation, and prepared a Remedial Action Plan. Also prepared Brownfield Cleanup Program Applications and evaluated the potential tax credit for the client.

**Former Cascade Laundry Site, Brownfield Redevelopment, Brooklyn, New York.** The whole city block has been used as a commercial laundry beginning in the 1920s. USTs were observed, and the site had fuel oil/petroleum-related impacts to both soil and groundwater. As project manager/project engineer, conducted remedial investigation to delineate the vertical and horizontal extent of petroleum contamination in soil. Designed a vapor barrier and passive

DRAFT

SSDS system. Conducted ISCO to address the remaining CVOCs in groundwater. Negotiated with the New York State Department of Environmental Conservation (NYSDEC) to change the conditional track 1 to standard track 1 as the final remedy outcome to obtain more tax credits for the client.

**Former Dry Cleaner Site, Brownfield Redevelopment, Coney Island, Brooklyn, New York.** As project manager/project engineer, provided environmental services during the rehabilitation and expansion of the expansive, 1970s-era mixed-use complex. Facilitated the BCP applications for two adjacent parcels within the complex: the first for an existing retail space formerly occupied by a dry cleaner; the second application for an adjacent "historic" dry cleaner lot that had been razed as part of urban renewal in the 1960s. Previous site investigations had documented the presence of PCE in soil gas; the Remedial Investigation Work Plan (RIWP) outlined the work required to delineate the vertical and horizontal extent of the impacted soils, soil vapor, and groundwater at both BCP sites. A Remedial Action Work Plan was developed to address contaminated media. An SSDS was designed to protect residential and retail tenants, in conjunction with source area treatments.

**296 Wythe Avenue, E-Designation Site, Brooklyn, New York.** As project manager/project engineer, managed and oversaw the removal of three USTs and the excavation of non-hazardous soil/fill for off-site disposal. Designed a vapor barrier and passive SSDS. Prepared the OER and NYSDEC-required documents including daily/monthly report, Noise/Air Remedial Action Plan, and Remedial Action Report.

**Standard Motor Products, Brownfields Redevelopment, New York.** Low levels of chlorinated solvents were detected in the groundwater. As project engineer, contributed to AS and SVE system designed and implemented at the site. Project also entailed operating and managing the system, maintaining the right pressure and flow for the system to effectively remediate the contamination.

**JPMorgan Chase, Brownfields Redevelopment, Orangeburg, New York.** Served as project engineer. Investigation/remediation/oversight project at a 90+-year-old state hospital campus redeveloped as a database center. The 61-acre site consisted of 32 abandoned and derelict buildings, walkways, roads, and significantly overgrown landscape areas. Initial project work included the preparation of an NYSDEC BCP application and the design and implementation of a fast-track, comprehensive remedial investigation.

**Former Nuhart Plastics Site, New York State Superfund Site, Brooklyn, New York.** As project engineer, conducted a feasibility study and remedial planning for this former plasticizer facility with on-site and off-site pollutant concerns. Initial site investigations were conducted by others. Project is a high-profile New York State Superfund Site and requires regulatory compliance with NYSDEC and NYCOER, as well as close coordination with local government bodies.

**Junior High School 226 Queens (I.S. 226), Queens, New York**. As environmental engineer, managed construction support services related to soil management associated with the construction of a New York City school complex and associated utility corridors. Prepared Excavated Material Disposal Plans, reviewed potential disposal facilities, and conducted waste characterization soil sampling.

**599 Valley Health Plaza, SSDS, Paramus, New Jersey.** As environmental engineer, provided environmental services including a Phase I ESA, Vapor Encroachment Assessment, Phase II ESA, Remedial Action Plan, and Construction Health and Safety Plan. For active SSDS, designed and prepared bid specifications.

**2581 & 2587 Atlantic Avenue, 40-44 Georgia Avenue, Brooklyn, New York.** Served as environmental engineer and provided environmental services including a Phase I ESA, Vapor Encroachment Assessment, Phase II ESA, Remedial Action Plan, and Construction Health and Safety Plan. Designed the active and passive SSDS systems and prepared bid specifications.

**Steel Craft, Newark, New Jersey.** Served as environmental engineer and conducted groundwater sampling; delineated and differentiated the on-site and off-site PCE and Trichloroethylene (TCE) plumes.

DRAFT

**Oil Spill Risk Assessment, BP and National Oceanic and Atmospheric Administration (NOAA), Gulf of Mexico.** Performed risk assessment for oil spill contamination. Statistically evaluated the data obtained from the site. Reviewed reports and conducted associated research.

**Contaminant Mobility in Paint Waste during Bridge Rehabilitation, New York State Department of Transportation, New York State.** Collaborated with the New York State Department of Transportation (NYSDOT) to investigate the transport and mitigation of the heavy metal contamination from lead-based paint during bridge rehabilitation. Developed a mathematical model using a variety of statistical approaches to rapidly characterize paint waste during bridge rehabilitation. Nine task deliverables were submitted and presented to NYSDOT.

**Impact Study on Effects of Superstorm Sandy, National Science Foundation (NSF), Raritan Bay, New Jersey.** Investigated water quality, trace metals, nitrogen, phosphate, and related contaminants in the groundwater and sediment in the shorelines along Raritan Bay in New Jersey. Evaluated coastal ecosystem recovery and resilience potential after Superstorm Sandy.

**Bio-remediation of Tannery Sludge, China.** Conducted bio-remediation using indigenous sulfur-oxidizing bacteria present in the tannery sludge to reduce elevated hexavalent chromium in tannery sludge. Chromium removal rate of 90 percent was achieved.

**Fujian Petrochemical Industrial Group Co., Compliance Services, China.** Supported lead engineer in the preparation of planning documents and completion of regulatory permit applications. Assisted lead scientist in modifying related EHS programs and procedures to ensure compliance.

## PUBLICATIONS

"Field Methods for Rapidly Characterizing Paint Waste during Bridge Rehabilitation," with L. Axe, K. Jahan, and K.V. Ramanujachary, *Chemosphere* 134: 598-605, 2015.

"Metal Concentrations and Distribution in Paint Waste Generated during Bridge Rehabilitation in New York State," with L. Axe, K. Jahan, and K.V. Ramanujachary, *Science of the Total Environment* 526: 262-270, 2015.

"Monitoring Changes in Salinity and Metal Concentrations in New Jersey (USA) Coastal Ecosystems Post Hurricane Sandy," with Y.R. Personna, X. Geng, F. Saleh, N. Jackson, M. Weinstein, and M. Boufadel, *Environ Earth Science*, 73(3): 1169-1177. 2015

"Metal Leaching from the Bridge Paint Waste in the Presence of Steel Grit, ," with L. Axe, K Jahan, and K.V. Ramanujachary, Chemosphere 119, 1105–1112, 2015.

## INVITED LECTURER OR SPEAKER

"Thermal Enhanced Recovery for Phthalate-Cutting Oil Mixture Treatability Study – Former Plastic Manufacturing Facility," with D. Winslow, presented at 29th Annual International Conference on Soil, Water, Energy, & Air, March 18-21, 2019.

"Trace metal leaching from bridge paint waste in the presence of iron oxide surfaces," with L. Axe, K. Jahan, K.V. Ramanujachary, Division of Colloid and Surface Chemistry, 246th American Chemical Society (ACS) National Meeting, Indianapolis, Indiana, September 8-12, 2013.

DRAFT

"Leaching behavior of lead and chromium from bridge paint waste in the presence of steel grit," with L. Axe, K. Jahan, and K.V. Ramanujachary, session of Steel Bridges Committee, Transportation Research Board 92nd Annual Meeting, Washington, D.C., January 13-17, 2013.

"Field methods for rapidly characterizing paint waste during bridge rehabilitation," with L. Axe, K. Jahan, and K.V. Ramanujachary, session of Environmental Chemistry for a Sustainable World, 243rd American Chemical Society (ACS) National Meeting, San Diego, California, March 25-29, 2012.

DRAFT

# APPENDIX J
# Proposed Remedial Action Project Schedule

DRAFT

**REMEDIAL ACTION PROJECT SCHEDULE**
650 SOUTHERN BOULEVARD
BRONX, NEW YORK
BCP PROJECT C203170

| Task | Duration | Start | End | 2025 | | | | | | | | 2026 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Design and Permitting | 90 | 5/1/2025 | 8/1/2025 | | | | | | | | | | | | | | | | | | | | |
| NYSDEC BCP RAWP Review | 106 | 5/1/2025 | 8/15/2025 | | | | | | | | | | | | | | | | | | | | |
| 45-Day Public Comment for RAWP | 45 | 8/16/2025 | 9/30/2025 | | | | | | | | | | | | | | | | | | | | |
| Final RIR and RAWP Submission | 30 | 9/30/2025 | 10/30/2025 | | | | | | | | | | | | | | | | | | | | |
| Implementation of RAWP | 108 | 10/30/2025 | 2/15/2026 | | | | | | | | | | | | | | | | | | | | |
| Preparation of FER and SMP/ EE (if required) | 90 | 2/15/2026 | 5/16/2026 | | | | | | | | | | | | | | | | | | | | |
| Post Mitigation Confirmatory Sampling | 30 | 5/16/2026 | 6/15/2026 | | | | | | | | | | | | | | | | | | | | |
| NYSDEC & NYSDOH Review of FER & SMP/ EE (if required) | 60 | 6/16/2026 | 8/15/2026 | | | | | | | | | | | | | | | | | | | | |
| NYSDEC Issues COC | 60 | 8/16/2026 | 10/15/2026 | | | | | | | | | | | | | | | | | | | | |

***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 December 31, 2026*

DRAFT