251 DOUGLASS STREET

KINGS COUNTY

BROOKLYN, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C224367

Prepared for:

Gowanus Douglass Street LLC

19 West 24th Street, 12th Floor

New York, NY 10010

Prepared by:

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

DECEMBER 2025

CERTIFICATION STATEMENT

I, Brad Summerville, certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

_____ P.E. STAMP

December 18, 2025 _____DATE

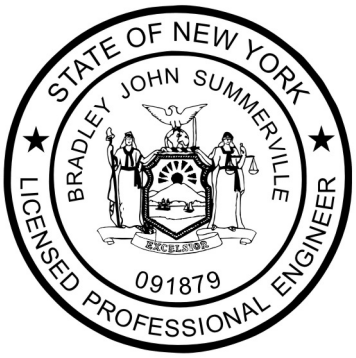


Table of Contents

ES EXECUTIVE SUMMARY 7
INTRODUCTION 11
1.1 General 11
1.2 Revisions and Alterations 12
1.3 Notifications 13
2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS 3
2.1 Site Location and Description 3
2.2 Physical Setting 3
2.2.1 Land Use 3
2.2.2 Geology 4
2.2.3 Hydrogeology 5
2.3 Investigation and Remedial History 6
2.4 Remedial Action Objectives 18
Groundwater 18
Soil 19
Soil Vapor 19
2.5 Remaining Contamination 19
2.5.1 Soil 19
2.5.3 Groundwater 22
2.5.4 Soil Vapor 23
3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN 26
3.1 General 26
3.2 Institutional Controls 26
3.3 Engineering Controls 28
3.3.1 Composite Cover System 28

3.3.2 ISS Monolith and Hydraulic Barrier Wall 29
3.4 Criteria for Completion of Remediation 30
3.4.1 Composite Cover System 30
3.4.2 ISS Monolith and Hydraulic Barrier Wall 30
3.4.3 Monitoring Wells Associated with the Remedy 30
4.0 Monitoring and sampling plan 32
4.1 General 32
4.2 Site – Wide Inspection 33
4.3.1 Composite Cover System 35
4.3.2 ISS Monolith and Hydraulic Barrier Wall 35
4.3.3 Groundwater Monitoring, Sampling, and Inspection 36
4.4.1 Groundwater Sampling 36
4.4.2 Additional Efficacy Sampling 38
5.0 OPERATION AND MAINTENANCE PLAN 41
5.1 General 41
6.0 PERIODIC ASSESSMENTS/EVALUATIONS 42
6.1 Climate Change Vulnerability Assessment 42
6.2 Green Remediation Evaluation 43
7.0. REPORTING REQUIREMENTS 45
7.1 Site Management Reports 45
7.2 Periodic Review Report 46
7.2.1 Certification of Institutional and Engineering Controls 48
7.3 Corrective Measures Work Plan 50
7.4 Remedial System Optimization (RSO) Report 50
8.0 REFERENCES 52

Figures

Figure 1: Site Location Map
Figure 2: Site Boundaries
Figure 3: Site Layout Map
Figures 4A-4G: Geologic Cross Section
Figure 5: Groundwater Contour Map
Figure 6: Tank and Hot Spot Location Map
Figure 7: Documentation Endpoint Sample Locations
Figure 8A: RI Groundwater Monitoring Well Locations and Analytical Results
Figure 8B: SRI Groundwater Monitoring Well Locations and Analytical Results
Figure 9: Sub Slab and Soil Vapor Monitoring Locations and Analytical Results
Figure 10: IC Boundary Map
Figure 11: Cover System
Figure 12: Post Remedial Groundwater Monitoring Well Locations

Appendices

Appendix A: Environmental Easement
Appendix B: List of Contacts
Appendix C: Boring Logs
Appendix D: Groundwater Well Construction Logs
Appendix E: NYSDEC SSDS Correspondence, dated May 9, 2024
Appendix F: Excavation Work Plan
Appendix G: CAMP and CHASP
Appendix H: QAPP
Appendix I: Site Management Forms
Appendix J: As Built Drawings

Tables

Table 1: Notifications (Imbedded Section 1.3)
Table 2: Groundwater Elevation
Table 3: UST Endpoint Analytical Results
Table 4: Endpoint Analytical Results
Table 5: RI/SRI Groundwater Analytical Results
Table 6: RI Soil Vapor Results
Table 7: Inspection Schedule (Imbedded Section 4.3)
Table 8: Monitoring Well Construction Details (Imbedded Section 4.4.1)
Table 9: Schedule of Interim Monitoring/Inspection Reports (Imbedded Section 7.1)

List of Acronyms

BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
EWP	Excavation Work Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
P.E. or PE	Professional Engineer
PID	Photoionization Detector
PRR	Periodic Review Report
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

This Site Management Plan (SMP) is a required element of the remedial program for the 251 Douglass Street Site, No. C224367, located in Brooklyn, New York, which achieved a site-specific Track 4 remedy. After completion of the remedial work, some contamination was left at this Site; this SMP will be effective until such a time that the effectiveness of the remedy and engineering controls implemented at the Site are proven to meet the remedial action objectives for the Site.

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this SMP:

Site Identification:	Brownfield Cleanup Program (BCP) Site No. C224367 251 Douglass Street, Brooklyn, New York
Institutional Controls:	Listed ICs Include: The property may be used for Restricted-Residential use as defined in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iii), and Industrial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iv); All ECs must be operated and maintained as specified in this SMP; All ECs must be inspected at a frequency and in a manner defined in the SMP; The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or the NYC Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department; Groundwater and other environmental or public health monitoring must be performed as defined in this SMP; Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP; All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP; Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;

Site Identification:	Brownfield Cleanup Program (BCP) Site No. C224367 251 Douglass Street, Brooklyn, New York
	Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP; Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement; The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on **Figure 10**, and any potential impacts that are identified must be monitored or mitigated; Vegetable gardens and farming on the Site are prohibited; and An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.
Engineering Controls:	1. Cover system
	2. In-situ stabilization/solidification (ISS) monolith and installation of a low-permeability hydraulic barrier wall around the perimeter of the property.
Inspections:	Frequency
1. Cover inspection	Annually.
2. ISS monolith and 55-foot hydraulic barrier wall	When exposed during excavation and/or Site redevelopment.

Site Identification:	Brownfield Cleanup Program (BCP) Site No. C224367 251 Douglass Street, Brooklyn, New York
3. Groundwater Monitoring	Quarterly.
Evaluations:	
1. Indoor Air Evaluation	Sample during the heating season and collect additional samples as needed.
Monitoring:	
1. Indoor Air Evaluation	Collection of Indoor Air and Ambient Air Samples for EPA's Method TO-15A Analysis.
2. Groundwater Monitoring (OSMW-1A [shallow] and OSMW-1B [deep], OSMW-2A and OSMW-2B, OSMW-3A and OSMW-3B)	Quarterly.
Reporting:	
1. Indoor Air Sampling Data	One month after the Heating Season Sampling Event.
2. Groundwater Monitoring	Quarterly.
3. Periodic Review Report	First PRR will be completed 16 months after the certificate of completion (COC), then annually unless another frequency is otherwise approved by the Department.

Further descriptions of the above requirements are provided in detail in the latter sections of this SMP.

INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the251 Douglass Street site located in Brooklyn, New York (hereinafter referred to as the "Site"). See **Figure 1**. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C224367, which is administered by New York State Department of Environmental Conservation (NYSDEC or Department).

Gowanus Douglass Street LLC entered into a Brownfield Cleanup Agreement (BCA) on October 25, 2022, with the NYSDEC to remediate the Site. A figure showing the location and boundaries of this Site is provided in **Figure 2**. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in **Appendix A**.

After completion of the remedial work, some contamination was left at this Site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC and recorded with the Office of the City Register of the City of New York, requires compliance with this SMP and all ECs and ICs placed on the site.

This SMP was prepared to manage remaining contamination at the Site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC); and

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the BCA, (Index #C224367-10-22; Site #C224367) for the Site, and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the Site is provided in **Appendix B** of this SMP.

This SMP was prepared by Impact Environmental Engineering and Geology, PLLC (IEEG), on behalf of Gowanus Douglass Street LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions and Alterations

Revisions and alterations to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC can also make changes to the SMP or request revisions from the remedial party (RP). Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other

significant change to the Site conditions. All approved alterations must conform with Article 145, Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a New York State Professional Engineer. In accordance with the Environmental Easement for the Site, the NYSDEC project manager will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

1. 60-day advance notice of any proposed changes in Site use that are required under the terms of the BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
5. Notice within 48 hours of any non-routine maintenance activities.
6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

8. At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/RP has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.
9. Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 on the following page includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix B**.

Table 1: Notifications*

Name	**Contact Information**	**Required Notification****
Marnie DeLuke: NYSDEC Project Manager	(518) 402-3262 Marnie.DeLuke@dec.ny.gov	All Notifications
Lisa Gorton: NYSDEC Project Manager's Supervisor	(518) 402-9574 Lisa.Gorton@dec.ny.gov	All Notifications
Jim Sullivan: NYSDOH Project Manager	(518) 402-5584 Jim.Sullivan@health.ny.gov	Notifications 4, 6, and 7

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in the Gowanus neighborhood of Brooklyn, Kings County, New York and is identified as Block 412 and Lot 50 on the Kings County Tax Map (see **Figure 1**). The Site is an approximately 0.654-acre area and is bounded by Butler Street to the north, Douglass Street to the south, commercial warehouse/industrial buildings to the east, and Nevins Street to the west (see **Figure 3** – Site Layout Map). The boundaries of the Site are more fully described in **Appendix A** – Environmental Easement. The owner of the Site parcel at the time of issuance of this SMP is Gowanus Douglass Street LLC.

2.2 Physical Setting

2.2.1 Land Use

The Site will consist of a new, mixed-use residential and commercial building constructed at grade as a 15-story structure and developed as a full Lot build-out. The Site is zoned M1-4/R7X with and M1-4/R6A for light manufacturing and residential uses and is currently undergoing superstructure construction/development (i.e., foundation slab and site cover has been completed) as of the issuance of this SMP.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily reflect a mix of zoning, primarily comprised of manufacturing districts with medium-density residential and commercial overlays. The property immediately south of the Site is used for recreational use (Douglass and DeGraw Pool); the properties immediately north of the Site include vacant and commercial properties (Evelyn's Tap House, The Cliffs Climbing and Fitness, etc.); the properties immediately east of the Site include vacant, previously commercial properties; and the properties to the west of the Site include

previously industrial/manufacturing properties which are currently undergoing redevelopment. It should be noted that just south of the Site, historic operations included a manufactured gas plant. The former Fulton Municipal Works plant reportedly began operations in 1879 and ceased in circa 1929.

2.2.2 Geology

The Site-specific geology of the shallow soil down to approximately 5 to 10 feet below the ground surface (bgs) consists of fill material composed of brown silty sand with gravel, and anthropogenic material such as brick fragments, plastic and slag. It should be noted that there is an approximately 5.5-foot elevation change, the northeastern portion of the Site slopes to the southwestern portion of the Site. Below the fill material, native soil was characterized as silty-to-fine sand with gray clay, trace gravel, and organics in some borings at depths of 15 to 20 feet bgs.

Coal tar, dense non-aqueous phase liquid (DNAPL) is present in the subsurface across most of the Site. Coal tar was identified in saturated soils in certain intermediate and deep soil boring intervals, where the former Gowanus Creek channel was located, coal tar impacts were generally found in native soils beneath a layer of organic-rich peat (meadow mat), which is located at approximately 22 to 24 feet bgs. Coal tar was noted as extending to a depth of approximately 85 feet bgs. Within the soil borings that were advanced beyond 20 feet bgs, the native soil below the meadow mat is composed of fine sand with some clay to the varying terminal depths of the borings.

The Site is proximate to the Gowanus Canal, which was historically a tidal creek with wetlands/lowland marsh areas prior to urban development beginning in the 1800s. The historical placement of fill materials associated with the Canal bulkhead and riprap construction, as well as the general industrialized development of the Site area, is

consistent with urban fill material observed beneath the Site. Alluvial/marsh deposits lie below the fill and are composed of alluvial sand deposits, peat, organic silts and clays, which were identified during the Supplemental Remedial Investigation Report (SRIR) in deeper portions of some on-site soil borings. The alluvial/marsh deposits are associated with the original wetlands complex that was present until the native environment was altered circa the 1800s, when regional urban development commenced and uncontrolled historic fill materials were utilized to raise the elevation of the Site and surrounding areas. This evaluation of the depositional environment is supported by the presence of the sand, original material, and clay observed in deeper portions of the on-Site borings.

No bedrock was documented during the advancement of the previous or current borings at the Site. Damp-to-wet soil at the capillary fringe to the water table interface was detected at approximately 3 feet below grade (fbg) within the Site soil borings.

A geologic cross section is shown in **Figure 4.** Site-specific boring logs are provided in **Appendix C**.

2.2.3 Hydrogeology

The Site is located approximately 300 feet east of the Gowanus Canal. The Canal discharges to Gowanus Bay and Upper New York Bay to the southwest and is a tidally influenced channel, with a tidal cycle of two high tides and two low tides of unequal height each day and a vertical tidal range of approximately 4.7 to 5.7 feet. The primary aquifer beneath the Gowanus Canal and surrounding upland areas is identified as the Upper Glacial Aquifer, which is generally a thick sequence of glacial deposits that includes beds of silt, sand and clay associated with alluvial/marsh sediments along coastal areas. The Upper Glacial Aquifer beneath the Site appears to be unconfined. In the Upper Glacial Aquifer, regional groundwater flows to the west/southwest toward the Gowanus Canal.

Groundwater from the Site area is not used as a potable water supply in Brooklyn pursuant to a local prohibition.

Based on the Remedial Investigation data, groundwater beneath the Site ranges from approximately 4.65 feet bgs in the southwest portion to 8.5 feet bgs in the northeast portion of the Site. The groundwater contours were mapped using groundwater potentiometric surface measurements, and the groundwater flow direction was determined to be to the west-southwest.

A groundwater contour map is shown in **Figure 5**. Groundwater elevation data is provided in **Table 2**. Groundwater monitoring well construction logs are provided in **Appendix D.**

2.3 Investigation and Remedial History

Based on historic Sanborn Fire Insurance Maps, portions of the Site were developed prior to 1900. Between 1886 and 1904, the Site was occupied by Bradley & Son Stone Works. By 1915, Scranton & Lehigh Coal Co. occupied the western portion (former Lot 1), and Thomas Harrington's Sons Co. Contractors occupied the eastern portion (former Lots 15, 50 and 51).

According to historic building records, the two (2) former on-site buildings were constructed in 1931. The 1938 Sanborn Map depicts both buildings as garages, each containing one (1) gasoline tank. In 1950, the western structure (former Lot 1) was utilized as a motor freight station, and the eastern structure (former Lot 50) was used for office space. From 1969 to 1987, the western structure on former Lot 1 was used as a private garage and automobile repair facility, while former Lots 15 and 51 were used for parking or storage.

Contamination was first identified at the Site during Equity Environmental' s subsurface investigation in 2017. Metals and semi-volatile organic compounds (SVOCs) were detected in soil, gasoline-related contaminants were detected in groundwater, and several volatile organic compounds (VOCs) were detected in soil vapor, as further discussed below.

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 – References.

Merritt Environmental Consulting Corp., Phase I Environmental Site Assessment, Dated August 2016 (Former Lots 1 & 6)

Merritt Environmental Consulting Corp. (Merritt) prepared a Phase I Environmental Site Assessment (ESA) in August 2016 for former Lot 1 and former Lot 6 (northern adjoining lot that is not part of the Site). No Recognized Environmental Conditions (RECs) were identified; however, additional investigation was recommended to assess potential groundwater contamination from USTs historically associated with the Site, and potential vapor encroachment from regional groundwater contamination.

Equity Environmental, Phase II Environmental Site Assessment, Dated July 2017 (Former Lots 1 & 6)

Equity conducted a subsurface investigation in May and June 2017 in order to characterize soil, groundwater and soil vapor conditions at former Lot 1 and former Lot 6 (northern adjoining lot that is not part of the Site). The analytical results identified metals and semi-volatile organic compounds (SVOCs) at concentrations consistent with regional fill material in soil and groundwater. Gasoline-related contaminants were also identified in groundwater at concentrations below applicable groundwater quality standards. In addition, several VOCs were detected in sub-slab soil vapor samples collected at the Site.

Equity Environmental, Phase I Environmental Site Assessment, Dated August 3, 2017 (Lots 1 & 6)

Equity prepared a Phase I ESA in August 2017, following their Phase II Site Investigation Report, for former Lot 1 and former Lot 6 (northern adjoining lot that is not part of the Site). According to the report, an unregistered, 3,000-gallon diesel fuel UST located on former Lot 1 was identified as a REC, and two (2) registered USTs and three (3) unregistered USTs located on former Lot 1 were identified as Historic Recognized Environmental Conditions (HRECs). In addition, the report noted a Vapor Encroachment Condition (VEC) based on historic Site operations and contamination detected in soil, groundwater, and vapor during previous investigation.

AEI, Draft Phase I Environmental Site Assessment, April 2019 (Former Lots 15, 50 and 51)

AEI Consultants prepared a Draft Phase I ESA in April 2019 for former Lots 15, 50 and 51. The following RECs were identified:

1. A gasoline UST on former Lot 50 was depicted on Sanborn Fire Insurance maps dating back to 1938. No closure documentation was identified; however, AEI observed evidence of the tank (vent and piping) during their Site reconnaissance activities.
2. Nine (9) 55-gallon waste oil drums were stored on unpaved soil with no secondary containment on former Lot 15. Surficial staining was observed beneath the drums.

Other Environmental Conditions noted in AEI's Phase I include:

1. An aggregate volume of 55-gallon drums were observed on Site which exceed the New York State Department of Environmental Conservation (NYSDEC) Division of Petroleum Bulk Storage (PBS) requirements for registration. PBS registration was recommended.

2. The presence of asbestos containing materials (ACMs) is possible due to the age of the building. Repair of damaged drywall and ceiling tiles was recommended, as well as an asbestos survey prior to demolition or renovation activities.
3. The presence of lead-based paint (LBP) is possible due to the age of the building. Repair of damaged painted surfaces was recommended.

IEEG, Limited Subsurface Investigation Report, October 2019 (Former Lots 15, 50 and 51)

IEEG conducted a limited subsurface investigation in October 2019 which consisted of the installation of three (3) permanent groundwater monitoring wells and collection of groundwater samples from each well. SVOCs and metals were detected in groundwater samples above New York State TOGS 1.1.1 criteria, and VOCs were detected below TOGS 1.1.1 criteria.

IEEG, Remedial Investigation Report, March 2022 (Entire Site)

In November 2021, IEEG conducted Remedial Investigation (RI) activities at the Site for enrollment into the NYC Office of Environmental Remediation's (OER's) Voluntary Cleanup Program (VCP). The investigation consisted of the following:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Conducted a geophysical investigation using ground penetrating radar (GPR) to determine the presence of subsurface utilities, tanks, or other anomalies.
3. Installed thirteen (13) soil borings across the entire project Site, and collected twenty-six soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed two (2) groundwater monitoring wells throughout the Site to establish groundwater flow and collected four (4) groundwater samples, two (2) of which

were from previously installed groundwater monitoring wells, for chemical analysis to evaluate groundwater quality;

5. Installed three (3) sub-slab soil vapor pins within the two (2) on-site buildings (Lots 1 and 50) and installed five (5) soil vapor probes in the undeveloped portions of the Site (Lots 15 and 51); a total of eight (8) soil vapor samples were collected for chemical analysis.

The main contaminants of concern identified at the Site were:

1. Gasoline-related VOCs, including benzene, ethylbenzene, toluene and total xylenes, were detected in exceedance in soil and groundwater. Cyclohexane and heptane were detected in a soil vapor sample (SS-9) located at the northeastern portion of the property at a level requiring mitigation. Cyclohexane exceeded the respective NYSDOH Decision Matrix D Value and Heptane exceeded the respective NYSDEOH Decision Matrix E Value.
2. SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), were detected above their respective Part 375 regulatory standards in soil and groundwater.
3. Metals, including arsenic, copper, lead, mercury, nickel, selenium and zinc, exceeded their respective Part 375 regulatory standards in soil and/or groundwater.
4. An emerging contaminant, specifically perfluorooctanoic acid (PFOA), was detected in groundwater above its respective NYSDEC Human Health Criteria Guidance Values, 6.7 ng/l (ppt).

<u>IEEG, Additional Investigation at the Request of the NYSDEC, March 2022</u>

On March 10, 2022, a Pre-Application meeting was held between IEEG and the NYSDEC where it was requested that IEEG install several borings to a terminal depth of 50 feet bgs to investigate potential off-Site contamination migrating from the Fulton Municipal Works site, a former MGP (DEC Site Number 224051).

The off-site source investigation was conducted between March 21 and March 25, 2022. Three (3) borings were installed parallel to Douglass Street (SB-15, SB-16 and SB-17), within the Site boundary, and two (2) borings were installed on the northern portion of the Site, formerly identified as Lot 15 (Sb-18 and SB-19). All borings were installed to a terminal depth of 55 feet bgs. The subsurface of the Site down to approximately 4 to 10 feet bgs consisted of historic fill material which was comprised of asphalt, glass, brick, gravel and concrete intermixed with sand. Underlying this layer, a brown to black silty sand was observed from approximately 10 to 15 feet bgs, followed by clay observed at 15 to 20 feet bgs. A black peat or meadow mat lens followed the clay layer at approximately 22 to 24 feet bgs followed by an additional clay layer which terminates at approximately 30 feet bgs. Following the deeper clay layer, fine to medium silty sand was observed until the terminal depth of 55 feet bgs.

Analytical results identified that most of the soil impacts observed at depths greater than 30 feet related to contamination from the off-site MGP site. Visible staining, sheens and odors were observed in the coal tar-impacted native soil intervals below 30 feet bgs, beneath the layer of organic-rich peat (meadow mat) at 22 to 24 feet bgs. The primary chemical compounds detected in the saturated, coal tar-impacted soil samples include benzene, toluene, ethylbenzene and PAHs.

<u>IEEG, Supplemental Remedial Investigation at the Request of the NYSDEC, August 2023</u>

Under the auspices of the NYSDEC, a supplemental investigation was conducted in February, March, and May 2023 to delineate the horizontal and vertical extent of MGP coal tar migration in Site soils, as well as to determine the magnitude of dissolved-phase groundwater contamination with MGP coal tar-related contaminants. The scope of the supplemental remedial investigation included installation of thirty (30) soil borings where GCM/NAPL was previously observed and installation of seven (7) cluster wells where the highest concentrations of MGP coal tar was encountered.

The main contaminants of concern identified at the Site are:

1. Elevated petroleum related VOCs were identified in shallow soil within SB-20 (4-6'), SB-23 (8-10'), and within groundwater (GW-5) proximal to the tank identified on the western portion of the Site. Additionally, a few VOCs were identified in shallow soil samples outside of the tank area that may be related to parking areas and/or fill material;
2. Elevated petroleum-related VOCs were also identified in intermediate soil samples ranging in depth from 25 to 62 feet bgs, which included the detection of naphthalene as a VOC in areas where coal tar-related GCM was identified.
3. Elevated concentrations of metals, consisting of arsenic, cadmium, copper, lead, mercury, nickel and zinc, and SVOCs consisting predominantly of PAHs were consistently detected in shallow soil and groundwater beneath the Site, which is indicative of the presence of urban fill;
4. Elevated VOCs, PAHs and/or naphthalene were detected in saturated soil borings and dissolved-phase groundwater samples, which is consistent MGP coal tar contamination. Deeper soil borings to terminal depths of 95 to 115 feet bgs did not have detections of visual GCM or elevated VOCs, PAHs or naphthalene;
5. PFOS was detected above the NYSDEC Guidance Value in three (3) shallow soil samples from SB-24, SB-27, and SB-28, and PFOA was detected on one (1) shallow sample from SB-29, all of which were collected from 0-2 feet bgs beneath the Site and primarily at boring locations where no buildings were located; however, the PFOS and/or PFOA were not detected above the UU SCOs in deeper soil samples. Only PFOA was detected above the NYSDEC AWQS in groundwater samples GW-1, GW-4, and GW-5, and PFOS and PFOA were detected above the NYSDEC AWQS in groundwater samples GW-6, GW-7 and GW-8. The distribution of the PFOA and PFOS at the Site indicate on-site migration from an off-site source(s); and
6. The chlorinated solvent PCE, was reported within each of the four (4) soil vapor samples collected from the Site. The highest concentration of PCE was found in sample SS-9, located at the northwestern portion of the property, at a

concentration of 384 ug/m3. The lowest concentration of PCE was found in sample SV-12, located at the southern property line, at a concentration of 113 ug/m3. Due to the absence of indoor air samples collected during this sample event the NYSDOH Decision Matrices could not be used for comparative purposes. The chlorinated VOCs detected are likely related to an off-Site source, as no elevated chlorinated VOCs were detected in soil beneath the Site.

September 2023 Remedial Action Work Plan and NYSDEC Decision Document

In accordance with the Remedial Action Work Plan (RAWP) submitted to the NYSDEC on August 25, 2023 and approved on September 13, 2023, the NYSDEC issued the Decision Document (DD) for the Site on September 13, 2023, which is summarized below:

- **Remedial Design –** The remedial design program consisted of the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques were also implemented to the extent feasible per DER-31.

- **Excavation –** Excavation of Site soil to a depth of four feet below grade across the entire Site which is subject to in-situ solidification (ISS) treatment. Approximately 6,300 cubic yards of soil were excavated to facilitate ISS implementation. All soils which exceeded the Restricted Residential soil cleanup objectives (RRSCOs) were disposed of off-site at a permitted facility. In addition, all soil in the upper two feet which exceeded the RRSCOs in areas not subject to any of the specific excavation requirements outlined above were excavated and transported off-site for disposal.

  Approximately 8,845 cubic yards of contaminated soil were removed from the Site. Collection and analysis of confirmation samples at the remedial excavation depth were used to verify that SCOs for the Site have been achieved. If confirmation sampling indicated that SCOs were not achieved at the target remedial depth, the areas were over-excavated as necessary to achieve the SCOs.

Further excavation for development proceeded after confirmation samples demonstrated that SCOs for the Site had been achieved.

To ensure proper handling and disposal of excavated material, waste characterization sampling was completed for all identified contaminated Site material. Waste characterization sampling was performed exclusively for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, State, and local laws, rules and regulations, and facility-specific permits.

The removal of materials from the Site included:

- Removal of the pre-existing building's concrete slab and foundation elements (related to former historic structures) encountered during excavation and ISS implementation generated approximately 126.5 tons of material for off-site disposal;
- Track 4 excavation to remove 2-foot cut of non-hazardous fill material exceeding the Part 375 RRSCOs for the Site footprint generated approximately 3,166.67 tons of material for off-site disposal;
- ISS installation required an additional 2-foot remedial cut of non-hazardous fill material exceeding the Part 375 RRSCOs for the Site footprint which generated an additional approximate 3,166.67 tons of material for off-site disposal;
- Due to upward swelling from displacement of materials during ISS installation, non-hazardous 'swell' material was produced requiring disposal, approximately 24,861.49 tons of material was generated for off-site disposal;
- Removal of non-hazardous arsenic contaminated soil generated approximately 88.89 tons of material for off-site disposal.

Removal of non-hazardous petroleum contaminated soil related to registered and unregistered tank removals generated approximately 173.93 tons of material for off-site disposal.

- **Backfill –** Clean fill meeting the requirements for 6 NYCRR Part 375-6.7(d) was imported to replace the excavated soil and establish the designed grades at the Site.

- **Cover System –** A Site cover system was installed in accordance with the Track 4 remedy and will be maintained to allow for Restricted-Residential use of the Site. Any future Site redevelopment will maintain the existing cover, which consists either of the structures such as buildings, pavement, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable RRSCOs. All fill material brought to the Site met the requirements for the identified Restricted-Residential use as set forth in 6 NYCRR Part 375-6.7(d).

  The building footprint extends over a majority of the Site. Where the soil cover was required beyond the ISS treatment area, such as in the areas outside of the building footprint, it consists of a minimum of two feet of soil meeting the RRSCOs. For areas where solidified material underlies the site cover, the solidified material serves as the demarcation layer due to the nature of the material.

- **In-Situ Solidification –** ISS was implemented from approximately 4 feet bgs to 40 feet bgs across the entire Site. The treatment zone consisted of areas where grossly contaminated material and/or non-aqueous phase liquid (GCM/NAPL) consisting of coal tar were present below the groundwater table to a terminal depth of approximately -26 feet to -32 feet NAVD88 (i.e., approximately 40 feet below grade). ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil was mixed in place together with solidifying agents (Portland cement) or other binding agents using augers. The soil and binding agents were mixed to produce a solidified mass resulting in a low permeability monolith. The solidified mass was then covered with a cover system to prevent direct exposure to the solidified mass. The resulting solid matrix reduced or eliminated mobility of contamination and reduced or eliminated the matrix as a source of groundwater contamination.

- **Hydraulic Barrier Wall –** A low-permeability hydraulic barrier wall was installed to a depth of 55 feet below grade around the entire Site boundary to prevent off-site migration of GCM/NAPL and associated contamination. The treatment zone consisted of areas where GCM/NAPL was present below the groundwater table to a terminal depth of approximately -41 feet to -47 feet NAVD88 (i.e., approximately 55 feet below grade).

- **Vapor Mitigation –** Any on-site buildings will be required to have a sub-slab depressurization system (SSDS), or other acceptable measures, to mitigate the migration of vapors into the building from the subsurface. The other acceptable measure is the installation of ISS from approximately 4-40 ft bgs across the entire footprint of the Site, which limits the ability to install an SSDS. Indoor air sampling will be performed and the results will be evaluated to determine the need for vapor mitigation. Refer to **Appendix E** for NYSDEC correspondence regarding the SSDS, dated May 9, 2024.

- **Institutional Control –** An institutional control in the form of an environmental easement for the controlled property was imposed and recorded in the Office of the City Register for the City of New York on *May 28, 2025* as City Register File Number *2025000142504*, which will:

  - Require the RP or Site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);

  - Allow the use and development of the controlled property for restricted-residential use as defined by Part 375-1.8(g), inclusive of commercial and industrial uses, although land use is subject to local zoning laws;

  - Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH;

- Require compliance with the Department approved SMP; and
- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

- **Site Management Plan –** This SMP was required, which includes the following:

  a) Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective

  - Institutional Controls: Discussed above.
  - Engineering Controls: The cover system, ISS monolith and hydraulic barrier wall, discussed above. The DD requires that vapor mitigation be addressed by the remedial action, the installation of ISS (which would fall under "other acceptable measures"), from 4-40 ft bgs, limited the ability to install an SSDS. An indoor air evaluation will be performed to confirm that vapor intrusion has been addressed from the remedy.

  This plan includes, but may not be limited to:

  - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
  - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with the described above will be maintained over the ISS treatment area;
  - provisions for the management and inspection of the identified engineering controls;
  - maintaining Site access controls and Department notifications; and

- the steps necessary for the periodic reviews and certifications of the institutional and/or engineering controls

b) Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- Monitoring indoor air to assess the performance and effectiveness of the remedy; and
- A schedule of monitoring and frequency of submittals to the Department.

c) An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- Procedures for operating and maintaining the remedy;
- Maintaining Site access controls and Department notification; and

Providing the Department access to the Site and O&M records.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the DD dated September 2023 are as follows:

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

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

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 or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

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

2.5 Remaining Contamination

2.5.1 Soil

A total of approximately 31,457.65 tons of material was excavated and removed from the Site between October 17, 2023 and February 25, 2025. Approximately 11,538.32 tons of material was disposed of at Bayshore Soil Management LLC of Keasbey, NJ; 9,744.83 tons of

material was disposed of at the Conestoga Land Fill of Morgantown, PA; and 9,687.33 tons of material was disposed of at Pure Soil Technologies of Jackson, NJ facility. Additionally, 487.17 tons of mixed masonry, derived from obstructions believed to be former foundation elements encountered during ISS implementation, was disposed of at PPark NJ LLC of Prospect Park, NJ.

Five (5) underground storage tanks (USTs) were discovered during the remedial activities and removed per the NYSDEC-approved RAWP. Tank 1 was a registered 10,000-gallon UST located on the northern portion of the Site. After a review of previous historical reports, it was determined that the tank was registered as *Closed-In-Place* on the PBS registration. Tank 1 was cut open, and its contents of sand and 500-gallons of oily water with sheen were properly disposed; NYSDEC Spill #24-06677 was opened when petroleum odors and sheen were observed. Once the tank was removed, five (5) bottom samples and six (6) sidewall samples were collected from the tank grave. Tank 2 was registered as one (1) UST, *Closed-In-Place* on the PBS registration; however, during excavation activities, two (2) tanks: Tank 2a and Tank 2b, each with a 2,500-gallon capacity, were uncovered in the northern portion of the Site to the west of Tank 1. After the tanks were removed, seven (7) bottom samples and seven (7) sidewall samples were collected. Tank 3 was an unregistered 1,080-gallon UST located in the northeastern portion of the property. Once the tank was removed, two (2) bottom samples and four (4) sidewall samples were collected. Tank 4 was an unregistered 550-gallon UST located on the eastern portion of the property; NYSDEC Spill #23-07767 was opened when a small volume of liquid/sludge was observed at the bottom of the tank grave. Once the tank was removed, two (2) bottom samples and four (4) sidewall samples were collected. All samples were submitted to Alpha Analytical (Alpha) of Westborough Massachusetts an Environmental Laboratory Approval Program (ELAP) Certified laboratory (Lab ID No. 10854), for analysis of CP-51-listed VOCs (EPA Method 8260C) and SVOCs (EPA Method 8270D). The results of the UST bottom samples indicated the presence of petroleum hydrocarbons associated with the USTs within some of the surrounding soil; refer to **Table 3** for UST endpoint sample analytical results. The location of the USTs are shown on **Figure 6**.

Furthermore, during excavation associated with remedial activities Tanks 3 and 4 were identified as two (2) 275-gallon ASTs. The ASTs appeared to have been located buried within remnants of an old basement or foundation element and were identified as ASTs on the FDNY Tank Affidavit. Tank 3 consisted of corrosion holes throughout, and Tank 4 had one corrosion hole on the southern end. The tanks were cut open and found to contain soil and sludge which was drummed for proper disposal. After the tanks were removed, approximately 1,200-gallons of oily water was pumped from the excavation and properly disposed of. NYSDEC Spill # 24-05439 was opened when sheen was observed on the water above the tank graves and odor was noted, photoionization detector (PID) readings ranged from 4.1 ppm to 27.1 ppm. After the tanks were removed one (1) bottom and four (4) sidewall samples were collected from each tank and submitted to Alpha for analysis of CP-51-listed VOCs (EPA Method 8260C) and SVOCs (EPA Method 8270D). The results of the AST bottom samples indicated the presence of primarily PAHs and SVOCs, consistent with urban fill, refer to **Table 3** for endpoint sample analytical results. The location of the ASTs are shown on **Figure 6**.

One (1) hot spot for arsenic was excavated to 8 feet bgs to remove contamination above the applicable NYSDEC Part 375 PGW SCOs. The location of the hot spot is shown on **Figure 6.**

In addition to the UST areas and the hot spot, the supplemental investigation pertaining to the horizontal and vertical delineation of MGP coal tar migration on-Site, identified coal tar DNAPL within soil borings across the majority of the Site at depths of approximately 30 feet bgs and extending at the deepest points up to 85 feet bgs.

The remaining areas of the Site were excavated to approximately 4 feet bgs. Forty (40) documentation soil samples were collected containing concentrations which did not meet soil cleanup levels identified by the DD; however, ISS was implemented beneath these documentation sample locations and across the Site to encapsulate contaminated soil beneath the 4-ft remedial excavation. In addition, several areas were evacuated

further 8 feet bgs, these areas represented petroleum source areas as well as an arsenic hot spot area. A confirmation sample was collected within the arsenic hotspot area which met PGSCOS. The implementation of ISS across the footprint of the Site addresses the MGP/coal tar identified during the SRIR, as well as benzene, PAHs and arsenic at depths beyond the Track 4 remedial excavation and hot spot/petroleum source area excavations, as it deploys the process of soil mixing with cement to permanently immobilize and encapsulate the contaminants in a soil-cement monolith. Refer to **Table 4** for endpoint analytical results, and refer to **Figure 7** for confirmation documentation soil sample locations.

2.5.3 Groundwater

Previous investigations of groundwater beneath the Site documented concentrations of petroleum-related VOCs (predominantly benzene toluene, ethylbenzene and/or xylenes) above the Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS), proximal to the northwestern portion of the Site where a UST was identified. Dissolved arsenic and PAHs were also detected above the AWQS, which are attributed to urban fill. PFOS and PFOA are present in the groundwater beneath the Site above Guidance Values and believed to be related to an offsite source. Additionally, GCM in the form of coal tar DNAPL was identified in saturated soil beneath the Site and was further delineated during the SRIR. The coal tar DNAPL is located across most of the Site at depths starting immediately below 30 feet bgs, with impacted material extending at its deepest to 85 feet bgs.

Shallow groundwater interface monitoring wells (GW-1 through GW-8), as well as intermediate and deep cluster/recovery wells (GW-2-45', GW-8-55' and GW-8-93', CW1-55', CW1-70', CW2-85', CW3-50', CW3-55', CW3-75', CW3-80', CW4-45', CW4-55', CW4-75', CW4-85', CW5-53', CW5-75', CW6-50'. CW6-55', CW6-70', CW6-75', CW7-55' and CW7-65'), were abandoned in accordance with the NYSDEC CP-43 Groundwater Monitoring Well Decommissioning Policy prior to the start of intrusive work associated

with the remedial action. The placement and depths of the cluster wells and screens were determined based on the MGP coal tar delineation borings advanced throughout the Site during the SRIR. NAPL recovery wells were screened below each distinct interval of NAPL/GCM. A 5-foot solid PVC sump with a cap was placed at the bottom of NAPL recovery cluster wells for purposes of a NAPL mobility assessment.

A total of 83,355 gallons of groundwater was extracted, treated, and the effluent discharged to the combined sewer under a NYCDEP discharge permit during the duration of dewatering activities.

Refer to **Table 5** for a summary of the groundwater analytical results compared to the TOGs 1.1.1 AWQS. **Figures 8a and 8b** shows the RI/SRI locations and analytical results.

2.5.4 Soil Vapor

Two (2) sub-slab soil vapor points and two (2) soil vapor probes (in portions of the Site where a slab did not exist) were installed during the Remedial Investigation and samples collected. However, indoor air samples were not collected during the Remedial Investigation due to the poor condition of former structures creating health and safety risks.

The soil vapor samples collected during the Remedial Investigation identified the presence of thirty VOCs detected at varying concentrations. The NYSDOH has established guidance for evaluating SVI in which the results of soil vapor samples are compared to corresponding indoor air quality results; the guidance is presented in Matrix A through Matrix F of the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (with updates). The Decision Matrices were updated in May 2024, following submission of the RIR. Per the update, the following compounds are evaluated using *Matrix A:* TCE, cis-1,2-dichlorethene,1,1-dichlroethene, and carbon tetrachloride; *Matrix B:* PCE, 1,1,1-trichloroethane, and methylene chloride; Vinyl

chloride is evaluated using *Matrix C*; *Matrix D:* 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, cyclohexane, ethylbenzene, isooctane, naphthalene and o-xylene; *Matrix E*: heptane, hexane, and m,p-xylene; and toluene was evaluated using *Matrix F*.

Based on Matrices D and E, the following petroleum-related compounds were detected above a sub-slab concentration threshold for that compound: hexane, benzene, cyclohexane, heptane, and ethylbenzene, however, no corresponding indoor air samples were collected during the RI for comparison using the NYSDOH Decision Matrices. Additionally, the chlorinated solvent, PCE, was detected above a sub-slab concentration threshold for Matrix B; however, there is no corresponding indoor air sample for comparison with the sub-slab detection. It should also be noted that PCE was not detected at a level requiring mitigation. Numerous additional petroleum-related VOCs and chlorinated VOCs were detected; however, these either did not have a NYSDOH sub-slab concentration threshold associated with the compound or the detection was below its associated Decision Matrix threshold.

PCE was detected within four (4) soil vapor samples, with the highest concentration detected at the northwestern property boundary (SS-9). Elevated levels of petroleum-related compounds were primarily detected at the highest levels at the northwestern property boundary (SS-9), proximal to where a tank was located prior to its removal. The chlorinated VOCs detected beneath the Site are likely related to an off-site source, as no elevated chlorinated VOCs were detected in soil beneath the Site.

The migration of soil vapor from on-Site and potential off-site sources into the new building was mitigated by a combination of tank removal and subsequent soil removal activities as well as installation of ISS across the entirety of the Site. Construction elements included: Stego Wrap® 20-mil vapor barrier beneath the building slab and Grace PrePrufe® waterproofing membrane within the elevator pit as elements of construction,

as well as two (2) sump pits in the western portion of the Site, adjacent to Nevins and Douglass Street.

Refer to **Table 6** for the results of the RI soil vapor sampling prior to completion of the remedial action. **Figure 9** shows the location of RI sample points.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Because remaining contamination exists at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC project manager.

This plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC project manager.

3.2 Institutional Controls

A series of ICs is required by the DD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the Site to Restricted -Residential uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued

without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on **Figure 10**. These ICs are:

- The property may be used for Restricted-Residential use as defined in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iii), and Industrial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iv);
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the NYC Department of Health and Mental Hygiene (NYCDOHMH) to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on **Figure 10**, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the Site are prohibited; and

- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

3.3 Engineering Controls

3.3.1 Composite Cover System

Exposure to remaining contamination at the Site is prevented by a composite cover system. Under no circumstances is the capping system to be disturbed or otherwise modified without the express approval of the NYSDEC. If alternation, modification, or repair to the Site building requires disturbance to the on-site capping system an Excavation Work Plan (EWP) is to be developed with the QEP and operator based on the deign details of the work conducted. This EWP is to be reviewed and approved by the NYSDEC prior to the commencement of work. The composite cover system is comprised of:

- Approximately six (6) inches of gravel subbase overlain by 16-inches of concrete slab.
- The mat slab consists of a minimum of 38 inches to a maximum of 50 inches and is also underlain by six (6) inches of gravel subbase which extends laterally into the mat slab foundation system. The concrete sidewalk installed outside of the building and ISS footprint consists of four (4) inches of concrete underlain by six (6) inches of gravel subbase.

Refer to **Figure 11** for the location of the composite cover system and applicable demarcation layers. The EWP provided in **Appendix F** outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the

EWP must also be conducted in accordance with the procedures defined in a Construction Health and Safety Plan (CHASP) and associated Community Air Monitoring Plan (CAMP) prepared for the Site and provided in **Appendix G.** Any disturbance of the Site's cover system must be overseen by a Professional Engineer (PE) who is licensed and registered in New York State or a qualified person who directly reports to a PE who is licensed and registered in New York State.

3.3.2 ISS Monolith and Hydraulic Barrier Wall

ISS was completed throughout the footprint of the Site and a hydraulic barrier wall was installed around the perimeter of the Site during RAWP implementation. ISS is the process of mixing contaminated soil with Portland cement and slag to permanently immobilize the contaminants in the soil-cement monolith. The ISS monolith extends from approximately 4 feet bgs to 40 feet bgs (NAVD 88 -26' to -32') across an approximately -28,500 square foot area. The primary objective of ISS is to permanently immobilize soil contaminants into a soil-cement matrix.

The hydraulic barrier wall is a low permeability wall that is comprised of ISS columns installed to a depth of 55 feet bgs (NAVD 88-41' to -47') around the perimeter of the Site. The hydraulic barrier wall will prevent migration of coal tar DNAPL onto the Site from the former MGP facility to the south and enclose, contain and reduce further mobility of the coal tar DNAPL and groundwater contamination present beneath the Site.

3.4 Criteria for Completion of Remediation

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the RAOs identified by the DD. The basis for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.4.1 Composite Cover System

The composite cover system is a permanent EC, and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity. In the event the composite cover system is disturbed during future redevelopment, it will be replaced in-kind or per a redevelopment plan submitted to NYSDEC in accordance with this SMP and subject to NYSDEC approval.

3.4.2 ISS Monolith and Hydraulic Barrier Wall

The ISS monolith and hydraulic barrier wall are a permanent EC. Based on the current Site conditions, the ISS monolith and hydraulic barrier wall are below-grade and not assessable for inspection. The quality and integrity of system components will be inspected if exposed and accessible during or after any future construction activities near the ISS monolith and hydraulic barrier wall. The inspections will be completed at the same frequency as the composite cover system (if necessary) and in substantial accordance with this SMP, in perpetuity.

3.4.3 Monitoring Wells Associated with the Remedy

Groundwater monitoring to assess the performance of the remedy, or natural attenuation following the removal of contaminant sources, will continue as determined by NYSDEC and NYSDOH, until residual groundwater concentrations are found to be below applicable NYSDEC standards or have become asymptotic over an extended period.

To measure the effectiveness of the of the ISS remedy, three (3), permanent groundwater monitoring cluster wells will be installed off-site. One (1) cluster well will be installed north of the Site within the sidewalk adjacent to Butler Street (designated as OSMW-1A and OSMW-1B), one (1) cluster well will be installed west of the Site within the sidewalk adjacent to Nevins Street (designated as OSMW-2A and OSMW-2B) and one (2) cluster well will be installed to the south of the Site within the sidewalk adjacent to Douglass Street (designated as OSMW-3A and OSME-3B), refer to **Figure 12** for monitoring well locations. These wells will be used to monitor post-remediation contaminants of concern. Sampling will be conducted using low-flow sampling procedures described in the QAPP included as **Appendix H**, and analyzed for Target Analyte List (TAL)/Target Compound List (TCL) VOCs and SVOCs.

If monitoring data indicates that monitoring may no longer be required, a proposal to discontinue to the remedy will be submitted by the Volunteer. Monitoring and well inspection will continue until permission to discontinue is granted in writing by the NYSDEC and NYSDOH. Monitoring activities are outlined in the Monitoring and Sampling Plan of the SMP.

Well inspections will be performed during each quarterly monitoring event and annually thereafter. The quality and integrity of monitoring wells will be inspected if accessible during or after any future construction activities.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC project manager. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of Site management for the Site are included in the Quality Assurance Project Plan (QAPP) provided in **Appendix H**.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., indoor air)
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs) and
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – Wide Inspection

Site-wide inspections will be performed once per year. Site-wide inspections will be performed by a qualified environmental professional (QEP) as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices, they must be conducted when the ground surface is visible. During these inspections, an inspection form will be completed as provided in **Appendix I** – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- Whether stormwater management systems, such as basins and outfalls, are working as designed;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that Site records are up to date.

Inspections of all remedial components installed at the Site will be conducted. A comprehensive Site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report (PRR). The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;

- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If Site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

4.3 Inspections

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a QEP, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

Table 7: Inspection Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
Composite Cover System	Cover Conditions	Visible disturbances, changes, or damage	Annually
ISS Monolith and Hydraulic Barrier Wall	ISS Monolith and Hydraulic Barrier Wall	Visible disturbances, changes, or damage	If exposed and accessible during or after future construction in the ISS area
Groundwater Well Monitoring and Inspection	Depth to water/product and cover conditions	Visible disturbance, changes, or damage. Purge and sample groundwater	Quarterly

4.3.1 Composite Cover System

Monitoring of the composite cover system will be performed on a routine basis as identified in the table above. The monitoring of the remedial systems must be conducted by a QEP as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections may take place when a suspected failure of the composite cover system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager. During these inspections, an inspection form, provided in **Appendix I**, will be completed. The inspection requires sufficient information to certify the condition of all elements of the cover system and should document any site cover disturbances. Any damage to the site cover identified during the inspection will be repaired in kind and in compliance with the SMP.

4.3.2 ISS Monolith and Hydraulic Barrier Wall

Inspection of the ISS monolith and hydraulic barrier wall by a QEP, as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a QEP or PE who is licensed and registered in New York State is required when accessible as identified in **Table 7**, and following severe weather events or other conditions that could affect the EC (when exposed and accessible during or after future construction activities in proximity to the ISS area). The inspection requires sufficient information to certify the integrity of the ISS monolith and hydraulic barrier wall. Any damages to those EC components identified during the inspection will be documented.

4.3.3 Groundwater Monitoring, Sampling, and Inspection

Groundwater monitoring and sampling will be performed quarterly for the first year beginning in 2026, to monitor the effectiveness of the ISS remedy and hydraulic barrier as discussed in Section 4.4.1.

Groundwater monitoring well inspections will be performed during each of the quarterly monitoring events. If warranted by results, a request to decrease groundwater monitoring and sampling frequency will be submitted to NYSDEC in accordance with Section 3.4.3.

4.3.4 Indoor Air Evaluation

An indoor air evaluation will be performed once the building is constructed and after the building envelope is complete with an air handling system that is operational. Additional details regarding the evaluation are provided in Section 4.4.2 and an Indoor Air Evaluation Work Plan will be provided to the NYSDEC and NYSDOH for approval, prior to the sample event occurring.

4.4 Post-Remediation Media Monitoring and Sampling

4.4.1 Groundwater Sampling

Three (3) cluster wells (OSMW-1A [shallow] and OSMW-1B [deep], OSMW-2A and OSMW-2B and OSMW-3A and OSMW-3B) will be installed to monitor post-remediation contaminants of concern surrounding the property where the ISS monolith was placed. Refer to **Figure 12** for off-site monitoring well locations. Each monitoring well location will be installed with both a shallow and deep well, the shallow wells will be installed to 20 feet bgs and the deep wells were installed to 45 feet bgs.

Groundwater monitoring will be performed for at least four (4) quarterly monitoring events to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC and NYSDOH project manager.

One groundwater sample will be collected from each monitoring well during the quarterly sampling events. Prior to sampling, the monitoring wells will be gauged for static water levels and purged. Purging will consist of pumping, at a minimum, the stabilized drawdown volume plus the pump tubing volume and waiting until the physical and chemical parameters (turbidity, dissolved oxygen, temperature, oxygen reduction potential). Stabilize within the ranges specified in the USEPA's Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples From Monitoring Wells, dated July 30, 1996, and 4th revision September 19, 2017. Performance monitoring wells OSMW-1A&B, OSMW-2A&B and OSMW-3A&B will be analyzed for TAL/TCL VOCs and SVOCs. Sampling will be conducted using low-flow sampling procedures described in the QAPP included as **Appendix H**.

Table 8 below summarizes the monitoring well identification numbers as well as the location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, the monitoring wells are sampled to evaluate the effectiveness of the remedial system. The remedial party will measure the depth to the water table for each monitoring well in the network before sampling.

Table 8: Monitoring Well Construction Details

Well ID	Well Location	Well Diameter (onches)	Screen Interval
OSMW-1A OSMW-1B	Upgradient/Butler Street sidewalk (off-site)	2	OSMW-1A (shallow well)-10-20 ft. bgs OSMW-1B (deep well): 30-45 ft. bgs
OSMW-2A OSMW-2B	Downgradient/Nevins Street sidewalk (off-site)	2	OSMW-2A (shallow well)-10-20 ft. bgs OSMW-2B (deep well): 30-45 ft. bgs

OSMW-3A OSMW-3B	Downgradient/ Douglass Street sidewalk (off-site)	2	OSMW-3A (shallow well)- 10-20 ft. bgs OSMW-3B (deep well): 30- 45 ft. bgs

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC project manager will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent construction completion report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC project manager. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures". Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC project manager.

The sampling frequency may only be modified with the approval of the NYSDEC project manager. The SMP will be modified to reflect changes in sampling plans approved by the NYSDEC project manager.

Deliverables for the groundwater monitoring program are specified in Section 7.0 of this plan.

4.4.2 Additional Efficacy Sampling

Per the DD, any on-site building will be required to install a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building of the subsurface. The chosen acceptable measure is the installation of ISS from approximately 4-40 ft bgs across the entire footprint of the Site, which restricts the ability to install an SSDS. The effectiveness of the ISS will therefore be evaluated by an indoor air

sampling event. An indoor air evaluation work plan, prior to sampling, will be prepared and submitted to NYSDEC and NYSDOH for approval. The results of the evaluation will be assessed to determine the need for additional forms of vapor mitigation.

The indoor air evaluation is scheduled to be performed once during the 2025-26 heating season to assess the performance of the remedy and determine the need for any potential additional vapor intrusion mitigation measures. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

The aforementioned indoor air evaluation will be accomplished by the collection of indoor air samples (frequency and location to be determined) as well as a minimum of one (1) outdoor ambient air sample. Samples will be deployed and analyzed in accordance with the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006) with February 2024 Updates.

The indoor air evaluation will include the following:

- Collection of indoor air samples. At least one (1) duplicate QAQC sample will be collected as part of the sampling event. Pre-start and post evaluation cannister pressure levels will also be collected at each location and recorded.
- At least one (1) outdoor ambient air sample will be collected simultaneously to establish background concentrations during the sampling event.
- The samples will be collected over a period of 24 hours.
- Sample will be analyzed using USEPA method TO-15A for VOCs.

Indoor air sample collection will be performed utilizing 2.75-liter laboratory-supplied, individually certified Summa canisters, or equivalent. The sampling flow rate will be controlled by a laboratory-prepared inlet flow regulator attached to the Summa canisters and set below 0.2 liters per minute per NYSDOH guidance.

The indoor air sampling locations will be located at least 10 feet from exterior walls of the building to minimize the potential for infiltration of outdoor air into the vadose zone.

Each canister will be set a minimum of 3-5 feet above the ground to represent air quality within typical breathing zone(s) (as specified within the NYSDOH SVI guidance document, most recently amended in 2024).

Further sampling specifications and the approximate indoor air sample number and locations will be provided in the Indoor Air Evaluation Work Plan which will require NYSDEC and NYSDOH approval prior to the sample event occurring.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The site remedy does not rely on any mechanical systems, such as groundwater treatment systems, SSDS, or air sparge/soil vapor extraction (SVE) systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given Site and associated remedial systems. Vulnerability assessments provide information so that the Site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessment that will be conducted for the Site during periodic assessments, and briefly summarizes the vulnerability of the Site and/or engineering controls to severe storms/weather events and associated flooding.

- The Site is located at an elevation of approximately 14 feet above mean sea level (amsl), and the water table is approximately 6-7 feet bgs. There is an approximate 5 foot grade change and the Site slopes to the west. Surface water at the Site is directed to storm drains along Douglass Street, Nevins Street and Bulter Street. Stormwater outside the building footprint is directed to the New York City sewer system. During intense rain events, localized street flooding is possible due to the relatively low permeability of paved areas.
- The nearest surface water body is the Gowanus Canal, located approximately 300 feet east of the Site. According to the Federal Emergency Management Agency (FEMA) flood zone data, the Site is located within two (2) flood zones, the western portion of the Site is located within a Special Flood Hazard Area (SFHA), Zone AE, characterized by having a 1 percent annual chance of flooding, and the remainder

of the Site is located within a moderate risk floodplain, Zone X, having a 0.2 percent annual chance of flooding.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including Site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section provides an environmental footprint analysis of the remedy, as implemented at the time of this SMP. This section of the SMP also provides a summary of any green remediation evaluations to be completed for the Site during Site management and reported in PRRs.

Because no mechanical engineering control systems will be operated as part of the Site's management, the Site management meets the goal of improving the sustainability of the cleanup and providing a new environmental benefit.

The Site engineering control consists of a cover system, ISS monolith and 55-foot hydraulic barrier wall, therefore, frequent maintenance is not required.

The Site previously operated as a commercial facility and has been redeveloped with an energy efficient building: therefore, no negative environmental effects were identified for the Site's redevelopment.

The Site area is highly urbanized and there are no green spaces, trees or vegetation present adjacent to the Site; therefore, there is no effect on ecosystems.

Transportation to and from the Site, use of consumables in relation to visiting the Site in order to conduct system checks and/or collect samples, and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be efficiently accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspection, maintenance and monitoring events will be recorded on the appropriate Site management forms provided in **Appendix I.** These forms are subject to NYSDEC revision. All Site management inspection, maintenance, and monitoring events will be conducted by a QEP as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of **Table 9** and summarized in the Periodic Review Report.

Table 9: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Composite Cover System, ISS Monolith and Hydraulic Barrier	Annually. Reports will be issued the following year.
Groundwater Monitoring, Sampling and Inspection	Quarterly.
Indoor Air Evaluation	During the heating season and collect additional samples as needed.
Periodic Review Report	16 months, or as otherwise determined by the NYSDEC.

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC project manager.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g. indoor air, outdoor air);
- Copies of all field forms completed (e.g., sampling logs, chain-of-custody documentation);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Data collected under the site management will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the NYSDEC project manager beginning sixteen (16) months after the Certificate of Completion Letter, is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually

to the NYSDEC project manager or at another frequency as may be required by the NYSDEC project manager. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in **Appendix A** -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.
- Results of the required annual Site inspections, fire inspections and severe condition inspections, if applicable.
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media, which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends, including but not limited to:
  - Trend monitoring graphs that present groundwater contaminant levels from before the start of the remedy implementation to the most current sampling data;
  - Trend monitoring graphs depicting system influent analytical data on a per event and cumulative basis; and
  - O&M data summary tables;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS^{TM}

database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the Site-specific RAWP, Record of Decision (ROD) or DD;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan;
  - An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the RAWP, ROD or DD; and
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a QEP as defined in 6 NYCRR Part 375 or Professional Engineer licensed to practice and registered in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"*For each institutional or engineering control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*

- *The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;*
- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the Site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form 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. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] [I have been authorized and designated by all site owners/remedial parties to sign this certification] for the Site."

"I certify that the New York State Education Department has granted a Certificate of Authorization to provide Professional Engineering services to the firm that prepared this Periodic Review Report."

- *No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*

- *The assumptions made in the qualitative exposure assessment remain valid.*

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager. The Periodic Review Report may also need to be submitted in hard-copy format if requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control or failure to conduct Site management activities, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC project manager.

7.4 Remedial System Optimization (RSO) Report

No remedial systems are utilized as an engineering control; therefore, RSO is not applicable to the Site unless there is a change in use or future redevelopment of the Site that would require a revised conceptual site model with recommendations.

The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented

upon approval from the NYSDEC. Additional work plans, design documents, CHASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager.

8.0 REFERENCES

Merritt Environmental Consulting Corp., Phase I Environmental Site Assessment (Former Lots 1 &6). August 2016.

Equity Environmental, Phase II Environmental Site Assessment (Former Lots 1 & 6). July 2017.

Equity Environmental, Phase I Environmental Site Assessment (Lots 1 & 6). August 2017.

AEI, Draft Phase I Environmental Site Assessment (Lots 15, 50 and 51). April 2019.

IEEG, Limited Subsurface Investigation Report (Lots 15, 50 and 51). October 2019.

IEEG, Remedial Investigation Report. March 2022.

IEEG, Additional Investigation at the Request of the NYSDEC. March 2022.

IEEG, Supplemental Remedial Investigation at the Request of the NYSDEC. August 2023.

IEEG, RAWP. September 2023.

NYSDEC Decision Document. September 2023.

NYSDEC, Draft Brownfield Cleanup Program Guide. May 2004.

NYSDEC, Guidance for Evaluation Soil Vapor Intrusion in the State of New York. October 2006.

NYSDEC DER-31, Green Remediation. August 2010.

NYSDEC, Updates to Soil Vapor/Indoor Air Decision Matrices. Updated May 2024.

6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”. May 3, 2010 (amended April 9, 2019).

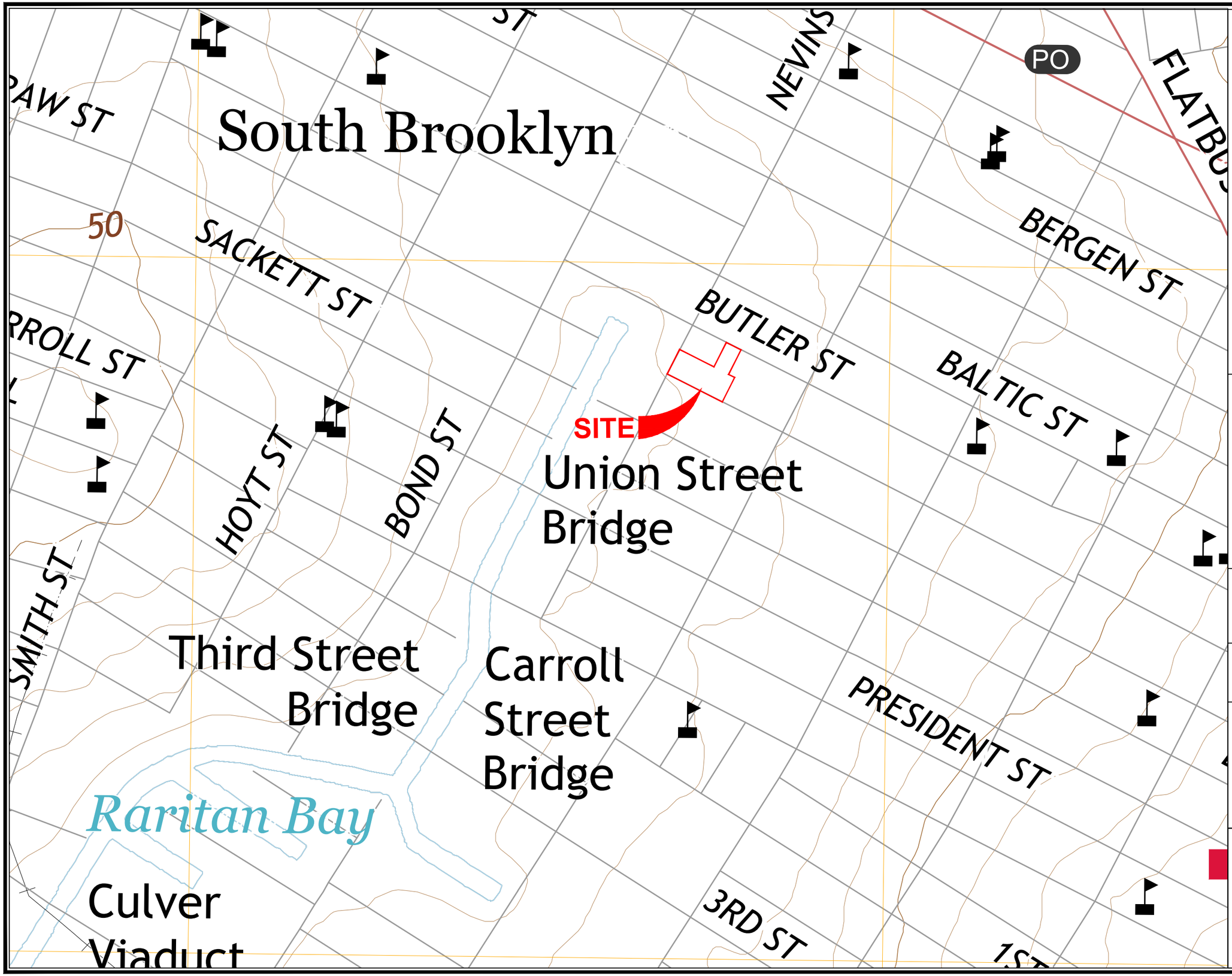
NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

FIGURES

251 Douglass Street, Brooklyn, NY

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599



LEGEND

PROPERTY LINE

PROJECT NORTH

NOTES:

FIGURE 1:
SITE LOCATION

251 Douglas Street
Brooklyn, New York

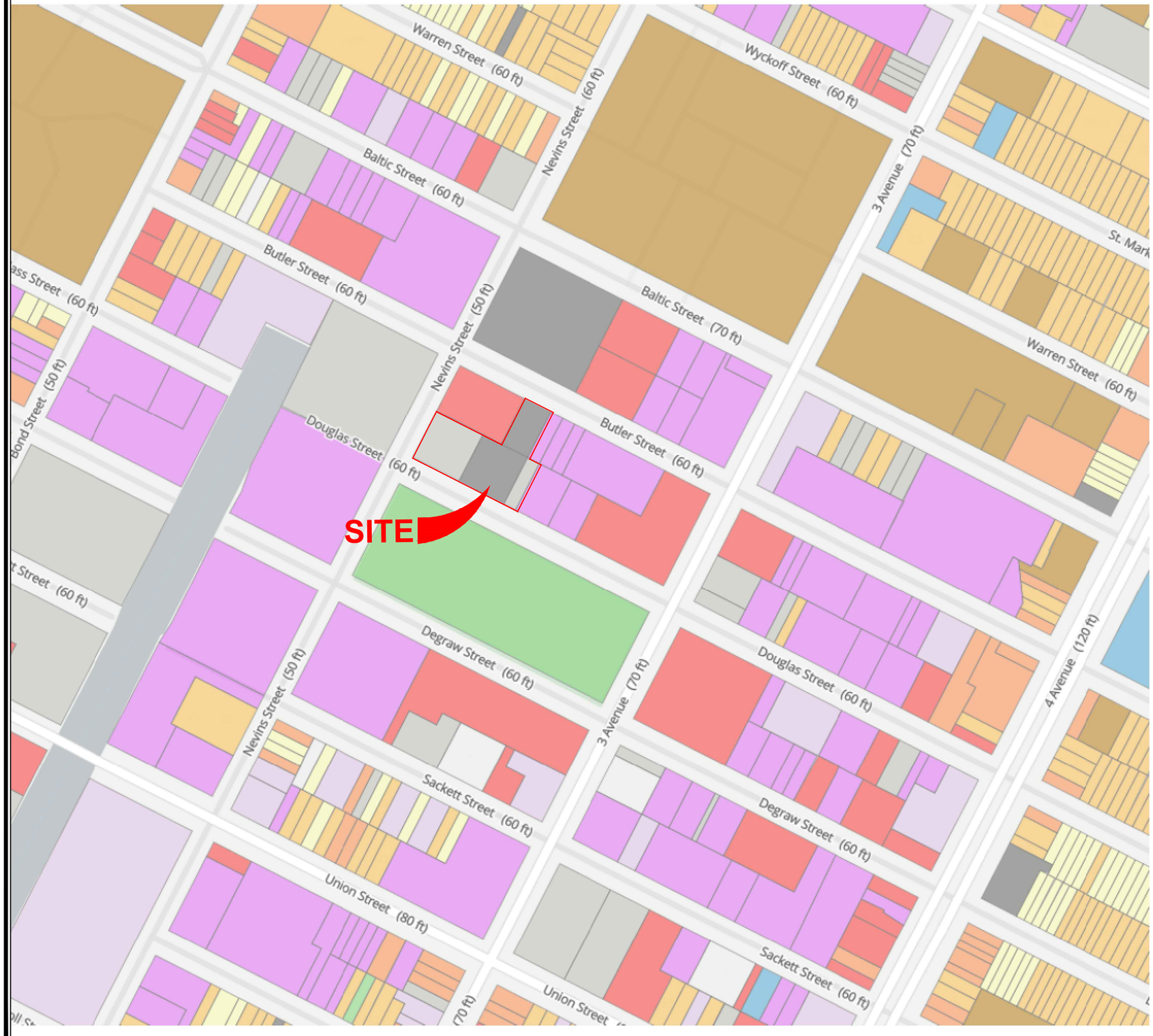
Figure No: 01

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	4/14/2023
SCALE:	N.T.S.

REVISIONS

IMPACT ENVIRONMENTAL ENGINEERING & GEOLOGY, PLLC

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599



Zoning and Land Use

Tax Lots ☐

- One & Two Family Buildings
- Multi-Family Walk-Up Buildings
- Multi-Family Elevator Buildings
- Mixed Residential & Commercial Buildings
- Commercial & Office Buildings
- Industrial & Manufacturing
- Transportation & Utility
- Public Facilities & Institutions
- Open Space & Outdoor Recreation
- Parking Facilities
- Vacant Land
- Other

LEGEND

PROPERTY LINE

PROJECT NORTH

NOTES:

Latitude: 40°40'51.73"N
Longitude: 73°59'7.69"W

FIGURE 2:
SITE BOUNDARY MAP

251 Douglas Street
Brooklyn, New York

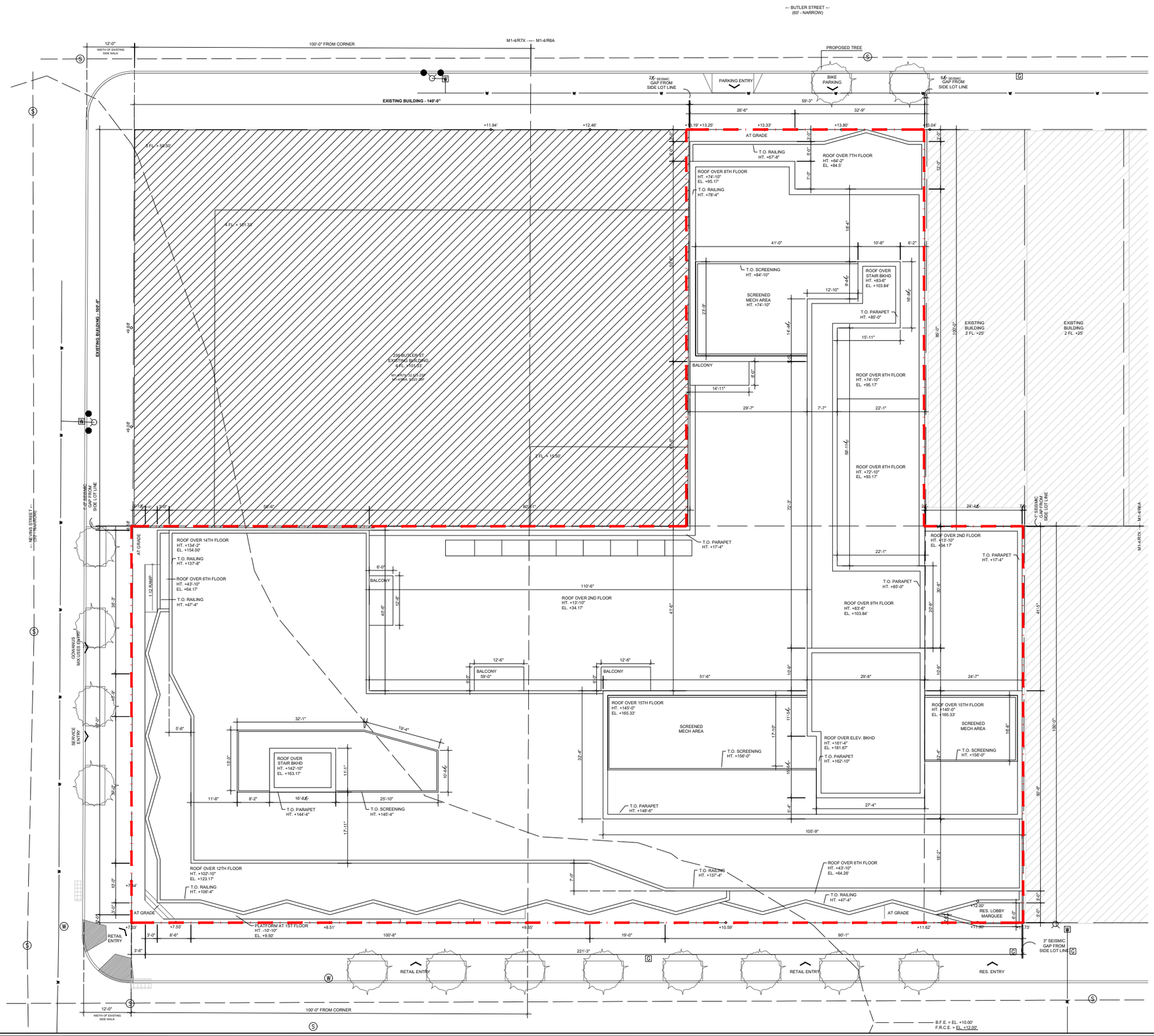
Figure No: 02

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	4/15/2022
SCALE:	N.T.S.

REVISIONS

IMPACT ENVIRONMENTAL ENGINEERING & GEOLOGY, PLLC

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599



LEGEND

PROPERTY BOUNDARY

PROJECT NORTH

0' 25' 50'

NOTES:

FIGURE 3: SITE LAYOUT

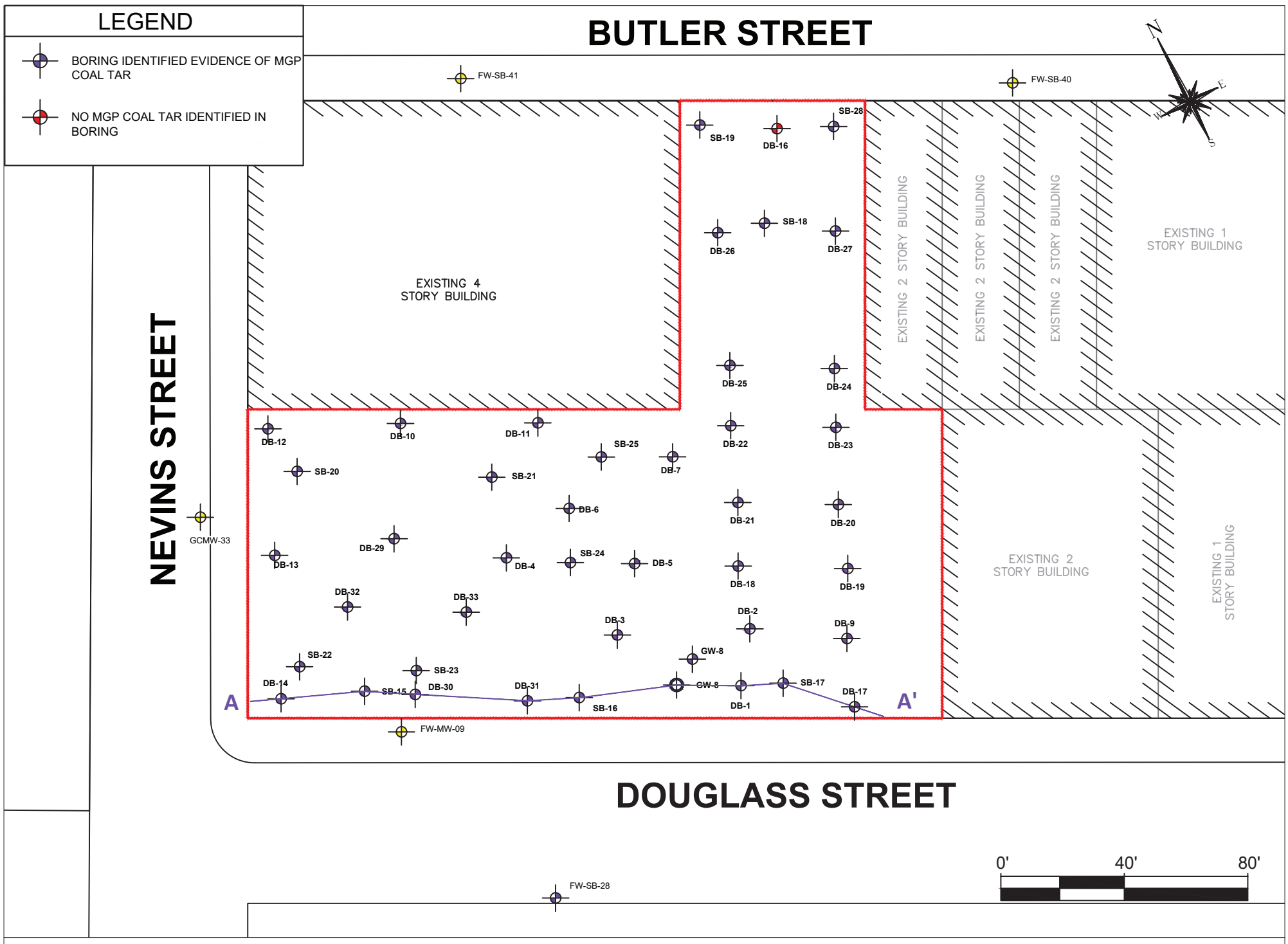
251 Douglas Street
Brooklyn, New York

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	5/15/2025
SCALE:	1" = 25'

REVISIONS

IMPACT ENVIRONMENTAL

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599



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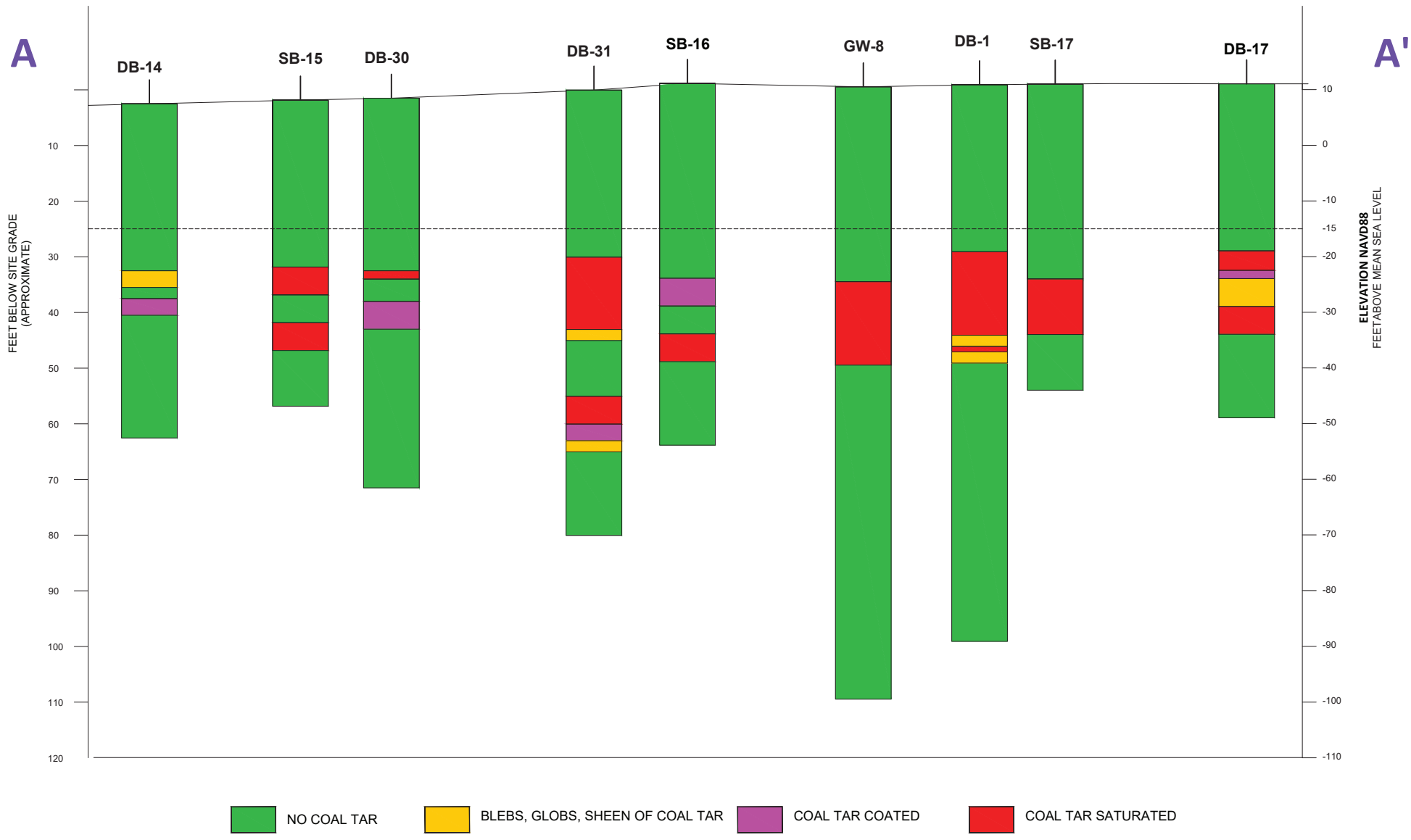

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1000 PAGE AVENUE
LYNDHURST, NEW JERSEY 07071

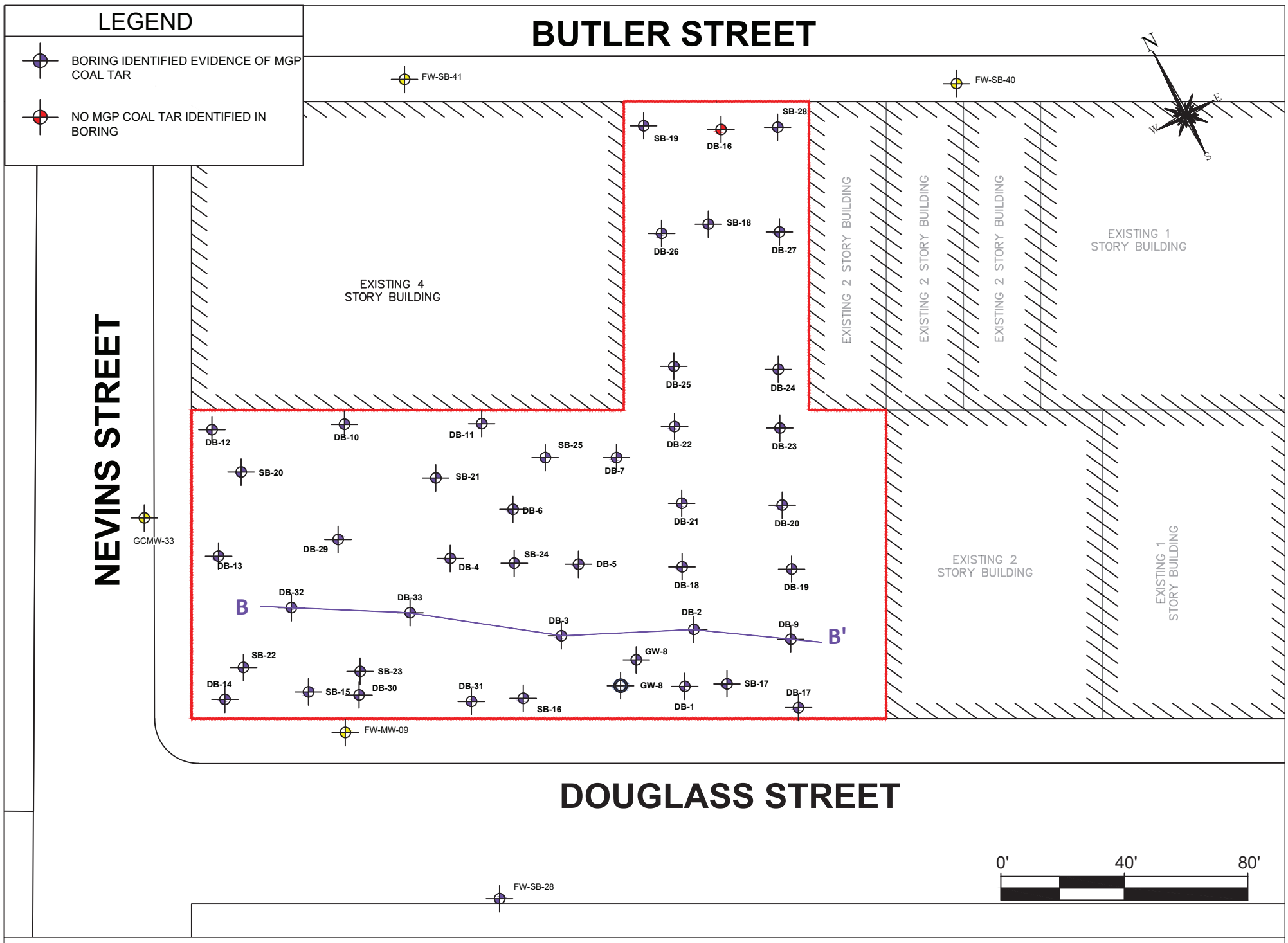
TITLE:
NAPL CROSS SECTION
A - A'

251 Douglass Street
Brooklyn, New York

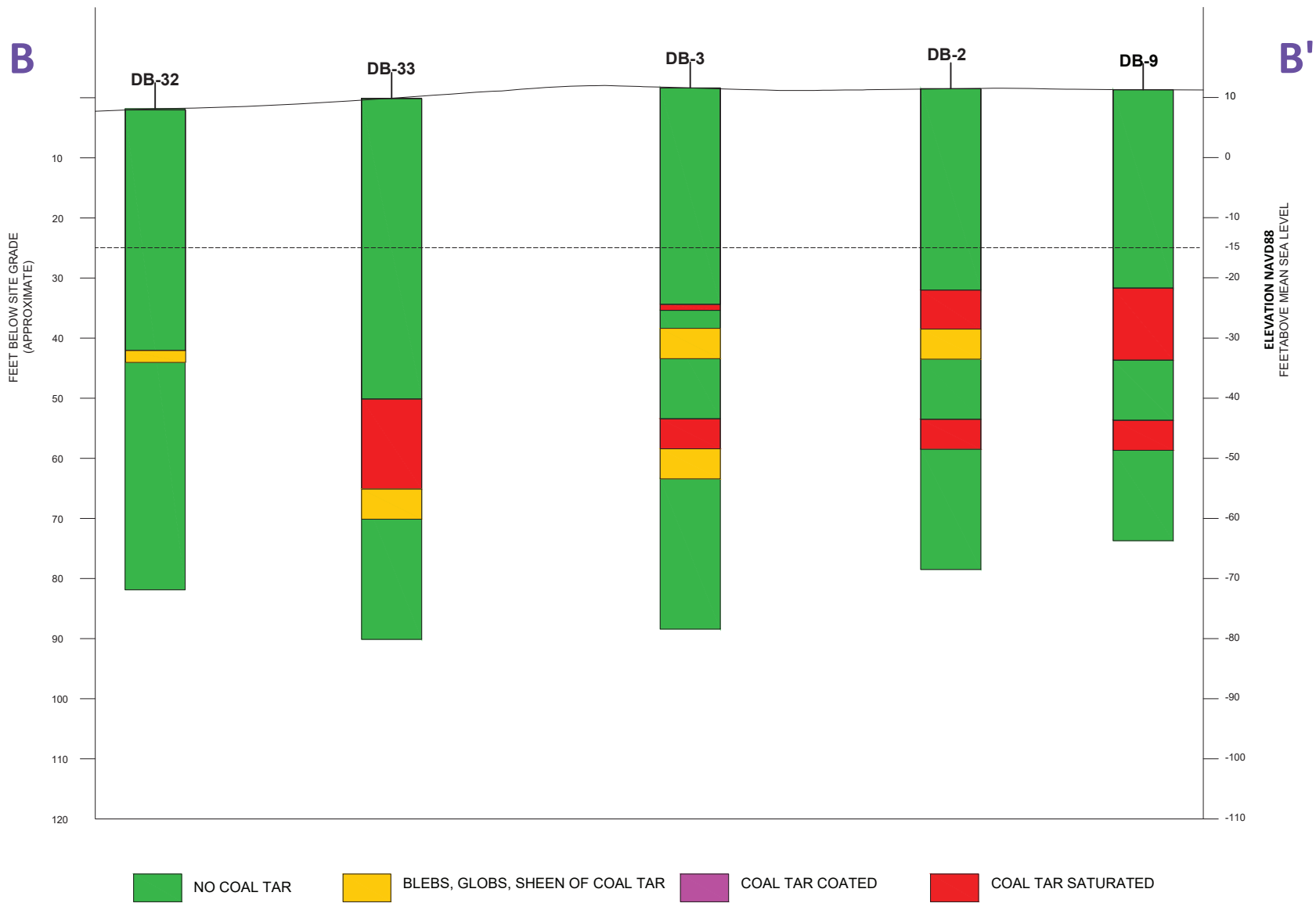
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

PROJECT #	13928
FIGURE #	04A

Notes:
The western half of the site slopes approximately 5 feet.



SCALE: 1" = 25'



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1000 PAGE AVENUE
LYNDHURST, NEW JERSEY 07071

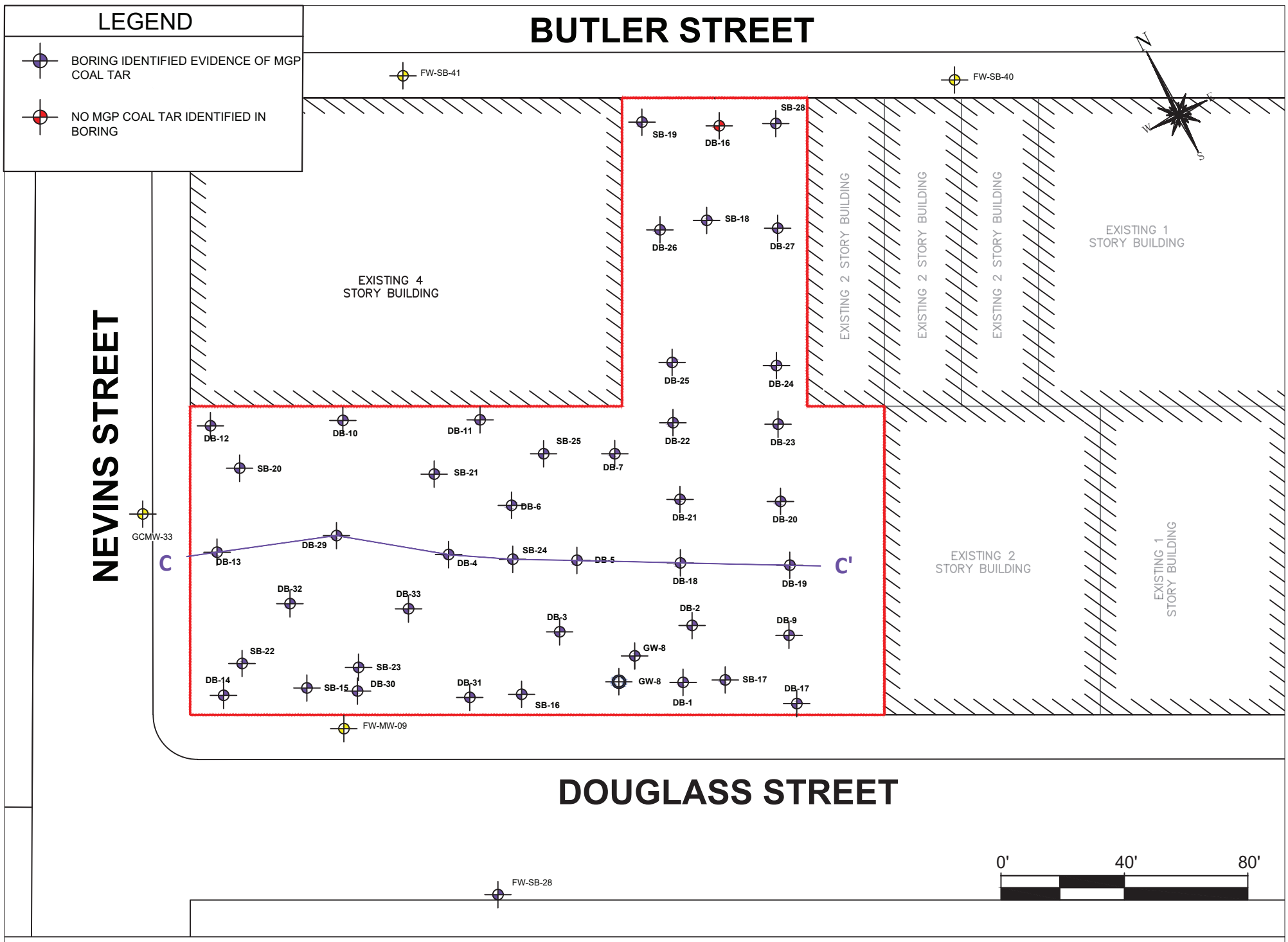
TITLE:
NAPL CROSS SECTION
B - B'

251 Douglass Street
Brooklyn, New York

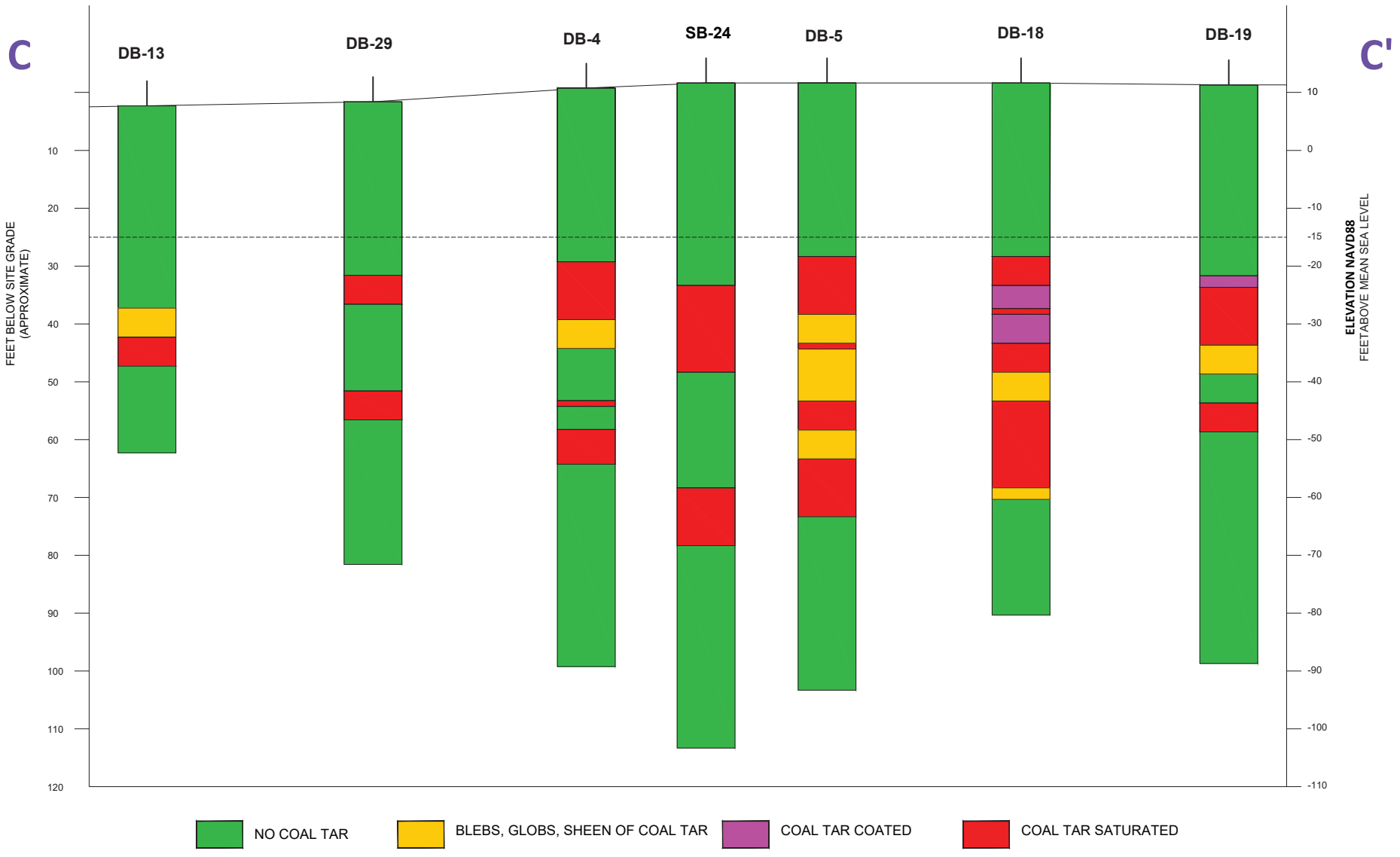
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

PROJECT #	13928
FIGURE #	04B

Notes:
The western half of the site slopes approximately 5 feet.



SCALE: 1" = 25'



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TITLE:
NAPL CROSS SECTION
C - C'

251 Douglass Street
Brooklyn, New York

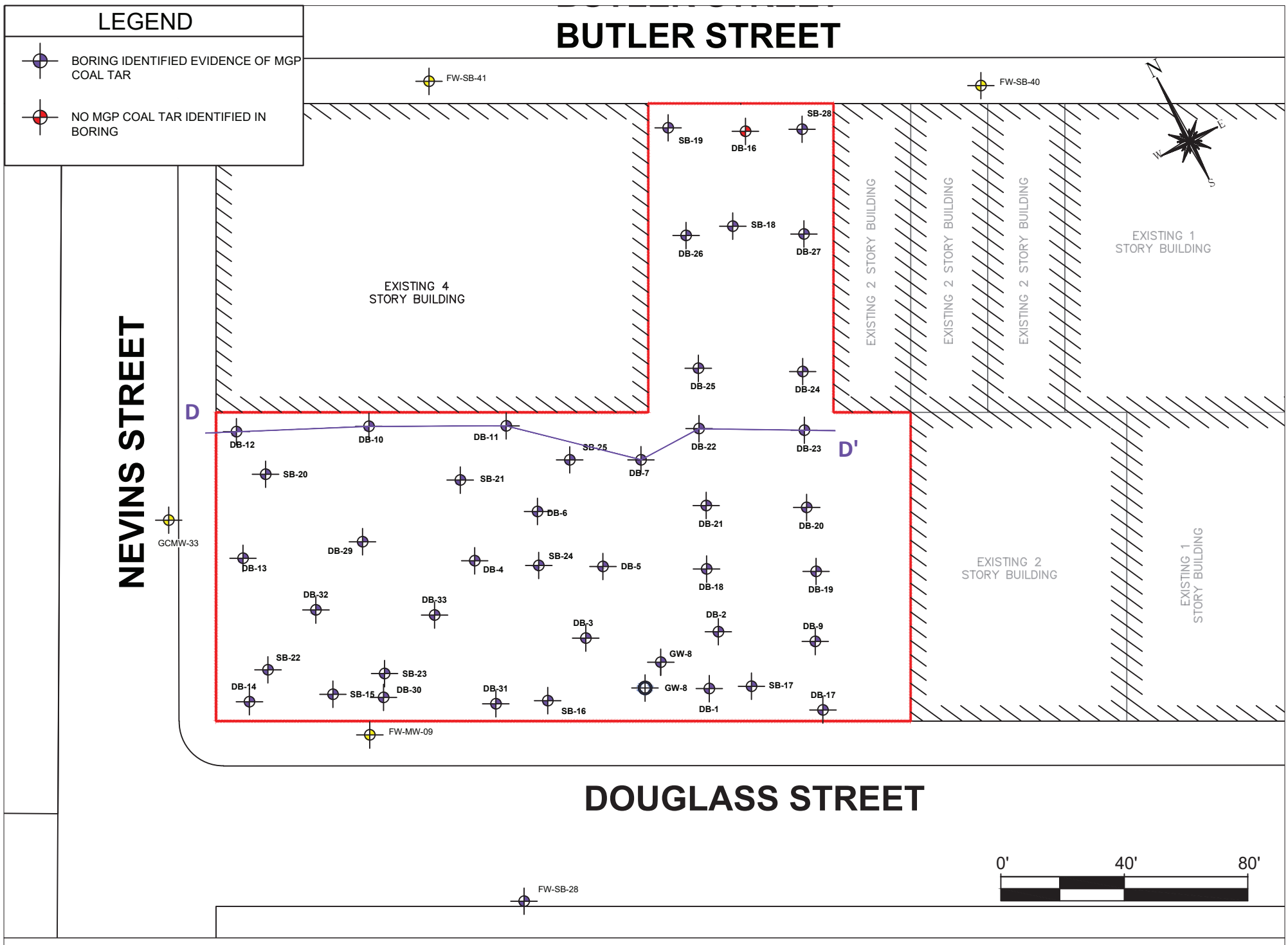
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

PROJECT #	13928
FIGURE #	04C

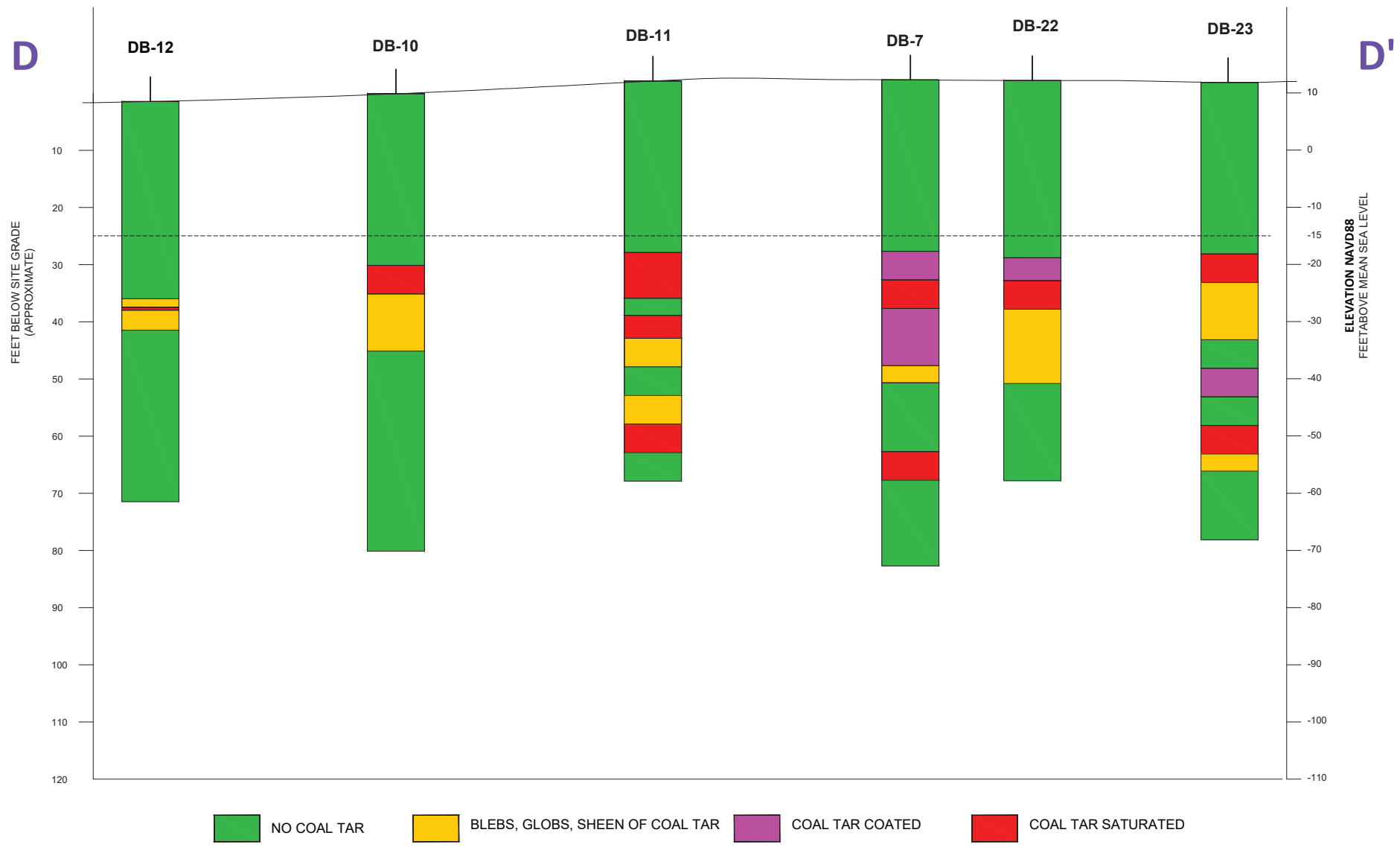
Notes:
The western half of the site slopes approximately 5 feet.

LEGEND

- BORING IDENTIFIED EVIDENCE OF MGP COAL TAR
- NO MGP COAL TAR IDENTIFIED IN BORING



SCALE: 1" = 25'



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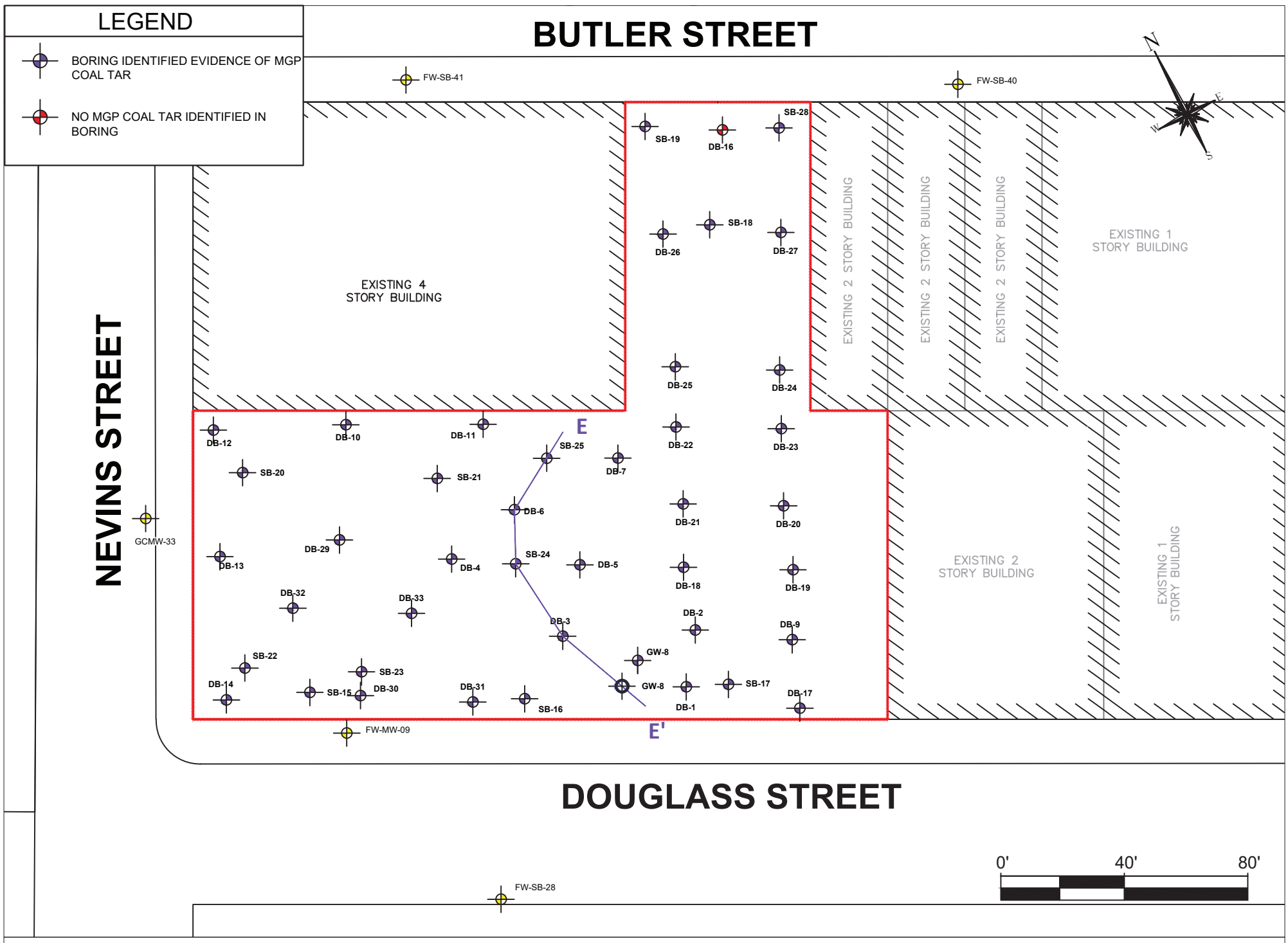
TITLE:
NAPL CROSS SECTION
D - D'

251 Douglass Street
Brooklyn, New York

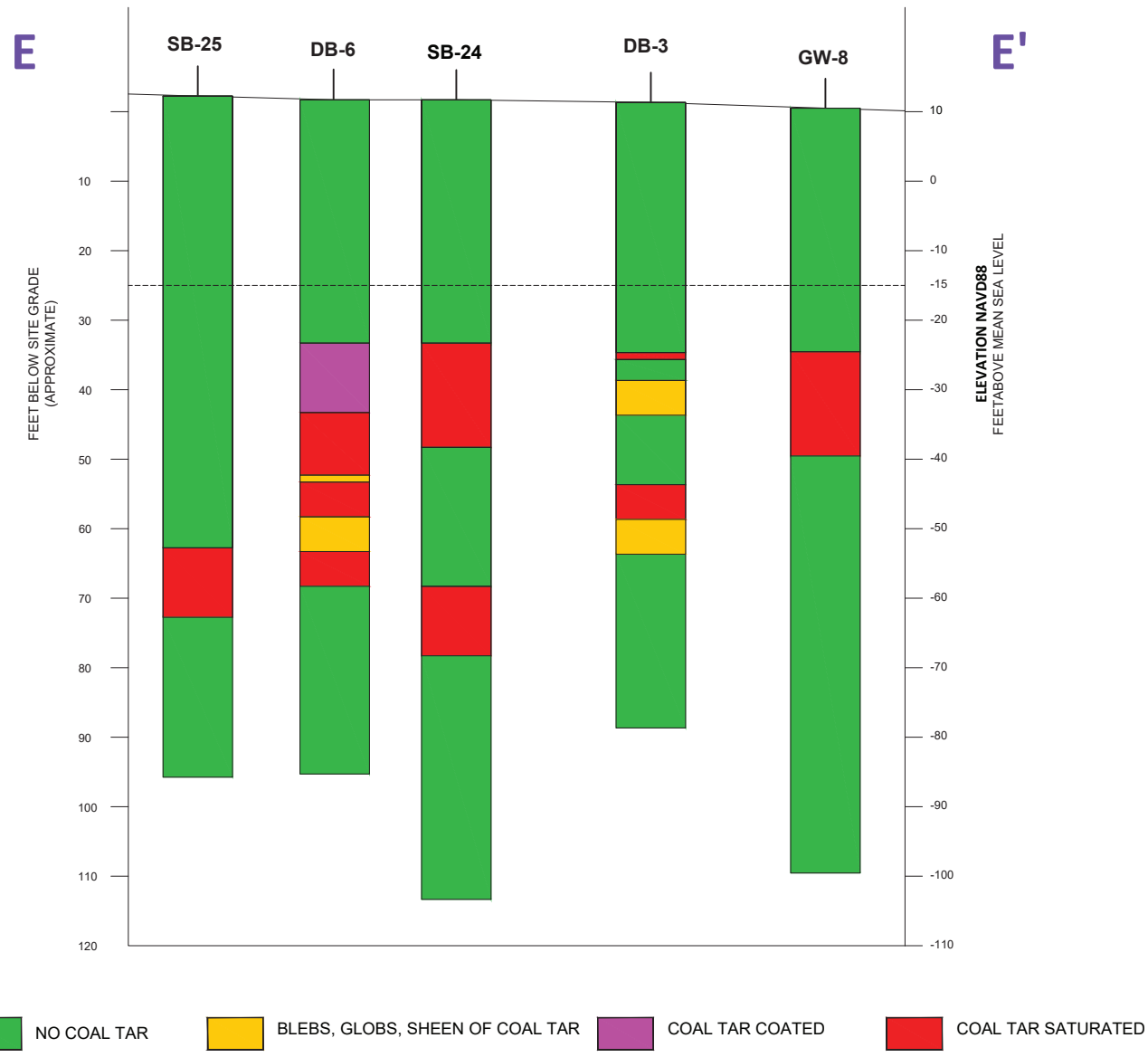
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

PROJECT #	13928
FIGURE #	04D

Notes:
The western half of the site slopes approximately 5 feet.



SCALE: 1" = 25'



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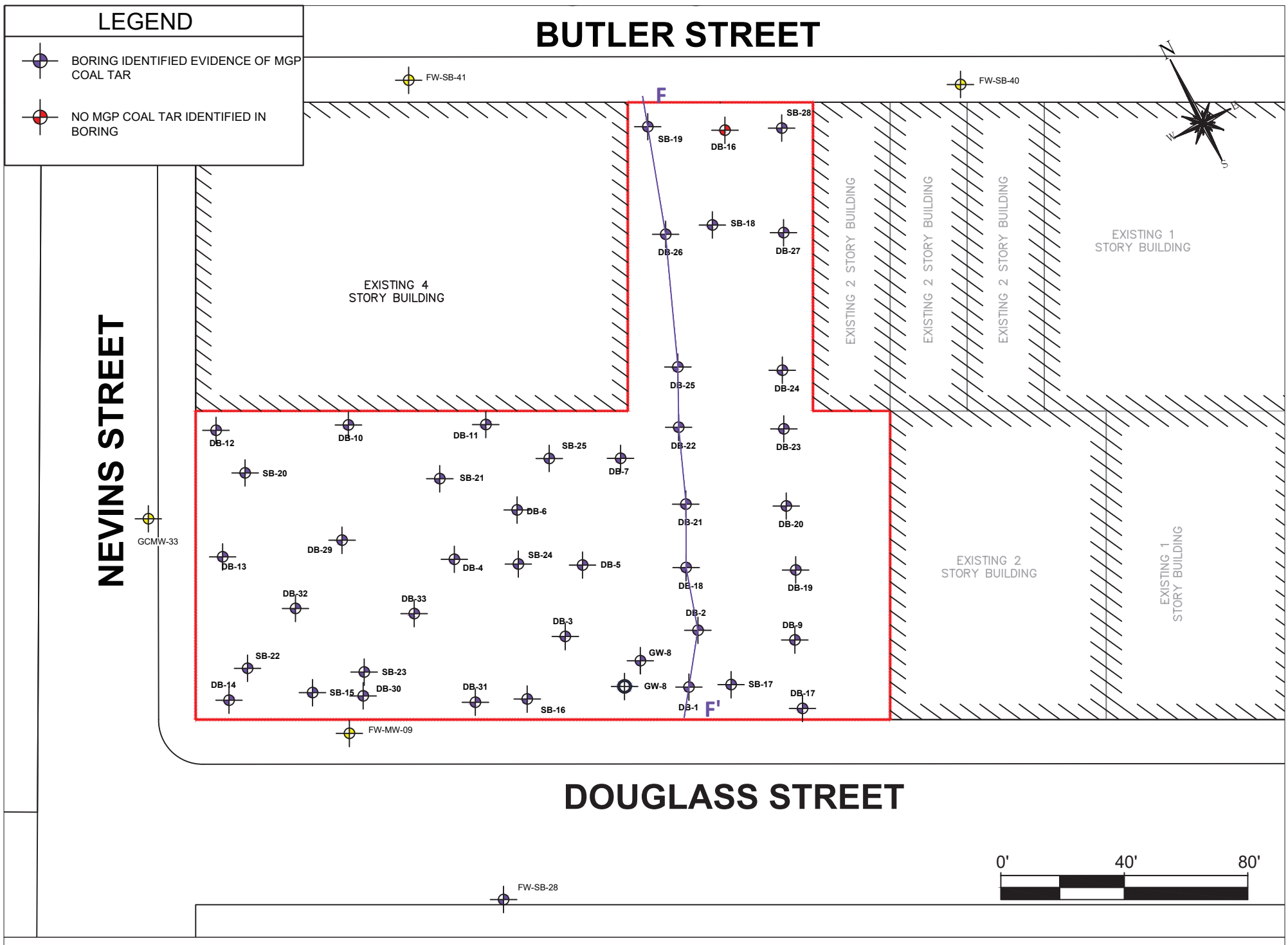
TITLE:
NAPL CROSS SECTION
E - E'

251 Douglass Street
Brooklyn, New York

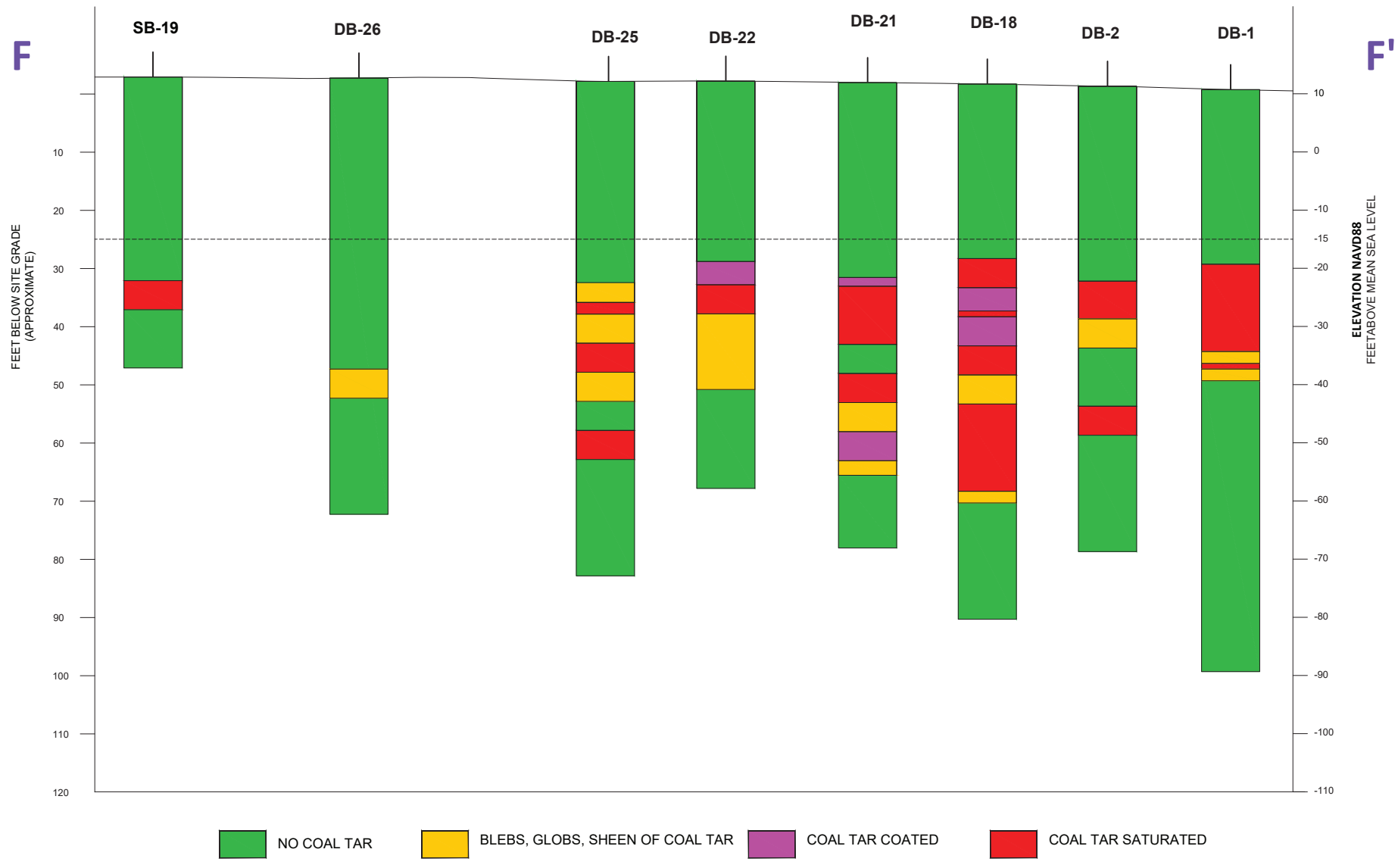
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

PROJECT #	13928
FIGURE #	04E

Notes:
The western half of the site slopes approximately 5 feet.



SCALE: 1" = 25'



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1000 PAGE AVENUE
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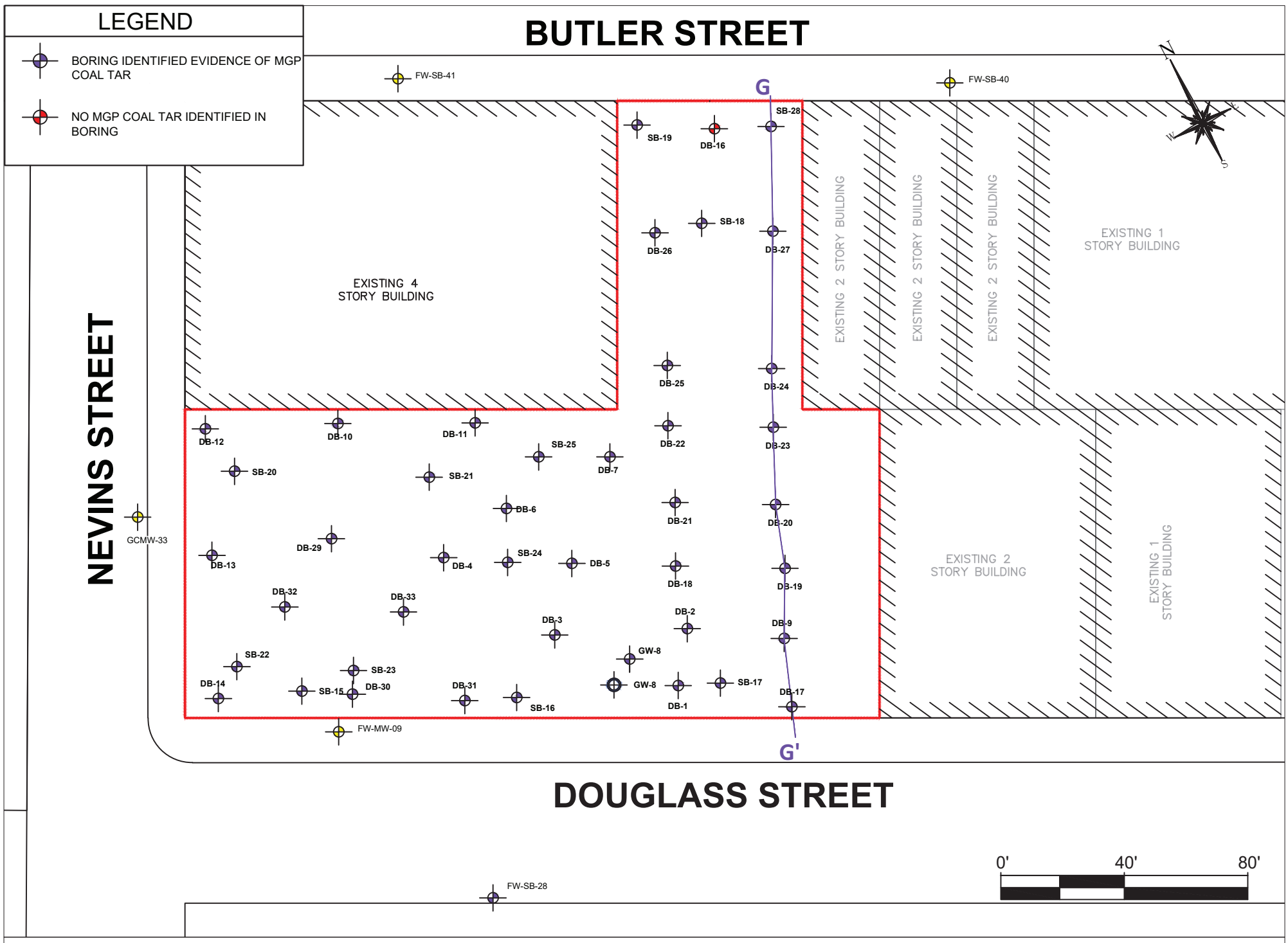
TITLE:
NAPL CROSS SECTION
F-F'

251 Douglass Street
Brooklyn, New York

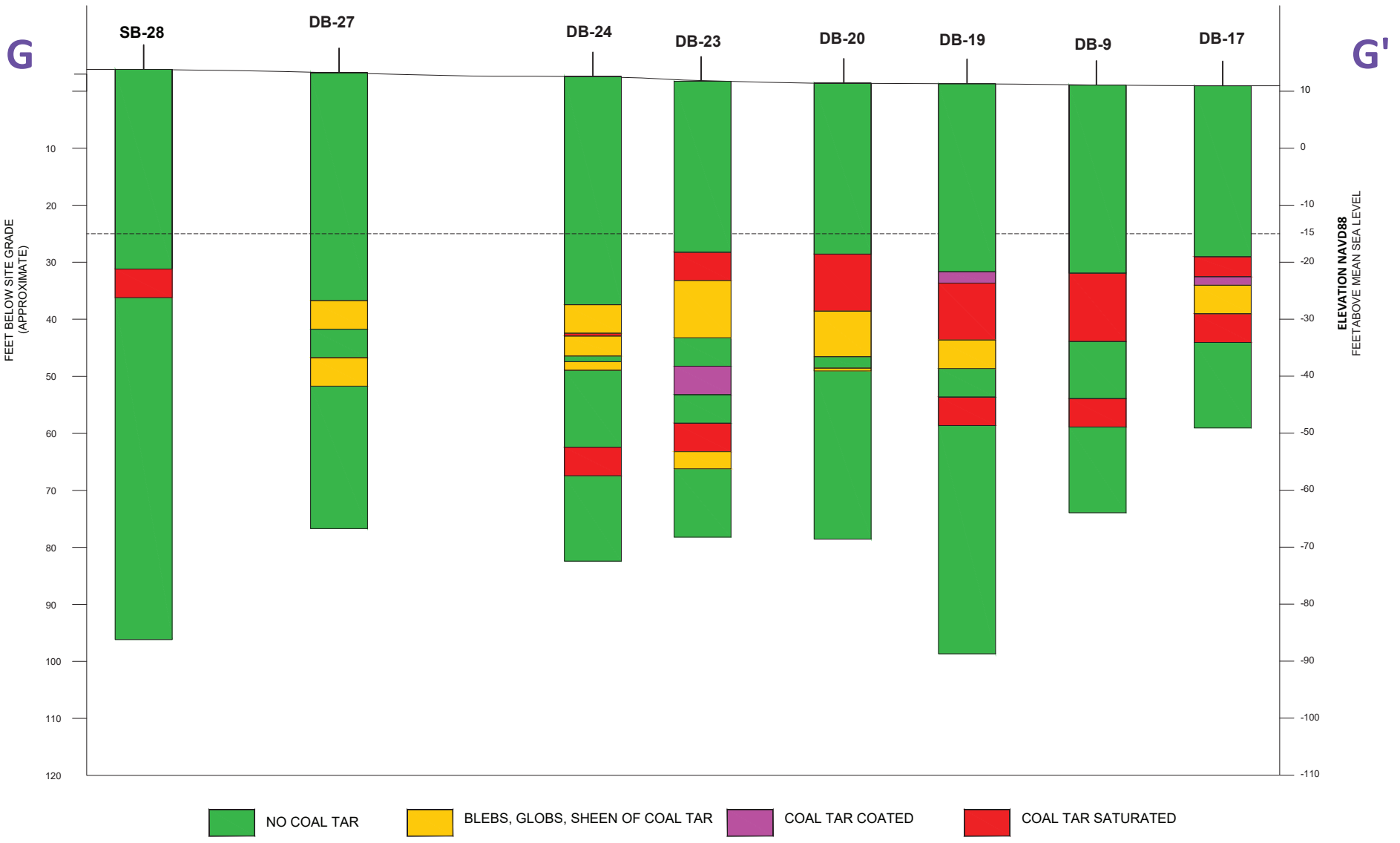
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

PROJECT #	13928
FIGURE #	04F

Notes:
The western half of the site slopes approximately 5 feet.



SCALE: 1" = 25'



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TITLE:
NAPL CROSS SECTION
G - G'

251 Douglass Street
Brooklyn, New York

DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	3/30/2023
SCALE:	AS SHOWN

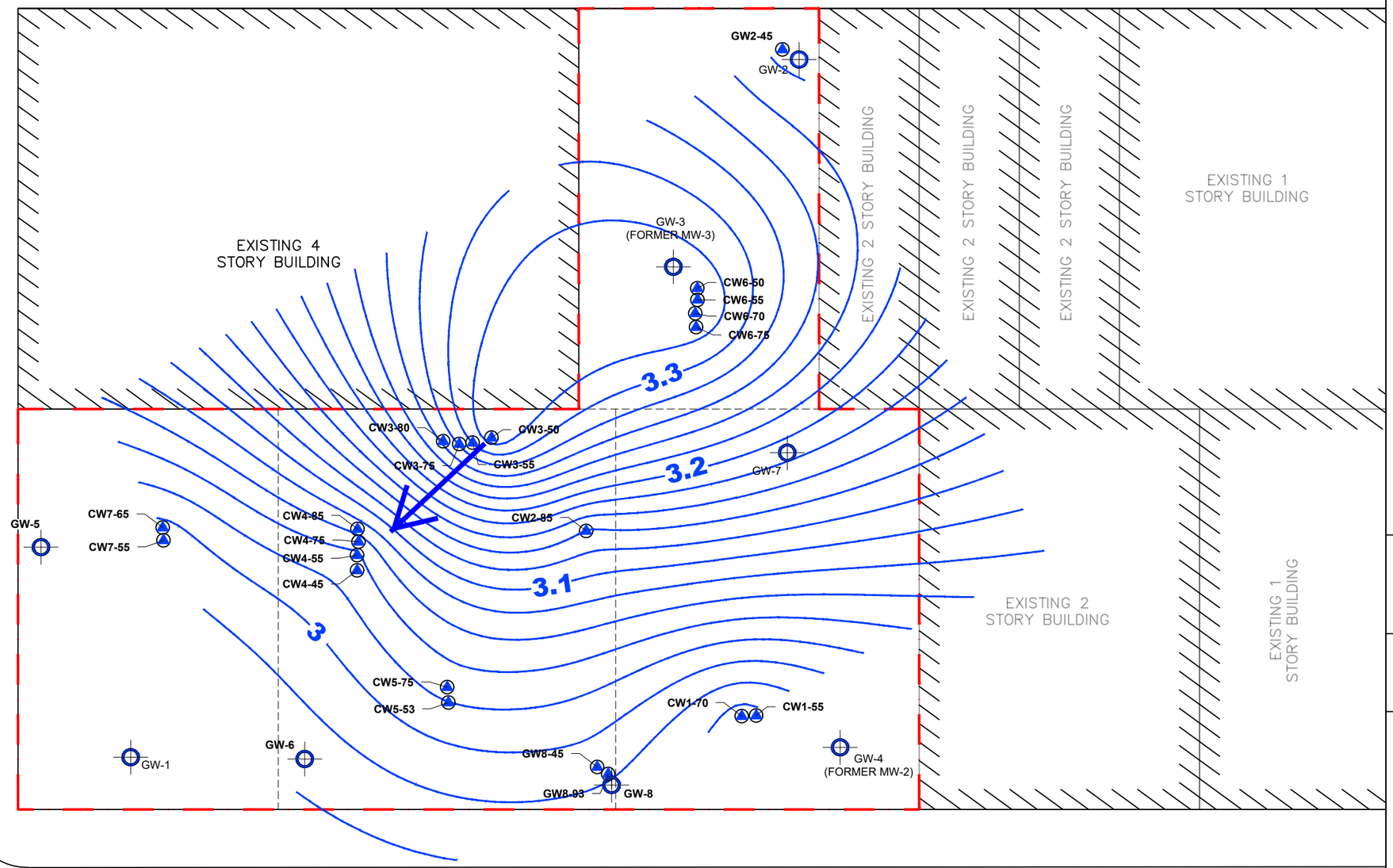
PROJECT #	13928
FIGURE #	04G

Notes:
The western half of the site slopes approximately 5 feet.

NOTES:
ONLY CLUSTER WELLS CW1-70, CW2-85, CW3-50, CW4-55, CW5-75, CW6-70, CW7-55, GW2-45 AND GW8-45 WERE USED TO GENERATE DEEP GROUNDWATER CONTOURS

BUTLER STREET

NEVINS STREET



DOUGLASS STREET

PROJECT NORTH

0' 30' 60'

LEGEND

- CLUSTER WELL LOCATION
- RI MONITORING WELL LOCATION
- GROUNDWATER FLOW DIRECTION ARROW

FIGURE 5:
GROUNDWATER CONTOUR - JUNE 15, 2023

251 Douglass Street
Brooklyn, New York

Figure No: 03

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	JDF/KK
DATE:	6/26/2023
SCALE:	1" = 30'

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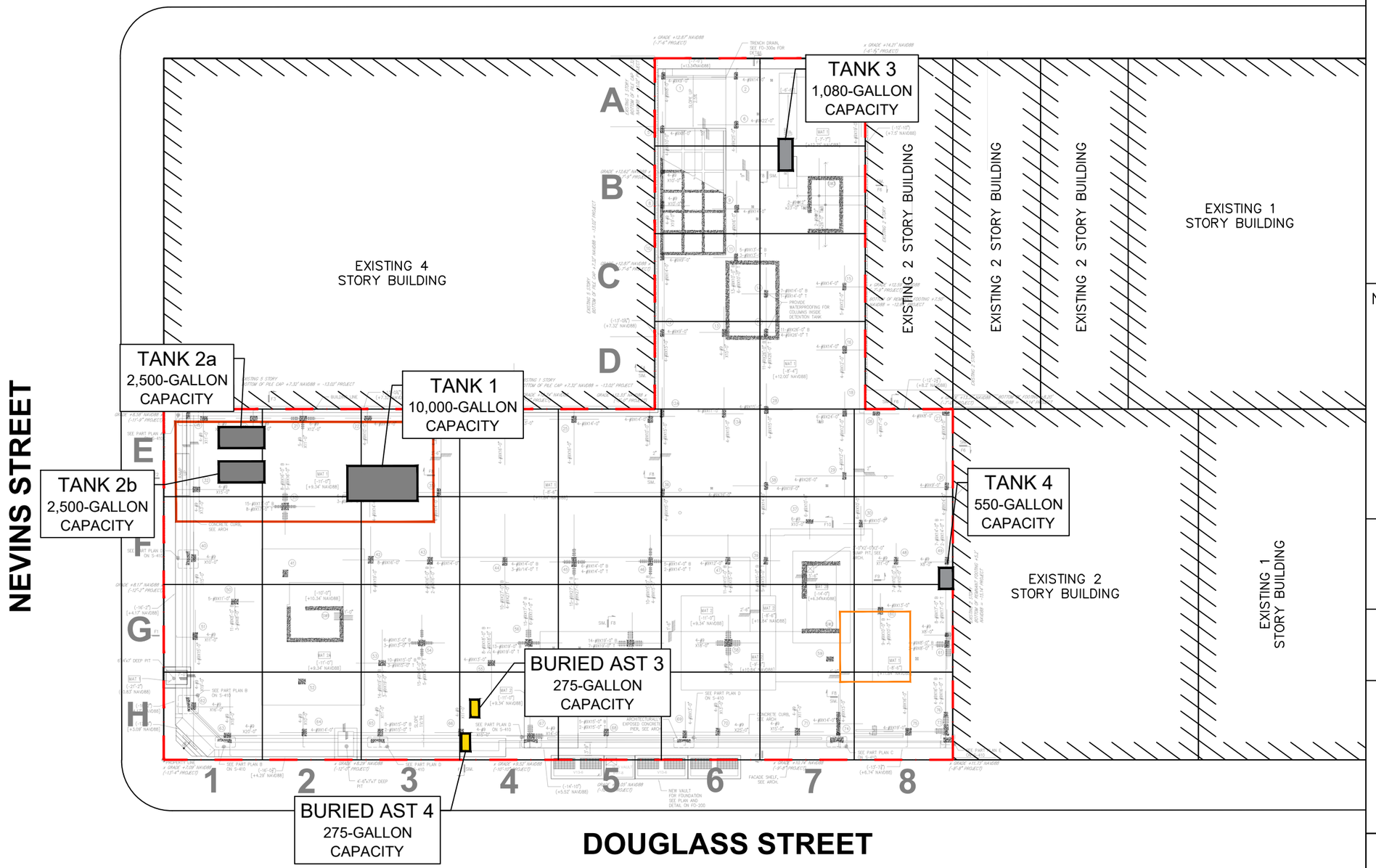

LEGEND

- PROPERTY LINE
- GRID LINE
- UST LOCATION
- BURIED AST LOCATION
- HOT SPOT EXCAVATION TO 8 FBG
- PETROLEUM SOURCE AREA EXCAVATION TO 8 FBG

NOTES:

FIGURE 6: TANK & HOT SPOT LOCATION MAP

251 Douglass Street
Brooklyn, New York

Figure No:

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	11/11/2025
SCALE:	1" = 30'

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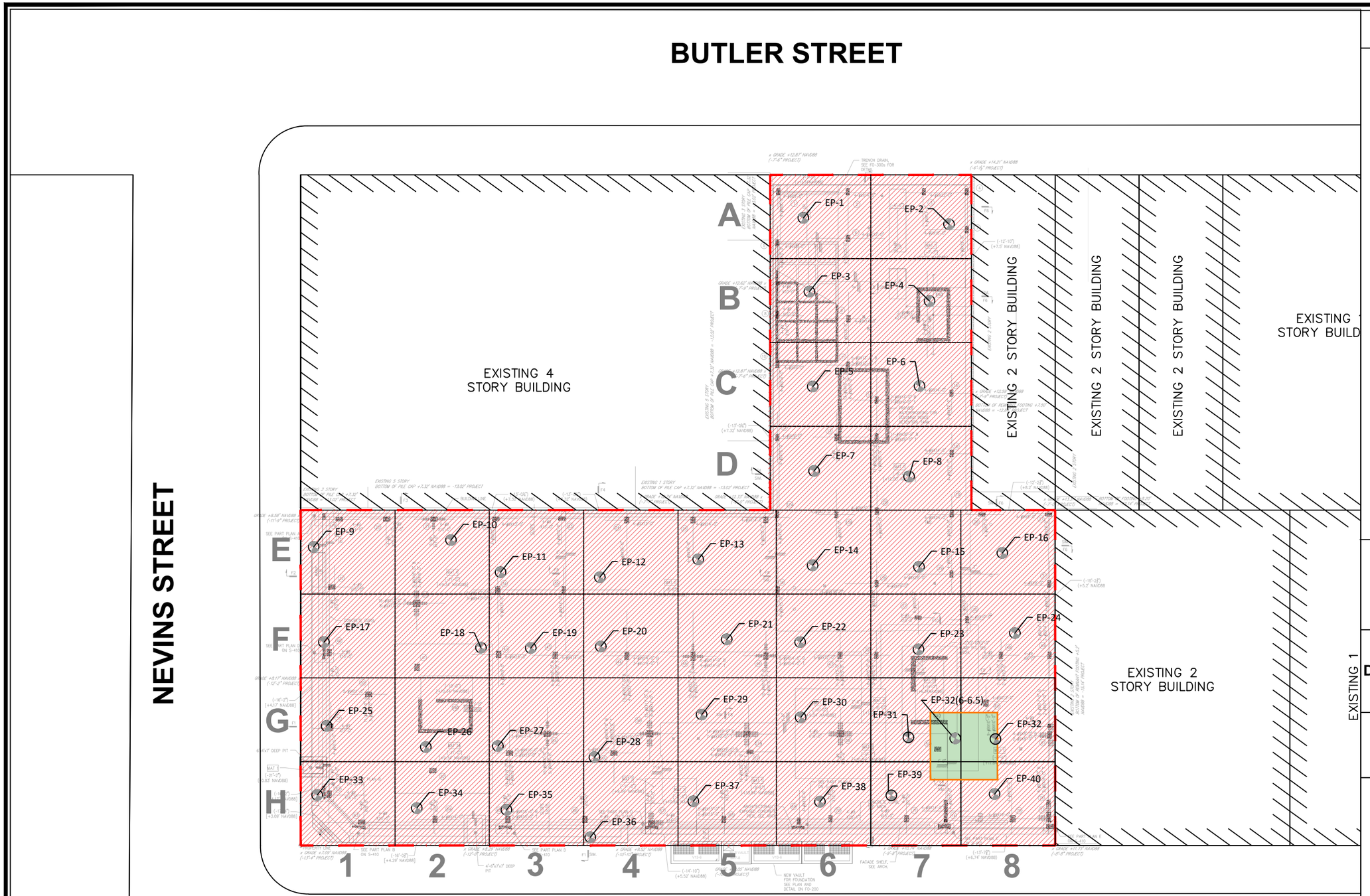

LEGEND

- PROPERTY LINE
- Endpoint Sample Location (Surveyed)
- Documentation Endpoint Sample Location
- Confirmation Arsenic Hotspot Endpoint Sample Location

NOTES:

1. THE BASE MAP WAS DRAWN FROM A PLAN ENTITLED, ALTA/NSPS LAND TITLE SURVEY, PREPARED BY PERFECT POINT LAND SURVEYING OF BROOKLYN, NY AND WAS RECEIVED ELECTRONICALLY ON APRIL 2023 WITH AN ORIGINAL SCALE: 1" = 20'.

FIGURE 7: DOCUMENTATION ENDPOINT SAMPLE RESULTS

251 Douglas Street
Brooklyn, New York

Figure No: 07

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	3/14/2022
SCALE:	1" = 30'

REVISIONS

IMPACT ENVIRONMENTAL CLOSURES, INC.

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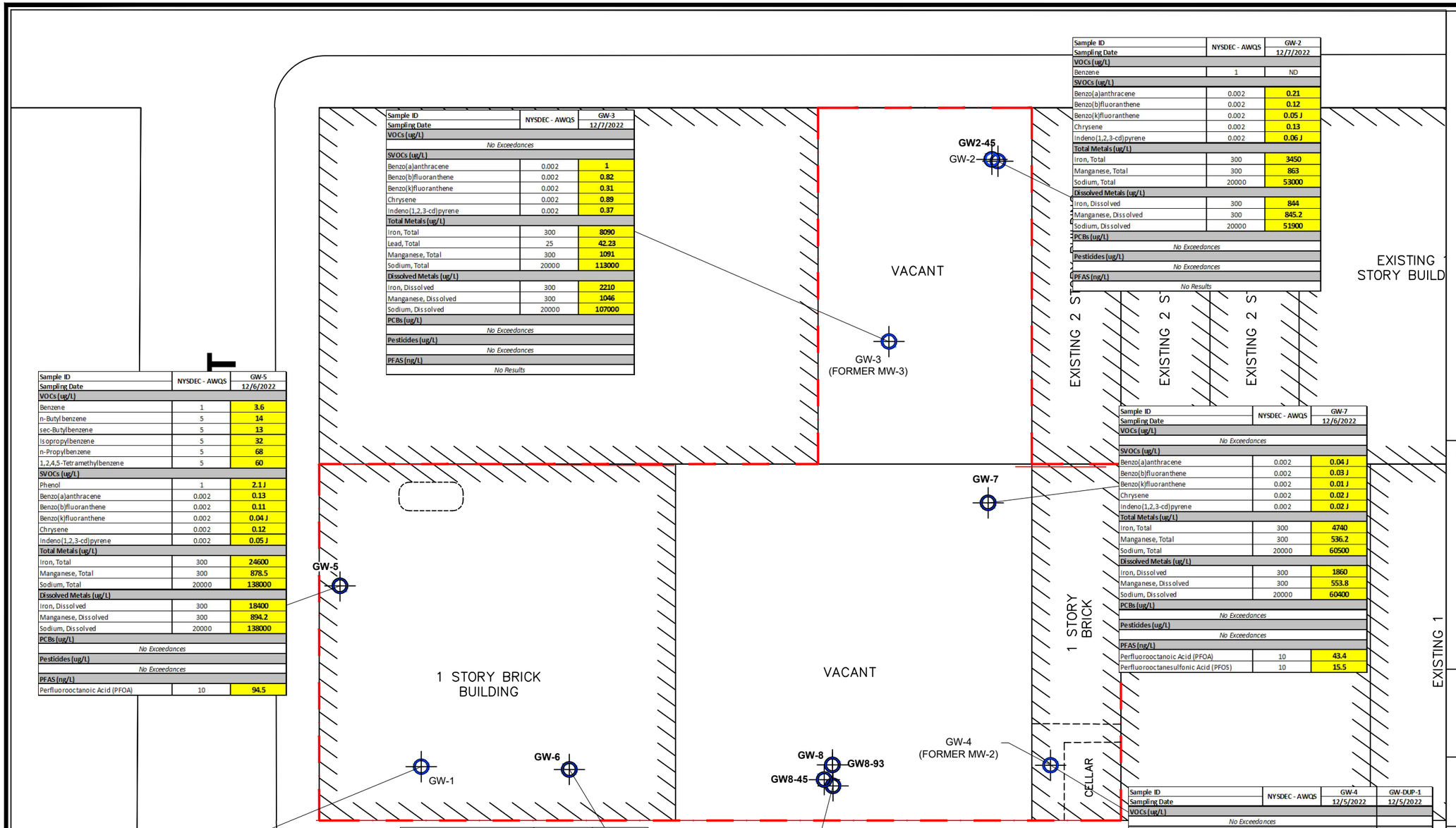

Sample ID	NYSDEC - AWQS	GW-3
Sampling Date		12/7/2022
VOCs (ug/L)		
No Exceedances		
SVOCs (ug/L)		
Benzo(a)anthracene	0.002	**1**
Benzo(b)fluoranthene	0.002	**0.82**
Benzo(k)fluoranthene	0.002	**0.31**
Chrysene	0.002	**0.89**
Indeno(1,2,3-cd)pyrene	0.002	**0.37**
Total Metals (ug/L)		
Iron, Total	300	**8090**
Lead, Total	25	**42.23**
Manganese, Total	300	**1091**
Sodium, Total	20000	**113000**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**2210**
Manganese, Dissolved	300	**1046**
Sodium, Dissolved	20000	**107000**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
No Results		

Sample ID	NYSDEC - AWQS	GW-2
Sampling Date		12/7/2022
VOCs (ug/L)		
Benzene	1	ND
SVOCs (ug/L)		
Benzo(a)anthracene	0.002	**0.21**
Benzo(b)fluoranthene	0.002	**0.12**
Benzo(k)fluoranthene	0.002	**0.05 J**
Chrysene	0.002	**0.13**
Indeno(1,2,3-cd)pyrene	0.002	**0.06 J**
Total Metals (ug/L)		
Iron, Total	300	**3450**
Manganese, Total	300	**863**
Sodium, Total	20000	**53000**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**844**
Manganese, Dissolved	300	**845.2**
Sodium, Dissolved	20000	**51900**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
No Results		

Sample ID	NYSDEC - AWQS	GW-5
Sampling Date		12/6/2022
VOCs (ug/L)		
Benzene	1	**3.6**
n-Butylbenzene	5	**14**
sec-Butylbenzene	5	**13**
Isopropylbenzene	5	**32**
n-Propylbenzene	5	**68**
1,2,4,5-Tetramethylbenzene	5	**60**
SVOCs (ug/L)		
Phenol	1	**2.1 J**
Benzo(a)anthracene	0.002	**0.13**
Benzo(b)fluoranthene	0.002	**0.11**
Benzo(k)fluoranthene	0.002	**0.04 J**
Chrysene	0.002	**0.12**
Indeno(1,2,3-cd)pyrene	0.002	**0.05 J**
Total Metals (ug/L)		
Iron, Total	300	**24600**
Manganese, Total	300	**878.5**
Sodium, Total	20000	**138000**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**18400**
Manganese, Dissolved	300	**894.2**
Sodium, Dissolved	20000	**138000**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
Perfluorooctanoic Acid (PFOA)	10	**94.5**

Sample ID	NYSDEC - AWQS	GW-7
Sampling Date		12/6/2022
VOCs (ug/L)		
No Exceedances		
SVOCs (ug/L)		
Benzo(a)anthracene	0.002	**0.04 J**
Benzo(b)fluoranthene	0.002	**0.03 J**
Benzo(k)fluoranthene	0.002	**0.01 J**
Chrysene	0.002	**0.02 J**
Indeno(1,2,3-cd)pyrene	0.002	**0.02 J**
Total Metals (ug/L)		
Iron, Total	300	**4740**
Manganese, Total	300	**536.2**
Sodium, Total	20000	**60500**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**1860**
Manganese, Dissolved	300	**553.8**
Sodium, Dissolved	20000	**60400**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
Perfluorooctanoic Acid (PFOA)	10	**43.4**
Perfluorooctanesulfonic Acid (PFOS)	10	**15.5**

Sample ID	NYSDEC - AWQS	GW-1
Sampling Date		11/29/2022
VOCs (ug/L)		
No Exceedances		
SVOCs (ug/L)		
Benzo(a)anthracene	0.002	**0.04 J**
Benzo(b)fluoranthene	0.002	**0.03 J**
Benzo(k)fluoranthene	0.002	**0.02 J**
Chrysene	0.002	**0.03 J**
Indeno(1,2,3-cd)pyrene	0.002	**0.02 J**
Total Metals (ug/L)		
Iron, Total	300	**11900**
Manganese, Total	300	**1048**
Sodium, Total	20000	**142000**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**2000**
Manganese, Dissolved	300	**1006**
Sodium, Dissolved	20000	**137000**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
Perfluorooctanoic Acid (PFOA)	10	**98.2**
PFOA/PFOS, Total	100	**106**

Sample ID	NYSDEC - AWQS	GW-6
Sampling Date		11/29/2022
VOCs (ug/L)		
No Exceedances		
SVOCs (ug/L)		
Benzo(a)anthracene	0.002	**0.1**
Benzo(b)fluoranthene	0.002	**0.14**
Benzo(k)fluoranthene	0.002	**0.05 J**
Chrysene	0.002	**0.09 J**
Indeno(1,2,3-cd)pyrene	0.002	**0.1 J**
Total Metals (ug/L)		
Iron, Total	300	**5900**
Lead, Total	25	**40.85**
Manganese, Total	300	**1966**
Sodium, Total	20000	**112000**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**1070**
Manganese, Dissolved	300	**1949**
Sodium, Dissolved	20000	**106000**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
Perfluorooctanoic Acid (PFOA)	10	**215**
Perfluorooctanesulfonic Acid (PFOS)	10	**44.1**
PFOA/PFOS, Total	100	**259**

Sample ID	NYSDEC - AWQS	GW-8
Sampling Date		11/29/2022
VOCs (ug/L)		
Benzene	1	ND
SVOCs (ug/L)		
Benzo(a)anthracene	0.002	**0.08 J**
Benzo(b)fluoranthene	0.002	**0.13**
Benzo(k)fluoranthene	0.002	**0.05 J**
Chrysene	0.002	**0.07 J**
Indeno(1,2,3-cd)pyrene	0.002	**0.12**
Total Metals (ug/L)		
Iron, Total	300	**14100**
Manganese, Total	300	**1449**
Sodium, Total	20000	**96100**
Dissolved Metals (ug/L)		
Iron, Dissolved	300	**2110**
Manganese, Dissolved	300	**1412**
Sodium, Dissolved	20000	**94300**
PCBs (ug/L)		
No Exceedances		
Pesticides (ug/L)		
No Exceedances		
PFAS (ng/L)		
Perfluorooctanoic Acid (PFOA)	10	**107**
Perfluorooctanesulfonic Acid (PFOS)	10	**25.9**
PFOA/PFOS, Total	100	**133**

Sample ID	NYSDEC - AWQS	GW-4	GW-DUP-1
Sampling Date		12/5/2022	12/5/2022
VOCs (ug/L)			
No Exceedances			
SVOCs (ug/L)			
Benzo(a)anthracene	0.002	**0.2**	**0.24**
Benzo(b)fluoranthene	0.002	**0.21**	**0.28**
Benzo(k)fluoranthene	0.002	**0.08 J**	**0.12**
Chrysene	0.002	**0.19**	**0.3**
Indeno(1,2,3-cd)pyrene	0.002	**0.13**	**0.17**
Total Metals (ug/L)			
Arsenic, Total	25	**63.03**	**63.86**
Iron, Total	300	**16200**	**14500**
Lead, Total	25	**35.76**	**50.87**
Magnesium, Total	35000	**49600**	**41900**
Manganese, Total	300	**1122**	**1003**
Sodium, Total	20000	**177000**	**146000**
Dissolved Metals (ug/L)			
Arsenic, Dissolved	25	**36.79**	**26.8**
Iron, Dissolved	300	**4190**	**779**
Magnesium, Dissolved	35000	**47600**	**48100**
Manganese, Dissolved	300	**1059**	**1096**
Sodium, Dissolved	20000	**182000**	**174000**
PCBs (ug/L)			
No Exceedances			
Pesticides (ug/L)			
No Exceedances			
PFAS (ng/L)			
Perfluorooctanoic Acid (PFOA)	10	**13.8**	**63.5**

LEGEND

- PROPERTY LINE
- IEC GROUNDWATER SAMPLE LOCATION

PROJECT NORTH

0' 30' 60'

NOTES:

FIGURE 8a: GROUNDWATER RESULTS MAP

251 Douglass Street
Brooklyn, New York

Figure No: 8a

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	1/9/2023
SCALE:	1" =30'
REVISIONS	

IMPACT ENVIRONMENTAL

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BOHEMIA, NEW YORK 11716
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FAX (631) 269-1599

NOTES:

FIGURE 8b: SUPPLEMENTAL INVESTIGATION GROUNDWATER SAMPLE RESULTS

251 Douglass Street
Brooklyn, New York

Figure No: 8b

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	JDF/KK
DATE:	6/20/2023
SCALE:	1" = 30'

REVISIONS

PROJECT NORTH

0' 30' 60'

LEGEND

CLUSTER WELL LOCATION

IMPACT ENVIRONMENTAL

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FAX (631) 269-1599

NEVINS STREET

DOUGLASS STREET

ER STREET

EXISTING 4 STORY BUILDING

EXISTING 2 STORY BUILDING

EXISTING 2 STORY BUILDING

EXISTING 2 STORY BUILDING

EXISTING 1 STORY BUILDING

GW2-45

CW6-50
CW6-55
CW6-70
CW6-75

CW3-80
CW3-50
CW3-75
CW3-55

CW7-65
CW7-55

CW4-85
CW4-75
CW4-55
CW4-45

CW2-85

CW5-75
CW5-53

CW1-70
CW1-55

GW8-45
GW8-93

LOCATION	NY-AW QS	CW-3-50	CW-3-55	CW-3-75	CW-3-80
SAMPLING DATE		5/26/2023	5/26/2023	5/26/2023	5/25/2023
Semivolatile Organics (ug/L)					
Phenol	1	19	16	2.1 J	ND
Acenaphthene	20	16	14	100	3
Benzo(a)anthracene	0.002	1.2 J	3.7	0.71	0.15
Benzo(a)pyrene	0.000	0.62 J	2.5	0.41 J	0.04 J
Benzo(b)fluoranthene	0.002	0.44 J	1.6 J	0.27 J	0.03 J
Benzo(k)fluoranthene	0.002	0.18 J	0.76 J	0.11 J	0.01 J
Chrysene	0.002	0.82 J	2.9	0.5	0.14
Fluorene	50	52	46	51	4.2
Indeno(1,2,3-cd)pyrene	0.002	ND	0.83 J	0.14 J	0.01 J
Naphthalene	10	8400	8900	9000	66
Phenanthrene	50	51	51	46	9
Volatile Organics (ug/L)					
1,2,4-Trimethylbenzene	5	360 J	420 J	350	6.4
1,2-Dichloroethane	0.6	ND	ND	ND	0.8
1,3,5-Trimethylbenzene	5	ND	ND	96 J	1.8 J
2-Butanone	50	1700	ND	ND	ND
Acetone	50	650 J	ND	ND	ND
Benzene	1	20000	34000	2800	16
Ethylbenzene	5	640	730	1900	7.1
Methyl tert butyl ether	10	ND	ND	ND	22
Naphthalene	10	9100	11000	9400	180
o-Xylene	5	1200	1400	940	7.8
p/m-Xylene	5	2400	2700	1900	17
Styrene	5	3600	5000	1200	16
Toluene	5	9800	15000	2200	22
Trichloroethene	5	ND	ND	ND	9.3

LOCATION	NY-AW QS	CW-4-85
SAMPLING DATE		5/25/2023
Semivolatile Organics (ug/L)		
Benzo(a)anthracene	0.002	0.2
Benzo(a)pyrene	0.000	0.08 J
Benzo(b)fluoranthene	0.002	0.05 J
Benzo(k)fluoranthene	0.002	0.02 J
Chrysene	0.002	0.16
Indeno(1,2,3-cd)pyrene	0.002	0.02 J
Naphthalene	10	96
Volatile Organics (ug/L)		
1,2,4-Trimethylbenzene	5	5.4
1,2-Dichloroethane	0.6	1.9
Benzene	1	47
Ethylbenzene	5	24
Methyl tert butyl ether	10	20
Naphthalene	10	140
o-Xylene	5	9.4
p/m-Xylene	5	17
Toluene	5	40

LOCATION	NY-AW QS	CW-2-45
SAMPLING DATE		5/30/2023
Semivolatile Organics (ug/L)		
Acenaphthene	20	21
Benzo(a)anthracene	0.002	0.22 J
Benzo(a)pyrene	0.000	0.1 J
Benzo(b)fluoranthene	0.002	0.08 J
Chrysene	0.002	0.2 J
Naphthalene	10	1400
Volatile Organics (ug/L)		
1,2,4-Trimethylbenzene	5	140
1,3,5-Trimethylbenzene	5	40 J
Benzene	1	8.3 J
Ethylbenzene	5	680
Isopropylbenzene	5	33 J
Naphthalene	10	3000
o-Xylene	5	230
p/m-Xylene	5	410
Toluene	5	640

LOCATION	NY-AW QS	CW-6-50	CW-6-70	CW6-75	DUP
SAMPLING DATE		5/30/2023	5/30/2023	5/30/2023	5/30/2023
Semivolatile Organics (ug/L)					
Phenol	1	9	1.8 J	ND	ND
Acenaphthene	20	13	24	1	1.2
Benzo(a)anthracene	0.002	4.6	0.46 J	1.2	1.2
Benzo(a)pyrene	0.000	4.5	0.3 J	1.1	1.1
Benzo(b)fluoranthene	0.002	3.1	0.24 J	0.82	0.75
Benzo(k)fluoranthene	0.002	1.1	ND	0.32	0.3
Chrysene	0.002	4.2	0.42 J	1.1	1.1
Indeno(1,2,3-cd)pyrene	0.002	1.3	ND	0.39	0.35
Naphthalene	10	5900	3600	63	78
Phenanthrene	50	51	38	7.2	8.3
Volatile Organics (ug/L)					
1,2,4-Trimethylbenzene	5	450	250	11	8.4
1,3,5-Trimethylbenzene	5	120 J	ND	3.1	2.5
Benzene	1	6300	1500	75	44
Ethylbenzene	5	570	290	7	4.8
Naphthalene	10	12000	7800	190	140
o-Xylene	5	1200	390	15	9.9
p/m-Xylene	5	2400	790	34	23
Styrene	5	3800	1000	49	30
Toluene	5	9300	2300	88	53
Trichloroethene	5	ND	ND	6.5	7.7

LOCATION	NY-AW QS	CW-2-85
SAMPLING DATE		5/26/2023
Semivolatile Organics (ug/L)		
Phenol	1	1.2 J
Benzo(a)anthracene	0.002	2 J
Chrysene	0.002	0.76 J
Naphthalene	10	5900
Volatile Organics (ug/L)		
1,2,4-Trimethylbenzene	5	350
1,3,5-Trimethylbenzene	5	97 J
Benzene	1	3200
Ethylbenzene	5	780
Methyl tert butyl ether	10	38 J
Naphthalene	10	9000
o-Xylene	5	700
p/m-Xylene	5	1300
Styrene	5	1800
Toluene	5	3100

LOCATION	NY-AW QS	GW-8-93
SAMPLING DATE		5/30/2023
Semivolatile Organics (ug/L)		
Phenol	1	4.9 J
Acenaphthene	20	55
Benzo(a)anthracene	0.002	16
Benzo(a)pyrene	0.000	18
Benzo(b)fluoranthene	0.002	11
Benzo(k)fluoranthene	0.002	5.3
Chrysene	0.002	16
Fluorene	50	74
Indeno(1,2,3-cd)pyrene	0.002	5.6
Naphthalene	10	2000
Phenanthrene	50	130
Pyrene	50	56
Volatile Organics (ug/L)		
1,2,4-Trimethylbenzene	5	140
1,3,5-Trimethylbenzene	5	37 J
Benzene	1	700
Ethylbenzene	5	530
Isopropylbenzene	5	24 J
Naphthalene	10	4400
o-Xylene	5	200
p/m-Xylene	5	380
Styrene	5	34 J
Toluene	5	810

LOCATION	NY-AW QS	CW-1-55	CW-1-70
SAMPLING DATE		5/30/2023	5/26/2023
Semivolatile Organics (ug/L)			
Phenol	1	11	1 J
Acenaphthene	20	96	41
Benzo(a)anthracene	0.002	6.6	0.28 J
Benzo(a)pyrene	0.000	7	0.18 J
Benzo(b)fluoranthene	0.002	4.6	0.14 J
Benzo(k)fluoranthene	0.002	1.8	0.05 J
Chrysene	0.002	6	0.19 J
Indeno(1,2,3-cd)pyrene	0.002	2.2	0.07 J
Naphthalene	10	2600	290
Phenanthrene	50	73	3.6
Volatile Organics (ug/L)			
1,2,4-Trimethylbenzene	5	150	18 J
1,3,5-Trimethylbenzene	5	37 J	ND
Benzene	1	3300	1400
Ethylbenzene	5	720	730
Isopropylbenzene	5	29 J	31
Naphthalene	10	5800	470
o-Xylene	5	340	56
p/m-Xylene	5	620	13 J
Styrene	5	400	ND
Toluene	5	1400	ND

BUTLER STREET

NEVINS STREET

DOUGLASS STREET

SAMPLE ID:	NYSDOH Matrices Soil Vapor	SS-9
COLLECTION DATE:		11/22/2022
VOCs in Air (ug/m3		
n-Hexane	200	**12900**
Benzene	60	**460**
Cyclohexane	60	**41300**
Heptane	200	**5000**
Tetrachloroethene	100	**384**
Ethylbenzene	60	**146**

SAMPLE ID:	NYSDOH Matrices Soil Vapor	SS-11
COLLECTION DATE:		11/22/2022
VOCs in Air (ug/m3		
Tetrachloroethene	100	**224**

SAMPLE ID:	NYSDOH Matrices Soil Vapor	SV-10	SV-DUP
COLLECTION DATE:		11/22/2022	11/22/2022
VOCs in Air (ug/m3			
n-Hexane	200	**335**	19.4
Tetrachloroethene	100	**199**	**161**

SAMPLE ID:	NYSDOH Matrices Soil Vapor	SV-12
COLLECTION DATE:		11/22/2022
VOCs in Air (ug/m3		
Tetrachloroethene	100	**113**

EXISTING 4 STORY BUILDING

VACANT

EXISTING 2 STORY BUILDING

EXISTING 2 STORY BUILDING

EXISTING 2 STORY BUILDING

EXISTING 1 STORY BUILDING

1 STORY BRICK BUILDING

VACANT

1 STORY BRICK

EXISTING 2 STORY BUILDING

EXISTING 1 STORY BUILDING

CELLAR

SS-9

SS-11

SV-10

SV-12

LEGEND

- PROPERTY LINE
- SOIL VAPOR SAMPLE LOCATION

PROJECT NORTH

0' 30' 60'

NOTES:

FIGURE 9: SOIL VAPOR CHEMISTRY RESULTS PLAN

251 Douglass Street
Brooklyn, New York

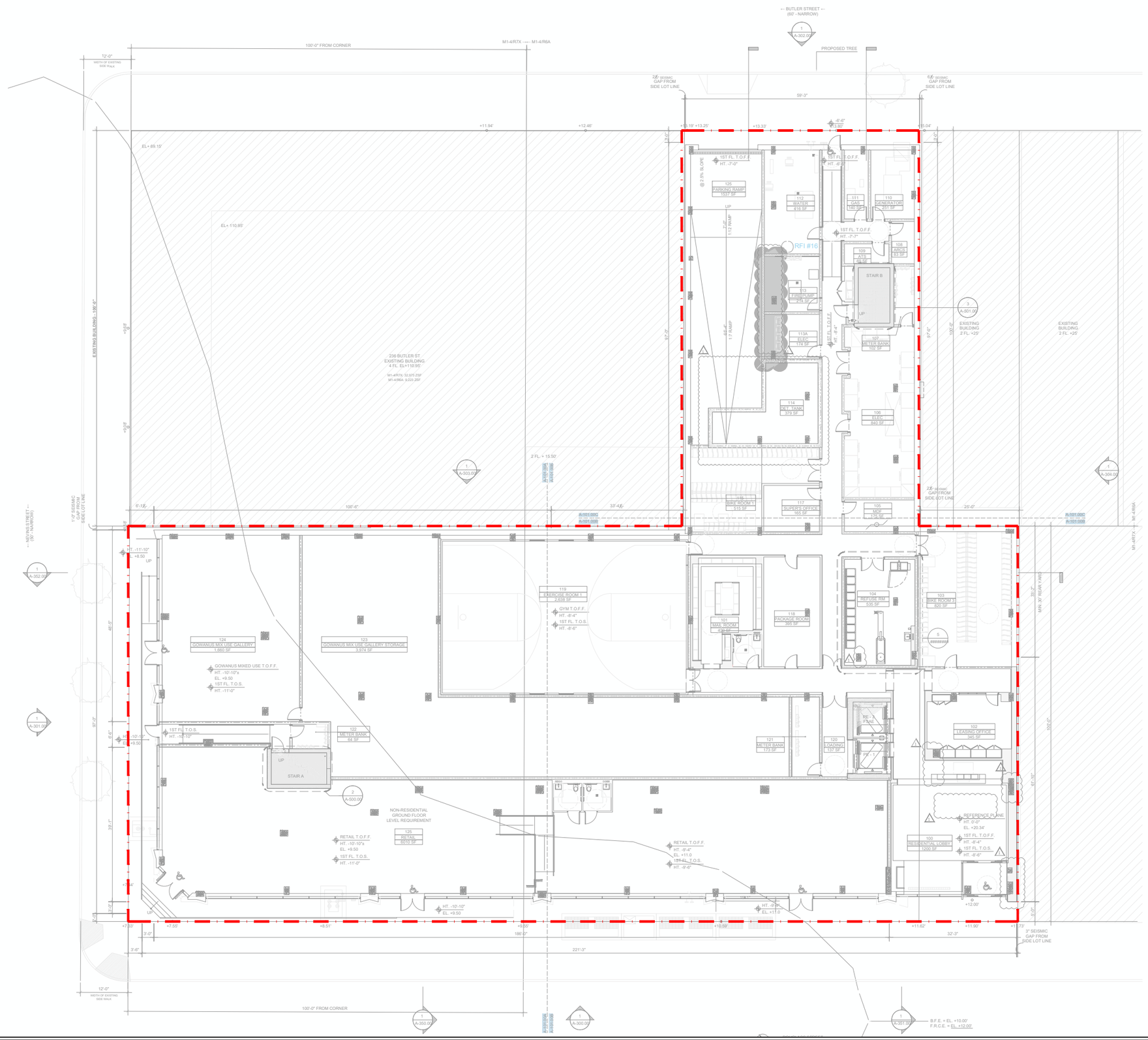
Figure No: 09

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	5/12/2025
SCALE:	1" = 30'

REVISIONS

IMPACT ENVIRONMENTAL

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599



LEGEND

PROPERTY BOUNDARY

PROJECT NORTH

0' 25' 50'

NOTES:
1. THE INSTITUTIONAL CONTROL BOUNDARY IS THE PROPERTY BOUNDARY

FIGURE 10: INSTITUTIONAL CONTROL BOUNDARY MAP

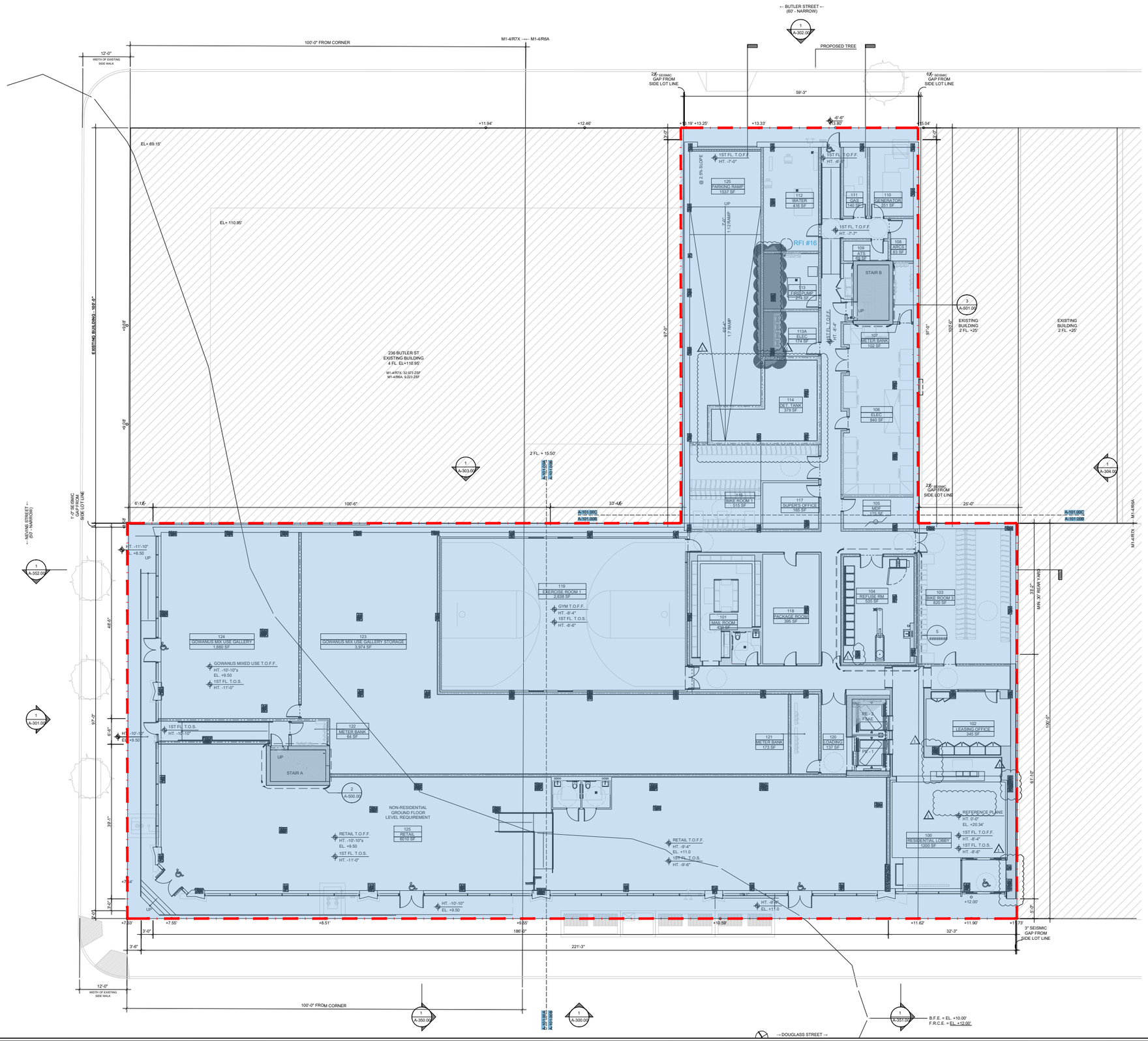
251 Douglas Street
Brooklyn, New York

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP/BJS
DATE:	5/15/2025
SCALE:	1" = 25'
REVISIONS	

STATE OF NEW YORK
BRADLEY JOHN SUMMERVILLE
091879
LICENSED PROFESSIONAL ENGINEER

IMPACT ENVIRONMENTAL

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599



LEGEND

- PROPERTY BOUNDARY
- SITE COVER SYSTEM (SEE NOTES)

PROJECT NORTH

0' 25' 50'

NOTES:
1. THIS COVER SYSTEM IS COMPRISED OF SIX (6) INCHES OF GRAVEL SUBBASE OVERLAIN BY 16–INCHES OF CONCRETE SLAB. THE MAT SLAB CONSISTS OF A MINIMUM OF 38 INCHES TO A MAXIMUM OF 50 INCHES AND IS ALSO UNDERLAIN BY SIX (6) INCHES OF GRAVEL SUBBASE WHICH EXTENDS LATERALLY INTO THE MAT SLAB FOUNDATION SYSTEM.

FIGURE 11: COVER SYSTEM

251 Douglas Street
Brooklyn, New York

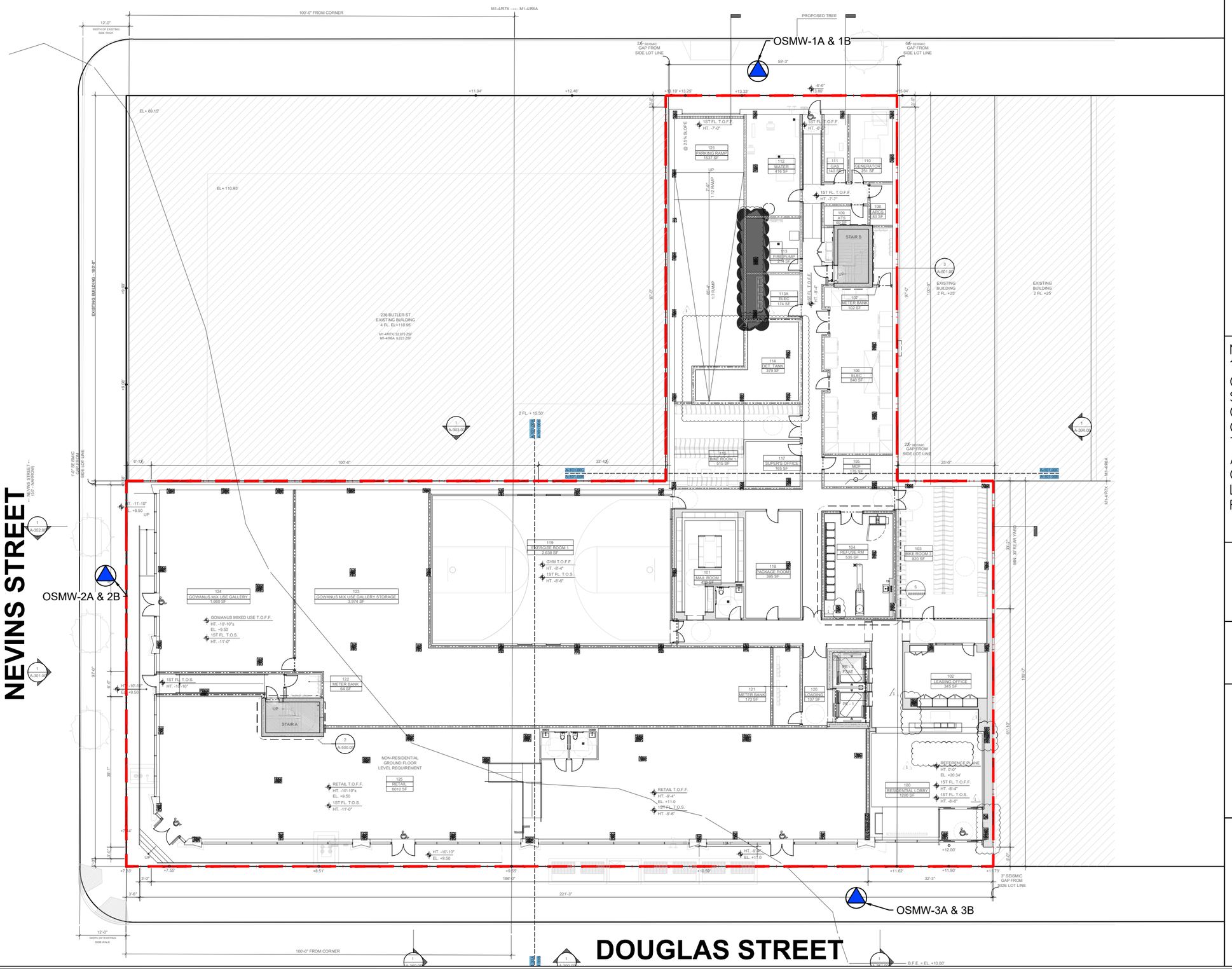
PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP/BJS
DATE:	5/15/2025
SCALE:	1" = 25'
REVISIONS	

STATE OF NEW YORK
BRADLEY JOHN SUMMERVILLE
091879
LICENSED PROFESSIONAL ENGINEER

IMPACT ENVIRONMENTAL

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599

BUTLER STREET



LEGEND

- PROPERTY BOUNDARY
- POST REMEDIAL GROUNDWATER MONITORING WELL LOCATIONS

PROJECT NORTH

0' 25' 50'

NOTES:
1. THIS COVER SYSTEM IS COMPRISED OF SIX (6) INCHES OF GRAVEL SUBBASE OVERLAIN BY 16-INCHES OF CONCRETE SLAB. THE MAT SLAB CONSISTS OF A MINIMUM OF 38 INCHES TO A MAXIMUM OF 50 INCHES AND IS ALSO UNDERLAIN BY SIX (6) INCHES OF GRAVEL SUBBASE WHICH EXTENDS LATERALLY INTO THE MAT SLAB FOUNDATION SYSTEM.

FIGURE 12: POST REMEDIAL GROUNDWATER MONITORING WELL LOCATIONS

251 Douglas Street
Brooklyn, New York

PROJECT NO.	13928-01
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	11/18/2025
SCALE:	1" = 25'

REVISIONS

IMPACT ENVIRONMENTAL

170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800
FAX (631) 269-1599

APPENDICES

251 Douglass Street, Brooklyn, NY

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

Appendix A

Environmental Easement

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument. The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

2025052700286001001E6C7F

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 11**

Document ID: 2025052700286001 Document Date: 05-21-2025 Preparation Date: 05-27-2025
Document Type: EASEMENT
Document Page Count: 10 Non-Standard Form Size

PRESENTER:
SIVE PAGET & RIESEL, P.C.
560 LEXINGTON AVENUE, 15TH FLOOR
NEW YORK, NY 10022
212-421-2150
NDUNCAN@SPRLAW.COM

RETURN TO:
SIVE PAGET & RIESEL, P.C.
560 LEXINGTON AVENUE, 15TH FLOOR
NEW YORK, NY 10022
212-421-2150
NDUNCAN@SPRLAW.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
BROOKLYN	412	50	Entire Lot	251 DOUGLASS STREET

Property Type: NON-RESIDENTIAL VACANT LAND Easement

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year____ Reel____ Page____ *or* File Number_____

PARTIES

GRANTOR/SELLER:
GOWANUS DOUGLASS STREET LLC
C/O: TAVROS HOLDINGS LLC, 19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

GRANTEE/BUYER:
PEOPLE OF NEW YORK BY DEPT. ENVIRONMENTAL CONSERVA
625 BROADWAY
ALBANY, NY 12233

FEES AND TAXES

Mortgage :		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	149.00
Affidavit Fee:	$	0.00

Filing Fee: $ 100.00
NYC Real Property Transfer Tax: $ 0.00
NYS Real Estate Transfer Tax: $ 0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 05-28-2025 10:29
City Register File No.(CRFN): **2025000142504**

City Register Official Signature

established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C224367-10-22, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting by and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Andrew O. Guglielmi, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 28th day of March, in the year 2025 before me, the undersigned, personally appeared Andrew O. Guglielmi, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

Cheryl A. Salem
Notary Public State of New York
Registration No. 01SA0002177
Qualified In Albany County
My Commission Expires March 3, 2027

Former Lot 15 (Parcel 2):

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at a point on the southerly side of Butler Street, distant 140 feet easterly from the corner formed by the intersection of the southerly side of Butler Street with the easterly side of Nevins Street;

RUNNING THENCE southerly parallel with Nevins Street, 100 feet;

THENCE easterly parallel with Butler Street, 60 feet;

THENCE northerly parallel with Nevins Street, 100 feet to the southerly side of Butler Street;

THENCE westerly along the southerly side of Butler Street, 60 feet to the point or place of BEGINNING.

Area: 5,999.96 square feet or 0.138 acres

Former Lot 51 (Parcel 3):

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at a point on the northerly side of Douglass Street, distant 100 feet easterly from the corner formed by the intersection of the southerly [*sic*] side of Douglass Street and the easterly side of Nevins Street;

RUNNING THENCE northerly parallel with Nevins Street, 100 feet;

THENCE easterly parallel with Douglass Street, 100 feet;

THENCE southerly parallel with Nevins Street, 100 feet to the northerly side of Douglass Street;

THENCE westerly along the northerly side of Douglass Street, 100 feet to the point or place of BEGINNING.

Area: 9,999.94 square feet or 0.230 acres

Former Lot 1 (Parcel 4):

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the northeasterly side of Douglass Street with the southeasterly side of Nevins Street;

THENCE northeasterly along the southeasterly side of Nevins Street, 100 feet;

THENCE southeasterly parallel with Douglass Street, 100 feet;

THENCE southwesterly parallel with Nevins Street, 100 feet to the northeasterly side of Douglass Street;

THENCE northwesterly along the northeasterly side of Douglass Street, 100 feet to the corner, the point or place of BEGINNING.

Area: 9,999.94 square feet or 0.230 acres

Appendix B

List of Contacts

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner: Gowanus Douglass Street LLC	(570)801-0489 pcaporaso@tavroscapital.com
Qualified Environmental Professional: Kevin Kleaka	(516)805-8892 kkleaka@impactenvironmental.com
Remedial Engineer: Brad Summerville	(856) 625-9229 bsummerville@impactenvironmental.com
NYSDEC DER Project Manager: Marnie DeLuke	(518) 402-3262 marnie.deluke@dec.ny.gov
NYSDEC DER Project Manager's Supervisor: Lisa Gorton	(518) 402-9574 lisa.gorton@dec.ny.gov
NYSDOH Project Manager: Jim Sullivan	(518) 402-5584 jim.sullivan@health.ny.gov
Remedial Party Attorney: Michael Bogin	(646) 378-7210 mbogin@sprlaw.com

Appendix C

Boring Logs

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglas Street	**SB-20**	
	Site Address: 251 Douglas Street		
	Weather: Clear, 32		
	Geologist: AK	Total Depth: 100'	
Start Date: 11/21/22	Drilling Company: PG	GW:	
Start Time: 9:35	Driller: Orlando	GPS Coordinates:	
Completion Date: 11/22/22	Drill Rig: 7822 DT	Northing: 187475.44	
Completion Time: 11:00	Sampler Type/Len: Macro Core	Easting: 988176.37	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-20 (0-2) 9:40	0-5	Dry	40''	Fill/SM	0-4: Crushed brick and gravel pieces, brown silty sand 4-5: Dark brown silt with some gravel, petroleum-like odors	
2	0.0							
3	0.0							
4	997.0							
5	1058.0	SB-20 (4-6) 945	5-10'	Wet	45''	Fill/SM	Gray-dark brown silt with trace clay, petroleum-like odors	
6	1087.0							
7	568.3							
8	211.4							
9	90.5							
10	87.3							
11	81.7		10-15'	Wet	35''	Fill/SM	Gray silt with gravel, petroleum-like odors	
12	70.2							
13	40.8							
14	95.0							
15	106.0							
16	905.3		15-20'	Wet	35''	CL/PT	Gray clay with root fragments and black organic matter, sulfur-like odor	
17	1057.0							
18	1283.0							
19	2431.0							
20	3400.0							
21	15000+		20-25'	Wet	45''	CL/PL	20-23 Organic matter, with abundant roots, sulfur-like odor 23-25: Gray homogenous clay	
22	15000+							
23	15000+							
24	175.0							
25	457.0							
26	228.7		25-30''	Wet	60''	CL	Brown to gray clay with trace silt	
27	439.4							
28	289.4							
29	141.3							
30	107.1							
31	347.0		30-35'	Wet	60''	CL/SM	Brown silty clay with coal tar blebs and naphthalene-like odor	
32	810.0							
33	282.0							
34	191.0							
35	264.0							
36	82.4		35-40'	Wet	60''	SM	Brown silt, fine sand, sheen, naphthalene-like odor	
37	64.8							
38	127.1							
39	201.0							
40	157.0							
41	220.0		40-45'	Wet	60''	SP	Brown fine to medium sand, sheen, naphthalene-like odor	
42	173.7							
43	180.1							
44	137,5							
45	121.2							
46	231.3		45-50'	Wet	60''	SP	Brown fine to medium sand, coal tar blebs, naphthalene-like odor	
47	178.4							
48	95.3							
49	211.1							
50	142.7							
51	64.7		50-55'	Wet	60''	SP	brown fine to medium sand, sheen, faint naphthalene-like odor	
52	65.8							
53	58.5							
54	10.6							
55	12.8							
56	223.4		55-60'	Wet	60''	SP	brown fine to medium sand, faint naphthalene-like odor	
57	12.7							
58	29.5							
59	6.4							
60	14.9							
61	14.6		60-65'	Wet	60''	SP	brown fine to medium sand	
62	10.3							
63	8.7							
64	3.5							
65	4.1							
66	24.1		65-70'	Wet	60''	SP	brown fine to medium sand	
67	9.7							
68	4.0							
69	1.4							
70	1.0							
71	10.2		70-75'	Wet	60''	SP	brown fine to medium sand	
72	5.5							
73	10.0							
74	3.4							
75	2.7							
76	2.3		75-80'	Wet	60''	SP	brown fine to medium sand, faint naphthalene-like odor	
77	8.1							
78	14.6							
79	7.5							
80	2.9							
81	9.2		80-85'	Wet	60''	SP	brown to gray fine to medium sand with some silt, faint naphthalene-like odor	
82	1.7							
83	1.4							
84	0.6							
85	1.2							
86	3.0		85-90'	Wet	60''	SP	brown to tan fine to medium sand	
87	2.9							
88	1.0							
89	2.7							
90	2.1							
91	1.0		90-95'	Wet	60''	SP	brown to gray fine to medium sand with trace silt	
92	3.0							
93	1.2							
94	2.0							
95	1.1							
96	2.9		95-100'	Wet	60''	SP	brown to gray fine to medium sand with trace silt	
97	1.7							
98	0.6							
99	0.3	SB-20 (98-100) 13:30						
100	0.6							
							End of boring at 100 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglas Street		
	Site Address: 251 Douglas Street	**SB-21**	
	Weather: Cloudy, 37		
	Geologist: AK	Total Depth: 100'	
Start Date: 11/17/22	Drilling Company: PG	GW:	
Start Time: 7:30	Driller: Orlando	GPS Coordinates:	
Completion Date:	Drill Rig: 7822 DT	Northing: 187428.48	
Completion Time:	Sampler Type/Len: Macro Core	Easting: 988238.82	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	72.6	SB-21 (0-2) 8:40	0-5	Wet	20"	Fill/SM	5" Concrete Brown silty sand with trace gravel	
2	163.7							
3	120.9							
4	103.7							
5	65.4							
6	80.1		5-10'	Wet	45"	Fill/SM	Brown silty sand with trace clay and gravel pieces	
7	14.5							
8	21.8							
9	23.8							
10	25.0	SB-21 (9-11) 10:00						
11	48.7		10-15'	Wet	50"	Fill/SM	Gray/dark brown silt with clay and gravel	
12	22.9							
13	26							
14	21.2							
15	18.4							
16	22.8		15-20'	Wet	50"	CL/PL	Gray clay with organic matter, roots	
17	25							
18	23.2							
19	18.9							
20	17.3							
21	-		20-25'	Wet	6"	SM/CL	Limited recovery. Gray silty clay	
22	-							
23	11.4							
24	-							
25	-							
26	680	SB-21 (25-27) 10:15	25-30"	Wet	60"	SP	25- 27' Brown medium to coarse sand 27-30' Gray silty sand and clay, naphthalene-like odor	
27	222.2							
28	85.2							
29	40							
30	28.7							
31	3,056		30-35'	Wet	45"	SP	Saturated coal tar in liner, matrix is brown fine to medium sand, naphthalene-like odor	
32	873							
33	1,030							
34	1,300							
35	1,600							
36	2,500		35-40'	Wet	40"	SP	Brown fine to medium sand, with coal tar blebs and naphthalene-like odor	
37	745.7							
38	947.1							
39	873.2							
40	581.6							
41	1,900		40-45'	Wet	60"	SP	Brown to tan fine to medium sand, sheen, naphthalene-like odor	
42	2,900							
43	10,868							
44	15,000+							
45	1,045							
46	40.3		45-50'	Wet	60"	SP	Brown fine to medium sand, naphthalene-like odor	
47	54.2							
48	645.1							
49	705							
50	358							
51	104.4		50-55'	Wet	60"	SP	Brown fine to medium sand, sheen, naphthalene-like odor	
52	64							
53	94.6							
54	89.5							
55	81.3							
56	185.4		55-60'	Wet	60"	SP	Brown fine to medium sand, sheen, naphthalene-like odor	
57	515.7							
58	230							
59	56.4							
60	864							
61	3,337		60-65'	Wet	60"	SP	Brown fine to medium sand, trace silt	
62	2,359							
63	4,222							
64	3,861							
65	2,945							
66	388.3		65-70'	Wet	60"	SP	Brown fine to medium sand, sheen, naphthalene-like odor	
67	244.5							
68	80							
69	5.5							
70	34.2							
71	152.2		70-75'	Wet	60"	SP	Brown fine to medium sand, sheen, faint naphthalene-like odor	
72	16.7							
73	6.8							
74	10.4							
75	12.7							
76	60.2		75-80'	Wet	60"	SP	Brown fine to medium sand, trace sheen, faint naphthalene-like odor	
77	138.6							
78	84.7							
79	96.5							
80	104							
81	95		80-85'	Wet	60"	SM	Gray silty sand	
82	56.4							
83	240.8							
84	6							
85	0							
86	72.2		85-90'	Wet	60"	SM	Gray silty sand, trace sheen, faint naphthalene-like odor	
87	105							
88	18.6							
89	24.1							
90	3.2							
91	0		90-95'	Wet	20"	SM	Gray silty sand	
92	0							
93	0							
94	0							
95	0							
96	0		95-100'	Wet	60"	SM	Gray silty sand	
97	0							
98	0							
99	0	SB-21 (98-100) 9:50						
100							End of boring at 100 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

	Project #: 13928	**Boring ID:**
	Site/Project Name: 251 Douglas Street	
	Site Address: 251 Douglas Street	**SB-22**
	Weather: Sunny, 32	
	Geologist: AK	Total Depth: 25'
Start Date: 11/21/22	Drilling Company: PG	GW:
Start Time: 9:50	Driller: Orlando	GPS Coordinates:
Completion Date: 11/21/22	Drill Rig: 7822 DT	Northing: 187408.1
Completion Time: 10:15	Sampler Type/Len: Macro Core	Easting: 988162.66

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-22 (0-2) 10:05	0-5	Moist	25''	Fill/SM	brown silty sand and abundant gravel, trace slag	
2	0.0							
3	0.0							
4	0.0							
5	0.0	SB-22 (4-6) 10:10						
6	0.0		5-10'	Wet	45''	Fill/SM	gray to brown silty sand with abundant gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15'	Wet	40''	SP/SM	10-12: Brown fine sand 12-15: brown silty sand with wood/roots, meadow mat	
12	25.0							
13	29.8							
14	30.7							
15	0.0							
16	0.0							
17	6.8		15-20'	Wet	50''	CL	gray clay with root fragments at 20', peaty, faint petroleum-like odor	
18	12.4	SB-22 (18-20) 10:20						
19	300.3							
20	9.0							
21	69.9							
22	43.7		20-25'	Wet	60''	CL	gray clay with root fragments	
23	17.8							
24	13.1							
25								
							End of boring at 25 feet	

SOIL BORING LOG

Impact Environmental
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

	Project #: 13928	**Boring ID:**
	Site/Project Name: 251 Douglas Street	
	Site Address: 251 Douglas Street	**SB-23**
	Weather: Clear, 32	
	Geologist: AK	Total Depth: 20'
Start Date: 11/22/22	Drilling Company: PG	GW:
Start Time: 13:35	Driller: Orlando	GPS Coordinates:
Completion Date: 11/22/22	Drill Rig: 7822 DT	Northing: 187389.36
Completion Time: 14:00	Sampler Type/Len: Macro Core	Easting: 988196.27

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-23 (0-2) 13:40	0-5	Dry	40''	Fill/SM	3'' Concrete Brown silty sand with gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10'	Wet	35''	Fill/SM	Dark brown silty sand with abundant gravel	
7	1.0							
8	57.8	SB-23 (8-10) 13:45						
9	372.9							
10	N/A		10-15'	N/A	0''	No Recovery	No Recovery	
11	N/A							
12	N/A							
13	N/A							
14	N/A							
15	7.7		15-20'	Wet	60''	CL	Dark Gray Clay	
16	31.8							
17	2.8							
18	1.9	SB-23 (18-20) 13:50						
19	1.1							
20								*SB-Dup 2 MS/MSD
							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglas Street	**SB-24**	
	Site Address: 251 Douglas Street		
	Weather: Sunny, 45		
	Geologist: AK	Total Depth: 115'	
Start Date: 11/15/22	Drilling Company: PG	GW:	
Start Time: 11:05	Driller: Orlando	GPS Coordinates:	
Completion Date: 11/16/22	Drill Rig: 7822 DT	Northing: 187390.14	
Completion Time: 14:30	Sampler Type/Len: Macro Core	Easting: 988253.01	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-24 (0-2) 8:40	0-5	Moist	60"	Fill/SM	Brown to dark brown silt with crushed brick, little gravel, trace sand	SB-21 (0-2') 835
	0.0							
2	0.0							
3	0.0							
4	0.0							
5	0.0		5-10'	Wet	60"	Fill/SM	5-7': Crushed brick, plastic pieces, little gravel 7-9': Brown fine to medium silty sand 9-10': Dark gray silt with trace sand	
6	0.0							
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15'	Wet	60"	SM/CL/PL	Dark brown silt and organic matter	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20'	Wet	60"	CL/SM/PL	Gray-dark gray clay with silt 19-20': shell pieces, organic matter	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25'	Wet	60"	CL	Gray clay	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30'	Wet	60"	CL/SM	Brown to gray clay with some silt	
26	0.0							
27	0.0							
28	0.0							
29	3.6							
30	30.8		30-35'	Wet	60"	SM	Brown fine to medium silt with sand	
31	75.5							
32	134.2							
33	104.3	SB-24 (33-35) 11:50						
34	722.0							
35	85.4		35-40'	Wet	60"	SP	Gray-light brown fine to medium sand with trace silt, saturated coal tar, naphthalene-like odor	
36	191.6							
37	163.6							
38	397.8							
39	494.4							
40	64.5		40-45'	Wet	60"	SP/SM	Brown fine to medium sand with silt, coal tar blebs, naphthalene-like odor	
41	165.8							
42	340.0							
43	875.0							
44	104.6							
45	94.6		45-50'	Wet	60"	SP/SM	Brown fine to medium sand with silt, coal tar blebs, naphthalene-like odor	
46	64.3							
47	21.4							
48	68.2							
49	55.7							
50	12.5		50-55'	Wet	60"	SP/SM	Brown fine to medium sand with silt	
51	11.8							
52	15.2							
53	17.0							
54	1.5							
55	171.5		55-60'	Wet	60"	SP	Brown fine to medium sand	
56	131.7							
57	104.2							
58	98.5							
59	251.8							
60	305.1		60-65'	Wet	60"	SP	Brown fine to medium sand, trace silt, sheen, naphthalene-like odor	
61	485.7							
62	349.9							
63	311.2							
64	51.5							
65	47.1		65-70'	Wet	60"	SP	Brown fine to medium sand, trace silt, naphthalene-like odor	
66	87.9							
67	95.0							
68	107.3							
69	263.4							
70	364.8		70-75'	Wet	60"	SP	Brown fine to medium sand, trace silt, coal tar blebs, naphthalene-like odor	
71	532.7							
72	408.2							
73	371.3							
74	435.5							
75	454.3		75-80'	Wet	60"	SP	Brown fine to medium sand, trace silt, coal tar blebs, naphthalene-like odor	
76	330.6							
77	374.5							
78	216.4							
79	280.7							
80	727.0		80-85'	Wet	60"	SP	Brown fine to medium sand, sheen, naphthalene-like odor	
81	219.4							
82	100.1							
83	115.3							
84	99.4							
85	35.7		85-90'	Wet	60"	SP	Light brown fine to medium sand	
86	33.5							
87	41.2							
88	54.6							
89	36.0							
90	40.1		90-95'	Wet	60"	SP	Light brown fine to medium sand	
91	285.0							
92	82.5							
93	35.6							
94	45.3							
95	45.7		95-100'	Wet	60"	SP	Light brown fine to medium sand, sheen, naphthalene-like odor	
96	80.9							
97	150.3							
98	67.3							
99	70.4							
100	254.0		100-105'	Wet	60"	SP	Brown fine to coarse sand, sheen, naphthalene-like odor	
101	21.8							
102	32.7							
103	23.5							
104	14.3							
105	*		105-110'	Wet	60"	SP	Brown fine to coarse sand	*no pid readings where saturated with water
106	*							
107	*							
108	5.0							
109	0.0							
110	*		110-115'	Wet	60"	SP	Brown fine to coarse sand	*no pid readings where saturated with water
111	*							
112	13.0							
113	15.0	SB-24 (113-115) 14:30						
114	25.0							
115							End of boring @ 115 Feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglas Street		
	Site Address: 251 Douglas Street	**SB-25**	
	Weather: Sunny, 41		
	Geologist: AK	Total Depth: 98'	
Start Date: 11/14/22	Drilling Company: PG	GW:	
Start Time: 9:00	Driller: Orlando	GPS Coordinates:	
Completion Date: 11/15/22	Drill Rig: 7822 DT	Northing: 187424.75	
Completion Time: 10:30	Sampler Type/Len: Macro Core	Easting: 988288.43	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0	SB-25 (0-2) 9:55	0-5	Moist	60"	Fill/SM	5" Gravel fill Brown-dark brown silty sand with trace gravel and crushed brick	SB-25 (0-2") 9:45
2	0							
3	0							
4	0							
5	0							
6	0		5-10'	Wet	60"	Fill/SM	Brown silty sand with trace to little clay 8-10' compact silt with trace crushed brick	
7	0							
8	0							
9	0							
10	0							
11	0		10-15'	Wet	60"	Fill/SM/ CL	10-12': Brown silt with clay 12-15': Gray to dark brown silt with trace clay, some gravel 14.5-15': Dark drown organic silty clay with wood pieces	
12	0							
13	0							
14	0							
15	0							
16	0		15-20'	Wet	60"	SM/CL	Gray silt with some clay, transistions to gray clay	
17	0							
18	0							
19	0							
20	0							
21	0		20-25'	Wet	60"	CL	Gray homogeneous clay	
22	0							
23	0							
24	0							
25	0							
26	0		25-30"	Wet	60"	CL/SP	Gray clay with silt 29-30' Gray fine to medium sand	
27	0							
28	0							
29	0							
30	84		30-35'	Wet	60"	CL	30-32': Gray clay with silt and sand Gray clay with saturated coal tar, naphthalene-like odor	
31	220							
32	112							
33	280	SB-25 (33-35) 11:00						
34	161							
35	134		35-40'	Wet	60"	CL	Saturated coal tar in a gray clay/silt matrix, naphthalene-like odor	
36	230							
37	217							
38	191							
39	364							
40	*		40-45'	Wet	60"	SM/CL	Gray clay and silt, sheen and trace coal tar blebs, naphthalene-like odor	*no PID readings, liner saturated with water
41	*							
42	532							
43	306							
44	311							
45	*		45-50'	Wet	60"	SM/CL	Gray brown clay and silt	*no PID readings, liner saturated with water
46	431							
47	60.7							
48	4.3							
49	5							
50	79.2		50-55'	Wet	60"	SP/SM	Brown fine to medium sand and silt, sheen, naphthalene-like odor	
51	52.3							
52	53.4							
53	22.7							
54	21.5							
55	32.6		55-60'	Wet	60"	SP	Gray fine to coarse sand, sheen and naphthalene-like odor at 55-57	
56	62.7							
57	52.2							
58	183.4							
59	164.1							
60	217		60-65'	Wet	60"	SP	Brown fine to coarse sand, sheen, naphthalene-like odor	
61	107							
62	499							
63	6							
64	6							
65	756.2		65-70'	Wet	60"	SP	Saturated with coal tar, matrix is fine to coarse sand	
66	308.4							
67	307.6							
68	450.3							
69	411.7							
70	21.8		70-75'	Wet	60"	SP	Brown to tan fine to coarse sand, trace sheen, faint naphthalene-like odor	
71	160.4							
72	170.4							
73	33.4							
74	34							
75	32.1		75-80'	Wet	60"	SP	Tan fine to coarse sand, faint naphthalene-like odor	
76	27.3							
77	75.2							
78	16							
79	1.5							
80	5.1		80-85'	Wet	60"	SP	Tan fine to coarse sand	
81	0.5							
82	0.3							
83	0.1							
84	3.7							
85	1.2		85-90'	Wet	60"	SP	Tan fine to coarse sand	
86	0.9							
87	0							
88	0							
89	0							
90	0		90-95'	Wet	60"	SP	Tan fine to coarse sand	
91	0							
92	0							
93	0							
94	0							
95	0		95-98'	Wet	60"	SP	Tan fine to coarse sand, refusal at 98' due to boulder	
96	0	SB-25 (96-98) 10:30						
97	0							
98							End of boring at 98 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglas Street	**SB-26**	
	Site Address: 251 Douglas Street		
	Weather: Clear, 32 WSW 9.9		
	Geologist: AK	Total Depth: 15'	
Start Date: 11/18/22	Drilling Company: PG	GW:	
Start Time: 10:00	Driller: Orlando	GPS Coordinates:	
Completion Date: 11/18/22	Drill Rig: 7822 DT	Northing: 187333.93	
Completion Time: 10:30	Sampler Type/Len: Macro Core	Easting: 988344.03	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-26 (0-2) 10:15	0-5	Dry	30''	Fill/SP	3'' concrete	
2	0.0						0-2: brown fine to medium sand, trace gravel	
3	0.0			Moist		Fill/SM	2-5: dark brown silty sand with gravel	
4	0.0							
5	0.0	SB-26 (4-6) 10:20	5-10'	Wet	40''	Fill/SM	brown to dark brown silt with trace sand, abundant gravel	
6	0.0							
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15'	Wet	60''	Fill/SM	dark brown silty sand, little clay, abundant gravel	
12	25.0							
13	29.8	SB-26 (13-15) 10:25						
14	30.7							
15							End of boring at 15 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599		Project #: 13928 Site/Project Name: 251 Douglas Street Site Address: 251 Douglas Street Weather: Clear, 32 WSW 9.9	**Boring ID:** **SB-27**
		Geologist: AK	Total Depth: 15'
Start Date: 11/21/22		Drilling Company: PG	GW:
Start Time: 9:00		Driller: Orlando	GPS Coordinates:
Completion Date: 11/21/22		Drill Rig: 7822 DT	Northing: 187431.57
Completion Time: 9:25		Sampler Type/Len: Macro Core	Easting: 988372.80

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-27 (0-2'') 12:35 (0-2') 12:40	0-5	Dry	60''	Fill/SM	gravel and crushed brick, large cobbles, dark brown silty sand	
	0.0							
2	0.0							
3	0.0							
4	0.0							
5	0.0		5-10'	Wet	60''	Fill/SP	5-7.5: dark brown silty sand, gravel fill, trace slag 7.5-10: tan fine to medium sand with trace silt	
6	0.0							
7	0.0							
8	0.0							
9	0.0							
10	0.0	SB-27 (10-12) 12:50	10-15'	Wet	60''	Fill/SM	10-12: brown silt with some clay 12-15: dark gray silty sand with grave; fill, large cobble	*no odors
11	0.0							
12	81.3/ 20.1*							
13	0.0	SB-27 (13-15) 12:55						
14	0.0							
15							End of boring at 15 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglas		
	Site Address: 251 Douglas	**SB-28**	
	Weather: 37		
	Geologist: AK	Total Depth: 100'	
Start Date: 11/29/22	Drilling Company: PG	GW:	
Start Time: 10:30	Driller: Orlando	GPS Coordinates:	
Completion Date: 11-30-33	Drill Rig: 7822 DT	Northing: 187482.11	
Completion Time: 3:00	Sampler Type/Len: Dual Tube	Easting: 988392.03	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0		0-5'	Moist	40"	Fill/SM	Dark brown sand and crushed brick.	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5'-`0'	Wet	60"	Fill/SM	5'-9': Crushed brick with trace poorly sorted sands 9-10': Gray silty-sand	
7	0.0							
8	0.0							
9	32.1							
10	842.0							
11	1132.0		10'-15'	Wet	50"	CL	Gray clay with trace silt, petroleum-like odor	
12	82.4							
13	22.4							
14	68.7							
15	22.4							
16	31.6		15'-20'	Wet	40"	Fill/SM	15'-19': Gravel and crushed brick, some gray silt 19'-20: Gray silt and clay	
17	22.7							
18	17.5							
19	13.1							
20	23.1							
21	4.1		20'-25'	Wet	8"	CL	Gray silt and clay. Limited recovery	
22	7.7							
23	17.2							
24	4.0							
25	5.3							
26	4.8		25'-30'	Moist	50"	CL/PT	25'-26': Dark gray silt and clay with meadow mat 26'-29': Dark grey compacted clay 29'-30': Light gray compact clay	
27	5.1							
28	13.7							
29	9.4							
30	7.5							
31	10.4		30'-35'	Wet	60"	SP/SM	30'-32': Gray sand and silt 32'- 35': Brown moderately compact sand	
32	12.7							
33	31.4							
34	47.5							
35	63.1							
36	273.0		35'-40'	Wet	60"	SP/SM	35'-37.5': Brown fine sand and silt with coal tar blebs and naphalene-like odors	
37	425.0							
38	250.0					SP	37.5'-40': Brown medium sand, napthalene-like odors	
39	175.0	SB-28 (38'-40') at 1135						
40	211.0							
41	4.2		40'-45'	Wet	60'	SP	Brown fine sand, homogenous	
42	8.7							
43	12.3							
44	11.1							
45	5.4							
46	0.0		45'-50'	Wet	60'	SM	Brown silt, homogenous	
47	0.0							
48	0.0							
49	0.0							
50	0.0							
51	0.0		50'-55'	Wet	60'	SM	Brown silt, homogenous.	
52	1.3							
53	2.0							
54	1.0							
55	0.0							
56	0.0		55'-60	Wet	60'	SP	Brown fine-medium sand, homogenous.	
57	0.0							
58	0.0							
59	0.0							
60	0.0							
61	0.0		60'-65'	Wet	60'	SP	Brown fine-medium sand, homogenous.	
62	0.0							
63	0.0							
64	0.0							
65	0.0							
66	0.0		65'-70'	Wet	60'	SP	Brown fine-medium sand, homogenous.	
67	0.0							
68	0.0							
69	0.0							
70	0.1							
71	0.3		70'-75'	Wet	60'	SP	Brown fine-medium sand, homogenous.	
72	0.0							
73	0.0							
74	0.0							
75	0.0							
76	0.0		75'-80'	Wet	60'	SP	75'-79': Brown fine-medium sand, homogenous.	
77	0.0							
78	0.0							
79	0.0						79'-80': Brown fine sand with trace silt.	
80	0.0		80'-85'	Wet	60'	SP	Brown fine sand with silt	
81	0.0							
82	0.0							
83	0.0							
84	0.0							
85	0.0		85'-90'	Wet	60'	SP	Brown fine sand with silt	
86	0.0							
87	0.0							
88	0.0							
89	0.0							
90	0.0		90'-95''	Wet	60'	SP	Brown fine sand with silt	
91	0.0							
92	0.0							
93	0.0							
94	0.0							
95	0.0		95'-100'	Wet	60'	SP	Brown fine sand	
96	0.0							
97	0.0							
98	0.0							
99	0.0							
100							End of boring at 100 feet	

SOIL BORING LOG

Impact Environmental 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599		Project #: 13928 Site/Project Name: 251 Douglas Street Site Address: 251 Douglas Street Weather: Clear, 32 WSW 9.9	**Boring ID:** **SB-29**
		Geologist: AK	Total Depth: 15'
Start Date: 11/21/22		Drilling Company: PG	GW:
Start Time: 9:00		Driller: Orlando	GPS Coordinates:
Completion Date: 11/21/22		Drill Rig: 7822 DT	Northing: 187358.56
Completion Time: 9:25		Sampler Type/Len: Macro Core	Easting: 988316.17

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0	SB-22 (0-2) 10:05	0-5	Dry	60''	Fill	crushed brick and gravel, tan to brown fine silty sand	
2	0.0							
3	0.0							
4	0.0							
5	0.0	SB-22 (4-6) 10:10	5-10'	Wet	60''	Fill/SM	crushed brick, gray to dark brown silt with clay	
6	0.0							
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15'	Wet	60''	SM/CL	gray to dark brown silt with clay	
11	0.0							
12	25.0							
13	29.8	SB-29 (13-15) 9:15						
14	30.7							
15							End of boring at 15 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

	Project #: 13928	**Boring ID:**
	Site/Project Name: 251 Douglas	
	Site Address: 251 Douglas	**GW-8**
	Weather: Clear 37 - W 13mph	
	Geologist: AK	Total Depth: 110'
Start Date: 12/1/22	Drilling Company: PG	GW:
Start Time: 7:00	Driller: Orlando	GPS Coordinates:
Completion Date: 14:00	Drill Rig: 7822 DT	Northing: 187351.44
Completion Time: 12/2/2022	Sampler Type/Len: Dual Tube	Easting: 988279.42

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	Notes
1	0.0		0-5'	Dry	50"	Fill/SM	Brown-dark brown silty sand with brick and gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10'	Wet	55"	Fill/SM	Tan to dark brown silty sand with gravel and trace brick	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15'	Wet	30"	SM	Dark gray silty sand with trace gravel	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20'	Wet	60"	CL	Gray clay, low plasticity, homogenous	
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25'	Wet	24"	CL	Gray clay with trace sand, homogenous	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30"	Wet	60"	CL	25-28': Gray clay 28'-29': Roots	
26	0.0							
27	0.5							
28	1.2							
29	3.8							
30	-		30-35'	Wet	60"	SP	Brown fine sand, homogoneous	30-33 was too saturated to obtain PID readings
31	-							
32	-							
33	6.8							
34	7.3							
35	650.0		35-40'	Wet	60"	SP/SM	Brown fine sand and silt with coal tar	
36	475.0							
37	173.0							
38	211.0							
39	195.0							
40	774.0		40-45'	Wet	60"	SP	Brown fine sand with saturated coal from 40'-42'	
41	900.0							
42	890.0							
43	564.0							
44	683.0							
45	25.0		45-50'	Wet	20"	SP	Brown fine sand with silt, trace blebs	
46	47.1							
47	15.3							
48	8.2							
49	12.9							
50	1.5		50-55'	Wet	60"	SP	Fine brown sand	
51	-							
52	0.7							
53	-							
54	2.1							
55	19.8		55-60'	Wet	60"	SP	55'-59': Brown fine sand with sheen and napthalene-like odor 59'-60': Sheen and faint napthalene-like odors	
56	23.7							
57	20.4							
58	30.1							
59	173.2							
60	5.6		60-65'	Wet	60"	SP	Brown fine sand	
61	3.2							
62	4.2							
63	4.7							
64	6.8							
65	45.3		65-70'	Wet	60"	SP	Brown poorly graded sand, faint napthalene-like odors	
66	37.6							
67	20.1							
68	23.2							
69	7.8							
70	5.1		70-75'	Wet	60"	SP	Brown poorly graded sand	
71	2.8							
72	1.5							
73	0.5							
74	1.2							
75	43.8		75-80'	Wet	60"	SP	Brown fine poorly graded sand, faint napthalene-like odors and sheen	
76	41.3							
77	19.2							
78	21.5							
79	18.7							
80	5.7		80-85'	Wet	60"	SP	Brown fine sand	
81	3.2							
82	6.8							
83	4.9							
84	3.1							
85	15.3		85-90'	Wet	60"	SP	Brown fine sand	
86	1.2							
87	3.8							
88	4.9							
89	12.7							
90	25.1		90-95'	Wet	60"	SP	Brown fine sand, coal tar blebs, napthalene-like odors	
91	37.8							
92	24.9							
93	32.6							
94	21.1							
95	0.0		95-100'	Wet	60"	SP	Brown fine to medium sand	GW-8 95'-97' @ 11:35
96	1.1							
97	2.3							
98	0.7							
99	2.5							
100	2.1		100-105'	Wet	60"	SP	Brown fine to medium sand	
101	18.2							
102	13.7							
103	7.1							
104	12.8							
105	6.7		105-110'	Wet	60"	SP	Brown coarse sand	
106	0.0							
107	0.1							
108	0.3							
109	0.2							
110							End of boring at 110 feet	

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928 Site/Project Name: 251 Douglass Street Site Address: 251 Dougalss Street Weather: Overcast 33 Geologist: AK	**Boring ID:** **DB-1** Total Depth: TBD	
Start Date: 2/8/23 Start Time: 11:20 Completion Date: Completion Time:	Drilling Company: PG Driller: Orlando Drill Rig: 7822 DT Sampler Type/Len: Dual tube	GW: 10-12 GW Stabilized: N/A GPS Coordinates: X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	50	Fill/ML	0-1 Dark brown silty sand 1-2 Concrete 2-4 Brown silty sand and gravel 4-5 brown silt, tile pieces	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	13	Fill/ML	Limited recovery, Brown silt with abundant gravel, tile pieces	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	55	ML CL	10-11 Brown silty clay, loose, little gravel 11-15 gray clay, trace gravel	
12	0.0							
13	0.0							
14	0.0							
15	-		15-20	N/A	0	N/A	No recovery	
16	-							
17	-							
18	-							
19	-							
20	1.9		20-25	Wet	60	CL	20-23 Dark gray clay 23-25 gray/blue clay	
21	5.2							
22	4.7							
23	0.7							
24	0.1							
25	1,7		25-30	Wet	60	CL	25-27Gray clay 27-28 Gray silty clay, with lense of fine sand 1" 28-29 Gray clay 29-30 Brown fine sand	
26	20.0							
27	40.0							
28	32.0							
29	30.2							
30	15.0		30-35	Wet	60	ML	30-33 Brown silt 33-35 Brown silt and fine sand Outside of the liner is coated in Coal Tar	
31	22.0							
32	35.0							
33	84.0							
34	105.0							
35	387.0	DB-1 35-37	35-40	Wet	60	SP	Coal Tar, blebs, odors, brown fine sand liner is coated/stained	
36	342.0							
37	285.0							
38	226.0							
39	141.0							
40	2947.0		40-45	Wet	60	SP	40-43 Fully saturated in coal tar, fine sand 43-45 Brown fine sand	
41	3000.0							
42	2684.0							
43	1320.0							
44	845.0							
45	267.0		45-50	Wet	60	SP	Liner coated in coal tar, pocket of saturated/pure Coal tar at 48', Sheen above and below, Brown fine sand,heavily stained 49-50, strong odors	
46	185.0							
47	203.0							
48	647.0							
49	894.0							
50	34.0	DB-1 50-52	50-55	Wet	60	SP	Brown fine sand	
51	4.9							
52	7.2							
53	6.4							
54	8.7							
55	1.2		55-60	Wet	60	SP	Brown fine sand	
56	1.0							
57	0.7							
58	0.5							
59	0.4							
60	0.0		60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	5.2		75-80	Wet	60	SP	Brown fine sand, limited odors	
76	8.7							
77	24.3							
78	15.2							
79	5.4							
80	19.6		80-85	Wet	60	SP	Brown fine sand	
81	24.9							
82	25.7							
83	26.3							
84	17.8							
85	5.2		85-90	Wet	60	SP	Brown fine sand	
86	1.0							
87	0.6							
88	0.0							
89	0.0							
90	0.0		90-95	Wet	60	SP	Brown fine sand	
91	0.0							
92	0.0							
93	0.0							
94	0.0							
95	0.0		95-100	Wet	60	SP	Brown fine-medium sand	
96	0.0							
97	0.0							
98	0.0							
99	0.0							
100							End of boring at 100 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Douglass Street	**DB-2**	
	Weather: Clear, 40s SSW 6		
	Geologist: AK	Total Depth: 80	
Start Date: 3/20/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/20/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0							
	0.0							
2	0.0		0-5	Dry	30	Fill/ML	Brown silty sand and gravel, concrete	
3	0.0							
4	0.0							
5	0.0							
6	0.0							
7	0.0		5-10	Moist	40	Fill/ML	Brown silty sand and gray silty gravel	
8	0.0							
9	0.0							
10	0.0							
11	0.0							
12	0.0		10-15	Wet	50	Fill/ML	gray silty gravel	
13	0.0							
14	0.0							
15	0.0							
16	0.0							
17	0.0		15-20	Wet	4	Fill/ML	little recovery, gravel	
18	0.0							
19	0.0							
20	0.0							
21	0.0							
22	0.0		20-25	N/A	0	N/A	No recovery	
23	0.0							
24	0.0							
25	0.0							
26	0.0							
27	0.0		25-30	Wet	60		Dark gray to gray/blue clay	
28	0.0							
29	0.0							
30	0.0							
31	0.0						30-32 Brown clay	
32	52.3						brown sand with cobbles 32-34	
33	89.7	DB-2 33-35	30-35	Wet	60	SP	saturated in coal tar 34-35	
34	243.6							
35	-							
36	-							
37	-		35-40	Wet	30	SP	inside liner is fully coated but no matrix recovery first 30"	
38	426.0						Brown silty sand saturated in coal tar	
39	382.0							
40	241.0							
41	192.0							
42	205.0		40-45	Wet	60	SP	Brown fine sand, blebs, sheen, odors	
43	157.0							
44	186.0							
45	0.0	DB-2 45-47						
46	0.0							
47	0.0		45-50	Wet	60	SP	Brown fine sand	
48	0.0							
49	0.0							
50	0.0							
51	0.0							
52	0.0		50-55	Wet	60	SP	Brown fine sand	
53	0.0							
54	0.0							
55	439.0							
56	297.0							
57	321.0	DB-2 57-59	55-60	Wet	60	SP	Brown fine sand, saturated in coal tar	
58	432.0							
59	198.0							
60	64.3	DB-2 60-62						
61	58.7							
62	32.3		60-65	Wet	60	SP	Brown fine sand, odors	
63	51.0							
64	48.2							
65	0.0							
66	0.0							
67	0.0		65-70	Wet	60	SP	Brown fine sand	
68	0.0							
69	0.0							
70	0.0							
71	0.0							
72	0.0		70-75	Wet	60	SP	Brown fine sand	
73	0.0							
74	0.0							
75	0.0							
76	0.0							
77	0.0		75-80	Wet	60	SP	Brown fine sand	
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-3**	
	Weather: Clear, 40s SSW 6		
	Geologist: AK	Total Depth: 90	
Start Date: 3/14/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/15/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Brown silty sand and gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Crushed brick, Tan-brown loose silt, and gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	50	Fill/ML	Gray to dark gray loose silt and gravel, 10-14 gray clay, 14-15	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20	Moist	60	CL	Gray clay	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0		20-25	Wet	60	CL	Gray clay	
22	0.0							
23	0.0							
24	0.0							
25	-							
26	-		25-30	N/A	N/A	N/A	No recovery	
27	-							
28	-							
29	-							
30	0.0							
31	0.0		30-35	Wet	60	SP	Brown fine sand	
32	0.0							
33	0.0							
34	0.0							
35	203.4	DB-3 35-37	35-40	Wet	60	SP	Brown fine sand with an interval of fully saturated coal tar at 36'	
36	189.7							
37	452.3							
38	321.9							
39	121.4							
40	45.3	DB-3 40-42*	40-45	Wet	60	SP	Brown fine sand, trace sheen	**QAQC 4th round Parent sample
41	21.8							
42	17.2							
43	54.5							
44	68.2							
45	14.3		45-50	Wet	60	SP	Brown fine sand	
46	21.3							
47	13.2							
48	17.9							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	847.0	DB-3 55-57	55-60	Wet	60	SP	Moderately saturated brown fine sand	
56	637.0							
57	951.0							
58	832.0							
59	769.0							
60	102.4	DB-3 60-62	60-65	Wet	60	SP	Brown fine sand, odors	
61	98.3							
62	121.0							
63	145.0							
64	109.6							
65	42.3		65-70	Wet	60	SP	Brown fine sand, trace sheen (likely drawdown)	
66	17.5							
67	5.1							
68	0.0							
69	0.0							
70	1.2		70-75	Wet	60	SP	Brown fine sand, trace sheen (likely drawdown)	
71	3.8							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand, trace sheen (likely drawdown)	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80	0.0		80-85	Wet	60	SP	Brown fine sand	
81	0.0							
82	0.0							
83	0.0							
84	0.0							
85	0.0		85-90	Wet	60	SP	Brown fine sand	
86	0.0							
87	0.0							
88	0.0							
89	0.0							
90							End of boring at 90 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc.
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

Project #: 13928		**Boring ID:**
Site/Project Name: 251 Douglass Street		**DB-4**
Site Address: 251 Douglass Street		
Weather: Overcast 45		
Geologist: AK		Total Depth: 100
Start Date: 3/10/23	Drilling Company: PG	GW: 10-12
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A
Completion Date: 3/13/23	Drill Rig: 7822 DT	GPS Coordinates:
Completion Time:	Sampler Type/Len: Dual tube	K,Y

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Concrete, brown silty sand, trace clay, gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Gray silty sand, trace clay, abundant gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	50	Fill/ML CL	gravel overburden/ gray silt gray clay with roots	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20	Wet	60	CL	gravel, gray silty clay, overburden gray clay	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0							
22	0.0		20-25	Wet	60	CL PT CL	dark gray clay 20-21 peat 21-22.5 22.5-25 gray/blue clay	
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	CL	Gray to gray/blue clay	
27	0.0							
28	0.0							
29	0.0							
30	927.0	DB-4 30-32						
31	1021.0							
32	679.0		30-35	Wet	60	SP	Fully saturated in coal tar, fine sand	
33	245.0							
34	481.0							
35	345.0							
36	689.0							
37	723.0		35-40	Wet	60	SP	Fully saturated in coal tar, fine sand	
38	842.0							
39	654.0							
40	50.4	DB-4 40-42						
41	95.2							
42	20.3		40-45	Wet	60	SP	Sheen only, brown fine sand	
43	18.1							
44	0.0							
45	15.5							
46	13.8							
47	12.2		45-50	Wet	60	SP	outside liner stained, inside clean, brown fine sand	
48	0.0							
49	0.0							
50	6.8							
51	75.4							
52	112.3		50-55	Wet	60	SP	brown f-m sp mod saturated 54-55	
53	247.6							
54	500.0							
55	232.3							
56	245.0							
57	192.3		55-60	Wet	60	SP	brown f-m sp mod saturated 59-60	
58	482.0							
59	391.0							
60	232.0							
61	211.0							
62	164.0		60-65	Wet	60	SP	moderately saturated, coated fine medium sand	
63	2048.0							
64	102.4							
65	12.9							
66	4.3							
67	0.0		65-70	Wet	60	SP	Fine-medium brown sand	
68	0.0	DB-4 68-70						
69	0.0							
70	72.3							
71	104.1							
72	84.5		70-75	Wet	60	SP	outside liner stained, inside sheen odors, brown fine sand **It should be noted that the coating on the outside of the liner is likely drawn down from above and not representative**	
73	62.1							
74	37.3							
75	12.9							
76	14.3							
77	30.1		75-80	Wet	60	SP	brown fine-medium sp, outside liner is coated	
78	15.8							
79	13.2							
80	124.3							
81	89.7							
82	105.3		80-85	Wet	60	SP	Brown fine sand	
83	67.8							
84	84.2							
85	142.0							
86	191.0							
87	105.0		85-90	Wet	60	SP	Brown fine sand	
88	0.0							
89	0.0							
90	0.0							
91	0.0							
92	0.0		90-95	Wet	60	SP	Brown fine sand	
93	0.0							
94	0.0							
95	0.0							
96	0.0							
97	0.0		95-100	Wet	60	SP	Brown fine sand refusal at 100, large cobbles	
98	0.0							
99	0.0							
100							End of boring at 100 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928		Boring ID:
	Site/Project Name: 251 Douglass Street		DB-1
	Site Address: 251 Douglass Street		
	Weather: Overcast 33		
	Geologist: AK		Total Depth: TBD
Start Date: 2/8/23	Drilling Company: PG		GW: 10-12
Start Time: 11:20	Driller: Orlando		GW Stabilized: N/A
Completion Date:	Drill Rig: 7822 DT		GPS Coordinates:
Completion Time:	Sampler Type/Len: Dual tube		K,Y

Depth (Feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MIGP Color Code
1	0.0							
2	0.0							
3	0.0		0-5	Moist	50	Fill/ML	Brown silty sand, concrete, trace gravel	
4	0.0							
5	0.0							
6	0.0							
7	0.0		5-10	Wet	55	Fill/ML	5-7 Brown silty sand and gravel 7-9 gray silty clay 9-10 crushed brick and little gray silt	
8	0.0							
9	0.0							
10	0.0							
11	0.0							
12	0.0		10-15	Wet	35	Fill/ML	Abundant gravel in gray loose silty clay	
13	0.0							
14	0.0							
15	0.0							
16	0.0							
17	0.0		15-20	N/A	30	CL	Dark gray clay with 1-inch of wood at 17'	
18	0.0							
19	0.0							
20	0.0							
21	0.0							
22	0.0		20-25	Wet	60	ML/CL	Dark gray silty clay with abundant loose gravel	
23	0.0							
24	0.0							
25	0.0							
26	0.0							
27	0.0						25-28 Dark gray clay, compact	
28	0.0		25-30	Wet	60	CL	28-30 Gray/blue clay	
29	0.0							
30	0.0						(finish here for the day. 2/10/23)	
31	386.0	DB-5 30-32						
32	692.0							
33	345.0		30-35	Wet	60	SP	Brown fine sand, odors, sheen, streaky coal tar, blebs	
34	679.0							
35	532.0							
36	287.0							
37	291.0							
38	2489.0		35-40	Wet	60	SP	Brown fine sand, middle 6-inches at 37.5 is fully saturated in Coal Tar, all else sheen/odors, liner is coated	
39	847.0							
40	1091.0							
41	642.0							
42	285.0							
43	379.0		40-45	Wet	60	SP	Brown fine sand, some sheen and odors	
44	482.0							
45	522.0							
46	1482.0							
47	834.0							
48	689.0		45-50	Wet	60	SP SP/ML	45-46 Saturated fine sand 46-48 Brown fine sand, sheen and odor 48-50 Brown fine sandy silt	
49	240.0							
50	302.0							
51	147.0							
52	89.0							
53	-	DB-5 50-55	50-55	Wet	10	SP SP/ML	Limited recovery, brown fine silty sand, odors, trace sheen	
54	-							
55	-							
56	876.0	DB-5 55-57						
57	1045.0							
58	972.0		55-60	Wet	60	SP	Brown fine-medium sand, fully saturated in Coal Tar	
59	864.0							
60	649.0							
61	14.8	DB-5 60-62						
62	3.2							
63	20.9		60-65	Wet	60	SP	Brown fine sand, trace sheen, odors	
64	25.3							
65	11.7							
66	15000.0							
67	15000.0							
68	15000.0		65-70	Wet	60	SP	Highly contaminated, Very fully saturated in Coal tar (relatively the worst seen so far at the site) matrix is brown fine sand, Ambient Air above the borehole was 2.0 ppm	
69	4827.0							
70	2349.0							
71	672.0							
72	497.0							
73	329.0		70-75	Wet	40	SP	Brown fine sand trace silt, Still saturated but not as severely as above	
74	395.0	DB-5 73-75						
75	431.0							
76	101.0	DB-5 75-77						
77	45.0							
78	38.0		75-80	Wet	60	SP	Brown fine sand, trace silt, No Coal Tar, No Sheen, some odors	
79	72.0							
80	63.0						(Finish here for the day 2/13/23)	
81	-							
82	11.7							
83	15.5		80-85	Wet	60	SP	Brown fine sand, trace sheen (Coal tar, lightly coated in top 1 foot predominantly, might be migration from above, overnight)	
84	3.8							
85	10.9							
86	5.3							
87	0.0							
88	0.0		85-90	Wet	60	SP	Trace odors top 4 inches (overburden), light brown fine-coarse sand	
89	0.0							
90	0.0							
91	0.0							
92	0.0		90-95	Wet	60	SP/GP	Medium -coarse brown sand with 1/4-inch pebbles	
93	0.0							
94	0.0							
95	2.8							
96	0.0							
97	0.0		95-100	Wet	60	ML/SP	top 3- inches trace sheen/odor (overburden) Brown silt and fine sand	
98	0.0							
99	0.0							
100	0.0							
101	0.0							
102	0.0		100-105	Wet	60	ML/CL	Brown silty clay (Outside of rod has some Coal Tar on it but the inside is completely clean, drillers said the water in the borehole is pushing into the rods)	
103	0.0							
104	0.0							
105	-							
106	-							
107	-		105-110	N/A	N/A	N/A	Refusal when attempted to drill this interval	
108	-							
109	-							
110							End of boring at 105 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc.
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

Project #: 13928	**Boring ID:**
Site/Project Name: 251 Douglass Street	
Site Address: 251 Dougalss Street	**DB-6**
Weather: Overcast 45	
Geologist: AK	Total Depth: 97
Drilling Company: PG	GW: 10-12
Driller: Orlando	GW Stabilized: N/A
Drill Rig: 7822 DT	GPS Coordinates:
Sampler Type/Len: Dual tube	X,Y

Start Date: 2/15/23
Start Time: 11:20
Completion Date: 2/17/23
Completion Time:

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	50	Fill/ML	Brown silty sand, crushed brick and gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	50	Fill/ML	5-7 Brown silty sand and gravel 7-10 Brown silty clay	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	45	Fill/ML SP ML	10-11 Brown silty sand 11-12 Brown medium sand 12-15 Gray silty clay with abundant gravel, loose	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	-		15-20	Wet	0	N/A	No Recovery, trace gravel, rock in shoe	
17	-							
18	-							
19	-							
20	-							
21	0.0		20-25	Wet	60	CL	Gray clay	
22	0.0							
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	CL SP/ML	25-29 Gray/blue clay 29-30 Dark brown fine sand trace silt	
27	0.0							
28	0.0							
29	0.0							
30	0.0							
31	0.0		30-35	Wet	60	ML/CL CL	30-33 Gray, loose, silty clay 33-35 Gray clay	
32	0.0							
33	0.0							
34	0.0							
35	321.0	DB-6 35-37						
36	289.0							
37	253.0		35-40	Wet	20	SP	Brown fine sand, moderately coated in Coal Tar	
38	347.0							
39	366.0							
40	482.0							
41	390.0		40-45	Wet	60	SP	Moderately Coated brown fine sand	
42	265.0							
43	321.0							
44	489.0							
45	872.0							
46	945.0		45-50	Wet	60	SP	Heavily coated/Saturated brown fine sand	
47	1021.0							
48	643.0							
49	872.0							
50	15000+							
51	15000+		50-55	Wet	60	SP	Brown fine to medium sand, fully saturated to 54	
52	15000+							
53	1400.0							
54	286.0							
55	4927.0							
56	879.0		55-60	Wet	60	SP	Heavily coated fine to medium sand	
57	1043.0							
58	684.0							
59	6.4							
60	1.5	DB-6 60-62						
61	3.2							
62	8.7		60-65	Wet	60	SP	Brown fine-medium sand, trace odors	
63	34.8							
64	78.0							
65	2089.0							
66	3700.0		65-70	Wet	60	SP	Severely Saturated, Fine-medium Sand	
67	3049.0							
68	3491.0							
69	1284.0							
70	143.0	DB-6 70-72						
71	87.6							
72	40.5		70-75	Wet	60	SP	Brown fine-medium sand	
73	32.8							
74	15.5							
75	1.5	DB-6 75-77						
76	2.7							
77	0.7		75-80	Wet	60	SP	Brown fine-medium sand	
78	0.0							
79	0.0							
80	0.0							
81	0.0		80-85	Wet	60	SP	Brown fine-medium sand	
82	0.0							
83	0.0							
84	0.0							
85	0.0							
86	0.0		85-90	Wet	60	SP	Brown fine-medium sand	
87	0.0							
88	0.0							
89	0.0							
90	0.0							
91	0.0		90-95	Wet	60	SP	Brown fine-medium sand	
92	0.0							
93	0.0							
94	0.0							
95	0.0							
96	0.0		95-97	Wet	15	SP	Brown fine-medium sand	
97							End of boring at 97 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-7**	
	Weather: Overcast, 40, NNE 7		
	Geologist: AK	Total Depth: 85	
Start Date: 2/17/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 2/22/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 13:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0							
	0.0							
2	0.0		0-5	Wet	60	Fill/ML	0-4 Brown silty sand, trace brick 4-5 brown silty clay, little gravel	
3	0.0							
4	0.0							
5	0.0							
6	0.0							
7	0.0		5-10	Wet	60	Fill/ML	5-7 Dark brown silty sand and gravel 7-9 concrete and gravel 9-10 crushed brick	
8	0.0							
9	0.0							
10	0.0							
11	0.0							
12	0.0		10-15	Wet	60	ML	10-12 Brown silt, loose with gravel 12-13 Dark gray silty clay, trace wood 13-15 Gray loose silt with gravel	
13	0.0							
14	0.0							
15	0.0							
16	0.0							
17	0.0		15-20	Wet	60	CL ML	15-19 Dark gray clay 19-20 Gray silty clay, some gravel	
18	0.0							
19	0.0							
20	0.0							
21	0.0							
22	0.0		20-25	Wet	60	CL	Dark gray clay, trace roots	
23	0.0							
24	0.0							
25	0.0							
26	0.0							
27	0.0		25-30	Wet	60	CL PT CL	25-28 Gray clay 28-29 Peat layer, trace organic odors 29-30 Gray clay	
28	0.0							
29	32.1							
30	281.3	DB-7 30-32						
31	232.0							
32	192.7		30-35	Wet	60	SP	Outside of liner is coated in Coal Tar Brown fine sand	
33	203.4							
34	47.8							
35	492.0							
36	685.0							
37	733.0		35-40	Wet	60	SP	Fully saturated in Coal Tar Fine to medium sand, little 1/8-inch pebbles	
38	1042.0							
39	981.0							
40	147.0							
41	203.0							
42	198.0		40-45	Wet	60	SP	brown fine sand lightly coated in Coal Tar, Streaks liner moderately stained	
43	232.0							
44	215.0							
45	266.0							
46	329.0							
47	285.0		45-50	Wet	60	SP	brown fine sand light-moderately coated, streaks, Coal Tar Brown fine sand moderately stained liner	
48	438.0							
49	582.0							
50	562.0							
51	347.0							
52	377.0		50-55	Wet	60	SP	Brown fine sand, odors, sheen, cleans up somewhat at 53-55	
53	286.0	DB-7 53-55						
54	191.0							
55	15.8							
56	32.4							
57	3.7		55-60	Wet	60	SP	Brown fine sand	
58	0.0							
59	0.0							
60	0.0							
61	0.0							
62	0.0		60-65	Wet	60	SP	Brown fine sand	
63	0.0							
64	0.0							
65	**							
66	**							
67	**		65-70	Wet	60	SP	Fully saturated in Coal Tar Brown fine sand **too saturated for PID**	
68	965.0	DB-7 68-70						
69	758.0							
70	82.3							
71	75.4							
72	32.1	DB-7 72-74	70-75	Wet	60	SP	Brown fine sand	
73	28.2							
74	17.5							
75	0.0							
76	0.0							
77	0.0		75-80	Wet	60	SP	Brown fine sand	
78	0.0							
79	0.0							
80	0.0							
81	0.0							
82	0.0		80-85	Wet	60	SP	Brown fine sand	
83	0.0							
84	0.0							
85							End of boring at 85 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-2**	
	Weather: Clear, 40s SSW 6		
	Geologist: AK	Total Depth: 80	
Start Date: 3/20/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/20/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Brown silty sand and concrete	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Gray silty sand and gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Moist	50	CL	Gray silt and abundant gravel 10-13 Gray clay with roots, trace organic odors 13-15	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20	Moist	60	CL	Gray clay with roots	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0		20-25	Moist	60	CL PT	Gray clay, peat interval 24-25	
22	0.0							
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	CL SP	Gray clay, 25-28 gray fine sand with trace roots, 28-30	
27	0.0							
28	0.0							
29	0.0							
30	0.0							
31	43.2		30-35	Wet	60	CL SP	Gray clay 30-32 Brown silt and fine sand 32-35 heavily coated at 34-35'	
32	684.5							
33	732.0	DB-9 33-35						
34	854.2							
35	-		35-40	Wet	30	SP	Brown fine sand, Very heavily saturated **No PID readings	
36	-							
37	-							
38	-							
39	-							
40	492.0		40-45	Wet	60	SP	Brown fine sand, moderately saturated in coal tar	
41	683.0							
42	327.0							
43	409.0							
44	382.0							
45	14.3	DB-9 45-47	45-50	Wet	60	SP	Brown fine sand	
46	15.2							
47	0.0							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	504.0	DB-9 55-57	55-60	Wet	60	SP	Brown fine sand, moderately saturated in coal tar	
56	491.0							
57	326.0							
58	281.0							
59	142.0							
60	0.0	DB-9 60-62	60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75							End of boring at 75 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-10**	
	Weather: Clear, 30s, NNW 6		
	Geologist: AK	Total Depth: 80	
Start Date: 3/9/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/9/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	25	Fill	Concrete/ No recovery, Trace brown silty sand	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	30	Fill/ML	Gray silty clay, loose with gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	45	Fill/ML	Gray silty clay, loose with gravel, trace organic odors	
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	50	CL	Gray clay with trace roots, trace organic odors	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	-		20-25	N/A	N/A	N/A	No Recovery	
21	-							
22	-							
23	-							
24	-							
25	0.0		25-30	N/A	N/A	CL SP CL SP	Gray blue clay fine sand 5'' Gray Blue clay fine sand 5''	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	42.8		30-35	Wet	60	SP	Brown fine sand Moderate to heavily saturated	
31	94.3							
32	132.5							
33	168.7							
34	141.2							
35	12.3		35-40	Wet	60	SP	Brown fine sand trace sheen	
36	14.9							
37	25.4							
38	7.6							
39	3.2							
40	16.2		40-45	Wet	60	ML/SP	Silty clay distinct 2'' interval of saturated coal tar in coarser sand at 42'	
41	14.8							
42	542.0							
43	381.0							
44	245.0							
45	0.0		45-50	Wet	60	SP	Brown medium sand	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	42.8		50-55	Wet	60	SP	Brown fine sand, limited odors	
51	31.9							
52	26.5							
53	28.2							
54	40.1							
55	23.1		55-60	Wet	60	SP	Brown fine sand, limited odors	
56	15.8							
57	25.4							
58	30.2							
59	17.1							
60	102.3		60-65	Wet	60	SP	Brown fine sand, odors **It should be noted that the odos noted from 50-65 are likely not representative of the soil column due to water infiltration in the rods, and no Coal tar was observed**	
61	57.8							
62	62.9							
63	12.1							
64	24.6							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-11**	
	Site Address: 251 Dougalss Street		
	Weather: Clear, 30s, SSE 6		
	Geologist: AK	Total Depth: 80	
Start Date: 3/9/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/10/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	30	Fill/ML	Brown silty sand, grave, concrete	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	30	Fill/ML	Loose gray silty clay with abundant gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	60	Fill/ML CL	10-11 Loose gray silty clay with abundant gravel (overburden) 11-15 Gray clay, trace roots	
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	45	Fill/ML	Abundant gravel in gray silt	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	N/A	5''	Fill	limited recovery, abundant gravel in gray silt	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	N/A	60	CL	Gray/Blue clay coal tar on outside of liner only (likely being pushed up from below by drilling pressure, not representative)	
26	0.0							
27	0.0							
28	29.7							
29	147.0							
30	682.0		30-35	Wet	60	SP	Fully saturated in Coal Tar, Brown fine sand	
31	397.0							
32	411.0							
33	537.0	DB-11 33-35						
34	692.0							
35	221.0		35-40	Wet	60	SP	Brown fine sand, Moderately saturated in coal tar 35-38 Brown fine sand, odors 38-40	
36	243.0							
37	192.0							
38	205.0							
39	168.0							
40	204.0		40-45	Wet	60	SP	Brown fine sand, Streaks, odors 40-41 fully saturated 41-45	
41	218.0							
42	–							
43	–	**Too saturated for PID						
44	–							
45	152.0	DB-11 45-47	45-50	Wet	60	SP	Brown fine sand, trace sheen, odors	
46	3.8							
47	0.0							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	247.0	DB-11 55-57	55-60	Wet	60	SP	Outside liner heavily coated, inside sheen and odors, brown fine sand (likely being pushed up due to drilling pressure)	
56	683.0							
57	421.0							
58	345.0							
59	279.0							
60	673.0		60-65	Wet	60	SP	Fully saturated in Coal Tar, Brown fine sand	
61	1042.0							
62	984.0							
63	768.0							
64	841.0							
65	14.7	DB-11 65-67	65-70	Wet	60	SP	Brown fine sand, trace odors	
66	12.9							
67	11.6							
68	0.0							
69	0.0							
70	0.0						Refusal at 70' after multiple attempts	
							End of boring at 70 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-12**	
	Site Address: 251 Dougalss Street		
	Weather: Clear, 30s, SSE 6		
	Geologist: AK	Total Depth: 80	
Start Date: 3/10/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/10/23	Drill Rig: 7822 DT	GPS Coordinates:	
14:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
0	0.0		0-5	Dry Moist	40	Fill/ML	Brown silty sand and gravel	
1	0.0							
2	0.0							
3	0.0							
4	0.0							
5	0.0		5-10	Wet	15	Fill/ML	Limited recovery, gray silt and gravel	
6	0.0							
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	60	ML	Gray brown silt, trace to little clay, a one inch shale interval (???) at 14'	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	CL	Gray clay	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	-		20-25	N/A	N/A	N/A	No Recovery	
21	-							
22	-							
23	-							
24	-							
25	0.0		25-30	N/A	60	CL	Gray/Blue Clay	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	SP	Brown fine sand, outside of liner light-moderately coated in CT 34-35	
31	0.0							
32	0.0							
33	0.0							
34	14.2							
35	13.8	DB-12 35-37	35-40	Wet	60	SP	Brown fine sand with a 1" interval of saturated CT at 36'	
36	12.6							
37	204.3							
38	190.7							
39	5.2							
40	0.0	DB-12 40-42	40-45	Wet	60	SP	Brown fine sand	Collected QAQC
41	0.0							
42	0.0							
43	0.0							
44	0.0							
45	0.0		45-50	Wet	60	SP	Brown fine-medium sand	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine-medium sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70							End of boring at 70 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-13**	
	Site Address: 251 Dougalss Street		
	Weather: Clear 40s NNW-7		
	Geologist: AK	Total Depth: 60	
Start Date: 3/16/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/17/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Concrete, dark brown silty sand	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	-		5-10	N/A	2	N/A	No Recovery/ 2 inches brown/gray silty gravel	
7	-							
8	-							
9	-							
10	-							
11	0.0		10-15	N/A	0	N/A	Gray clay	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20	Moist	10	CL	Gray clay, limited recovery	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	-		20-25	N/A	N/A	N/A	Gray/Blue clay and roots	
22	-							
23	-							
24	-							
25	-							
26	0.0		25-30	Wet	60	ML	Gray clay, 25-29 Gray/blue fine sand, 29-30	
27	0.0							
28	0.0							
29	0.0							
30	0.0							
31	0.0		30-35	Wet	60	SP	Brown fine sand	
32	0.0							
33	0.0							
34	0.0							
35	0.0							
36	48.7	DB-13 35-37	35-40	Wet	60	SP	Blebs in brown fine sand	
37	121.3							
38	205.4							
39	191.8							
40	204.5							
41	362.9		40-45	Wet	60	SP	light- Moderately saturated Brown fine sand	
42	248.3							
43	197.0							
44	232.0							
45	108.0							
46	1.2	DB-13 45-47	45-50	Wet	60	SP	Brown fine sand, very trace odors	
47	1.5							
48	0.0							
49	0.0							
50	0.0							
51	0.0		50-55	Wet	60	SP	Brown fine sand	
52	0.0							
53	0.0							
54	0.0							
55	0.0							
56	0.0		55-60	Wet	60	SP	Brown fine sand	
57	0.0							
58	0.0							
59	0.0							
60	0.0							
							End of boring at 60 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-14**	
	Site Address: 251 Dougalss Street		
	Weather: Clear 40s NNW-7		
	Geologist: AK	Total Depth: 90	
Start Date: 3/15/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/16/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Concrete, Dark Brown silty sand and black gravel/asphalt	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Gray silt and gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	N/A	0	N/A	Gray clayey silt, trace fine sand	
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Moist	60	CL	gray clay with roots	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	-		20-25	N/A	N/A	N/A	No recovery	
21	-							
22	-							
23	-							
24	-							
25	0.0		25-30	Wet	60	ML	Gray/blue silty sand with fine sand and brown silty clay	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	14.8		30-35	Wet	60	SP	Brown fine sand with sheen	
31	16.2							
32	21.3							
33	0.0							
34	0.0							
35	101.0	DB-14 35-37	35-40	Wet	60	SP	Sheen and trace coal tar, Brown fine sand	
36	89.3							
37	53.7							
38	51.5							
39	11.2							
40	5.1	DB-14 40-42	40-45	Wet	60	SP	Brown fine sand	
41	0.0							
42	0.0							
43	0.0							
44	0.0							
45	0.0		45-50	Wet	60	SP	Brown fine sand	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0							
							End of boring at 60 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-16**	
	Weather: Clear, 30s, NW 10		
	Geologist: AK	Total Depth: 55	
Start Date: 3/8/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/8/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	30	Fill/ML	Dark brown silty sand, gravel, crushed brick, pieces of glass, asphalt	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	45	Fill/ML	Brown silty sand, gravel. Crushed brick	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	20.9		10-15	Wet	50	Fill/ML	Brown silty sand and trace gravel	
12	13.1							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	Fill/ML CL	Gray silty sand and gravel 15-18 gray silty clay 18-20	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Moist	60	CL	gray clay, 20-24 peaty clay with organic odor 24-25	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL PT CL	Gray clay, small peat interval at 27'	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	CL	Gray/Blue clay	
31	0.0							
32	0.0							
33	0.0							
34	0.0							
35	0.0		35-40	Wet	60	CL SP/ML	Gray clay 35-37 Brown fine sand and silt 37-40	
36	0.0							
37	0.0							
38	0.0							
39	0.0							
40	0.0		40-45	Wet	60	SP	Brown fine to medium sand	
41	0.0							
42	0.0							
43	0.0							
44	0.0							
45	0.0		45-50	Wet	60	SP	Brown fine to medium sand	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine to medium sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55							End of boring at 55 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800 F. (631) 269-1599	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-1**	
	Site Address: 251 Dougalss Street		
	Weather: Overcast 33		
	Geologist: AK	Total Depth: TBD	
Start Date: 2/10/23	Drilling Company: PG	GW: 10-12	
Start Time: 9:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date:	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	40	Fill/ML	Brown silty sand, little gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	40	ML	5-6 Brown silt, some gravel 6-10 Silty clay	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	40	CL	10-11 Dark gray silty clay, little gravel 11-15 Dark gray clay with roots, organic odor, trace wood at 11'	
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	CL	Dark gray clay with roots, organic odors	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Wet	60	CL	20-24 Dark gray clay with roots, pieces of shell 24-25 Gray/blue clay with roots	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	17.4		25-30	Wet	60	CL SP	26-27 Gray/blue clay, compact 27-30 Gray fine sand, odors	
26	98.7							
27	200.0							
28	75.0							
29	24.0							
30	74.0		30-35	Wet	60	SP	30-32 Brown fine sand 32-33 Brown silt, loose 33-35 Brown fine sand NOTE for 30-34: Outside of liner is **heavily coated** in coal tar, the inside has trace sheen and odors, Saw the same in DB-1 at this depth, likely pressure pushing the product up through the rods. However the 34-35 Sand is heavily coated inside the liner	
31	62.0							
32	58.0							
33	85.0	DB-17 33-35						
34	430.0							
35	1.5		35-40	Wet	60	ML	Brown silt and fine sand, trace sheen	
36	1.8							
37	2.3							
38	0.0							
39	0.0							
40	2872.0		40-45	Wet	60	SP	Brown fine sand, Fully Saturated in Coal Tar	
41	1967.0							
42	3000.0							
43	682.0							
44	300.0							
45	1.5	DB-17 45-47	45-50	Wet	60	SP	Brown fine sand, odors	
46	2.8							
47	7.6							
48	25.4							
49	30.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0							
							End of boring at 60 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc.
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

	Project #: 13928	**Boring ID:**
	Site/Project Name: 251 Douglass Street	
	Site Address: 251 Dougalss Street	**DB-18**
	Weather: Overcast 45	
	Geologist: AK	Total Depth: 92
Start Date: 2/15/23	Drilling Company: PG	GW: 10-12
Start Time: 11:20	Driller: Orlando	GW Stabilized: N/A
Completion Date: 2/17/23	Drill Rig: 7822 DT	GPS Coordinates:
Completion Time:	Sampler Type/Len: Dual tube	X,Y

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	40	Fill/ML	Crushed brick and brown silty sand, concrete	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist Wet	60	Fill/ML	5-7 Brown silty sand, abundant gravel 7-10 compact silty, trace clay	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	60	Fill/ML	Abundant gravel in loose gray silt/clay	
12	0.0							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20	Wet	60	Fill/ML CL	15-16 gravel and gray silt/clay (overburden) 16-20 gray clay with trace roots	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0		20-25	Wet	60	CL	gravel overburden 4 inches gray clay	
22	0.0							
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	ML CL SP	26-27 Gray silty clay 27-29 Gray clay 29-30 Gray/blue fine sand	
27	0.0							
28	0.0							
29	0.0							
30	462.0	DB-18 30-32						
31	389.0							
32	647.0		30-35	Wet	30	SP	Brown fine sand, streaks of Coal Tar, moderately saturated	
33	391.0							
34	346.0							
35	849.0							
36	792.0							
37	864.0		35-40	Wet	60	SP	Brown fine sand, heavily coated fully saturated 39-40	
38	2031.0							
39	3401.0							
40	645.0							
41	382.0							
42	411.0		40-45	Wet	60	SP	brown fine sand, mod-heavily coated	
43	550.0							
44	480.0							
45	15000+							
46	15000+							
47	15000+		45-50	Wet	60	SP	Fine Sand heavily/severely saturated	
48	15000+							
49	3025.0							
50	872.0							
51	945.0							
52	1082.0		50-55	Wet	60	SP	outside of the liner is heavily coated, but inside is only sheen and odors	
53	60.0							
54	4500.0							
55	3870.0	DB-5 55-57						
56	1082.0							
57	947.0		55-60	Wet	60	SP	heavily coated/saturated Brown fine sand	
58	875.0							
59	491.0							
60	643.0	DB-5 60-62						
61	875.0							
62	654.0		60-65	Wet	60	SP	heavily coated/saturated, streaks Brown fine sand	
63	548.0							
64	872.0							
65	754.0							
66	947.0							
67	150.5		65-70	Wet	60	SP	severly saturated fine sand	
68	133.8							
69	207.2							
70	150.5							
71	133.8	DB-18 70-75						
72	207.2		70-75	Wet	60	ML SP	65-66 Brown silt 66-70 Brown fine sand	
73	114.6							
74	114.6							
75	140.0							
76	85.0	DB-5 75-77						
77	31.2		75-80	Wet	60	SP	Brown fine sand	
78	18.7							
79	5.3							
80	0.0							
81	0.0							
82	0.0		80-85	Wet	60	SP	Brown fine sand	
83	0.0							
84	0.0							
85	0.0							
86	0.0							
87	0.0		85-90	Wet	60	SP	Brown fine sand	
88	0.0							
89	0.0							
90	0.0							
91	0.0		90-92	Wet	15	SP	Brown fine sand, refusal at 92 after multple attempts	
92							End of boring at 92 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc.
170 Keyland Court
Bohemia, NY 11716
P. (631) 269-8800
F. (631) 269-1599

Project #: 13928		**Boring ID:**
Site/Project Name: 251 Douglass Street		
Site Address: 251 Douglass Street		**DB-19**
Weather: Overcast, 40, WNW 5		
Geologist: AK		Total Depth: 100
Start Date: 2/17/23	Drilling Company: PG	GW: 10-12
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A
Completion Date: 2/21/23	Drill Rig: 7822 DT	GPS Coordinates:
Completion Time: 14:00	Sampler Type/Len: Dual tube	X,Y

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Moist	60	Fill/ML	0-4 Light brown silty sand, brick, trace wood	
2	0.0						4-5 sawdust(?)	
3	0.0			Wet				
4	0.0							
5	0.0							
6	0.0		5-10	Wet	60	Fill/ML	5-7 Light brown silty sand, crushed brick	
7	0.0						7-9 gravel, trace coal(?), gray silty	
8	0.0						9-10 Dark gray clay	
9	0.0							
10	0.0		10-15	Wet	60	Fill/ML	Gravel and gray silty clay	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	CL	15-18 Gravel and gray silty clay	
16	0.0						18-20 Dark gray clay, trace silt	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0		20-25	Wet	60	CL	Dark gray clay, trace silt	
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL SP CL SP	25-27 Dark gray clay 27-28 Brown fine sand 28-29 Gray/blue clay 29-30 Brown fine sand	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	CL SP	30-33 Brown clay 33-35 Brown fine sand, light-moderately coated in Coal Tar	
31	0.0							
32	147.0							
33	203.0	DB-19 33-35						
34	302.0							
35	**		35-40	Wet	60	SP	35-38 Brown fine sand moderately saturated 38-40 Fully saturated brown fine sand ** Too saturated for PID**	
36	**							
37	**							
38	**							
39	**							
40	**		40-45	Wet	60	SP	Severely saturated, brown fine sand ** Too saturated for PID**	
41	**							
42	**							
43	**							
44	**							
45	81.3		45-50	Wet	60	SP	Brown fine sand, outside of the liner is moderately coated but inside is cleaner	
46	57.2							
47	28.9							
48	105.3	DB-19 48-50						
49	41.7							
50	29.4		50-55	Wet	60	SP	Brown fine sand, trace odors	
51	26.8							
52	20.2							
53	16.5							
54	17.8							
55	**		55-60	Wet	60	SP	55-58 Severely saturated, brown fine sand 58-60 moderately saturated/coated ** Too saturated for PID**	
56	**							
57	**							
58	**	DB-19 58-60						
59	**							
60	157.0	DB-19 60-62	60-65	Wet	60	SP	Brown fine sand, trace odors	DB-Dup 1 MS MSD ECP Blank
61	222.0							
62	209.0							
63	146.0							
64	326.0							
65	283.0		65-70	Wet	60	SP	Brown fine sand, trace odors	
66	152.0							
67	268.0							
68	305.0							
69	145.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	15.2		75-80	Wet	60	SP	Brown fine sand, trace odors	
76	29.3							
77	7.7							
78	5.4							
79	0.9							
80	0.0		80-85	Wet	60	SP	brown fine sand	
81	0.0							
82	0.0							
83	0.0							
84	0.0							
85	0.0		85-90	Wet	60	SP	Brown fine sand	
86	0.0							
87	0.0							
88	0.0							
89	0.0							
90	0.0		90-95	Wet	60	SP	Brown fine sand	
91	0.0							
92	0.0							
93	0.0							
94	0.0							
95	0.0		95-100	Wet	60	SP	brown fine sand	
96	0.0							
97	0.0							
98	0.0							
99	0.0							
100							End of boring at 100 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-20**	
	Weather: Overcast, 40, SSW 5		
	Geologist: AK	Total Depth: 80	
Start Date: 2/22/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 2/23/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 13:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	60	Fill/ML	Brown silty sand and gravel, trace crushed brick	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	55	Fill/ML	5-8 Brown silty sand, trace clay, trace gravel 8-10 brown-gray silty clay	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	30	Fill/ML	Gray silt and gravel	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	SP CL	15-15.5 Gray medium sand 4-inches 15.5-18 Dark gray clay 18-20 Gray clay with trace roots, trace organic odors	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	-		20-25	N/A	N/A	N/A	No Recovery	
21	-							
22	-							
23	-							
24	-							
25	0.0		25-30	Wet	60	CL SP CL SP	25-27 Gray/Blue clay, compact 27-28 Gray/Blue fine sand 28-29 Brown clay 29-30 Brown fine sand	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	**		30-35	Wet	60	SP	Fully saturated/ heavily coated, Brown fine sand **Too Saturated for PID**	
31	**							
32	**							
33	**	DB-20 33-35						
34	**							
35	**		35-40	Wet	60	SP GP SP	Very Fully Saturated 35-37 Medium sand 37-38 Gravely sand, GP 38-40 Brown fine sand **Too Saturated for PID**	
36	**							
37	**							
38	**							
39	**							
40	94.0	DB-20 40-42	40-45	Wet	60	SP	Brown fine sand, some sheen	
41	85.0							
42	147.0							
43	297.0							
44	241.0							
45	35.2		45-50	Wet	60	SP	Brown fine sand, trace sheen	
46	15.8							
47	0.0							
48	0.0							
49	0.0							
50	82.0		50-55	Wet	60	SP	Brown fine sand, sheen at top 5-inches, trace odors	
51	37.0							
52	12.8							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand, trace sheen from water at top of liner	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Douglass Street	**DB-20**	
	Weather: Overcast, 40, SSW 5		
	Geologist: AK	Total Depth: 80	
Start Date: 2/22/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 2/23/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 13:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	60	Fill/ML	Brown silty sand and gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	55	Fill/ML	5-8 Brown fine to medium sand, trace silt, rock at 6' 8-10 Brown silt, compact	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	30	Fill/ML	10-11 Brown silt 11-15 Gray silt with gravel	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	30	Fill/ML	Gravel and large rocks in a gray silt matrix	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Moist	60	CL	Gray clay, shell piece at 23'	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL	Gray clay, with red piece of root/wood at 7'	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	CL SP	30-34 Gray clay 34-35 Brown fine sand, light-mod coated in Coal Tar	
31	0.0							
32	23.0							
33	87.0	DB-21 33-35						
34	200.0							
35	1029.0		35-40	Wet	60	SP	Fully Saturated, Brown fine sand	
36	984.0							
37	643.0							
38	541.0							
39	287.0							
40	232.0		40-45	Wet	60	SP	Moderately Saturated, Brown fine sand, some streaks and blebs	
41	305.0							
42	488.0							
43	291.0							
44	208.0							
45	1.5		45-50	Wet	60	SP	Outside of liner is stained, Brown fine sand, odors	
46	20.8							
47	15.2							
48	8.8	DB-21 48-50						
49	7.1							
50	**		50-55	Wet	60	SP	Fully Saturated, Brown fine sand **too saturated for PID**	
51	**							
52	**							
53	**							
54	**							
55	340.0	DB-21 55-57	55-60	Wet	60	SP	Brown fine sand, sheen	
56	321.0							
57	213.0							
58	104.0							
59	121.0							
60	147.0		60-65	Wet	60	SP	Brown fine sand, light-moderately coated	
61	203.0							
62	100.0							
63	85.2							
64	47.3							
65	15.6	DB-21 65-67	65-70	Wet	60	SP	Brown fine sand, trace blebs, trace streaks	
66	0.7							
67	1.3							
68	0.5							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-22**	
	Site Address: 251 Dougalss Street		
	Weather: Overcast, 40, SSW 11		
	Geologist: AK	Total Depth: 70	
Start Date: 2/23/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 2/24/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 13:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	45	Fill/ML	0-3 Brown silty sand and gravel 3-4 concrete 4-5 Brick and silty sand	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	50	Fill/ML/ CL	5-6 Gravel and silty sand 6-7 Brown silty sand and gravel 7-9 Brown silty clay and gravel 9-10 gray silty clay	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	50	Fill/ML	Loose gray clay, trace gravel, trace silt	
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	Fill/ML CL	15-16 Gravel and loose silt (overburden) 16-20 Gray clay	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	-		20-25	N/A	N/A	N/A	No recovery	
21	-							
22	-							
23	-							
24	-							
25	0.0		25-30	Wet	60	CL	Gray/blue clay	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	243.0	DB-22 30-32	30-35	Wet	60	CL SP	30-31 Gray/blue clay 31-35 Brown fine sand, moderated coated in coal tar, blebs	
31	187.0							
32	232.0							
33	197.0							
34	189.0							
35	**		35-40	Wet	60	SP	Brown fine sand, fully saturated in coal tar **Too saturated for PID**	
36	**							
37	**							
38	**							
39	**							
40	135.0	DB-22 40-45	40-45	Wet	30	SP	Brown fine sand, sheen	
41	201.0							
42	89.5							
43	34.6							
44	29.3							
45	14.5		45-50	Wet	60	SP	Brown fine sand, sheen	
46	1.9							
47	2.8							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand, trace sheen, trace odor	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70							End of boring at 70 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-23**	
	Weather: Overcast, 40, SSW 11		
	Geologist: AK	Total Depth: 80	
Start Date: 2/23/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 2/24/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 13:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	60	Fill/ML	0-4 Dark brown silty sand and gravel 4-5 concrete and brick	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	55	Fill/ML	5-6 Brown silty sand and gravel 6-10 brown compact silt	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	30	Fill/ML	Gray silty clay, wood pieces, shell, gravel	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	30	Fill/CL CL/PT	15-16 Gray loose clay and gravel 16-20 Gray- black (organics) clay, peaty (17-18)	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Moist	60	CL	Gray clay	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL	Gray/blue clay, trace roots, transistions to a brown sand at 29'	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	CL SP	Outside of the liner is fully coated/saturated in coal tar, inside less contaminated (mostly 33-35)	
31	0.0							
32	121.0							
33	247.0	DB-23 33-35						
34	345.0							
35	15.2		35-40	Wet	60	SP	Gray clay, odors	
36	31.5							
37	26.0							
38	14.8							
39	32.3							
40	147.5		40-45	Wet	60	SP	Brown fine sand, sheen, blebs	
41	203.2							
42	85.4							
43	191.2							
44	205.0							
45	102.1		45-50	Wet	60	SP	Brown fine sand	
46	98.4							
47	57.3							
48	36.0	DB-23 48-50						
49	28.0							
50	121.0		50-55	Wet	60	SP	Brown fine sand, Sheen, liner moderately coated	
51	164.0							
52	159.3	DB-23 52-54						
53	182.0							
54	145.0							
55	6.9	DB-23 55-57	55-60	Wet	60	SP	Brown medium sand	
56	7.2							
57	10.1							
58	3.8							
59	14.2							
60	329.0		60-65	Wet	60	SP	Moderate to fully saturated brown fine sand	
61	368.0							
62	246.0							
63	231.0	DB-23 63-65						
64	197.0							
65	23.8		65-70	Wet	60	SP	Sheen, Brown fine sand	
66	15.4							
67	0.0							
68	0.0	DB-23 68-70						
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine to medium sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand, refusal at 80'	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Douglass Street	**DB-24**	
	Weather: Overcast, 30s, NNW 9		
	Geologist: AK	Total Depth: 85	
Start Date: 2/27/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/07/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 10:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	45	Fill/ML	Brown silty sand and gravel, trace crushed brick	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	50	Fill/ML	5-7 Brown silty sand and gravel 7-10 Brown silty sand, trace clay and trace gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	40	Fill/ML	Brown loose silty clay and gravel	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	ML CL	15-16 Gray silty sand with abundant gravel 16-20 Gray clay	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Moist	60	ML CL	20-21 Gray Silty sand with abundant gravel (overburden) 21-25 Gray clay	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL	Dark Gray clay, trace wood at 29'	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	SP	Brown fine sand	
31	0.0							
32	0.0							
33	0.0							
34	0.0							
35	0.0		35-40	Wet	60	SP	Brown fine sand	
36	0.0							
37	0.0							
38	0.0							
39	0.0							
40	24.3	DB-24 40-42	40-45	Wet	60	SP	Blebs, streaks, minimal Coal Tar, Brown fine sand.	
41	105.6							
42	82.9							
43	38.7							
44	103.4							
45	98.5		45-50	Wet	60	SP	45-45.5 Small interval fully saturated 45.5-49 streaks of limited Coal Tar in brown fine sand 49-50 Brown fine sand	
46	67.3							
47	49.2							
48	23.8							
49	15.4							
50	4.8	DB-24 50-52	50-55	Wet	60	SP	Brown fine sand, trace sheen	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	Brown fine-medium sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0	DB-24 65-67	65-70	Wet	60	SP	Saturated in Coal Tar, Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0	DB-24 70-72	70-75	Wet	60	SP	Brown fine sand, outside of liner has some coal tar on it but inside is clean, might not be representative, may be from the above interval	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80	0.0		75-80	Wet	60	SP	Brown fine sand	
81	0.0							
82	0.0							
83	0.0							
84	0.0							
85							End of boring at 85 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-25**	
	Weather: Overcast, 30s, NNW 9		
	Geologist: AK	Total Depth: 85	
Start Date: 2/27/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/07/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 10:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Brown silty sand, gravel	
2	0.0							
3	0.0			Moist				
4	0.0							
5	0.0							
6	0.0		5-10	Wet	35	Fill/ML	5-7 Sawdust(?), Concrete, Brown silty sand and gravel, wood piece, 7-10 Gray silty clay and abundant gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	20.9		10-15	Wet	50	Fill/ML	10-11 Brown-Gray silty sand, gravel 11-12 Black Gravel in trace silty clay, trace odors 12-15 Dark gray silty clay	
12	13.1							
13	0.0							
14	0.0							
15	0.0							
16	0.0		15-20	Wet	40	Fill/ML ML	15-16 Gravel overburden 16-18 Gravel and silty clay 18-20 Gray-brown clayey silt	
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0		20-25	Moist	60	CL	Gray clay	
22	0.0							
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	CL	Gray clay	
27	0.0							
28	0.0							
29	0.0							
30	0.0							
31	0.0		30-35	Wet	60	CL	Gray silty clay	
32	0.0							
33	0.0							
34	0.0							
35	0.0							
36	21.3		35-40	Wet	60	SP/ML	35-38 Brown fine sand, trace silt, sheen 38-40 fully saturated with Coal tar	
37	14.8	DB-25 37-39						
38	121.3							
39	152.9							
40	17.6	DB-25 40-42						
41	32.1							
42	14.8		40-45	Wet	60	SP	Brown fine sand, very trace sheen	
43	5.2							
44	0.0							
45	102.3	DB-25 45-47						
46	145.0							
47	89.4		45-50	Wet	60	SP	Moderately saturated brown fine sand	
48	76.2							
49	19.3							
50	14.3							
51	28.9		50-55	Wet	60	SP	Brownf fine sand, blebs, light Coal tar	
52	26.5							
53	21.9							
54	5.2							
55	0.0	DB-25 55-57						
56	0.0							
57	0.0		55-60	Wet	60	SP	Brown fine sand	
58	0.0							
59	0.0							
60	0.0	DB-25 60-62						
61	0.0							
62	0.0		60-65	Wet	60	SP	Saturated in Coal tar, Brown fine sand	
63	0.0							
64	0.0							
65	0.0	DB-25 65-67						
66	0.0							
67	0.0		65-70	Wet	60	SP	Brown fine sand	
68	0.0							
69	0.0							
70	0.0							
71	0.0		70-75	Wet	60	SP	brown fine sand	
72	0.0							
73	0.0							
74	0.0							
75	0.0							
76	0.0		75-80	Wet	60	SP	Brown fine sand	
77	0.0							
78	0.0							
79	0.0							
80	0.0							
81	0.0		80-85	Wet	60	SP	Brown fine sand	
82	0.0							
83	0.0							
84	0.0							
85							End of boring at 85 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-26**	
	Weather: Clear, 30s, NW 10		
	Geologist: AK	Total Depth: 85	
Start Date: 3/7/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/8/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time: 10:00	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	30	Fill/ML	Brown Silty sand, crushed brick, concrete, trace gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	35	Fill/ML	brown silty sand trace gravel and concrete	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	0.0		10-15	Wet	40	ML	Brown silty sand	
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	CL	Gray clay with trace roots at 20	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Moist	60	CL	Gray clay, trace red wood at 23.5, trace roots, trace shells at 24	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL	brown silt and gravel (overburden) Gray blue clay	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	SP	Brown fine sand, trace silt	
31	0.0							
32	0.0							
33	0.0							
34	0.0							
35	0.0		35-40	Wet	60	SP	Brown fine sand	
36	0.0							
37	0.0							
38	0.0							
39	0.0							
40	0.0		40-45	Wet	60	SP	Brown fine sand	
41	0.0							
42	0.0							
43	0.0							
44	0.0							
45	0.0		45-50	Wet	60	SP	brown silty clay	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	104.2		50-55	Wet	60	SP	Brown fine sand, sheen, odor, trace blebs	
51	57.8							
52	43.2							
53	17.9	DB-26 53-55						
54	15.4							
55	0.0	DB-26 55-57	55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0						End of boring at 75 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-27**	
	Weather: Clear, 30s, NW 10		
	Geologist: AK	Total Depth: 80	
Start Date: 3/7/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:30	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/8/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry Moist	25	Fill/ML	Dark brown silty sand, gravel, crushed brick and concrete	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Wet	30	Fill/ML	Dark brown-brown silty sand and gravel	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	45	ML	Brown silty sand	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	50	CL	Gravel overburden and gray silt Gray clay	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	-		20-25	N/A	N/A	N/A	No Recovery	
21	-							
22	-							
23	-							
24	-							
25	-		25-30	N/A	N/A	N/A	No Recovery	
26	-							
27	-							
28	-							
29	-							
30	0.0		30-35	Wet	60	SP	Brown fine sand	
31	0.0							
32	0.0							
33	0.0							
34	0.0							
35	0.0		35-40	Wet	60	SP	Brown fine sand	
36	0.0							
37	0.0							
38	0.0							
39	0.0							
40	0.0		40-45	Wet	60	SP	Brown fine sand, trace sheen	
41	0.0							
42	0.0							
43	0.0							
44	0.0							
45	0.0		45-50	Wet	60	SP	Brown silty clay	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	124.3	DB-27 50-52	50-55	Wet	60	SP	Sheen, trace staining, odors, trace blebs, Brown fine sand	
51	94.6							
52	72.8							
53	103.5							
54	58.2							
55	0.0	DB-27 55-57	55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	6.2		65-70	Wet	60	SP	Gray/brown fine sand, very trace odors	
66	7.8							
67	1.9							
68	4.7							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-29**	
	Weather: Rain 30's NNW 10		
	Geologist: AK	Total Depth: 80	
Start Date: 3/13/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/14/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Concrete and brown silty sand, trace gravel	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Gravel and gray silty sand	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	50	Fill/CL	Gravel overburden and gray clay with roots	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	0.0		15-20	Wet	60	CL	Gray clay with roots	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0		20-25	Wet	60	CL PT CL	Gray clay Peat Dark gray clay	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL SP	Gray clay Gray blue fine sand	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	321.0		30-35	Wet	60	SP	Brown fine sand, moderately saturated in coal tar	
31	405.0							
32	238.0	DB-29 32-34						
33	245.0							
34	189.0							
35	32.3	B-29 35-37	35-40	Wet	60	SP	Brown fine sand	
36	45.1							
37	15.2							
38	0.0							
39	0.0							
40	0.0		40-45	Wet	60	SP	Brown fine sand	
41	0.0							
42	0.0							
43	0.0							
44	0.0							
45	0.0		45-50	Wet	60	SP	Brown fine sand	
46	0.0							
47	0.0							
48	0.0							
49	0.0							
50	211.0	DB-29 50-52	50-55	Wet	60	SP	Brown fine sand, moderately to heavilty saturated in coal tar	
51	324.5							
52	304.9							
53	276.0							
54	232.0							
55	167.3	DB-29 55-57	55-60	Wet	60	SP	Brown fine-medium sand, odors	
56	39.0							
57	45.0							
58	21.3							
59	13.8							
60	21.3		60-65	Wet	60	SP	Brown fine sand, trace odors	
61	32.1							
62	17.2							
63	12.1							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0	DB-4 68-70						
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street	**DB-30**	
	Site Address: 251 Dougalss Street		
	Weather: Clear, v. windy 32		
	Geologist: AK	Total Depth: 70	
Start Date: 3/14/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/15/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	concrete 0-2 Dark brown to tan silty sand with gravel 2-5	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Gray silty clay, loose	
7	0.0							
8	0.0							
9	0.0							
10	0.0							
11	-		10-15	N/A	0	N/A	No Recovery	
12	-							
13	-							
14	-							
15	-							
16	-		15-20	N/A	0	N/A	No Recovery	
17	-							
18	-							
19	-							
20	-							
21	0.0		20-25	Wet	60	CL	Gray clay with roots	
22	0.0							
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	CL	Gray clay with roots	
27	0.0							
28	0.0							
29	0.0							
30	0.0							
31	51.3		30-35	Wet	60	SP	Brown fine sand, small interval of coal tar	
32	148.0	DB-30 31-33						
33	204.9							
34	38.6							
35	92.3							
36	209.0		35-40	Wet	60	SP	Brown fine sand, moderately coated in coal tar	
37	346.0							
38	451.3							
39	291.7							
40	243.0							
41	23.4	DB-30 40-42	40-45	Wet	60	SP	Brown fine sand, odors, **outside of liner coated, drawdown, not representative **	
42	45.3							
43	26.7							
44	19.5							
45	0.0							
46	0.0		45-50	Wet	60	SP	Brown fine to medium sand	
47	0.0							
48	0.0							
49	0.0							
50	0.0							
51	0.0		50-55	Wet	60	SP	Brown fine sand	
52	0.0							
53	0.0							
54	0.0							
55	0.0							
56	0.0		55-60	Wet	60	SP	Brown fine sand	
57	0.0							
58	0.0							
59	0.0							
60	0.0							
61	0.0		60-65	Wet	60	SP	Brown fine sand	
62	0.0							
63	0.0							
64	0.0							
65	0.0							
66	0.0		65-70	Wet	60	SP	Brown fine sand	
67	0.0							
68	0.0							
69	0.0							
70							End of boring at 70 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Douglass Street	**DB-31**	
	Weather: Clear, 40s SSE 9		
	Geologist: AK	Total Depth: 80	
Start Date: 3/16/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/17/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0							
	0.0							
2	0.0		0-5	Dry	30	Fill/ML	Brown silty sand with gravel	
3	0.0							
4	0.0							
5	0.0							
6	0.0							
7	0.0		5-10	Moist	40	Fill/ML	Brown to gray silty sand and gravel	
8	0.0							
9	0.0							
10	0.0							
11	0.0							
12	0.0		10-15	Wet	50	Fill/CL	Gray silty sand and gravel, 10-14 Gray clay with trace roots, 14-15	
13	0.0							
14	0.0							
15	0.0							
16	0.0							
17	0.0		15-20	Wet	60	CL	Gray clay	
18	0.0							
19	0.0							
20	0.0							
21	0.0							
22	0.0		20-25	Wet	60	CL PT CL	Gray/blue clay	
23	0.0							
24	0.0							
25	0.0							
26	0.0							
27	0.0		25-30	Wet	60	CL SP	Gray fine sand with trace gravel	
28	0.0							
29	0.0							
30	219.0	DB-31 30-32						
31	384.0							
32	421.0		30-35	Wet	60	SP	Fully saturated, Brown fine sand	
33	345.0							
34	291.0							
35	642.0							
36	381.0							
37	233.0		35-40	Wet	60	SP	Moderately to fully saturated in coal tar, Brown fine sand	
38	425.0							
39	457.0							
40	182.0							
41	124.0							
42	209.0		40-45	Wet	60	SP	Light to moderately saturated, some sheen	
43	197.0							
44	87.0							
45	15.2	DB-31 45-47						
46	13.8							
47	29.3		45-50	Wet	60	SP	Brown fine sand	
48	17.6							
49	14.1							
50	-							
51	-							
52	-		50-55	N/A	N/A	N/A	No recovery	
53	-							
54	-							
55	629.0							
56	846.0							
57	724.0	**	55-60	Wet	60	SP	Fully saturated, Brown fine sand **too saturated for sample here**	
58	842.0							
59	421.0							
60	362.0	DB-31 60-62						
61	371.0							
62	211.0		60-65	Wet	60	SP	Brown fine sand, moderate coal tar, blebs, sheen	
63	182.0							
64	41.2							
65	61.3	DB-31 65-67						
66	29.8							
67	17.3		65-70	Wet	60	SP	Brown fine sand	
68	14.6							
69	0.0							
70	0.0							
71	0.0							
72	0.0		70-75	Wet	60	SP	Brown fine sand	
73	0.0							
74	0.0							
75	0.0							
76	0.0							
77	0.0		75-80	Wet	60	SP	Brown fine sand	
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-32**	
	Weather: Rain 30's NNW 10		
	Geologist: AK	Total Depth: 80	
Start Date: 3/13/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/14/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Concrete, brown silty sand	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Dark gray silty with gravel, loose gray clay	
7	0.0							
8	0.0							
9	0.0							
10	0.0		10-15	Wet	50	CL	Gray clay with roots	
11	0.0							
12	0.0							
13	0.0							
14	0.0							
15	"		15-20	Wet	N/A	N/A	No Recovery	
16	"							
17	"							
18	"							
19	"							
20	0.0		20-25	Wet	4	CL	limited recovery, gray clay, roots	
21	0.0							
22	0.0							
23	0.0							
24	0.0							
25	0.0		25-30	Wet	60	CL SP	25-28 gray brown clay, trace silt 28-30 gray/blue fine-medium sand	
26	0.0							
27	0.0							
28	0.0							
29	0.0							
30	0.0		30-35	Wet	60	SP	Brown fine sand	
31	0.0							
32	0.0							
33	0.0							
34	0.0							
35	0.0		35-40	Wet	60	SP	Brown fine sand	
36	0.0							
37	0.0							
38	0.0							
39	0.0							
40	221.0	DB-32 40-42	40-45	Wet	60	SP	Brown fine sand Blebs 40-42 and lense at 42'	
41	184.0							
42	311.0							
43	205.0							
44	57.0							
45	14.3	DB-32 45-47	45-50	Wet	60	SP	Brown fine sand	
46	11.9							
47	0.0							
48	0.0							
49	0.0							
50	0.0		50-55	Wet	60	SP	Brown fine sand	
51	0.0							
52	0.0							
53	0.0							
54	0.0							
55	0.0		55-60	Wet	60	SP	Brown fine sand	
56	0.0							
57	0.0							
58	0.0							
59	0.0							
60	0.0		60-65	Wet	60	SP	Brown fine sand	
61	0.0							
62	0.0							
63	0.0							
64	0.0							
65	0.0		65-70	Wet	60	SP	Brown fine sand	
66	0.0							
67	0.0							
68	0.0							
69	0.0							
70	0.0		70-75	Wet	60	SP	Brown fine sand	
71	0.0							
72	0.0							
73	0.0							
74	0.0							
75	0.0		75-80	Wet	60	SP	Brown fine sand	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80							End of boring at 80 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

SOIL BORING LOG

Impact Environmental, Inc. 170 Keyland Court Bohemia, NY 11716 P. (631) 269-8800	Project #: 13928	**Boring ID:**	
	Site/Project Name: 251 Douglass Street		
	Site Address: 251 Dougalss Street	**DB-33**	
	Weather: Clear, v. windy 32		
	Geologist: AK	Total Depth: 90	
Start Date: 3/14/23	Drilling Company: PG	GW: 10-12	
Start Time: 8:00	Driller: Orlando	GW Stabilized: N/A	
Completion Date: 3/15/23	Drill Rig: 7822 DT	GPS Coordinates:	
Completion Time:	Sampler Type/Len: Dual tube	X,Y	

Depth (Feet)	PID (ppmv)	Sample ID	Depth (From-To)	Moisture Content	Recovery (Inches)	USCS Symbol	Soil Description	MGP Color Code
1	0.0		0-5	Dry	30	Fill/ML	Gravel and gray silty sand	
2	0.0							
3	0.0							
4	0.0							
5	0.0							
6	0.0		5-10	Moist	40	Fill/ML	Gravel and gray silty sand	
7	0.0							
8	0.0							
9	0.0							
10	-							
11	-		10-15	N/A	0	N/A	No Recovery	
12	-							
13	-							
14	-							
15	0.0		15-20	Moist	60	CL	Gray clay	
16	0.0							
17	0.0							
18	0.0							
19	0.0							
20	0.0							
21	0.0		20-25	Wet	60	CL	Gray/ Blue clay	
22	0.0							
23	0.0							
24	0.0							
25	0.0							
26	0.0		25-30	Wet	60	CL	Gray/Brown Clay	
27	0.0							
28	0.0							
29	0.0							
30	0.0							
31	0.0		30-35	Wet	60	SP	Brown fine sand	
32	0.0							
33	0.0							
34	0.0							
35	0.0							
36	0.0		35-40	Wet	60	SP	Brown fine sand	
37	0.0							
38	0.0							
39	0.0							
40	0.0							
41	0.0		40-45	Wet	60	SP	Brown fine sand	
42	0.0							
43	0.0							
44	0.0							
45	0.0							
46	0.0		45-50	Wet	60	SP	Brown fine sand	
47	0.0							
48	0.0							
49	0.0							
50	**	DB-33 50-52	50-55	Wet	60	SP	Brown fine sand, heavily saturated in Coal tar **too saturated for PID, see photo documentation in daily report of GCM**	
51	**							
52	**							
53	**							
54	**							
55	**		55-60	Wet	60	SP	Brown fine sand, heavily saturated in Coal tar **too saturated for PID, see photo documentation in daily report of GCM**	
56	**							
57	**							
58	**							
59	**							
60	**		60-65	Wet	60	SP	Brown fine sand, heavily saturated in Coal tar **too saturated for PID, see photo documentation in daily report of GCM**	
61	**							
62	**							
63	**							
64	**							
65	492.0	DB-33 68-70	65-70	Wet	60	SP	Brown fine sand, sheen odors, **Outside of liner is coated, likely is draw down from above, not representative**	
66	384.3							
67	265.7							
68	320.1							
69	225.3							
70	-		70-75	Wet	60	SP	No recovery **switched drill rig due to power issues	
71	-							
72	-							
73	-							
74	-							
75	0.0		75-80	Wet	60	SP	Brown fine sand **Outside of liner is coated, likely is draw down from above, not representative**	
76	0.0							
77	0.0							
78	0.0							
79	0.0							
80	0.0		80-85	Wet	60	SP	Brown fine sand	
81	0.0							
82	0.0							
83	0.0							
84	0.0							
85	0.0		85-90	Wet	60	SP	Brown fine sand	
86	0.0							
87	0.0							
88	0.0							
89	0.0							
90							End of boring at 90 feet	

TRACE = 1 - 10% LITTLE = 11 - 20% SOME = 21 - 35% AND = 36 - 50 %

Appendix D

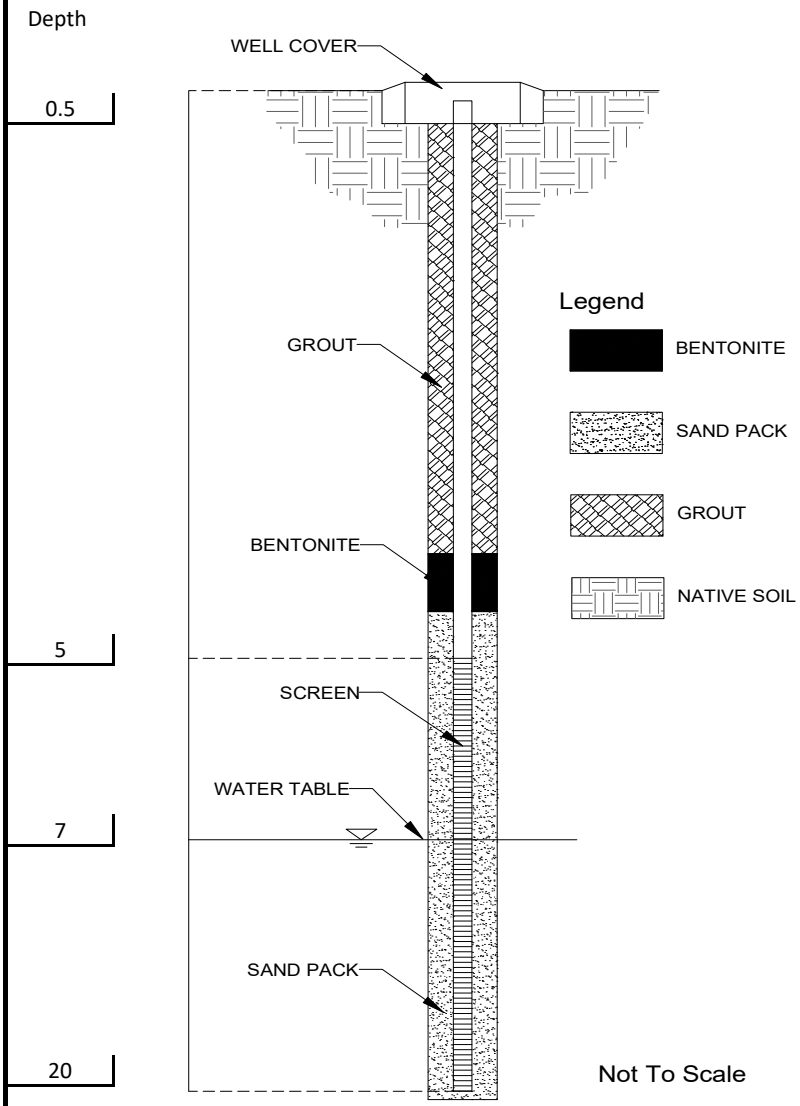
Groundwater Well Construction Logs

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

IMPACT ENVIRONMENTAL
170 Keyland Court, Bohemia, New York 11716
631.269.8800 telephone | 631. 269.1599 facsimile
impactenvironmental.com

Well Code:	**GW-1**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

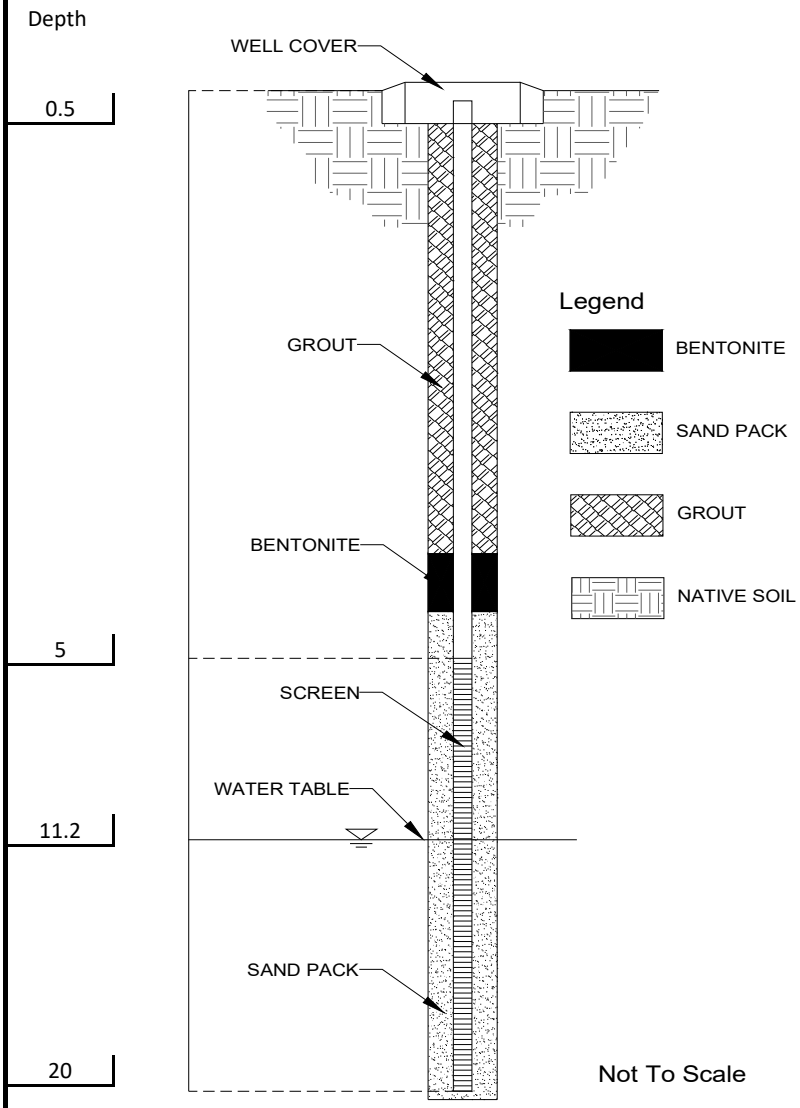
Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

IMPACT ENVIRONMENTAL
170 Keyland Court, Bohemia, New York 11716
631.269.8800 telephone | 631. 269.1599 facsimile
impactenvironmental.com

Well Code:	**GW-2**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	12/5/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

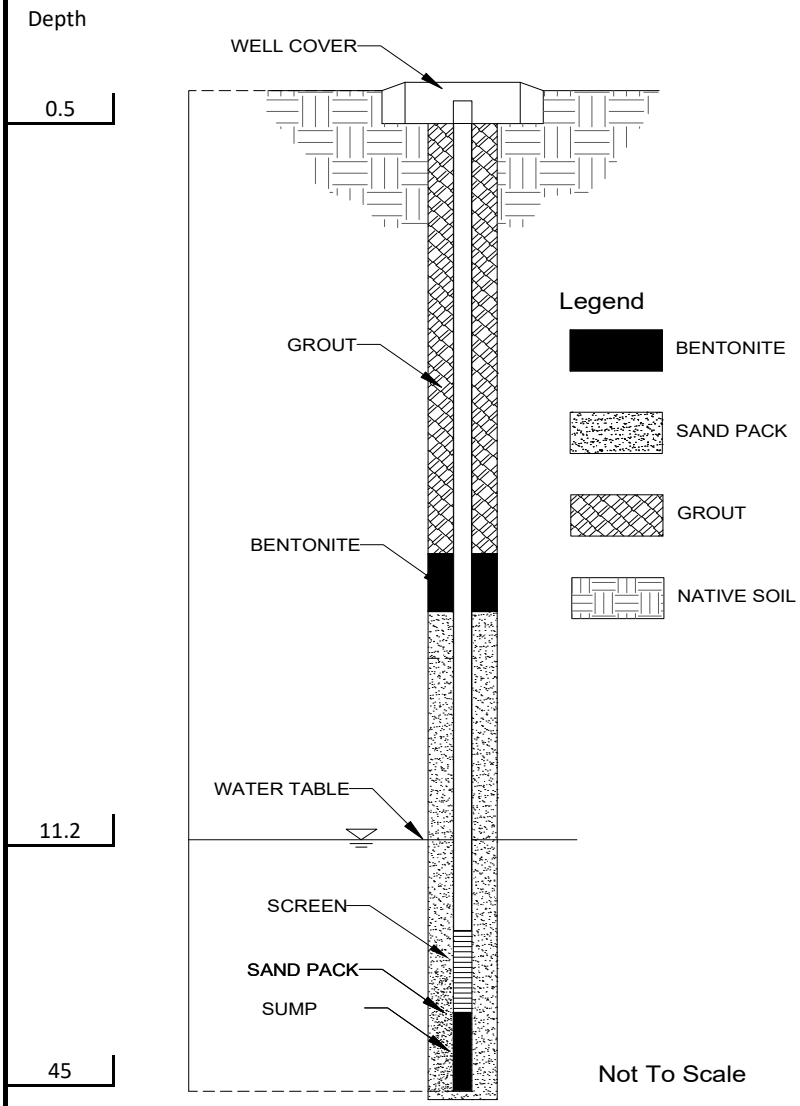
Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

IMPACT ENVIRONMENTAL
170 Keyland Court, Bohemia, New York 11716
631.269.8800 telephone | 631. 269.1599 facsimile
impactenvironmental.com

		Well Code:	**GW-2 (45')**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	12/05/22



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 34.5'
- Interval (BEG): 0.5-35'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-31'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 31-33'

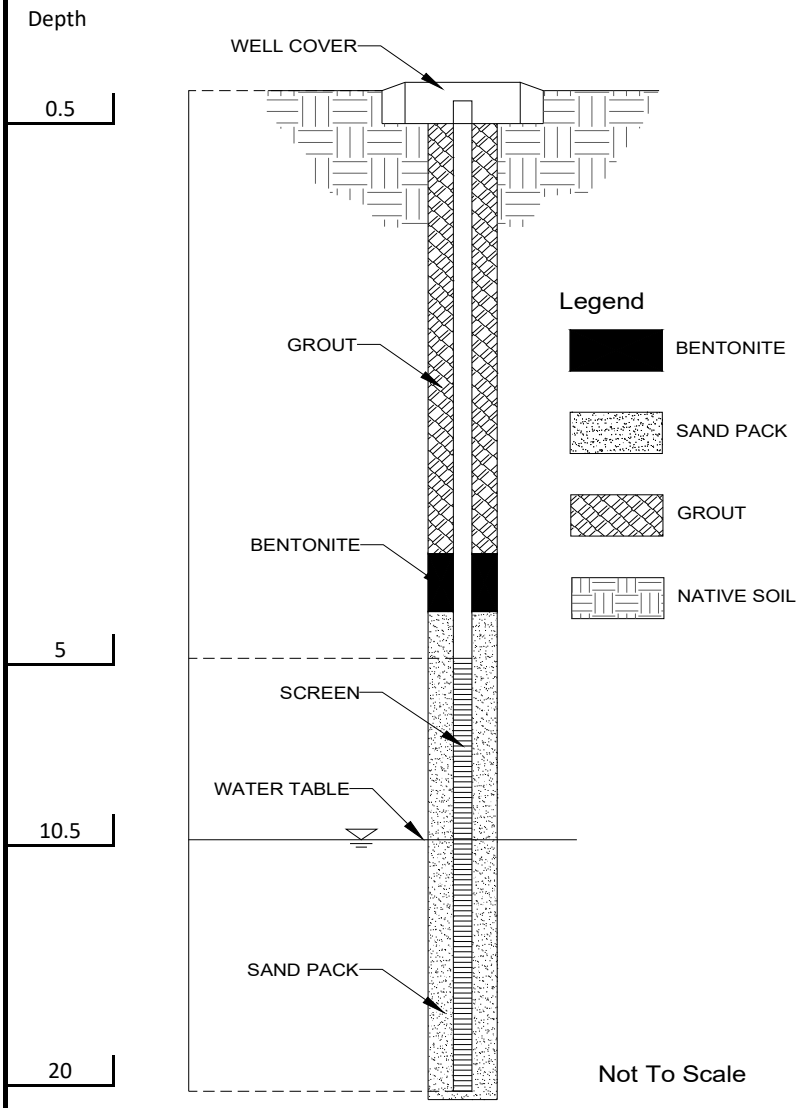
Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 33-45'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 5'
- Slot Size: 0.010"
- Interval (BEG): 35-40'

Sump
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 5'

IMPACT ENVIRONMENTAL
170 Keyland Court, Bohemia, New York 11716
631.269.8800 telephone | 631. 269.1599 facsimile
impactenvironmental.com

Well Code:	**GW-3**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	11/28/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

IMPACT ENVIRONMENTAL
170 Keyland Court, Bohemia, New York 11716
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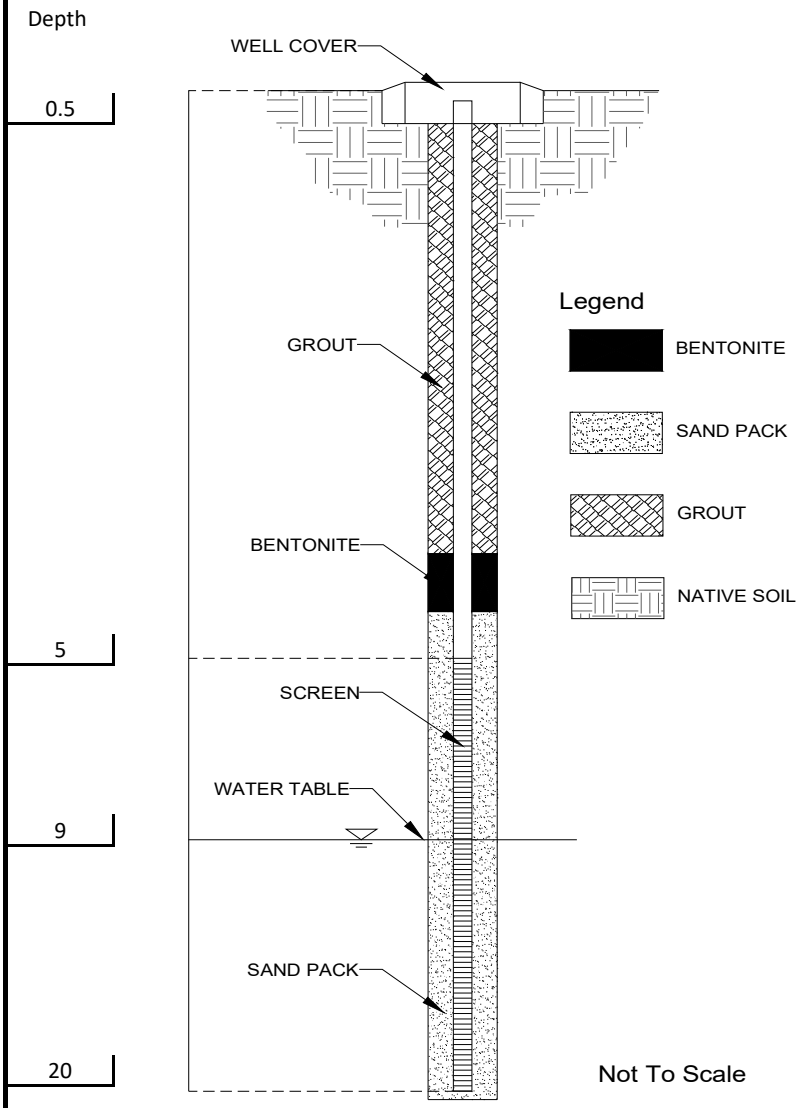
Well Code:	**GW-4**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	11/28/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

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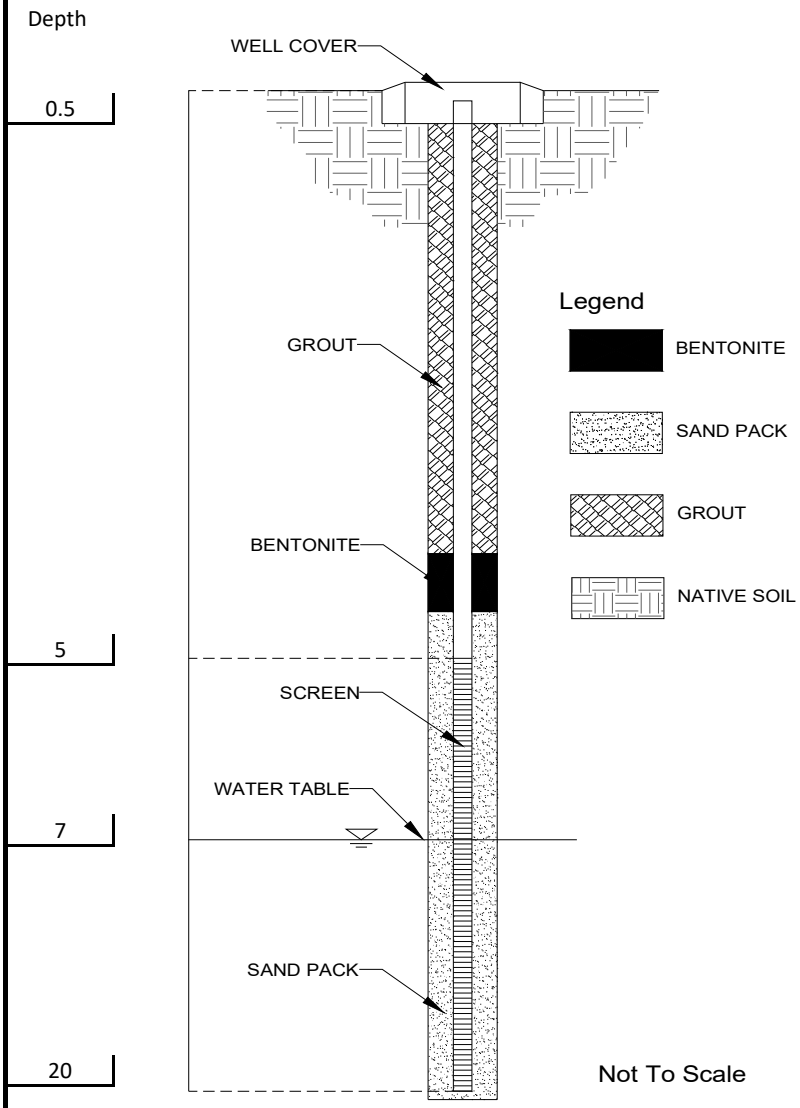
Well Code:	**GW-5**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	11/29/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

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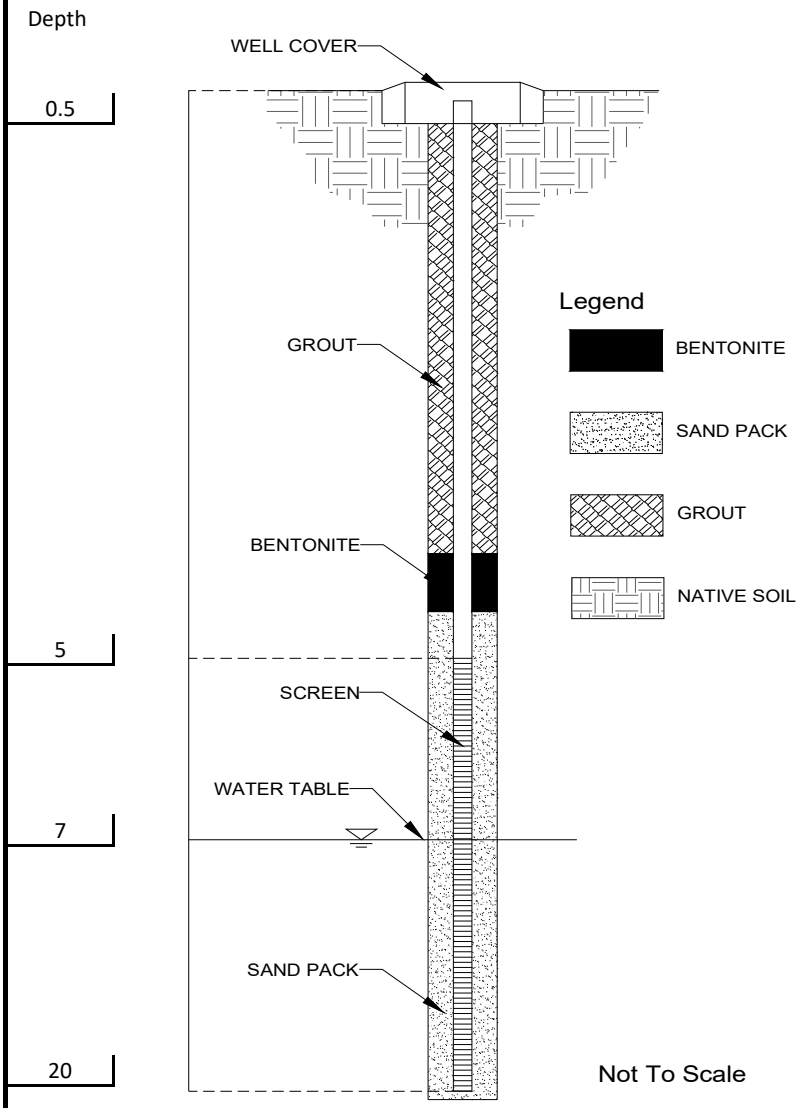
Well Code:	**GW-6**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	11/23/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

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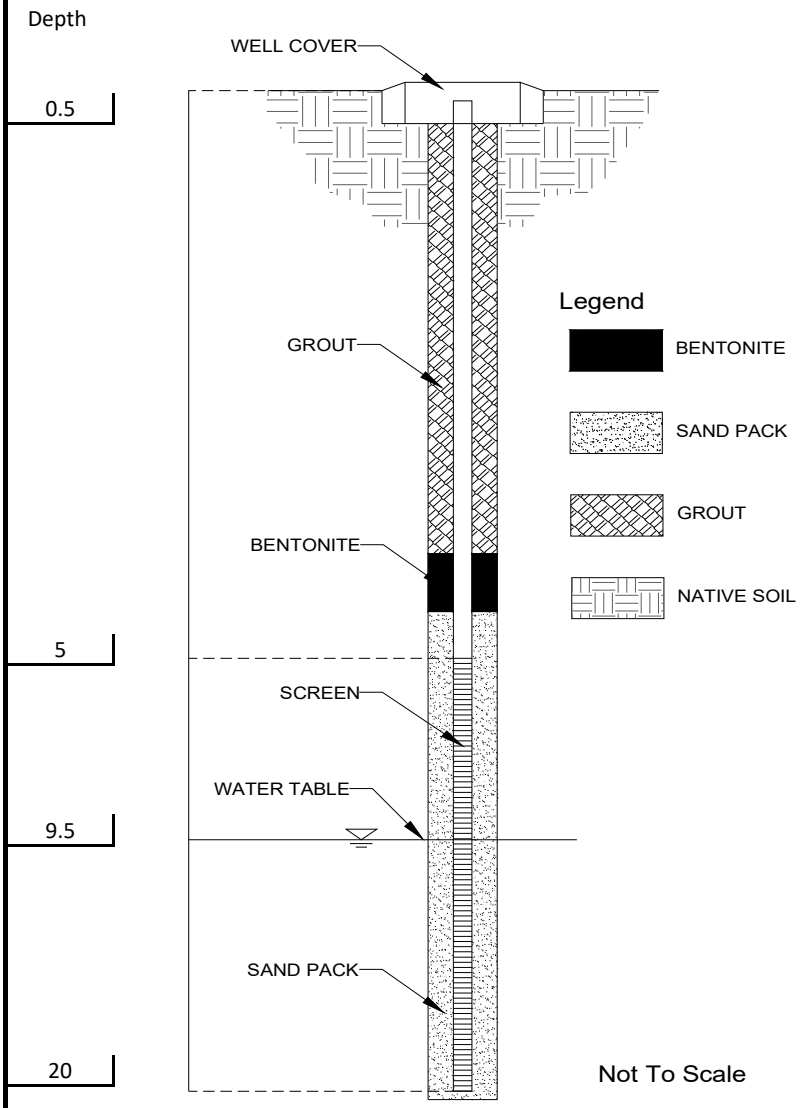
Well Code:	**GW-7**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	11/28/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

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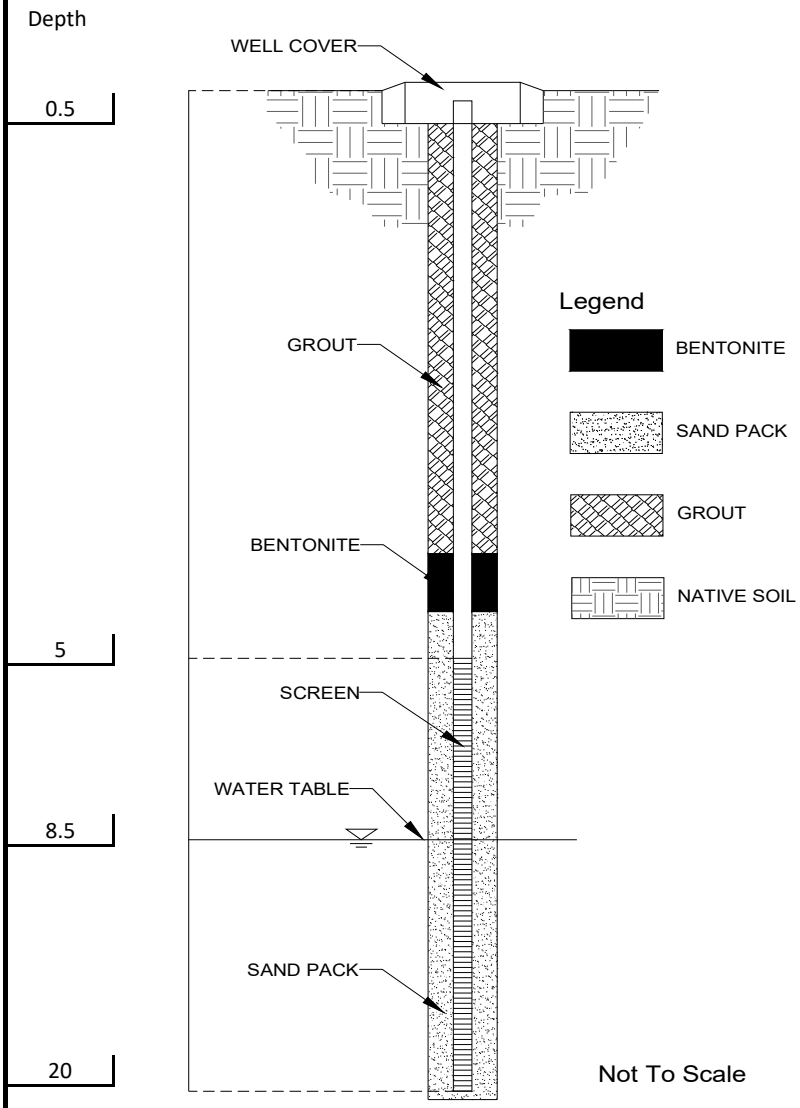
Well Code:	**GW-8**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	11/23/2022



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 4.5'
- Interval (BEG): 0.5-5'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-1'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 1-3'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 3-20'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 15'
- Slot Size: 0.010"
- Interval (BEG): 5-20'

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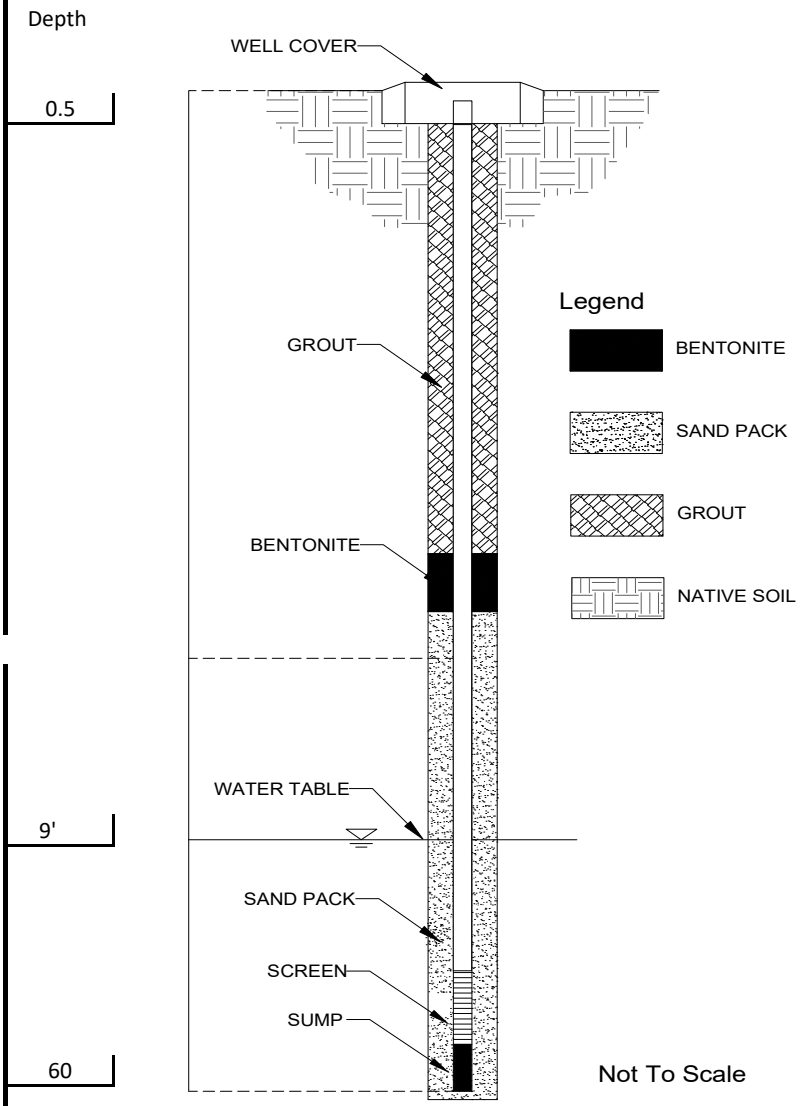
		Well Code:	**GW-8 (55')**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	12/08/22



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 34.5'
- Interval (BEG): 0.5-35'

Annular Seal
- Type: Cement Grout
- Length: 0.5'
- Interval (BEG): 0.5-31'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 31-33'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 33-40'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 5'
- Slot Size: 0.010"
- Interval (BEG): 35-50'

Sump
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 5'

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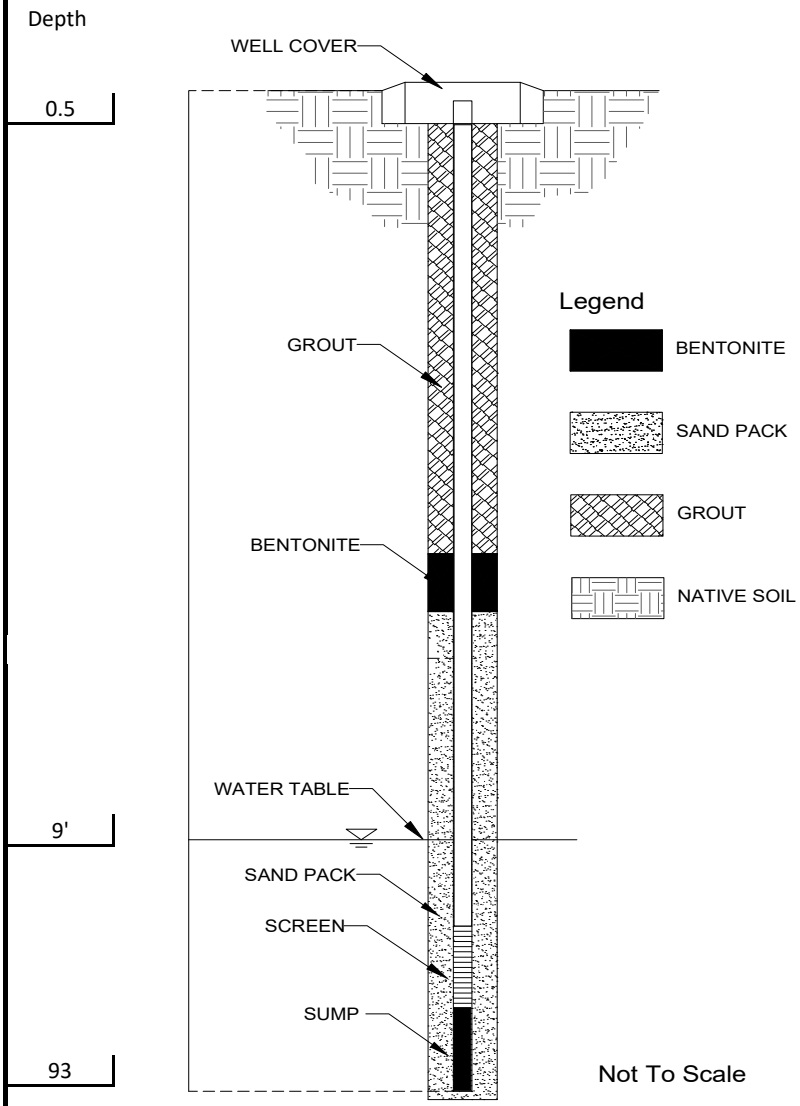
		Well Code:	**GW-8 (93')**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	PG
Job Number:	14729	**Installation Method:**	Geoprobe/Auger
Client:	Gowanus Union Street LLC	**Installation Date:**	12/13/22



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 86.5'
- Interval (BEG): 0.5-87'

Annular Seal
- Type: Cement Grout
- Length: 82.5'
- Interval (BEG): 0.5-83'

Bentonite Seal
- Type: Granular 3/8"
- Length: 2'
- Interval (BEG): 83-85'

Filter Pack
- Type: Sand #2
- Length: 17'
- Interval (BEG): 85-93'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 5'
- Slot Size: 0.010"
- Interval (BEG): 87-92'

Sump
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 1'

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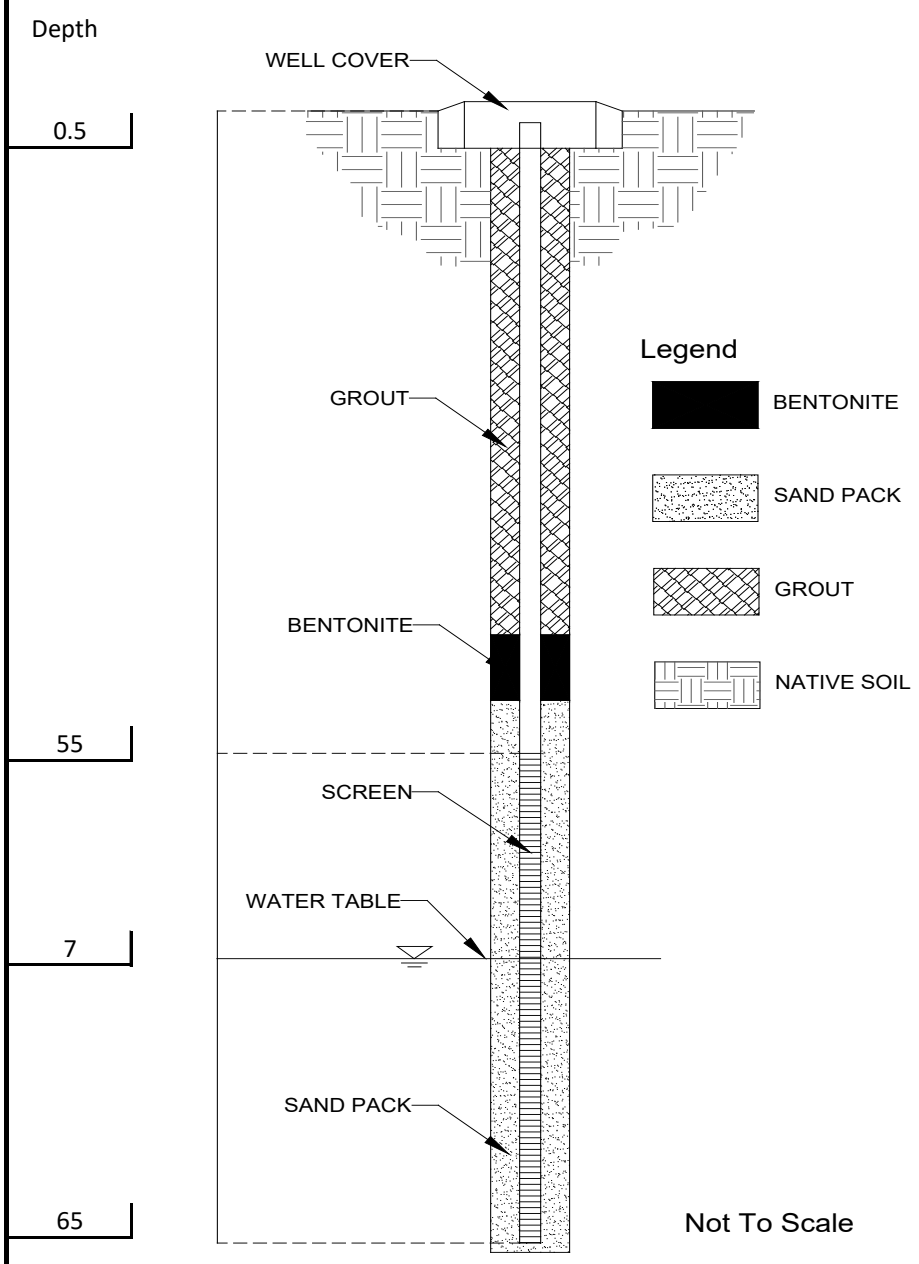
		Well Code:	**CW-7-65**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/26/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 4" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 54.5
- Interval (BEG): 0.5-55'

Annular Seal
- Type: Cement Grout
- Length: 44.5'
- Interval (BEG): 0.5-45'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 45-55'

Filter Pack
- Type: Sand #2
- Length: 10'
- Interval (BEG): 55-65'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 55-65'

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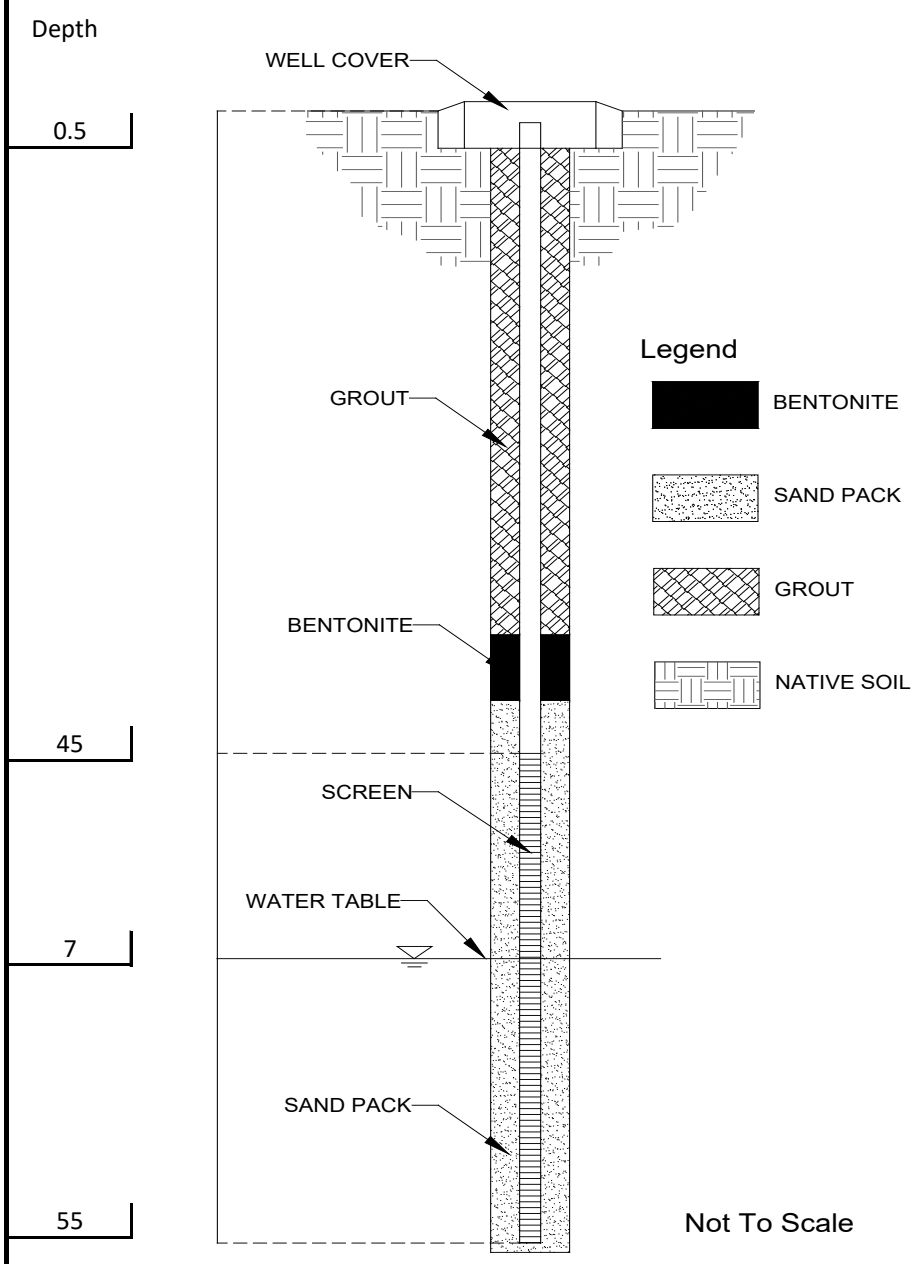
		Well Code:	**CW-7-55**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/26/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 4" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 44.5'
- Interval (BEG): 0.5-45'

Annular Seal
- Type: Cement Grout
- Length: 34.5'
- Interval (BEG): 0.5-35'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 35-45'

Filter Pack
- Type: Sand #2
- Length: 10'
- Interval (BEG): 45-55'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 45-55'

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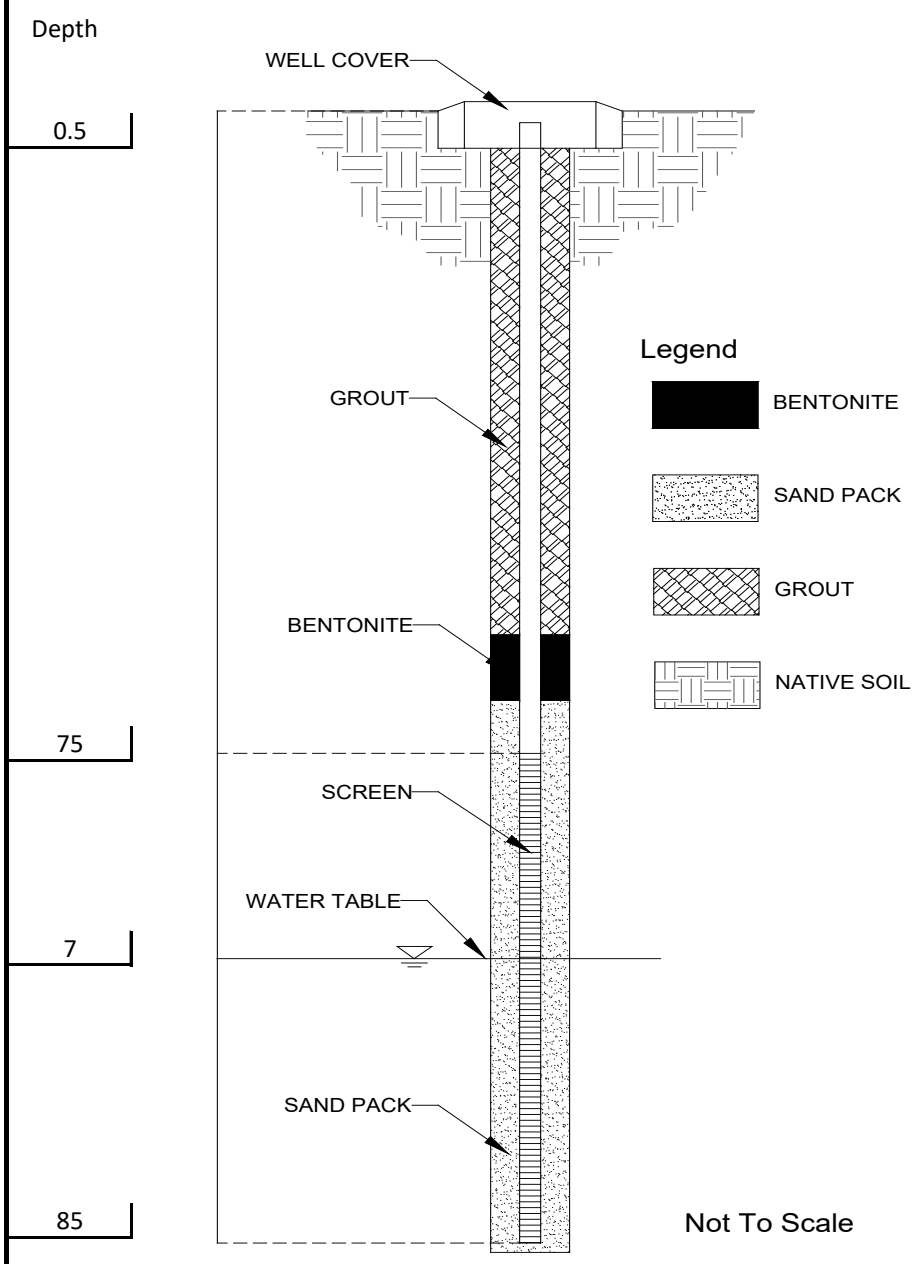
		Well Code:	**CW-4-85**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/26/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 4" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 74.5'
- Interval (BEG): 0.5-75'

Annular Seal
- Type: Cement Grout
- Length: 74.5'
- Interval (BEG): 0.5-75'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 65-75'

Filter Pack
- Type: Sand #2
- Length: 10'
- Interval (BEG): 75-85'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 75-85'

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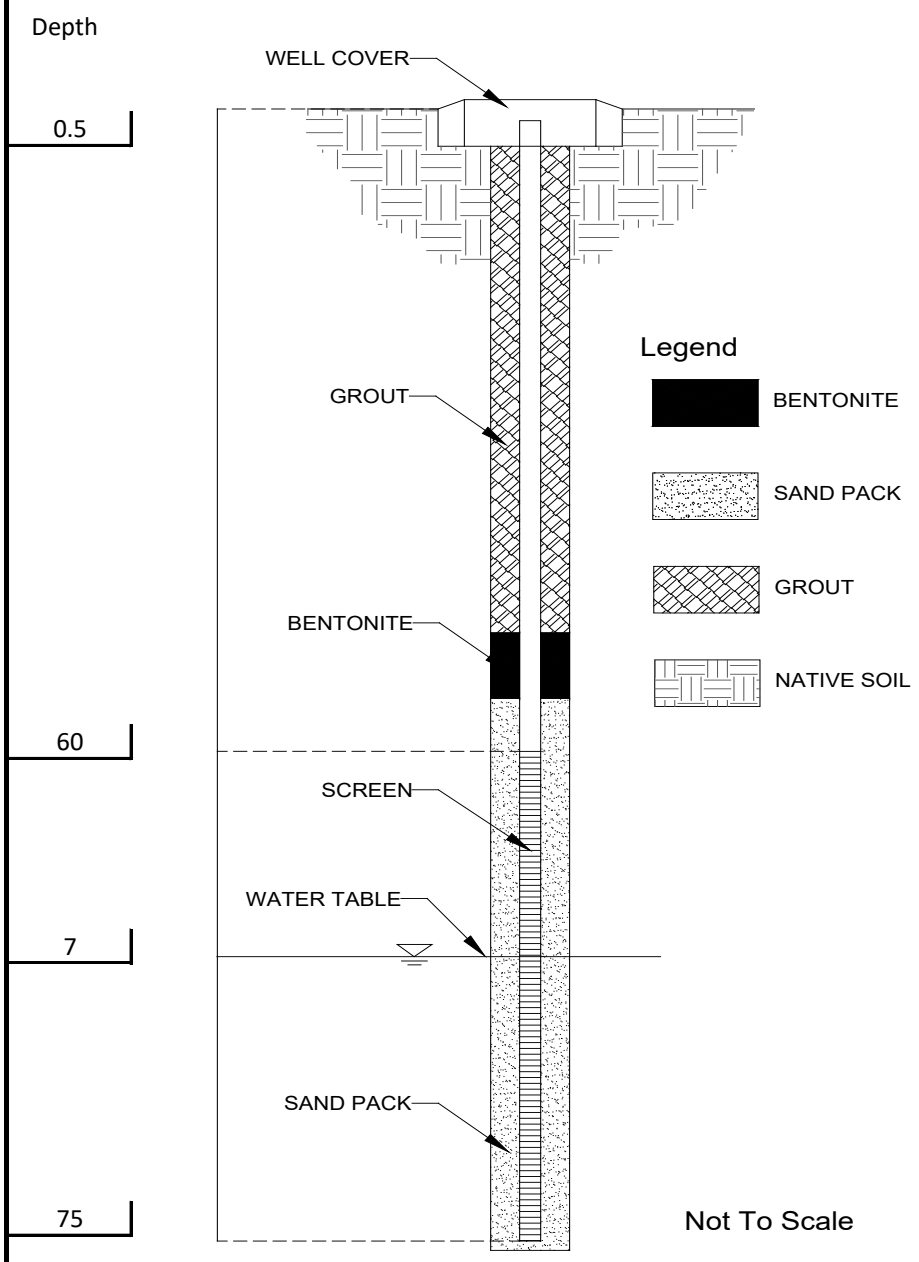
		Well Code:	**CW-4-75**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/27/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 4"
- Length: 69.5'
- Interval (BEG): 0.5-70'

Annular Seal
- Type: Cement Grout
- Length: 69.5'
- Interval (BEG): 0.5-70'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 50-60'

Filter Pack
- Type: Sand #2
- Length: 15'
- Interval (BEG): 60-75'

Screen
- Type: Schedule 40 PVC
- Diameter: 4"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 60-70'

Sump
- Type: Schedule 40 PVC
- Diameter: 4"
- Length: 5'

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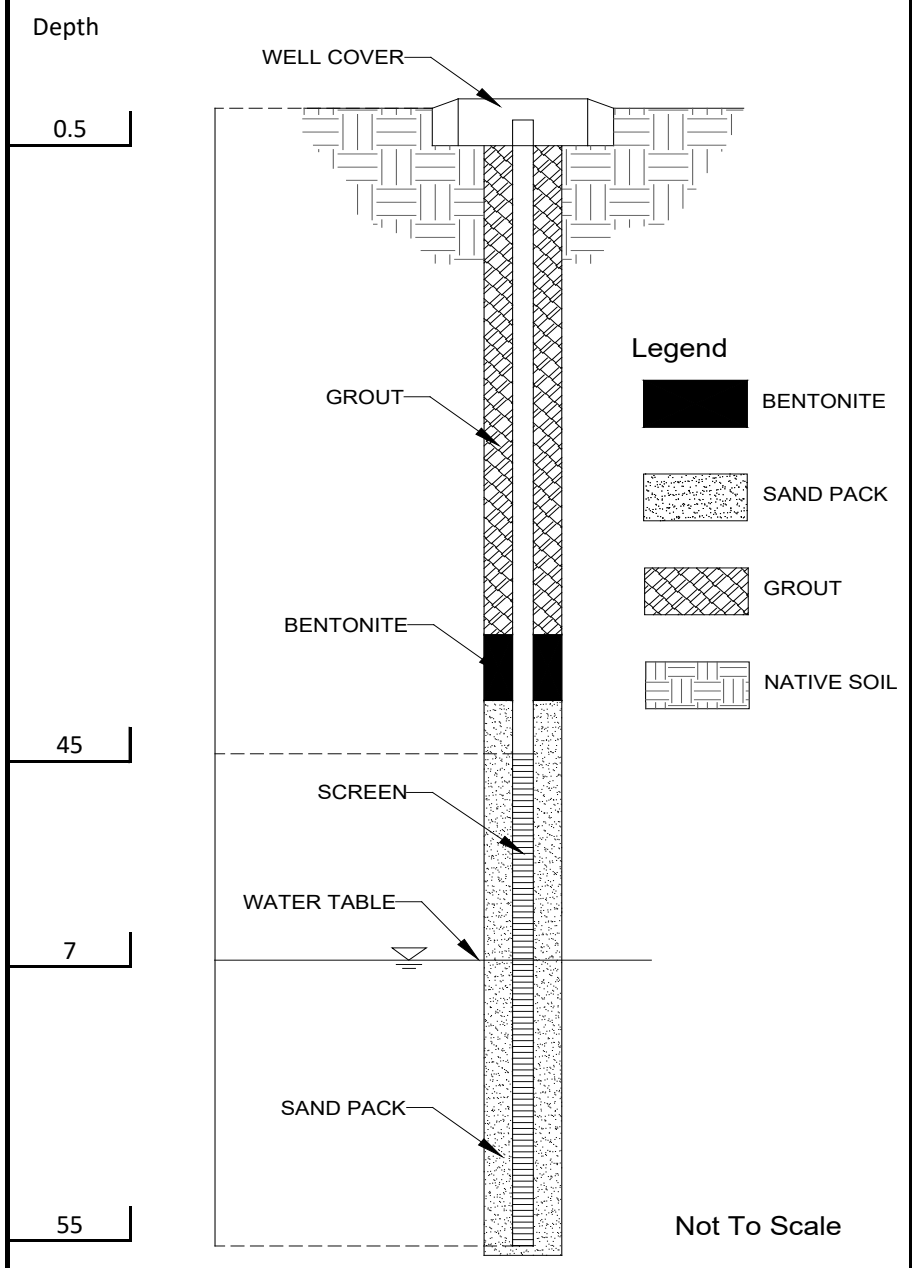
Well Code:	**CW-4-55**		
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/27/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 4" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 44.5'
- Interval (BEG): 0.5-45

Annular Seal
- Type: Cement Grout
- Length: 44.5'
- Interval (BEG): 0.5-45'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 35-45'

Filter Pack
- Type: Sand #2
- Length: 10'
- Interval (BEG): 60-70'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 45-55'

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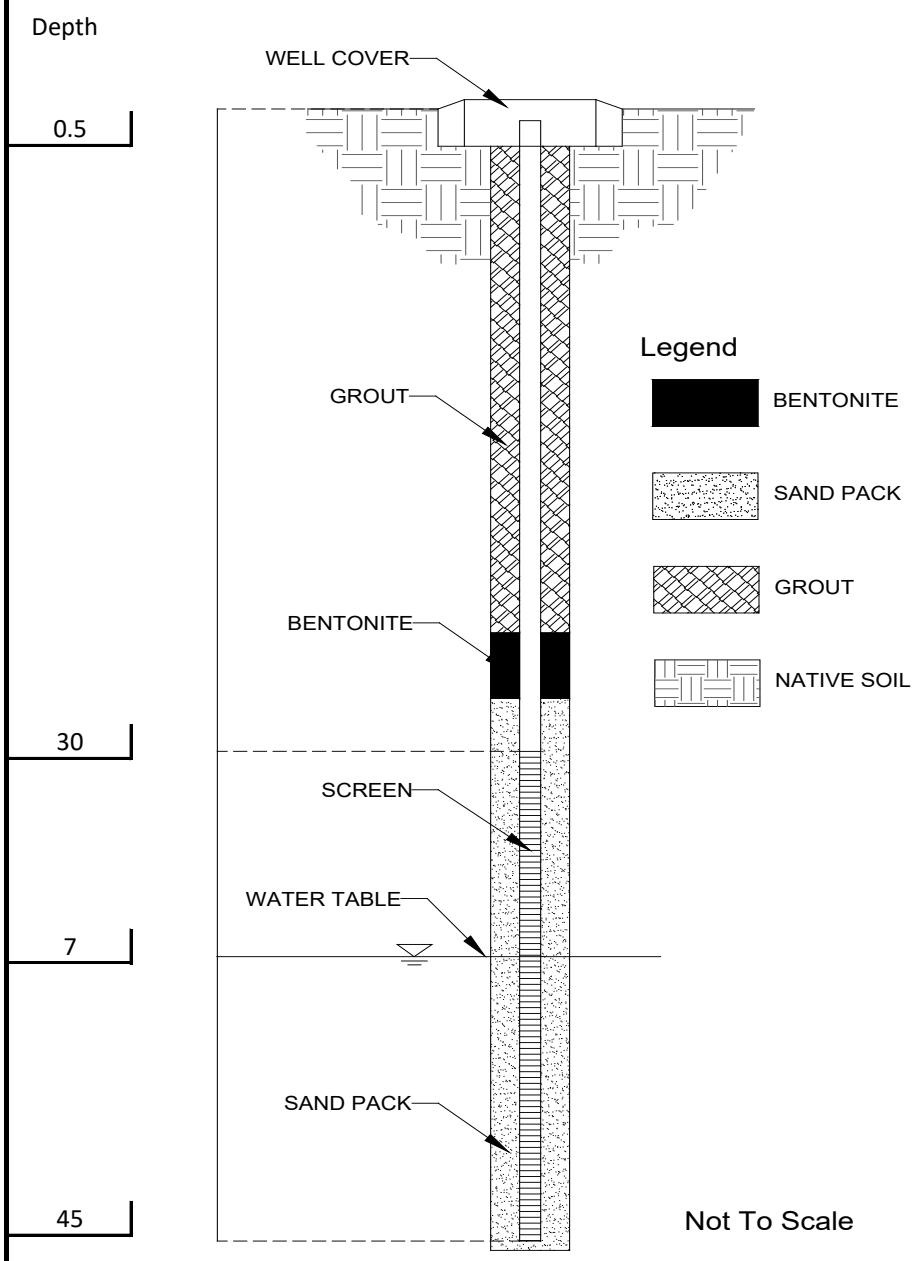
		Well Code:	**CW-4-45**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/28/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 8" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 4"
- Length: 19.5'
- Interval (BEG): 0.5-20'

Annular Seal
- Type: Cement Grout
- Length: 19.5'
- Interval (BEG): 0.5-20'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 20-30'

Filter Pack
- Type: Sand #2
- Length: 15'
- Interval (BEG): 30-45'

Screen
- Type: Schedule 40 PVC
- Diameter: 4"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 30-40'

Sump
- Type: Schedule 40 PVC
- Diameter: 4"
- Length: 5'

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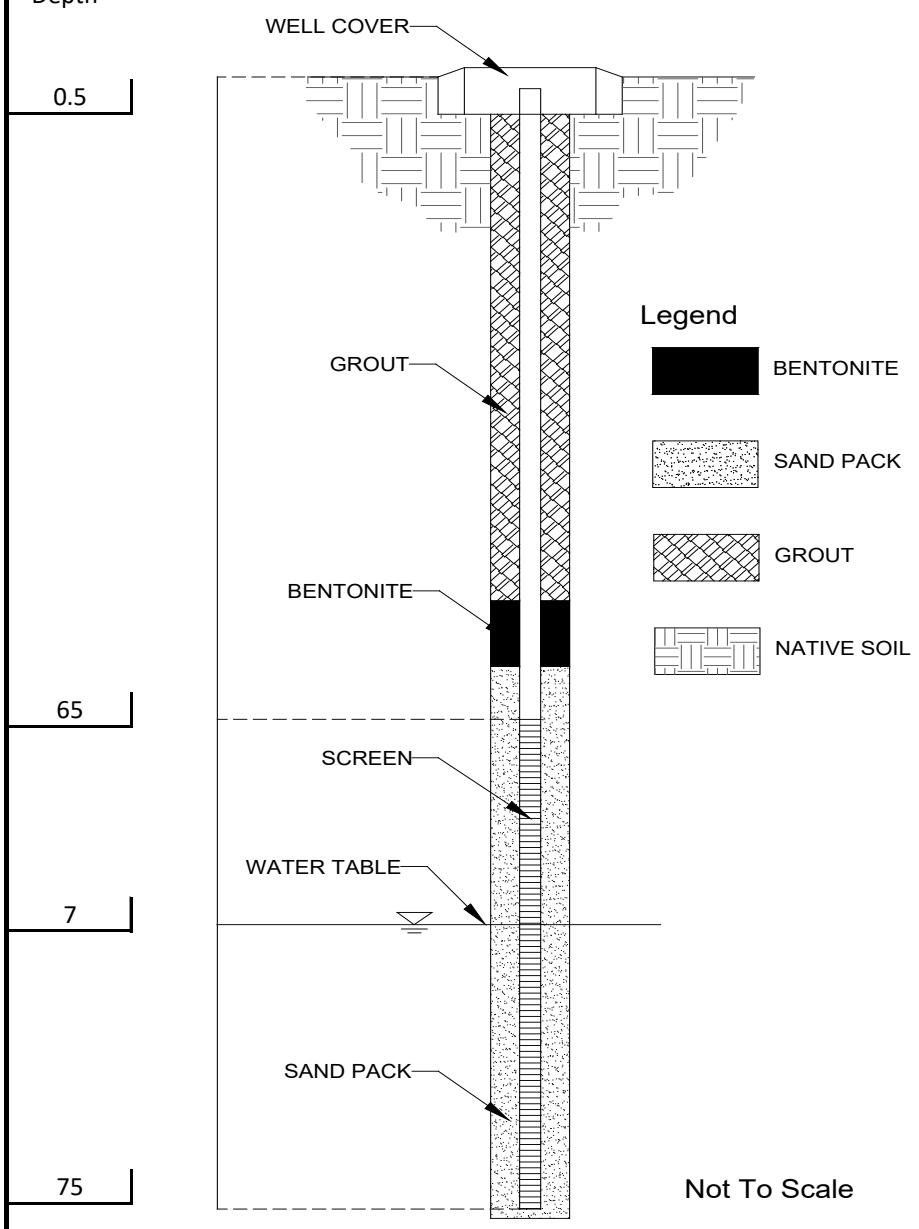
		Well Code:	**CW-6-75**
Site Location:	251 Douglass Street, Brooklyn, NY	**Installer:**	Coastal Environmental
Job Number:	13928	**Installation Method:**	Fraste Eijkelkamp SonicSampDrill Rig
Client:	Gowanus Union Street LLC	**Installation Date:**	4/28/2023



Surface Pad
- Type: Concrete

Well Cap
- Type: J-Plug

Surface Casing
- Type: 4" Steel Manhole

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 54.5'
- Interval (BEG): 0.5-55'

Annular Seal
- Type: Cement Grout
- Length: 54.5'
- Interval (BEG): 0.5-55'

Bentonite Seal
- Type: Granular 3/8"
- Length: 10'
- Interval (BEG): 55-65'

Filter Pack
- Type: Sand #2
- Length: 10'
- Interval (BEG): 65-75'

Screen
- Type: Schedule 40 PVC
- Diameter: 2"
- Length: 10'
- Slot Size: 0.010"
- Interval (BEG): 65-75'

Appendix E

NYSDEC SSDS Correspondence, dated May 9, 2024

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

Outlook

RE: 251 Douglass (C224367)

From DeLuke, Marnie E (DEC) <Marnie.DeLuke@dec.ny.gov>
Date Thu 5/9/2024 8:37 AM
To Kevin Kleaka, PG <kkleaka@impactenvironmental.com>
Cc Juliana de la Fuente, PG <Jdelafuente@impactenvironmental.com>; Diana Posten <dposten@impactenvironmental.com>; Dudek, Heidi M (DEC) <heidi.dudek@dec.ny.gov>

1 attachment (4 MB)
decisiondocument.BCP.C224367.2023-09-13.251_Douglass_DD_final.pdf;

Hi Kevin –

Item number 7 in the DD states the following: "*Vapor Mitigation: Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from the subsurface*."

The "*other acceptable measures*" for this site is the ISS from 4-40 ft bgs., which is treating the vadose zone that would cause SVI. In order to confirm the effectiveness of the remedy, post construction IA monitoring is required (Item 9b in the DD).

Please let me know if this provided sufficient clarification, DEC is available to discuss if necessary.

Thanks!

Marnie DeLuke, E.I.T.
Assistant Engineer, Division of Environmental Remediation

New York State Department of Environmental Conservation
Remedial Bureau B, Section D
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York, 12233-7017
P: 518-402-3262 | C: 518-524-0112 | F: 518-402-9773 | marnie.deluke@dec.ny.gov
www.dec.ny.gov |

From: Kevin Kleaka, PG <kkleaka@impactenvironmental.com>
Sent: Wednesday, May 8, 2024 2:46 PM
To: DeLuke, Marnie E (DEC) <Marnie.DeLuke@dec.ny.gov>
Cc: Juliana de la Fuente, PG <Jdelafuente@impactenvironmental.com>; Diana Posten

<dposten@impactenvironmental.com>
Subject: 251 Douglass (C224367)

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Hi Marnie,
Per the approved Remedial Action Work Plan and Decision Document, In-Situ Stabilization/Solidification (ISS) will be implemented across the footprint of the entire Site and potential receptor exposure from impacted soil, groundwater and soil vapor migration from off-site sources will be mitigated with a cover system (building concrete foundation mat slab, concrete cover and vapor barrier membrane), which will be installed immediately above and in contact with the top of ISS soil mix columns. As discussed on our recent weekly calls, please confirm that the NYSDEC is not requiring a sub-slab depressurization system be installed at the Site and that the appropriate installation of ISS is an acceptable measure for the mitigation of vapors into the building from the subsurface, assuming all ISS QA/QC requirements are satisfied. Post construction performance monitoring will be performed under the SMP and include the collection of soil vapor samples via vapor points through the sub-slab of the proposed buildings, as practicable, in conjunction with the collection of indoor air samples in accordance with the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006) and the May 2017 and February 2024: Updates to Soil Vapor / Indoor Air Decision Matrices.

Thank you,

KEVIN KLEAKA, PG | Exec. Vice President

O: 631-269-8800 x129 C: 516-805-8892
170 Keyland Court, Bohemia, NY 11716
Our email policies

Appendix F

Excavation Work Plan

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
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NYSDEC BROWNFIELD CLEANUP PROGRAM

Excavation Work Plan – BCP # C224367

January 30, 2023
Updated May 7, 2025

conducted at:

251 Douglass Street
Brooklyn, New York
County Tax Map Designation: *Block 412; Lot 50*

Submitted to:

Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York, 12233-7020

Prepared For:

Gowanus Douglass Street LLC
19 West 24th Street, 12th Floor
New York, NY, 10010

IEC Project # 13928

IMPACT ENVIRONMENTAL ENGINEERING AND GEOLOGY, PLLC
170 Keyland Court | Bohemia | New York | 11716 | 631.269.8800

TABLE OF CONTENTS

Section **Topic** **Page**

LIST OF ACRONYMS 2

CERTIFICATION 3

1 INTRODUCTION 4

1.1 Notification 4

1.2 Soil Screening Methods 5

1.3 Soil Staging Methods 5

1.4 Materials Excavation and Load-Out 5

1.5 Materials Transport Offsite 6

1.6 Materials Disposal Offsite 7

1.7 Materials Reuse Onsite 7

1.8 Fluids Management 8

1.9 Construction Dewatering 8

1.10 Equipment Decontamination 9

1.11 Backfill from Offsite Sources 9

1.12 Stormwater Pollution Prevention 9

1.13 Excavation Contingency Plan 10

1.14 Community Air Monitoring Plan 10

1.15 Odor Control Plan 11

1.16 Dust Control Plan 12

1.17 Other Nuisances 12

1.18 Daily Reporting 12

LIST OF ACRONYMS

Acronym	Definition
DER	Division of Environmental Remediation
E.I.T.	Engineer-in-Training
EWP	Excavation Work Plan
NYS DEC	New York State Department of Environmental Conservation
NYS DOH	New York State Department of Health
NYC RR	New York Codes, Rules, and Regulations
TCL	Target Compound List
QEP	Qualified Environmental Professional

CERTIFICATION

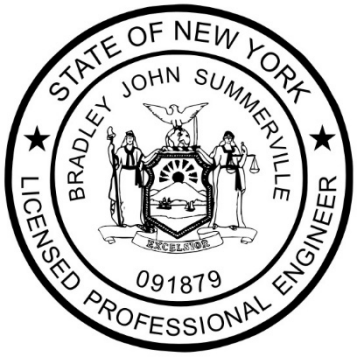
I, Brad Summerville am a Professional Engineer (PE) as defined in §43-140. I have primary direct responsibility for implementation of the Excavation Work Plan (EWP) for the (251 Douglass, Brooklyn, NY) Site (DEC Site # C224367).

I certify that the EWP has a plan for the handling of soil, fill and other materials during excavation at the property in accordance with applicable City, State and Federal laws and regulations. This EWP has provisions to control nuisances during invasive work, including dust suppression.

Brad Summerville
Name

Signature:

Date: May 7, 2025



1 INTRODUCTION

1.1 Notification

At least 15 days prior to the start of any activity that is anticipated to encounter residual materials located on the Site, the Site owner or their representative will notify the New York State department of Environmental Conservation (NYSDEC). The following table includes contact information for the above notification. The information on this table will be updated, as necessary, to provide accurate contact information. A full listing of Site-related contact information is provided below:

Notifications	
Name	**Contact Information**
NYSDEC Remediation Project Manager: Marnie Chancey	(518) 402-3262 Marnie.Chancey@dec.ny.gov
NYSDOH Project Manager: Public Health Specialist: Jim Sullivan	(518) 402-7860 Jim.Sullivan@health.ny.gov

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings, estimated volumes of contaminated soil to be excavate.
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentrations levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling.
- A schedule for the work, detailing the start and completion of all intrusive work.
- A summary of the applicable components of this Excavation Work Plan (EWP).
- A statement that the work will be performed in compliance with the EWP and 29 Code of Federal Regulations 1910.120.
- A copy of the contractor's health and safety plan, in electric format.
- Identification of disposal facilities for potential waste streams.
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

1.2 Soil Screening Methods

Visual, olfactory, and instrumental-based (e.g. photoionization detector [PID]) soil screening will be performed by a qualified environmental professional (EP) during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Certificate of Completion.

Soils will be segregated based on previous environmental data and screening results into material that requires offsite disposal and material that requires testing to determine if the material can be reused onsite as soil beneath a cover or if the material can be used as cover soil. Further discussion of offsite disposal of materials and onsite reuse is provided in Section 1.6 of this EWP.

1.3 Soil Staging Methods

Any stockpiled soil material will be covered with 8-mil minimum polyethylene sheeting.

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be uses as needed near catch basins, surface waters and other discharge points.

Stockpiled material will always be kept covered with appropriately anchored tarps. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC.

1.4 Materials Excavation and Load-Out

A qualified environmental professional (QEP) or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property (if applicable) and its contractors are responsible for safe execution of all intrusive and other work performed under this EWP. The presence of utilities and easements on the Site will be investigated by the QEP. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

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

A truck wash will be operated onsite, as appropriate. The QEP will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site. The truck wash waters will be collected and disposed of offsite in an appropriate manner. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of offsite soil tracking.

The QEO will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed daily, at a minimum, as needed to maintain a clean condition with respect to site-derived materials.

1.5 Materials Transport Offsite

All transport of materials will be performed by licensed haulers in accordance with appropriate local, state and federal regulations, including 6 New York Codes, Rules, and Regulations (NYCRR) Part 364. Haulers will be appropriately licensed and trucks properly placarded.

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, truck liners will be used. Truck transport routes will be determined based on where the proposed excavation will occur.

The most appropriate truck route will account for: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting offsite queuing of trucks entering the

facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development. Queuing of trucks will be performed onsite to minimize offsite disturbance. Offsite queuing will be prohibited.

1.6 Materials Disposal Offsite

All material excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed of in accordance with all local, stat (including 6 NYCRR Part 360) and federal regulations. If disposal of material from this Site is proposed for unregulated offsite disposal (i.e., clean soil removed for developmental purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated offsite management of materials from the Site will not occur without formal NYSDECC approval.

Offsite disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate (i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction/demolition recycling facility, etc.). Actual disposal quantities and associated documentation will be reported to the NYSDEC. This documentation will include waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken offsite will be handled, at a minimum, as a Municipal Solid Waste per 6 NYCRR Part 360-1.2. Material that does not meet Unrestricted Soil Cleanup Objectives is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360-16 Registration Facility).

1.7 Materials Reuse Onsite

Chemical criteria for onsite reuse of material is subject to approval by NYSDEC prior to excavation work.

The QEP will ensure that procedures defined for materials reuse are followed and that unacceptable material does not remain onsite. Contaminated onsite material, including historic fill and contaminated soil, that is acceptable for reuse onsite will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

1.8 Fluids Management

All liquids to be removed from the Site, including but not limited to, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transport, and disposed in accordance with applicable local, state, and federal regulations. Dewatering, purge, and development fluids will not be recharged back to the land surface or subsurface of the Site, and will be managed offsite, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream, or river) will be performed under a State Pollutant Discharge Elimination System permit.

1.9 Construction Dewatering

Dewatering is not anticipated for the purposes of this EWP pertaining to the installation for a single pile on the Site. Should dewatering be needed at the Site, it will be done utilizing a pumping system, settling tanks, and possible treatment system.

Dewatering fluids are to be discharged to the local sanitary sewer system after treatment and under approved regulatory permit. Alternatively, the contractor may provide containerized storage to allow for testing of groundwater prior to, and after, treatment and before disposal. If required, Impact Environmental field personnel may sample dewatering treatment system liquids from either a discharge standpipe or a storage tank. Dewatering samples will be submitted to an NYSDEP ELAP-certified laboratory for analysis.

1.10 Equipment Decontamination

Prior to arrival on the Site and between samples, sampling tools/equipment will be decontaminated using the following methods: 1) remove adherent soil material with stiff bristle brush; 2) wash with laboratory grade glassware detergent or Alconox; 3) steam clean interior and exterior of screen auger sampler and all associated augers; and 4) allow equipment to air dry.

1.11 Backfill from Offsite Sources

All materials proposed for import onto the Site will be approved by the QEP. A Request to Import/Reuse Dill or Soil form (http://www.dec.ny.gov/regulations/67386.html) will be prepared and submitted to the NYSDEC Project Manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and New York State Division of Environmental Remediation (DER)-10 Section 5.4(e). Based on an evaluation of the land use, the resulting soil quality standards are listed in Table 375-6.8(b) for restricted-residential use. 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 NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight-fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases. All stockpiles will be graded for stability and stored on poly sheeting.

1.12 Stormwater Pollution Prevention

If applicable, 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 and maintained at the Site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion

of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

1.13 Excavation Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during excavations or development related to construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils, etc., as necessary, to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (Target Analyte List metals; Target Compound List [TCL] volatiles and semi-volatiles, [TCL] pesticides, and polyvinyl chlorinated biphenyls [PCBs]), unless the Site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included to the NYSEDC in subsequent reporting.

1.14 Community Air Monitoring Plan

Continuous air monitoring will be conducted for protection of the downwind community during site work activities, per the NYSDOH generic Community Air Monitoring Plan in DER-10 Appendix 1A. Continuous air monitoring for volatile organic compounds will be conducted by a minimum of one dedicated person

and will use approved instrumentation during ground intrusive activities. The following action levels have been established for air monitoring.

Parameter	Action Level	Action
Total particulates	2.5 times background and/or greater than 150 micrograms per cubic meter	Work ceases until mitigated
Volatile organic compounds	5 parts per million above background (15-minute average) at the downwind perimeter of the work zone	Work ceases until mitigated
Visible dust	Visible dust as determined by the Engineer	Work ceases until mitigated

1.15 Odor Control Plan

This Odor Control Plan is capable of controlling emissions of nuisance odors offsite. Specific odor control methods to be used on a routine basis will include odor masking agents. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remedial Engineer, and any measures that are implemented will be provided to the NYSEDC in subsequent reporting.

All necessary means will be employed to prevent onsite and offsite nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (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 offsite disposal; (b) use of chemical odorants in spray or misting systems; and (c) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to onsite conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering system.

1.16 Dust Control Plan

A dust suppression plan that addresses dust management during invasive onsite work will include, at a minimum, the following items:

- Dust suppression will be achieved by using a dedicated onsite water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- Onsite roads will be limited in total area to minimize the area required for water truck sprinkling.

1.17 Other Nuisances

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

1.18 Daily Reporting

Daily reports proving a general summary of the activities for each day of active remedial work will be submitted to the NYSDEC and NYSDOH project managers by the end of each business day. The reports will include:

- BCP Site number and statement of the activities performed that day and an update of progress made as well as 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 all citizen complaints, with relevant details basis of complaint; actions taken, etc.);
- A summary of CAMP results noting all exceedances; and
- Photographs of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with the NYSDEC and NYSDOH project managers based on the planned project tasks. Daily reports are not intended to be the primary mode of communication for notification to NYSDEC and NYSDOH of emergencies (accidents, spills), or other sensitive or time critical information. However, such information will be included in the daily reports.

Appendix G

Community Air Monitoring Plan and Construction Health and Safety Plan

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

NYSDEC BROWNFIELD CLEANUP PROGRAM

Community Air Monitoring Plan – BCP # C224367

January 18, 2023
Updated May 7, 2025

conducted at:

251 DouglassStreet
Brooklyn, New York
County Tax Map Designation: *Block 412; Lot 50*

Submitted to:

Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York, 12233-7020

Prepared For:

Gowanus Douglass Street LLC
19 West 24th Street, 12th Floor
New York, NY, 10010

IEC Project # 13928

TABLE OF CONTENTS

Section Topic Page

LIST OF ACRONYMS **3**

CERTIFICATION **4**

1 INTRODUCTION **5**

1.1 Objectives 5

2 MONITORING **6**

2.1 Community Air Monitoring Plan 6

2.1.1 Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals 6

2.2 VOC Monitoring, Response Levels, and Actions 6

2.3 Particulate Monitoring, Response Levels, and Actions 7

2.4 Meteorological Monitoring 8

3 DOCUMENTATION **9**

APPENDICES

APPENDIX A CAMP DIALY STATUS REPORT SHEET

APPENDIX B ON-SITE DUST AND VOLATILE ORGANIC VAPOR MONITORING LOG

LIST OF ACRONYMS

Acronym	Definition
DER	Division of Environmental Remediation
CAMP	Community Air Monitoring Unit
Mcg/m3	Micrograms Per Cubic Meter
NYS DEC	New York State Department of Environmental Conservation
NYS DOH	New York State Department of Health
PID	Photoionization Detector
PM-10	Particulate Matter Less Than 10 Micrometers in Size
PPM	Parts Per Million
VOC	Volatile Organic Compound

CERTIFICATION

I, Brad Summerville am a Professional Engineer (PE) as defined in §43-140. I have primary direct responsibility for implementation of the Community Air Management Plan (CAMP) for the (251 Douglass Street, Brooklyn, NY) Site (DEC Site # C224367).

I certify that the CAMP has a plan for handling the prevention of exposure to the public from potential contaminant releases resulting from on-site investigative or remedial activities.

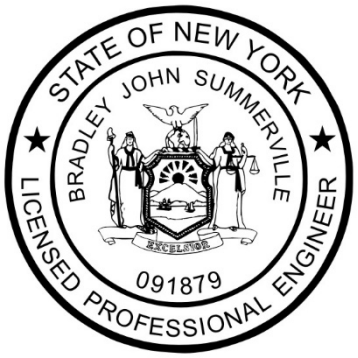
Brad Summerville, P.E.

Name

Signature

May 7, 2025

Date



1 INTRODUCTION

Impact Environmental Closures, Inc (IEC) prepared this Community Air Monitoring Plan (CAMP) to protect the community from any potential airborne releases that could result from field activities associated with construction activities for development (foundation installations, support of excavation, etc.) or remediation activities (remedial investigations or remedial action) at the property located at 251 Douglass Street, Brooklyn, New York, herein referred to as the "Site". This work is being performed under the auspices of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program, DEC Project # C224367. This document has been prepared in accordance with the NYSDEC Program Policy Division of Environmental Remediation (DER)-10/Technical Guidance for Site Investigation and Remediation, dated May 3, 2010.

The CAMP is intended to protect off-site receptors and those not directly involved with remedial activities from potential airborne contaminant releases that result directly from investigative or remedial activities.

1.1 Objectives

The overall objectives of this document are as follows:

- Prevent exposure to the public from potential contaminant releases resulting from on-site investigative or remedial activities;
- Specify monitoring and documentation requirements; and
- Provide contingency details.

2 MONITORING

2.1 Community Air Monitoring Plan

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels with instrumentation and visual monitoring of fugitive dust migration will be performed at the perimeter of the exclusion zone or work area. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, the installation of soil borings or monitoring wells and demolition of contaminated or potentially contaminated structures.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedances of action levels observed during performance of the CAMP will be reported to the DEC Project Manager and included in the Daily Report.

2.1.1 Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals

Continuous monitoring for VOCs will be performed during all ground intrusive activities such as the advancement of soil borings, soil vapor or sub-slab points and monitoring well installation for the collection of soil, soil vapor and/or groundwater samples. Continuous monitoring during sample collection of potentially exposed individuals will take place where all ground intrusive work will take place along the property boundary to Douglass and Nevins Street. In these areas, CAMP will be performed prior to all ground intrusive work for sample collection, while the subsurface intrusive work is taking place and prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities.

2.2 VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using a photoionization detector (PID). The PID will be calibrated at least daily for the contaminant(s) of concern or for an

appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities 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 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for DEC personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

2.3 Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) 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 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

2.4 Meteorological Monitoring

Meteorological monitoring will take place on a daily basis. It will consist of temperature, wind direction, and general atmospheric conditions (i.e. rain, snow, etc.). These parameters will be evaluated each morning and recorded in the field notebook. Wind direction should be monitored throughout the day so that upwind and downwind sampling locations can be adjusted if necessary.

All readings will be recorded and be available for DEC personnel to review.

3 DOCUMENTATION

During the implementation of the CAMP, the following information will be recorded and maintained:

- Climatological conditions including temperature wind direction, and other atmospheric conditions along with the date and time of observations;
- Calibration of field instruments;
- VOC 15-min readings as well as instantaneous readings, if necessary; All particulate readings; and
- Any exceedances to the response levels and the respective corrective actions.

VOC 1-min readings will be available for review by the State (NEYDEC and NYSDOH) if requested and included in each *Daily Field Report*. Additionally, the DEC will be notified immediately of any exceedances.

CONSTRUCTION HEALTH AND SAFETY PLAN

NYSDEC BROWNFIELD CLEANUP PROGRAM

Submitted for:

251 Douglass Street
Brooklyn, New York
County Tax Map Designation: Block 450; Lot 12

Submitted to:

New York State Department of Environmental Remediation, Region 2
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7016

Prepared for:

Gowanus Douglass Street LLC
19 West 24th Street, 12th Floor
New York, NY, 10010

August 24, 2022
***IEC Project Number:* #13928**

IMPACT ENVIRONMENTAL | 170 Keyland Court | Bohemia | New York | 11716 | 631.269.8800

TABLE OF CONTENTS

Section	Topic	Page
1	**Introduction**	**1**
1.1	Purpose	1
2	**Application of Health and Safety Plan**	**2**
2.1	Restoration Personnel	2
2.2	Construction Personnel	2
3	**Key Personnel / Identification of Health & Safety Personnel**	**3**
3.1	Key Personnel	3
3.2	Organizational Responsibility	3
3.2.1	*Senior Project Manager*	*3*
3.2.2	*Project Manager*	*4*
3.2.3	*Field Operations Leader*	*4*
3.2.4	*Site Health and Safety Officer*	*4*
4	**Chemical Hazard Analysis and Control Measures**	**6**
4.1	**Volatile Organic Compounds**	**6**
4.2	**Semi-Volatile Organic Compounds**	**6**
4.3	**Total Metals**	**7**
5	**Health and Safety Risk Analysis**	**8**
5.1	Explosion and Fire	8
5.1.1	*Flammable Vapors*	*8*
5.1.2	*High Oxygen Levels*	*8*
5.1.3	*Fire Prevention*	*8*
5.2	Operational Safety Hazards	9
5.2.1	*Heavy Machinery / Equipment*	*9*
5.2.2	*Vehicular Traffic*	*9*
5.3	Noise Hazards	9
5.4	Safe Material Handling	9
5.5	Temperature Hazards	10
5.5.1	*Types of Heat Stress*	*10*
5.5.2	*Heat Stress Prevention*	*11*
5.6	Cold Exposure Hazards	11
5.7	Community Air Monitoring Program (CAMP)	12
6	**Personnel Training**	**14**
6.1	Pre-assignment and OSHA Training	14
6.2	Respirator Requirements	14
6.2.1	*Respirator Requirements and Fit Testing*	*14*
6.2.2	*Medical Surveillance*	*15*
7	**Personal Protective Equipment**	**16**
7.1.1	*Levels of Protection*	*16*
7.1.2	*Level D Personal Protective Equipment*	*16*
7.1.3	*Modified Level D Personal Protective Equipment*	*17*
7.1.4	*Level C Personal Protective Equipment*	*17*
7.1.5	*Level B Personal Protective Equipment*	*17*
7.1.6	*Personal Use Factors and Equipment Change Out Schedule*	*18*
8	**Work Zones**	**20**
8.1	Work Zone Definitions	20
8.1.1	*Exclusion Zone (EZ)*	*20*
8.1.2	*Contaminant Reduction Zone (CRZ)*	*20*
8.1.3	*Support Zone (SZ)*	*20*
9	**General Safety and Health Provisions**	**23**
9.1	Safety Practices / Standing Orders	23

9.2 Buddy System 24
9.3 Site Communications Plan 24
9.4 Retention of Records 24
10 Decontamination Plan 25
10.1 General 25
10.2 Minimum Decontamination Procedure 25
10.3 Standard Decontamination Procedure 26
10.3.1 Level B 26
10.3.2 Level C and Level D 26
10.4 Heavy Equipment and Handling Equipment Decontamination 26
11 Emergency Response / Contingency Plan 28
11.1 Pre-Emergency Planning 28
11.2 Emergency Contact Information 28
11.2.1 Emergency Contacts 28
11.2.2 Utility Emergencies / Initiating Subsurface Investigation Work 31
11.3 Contingency / Evacuation Plan 31
11.4 Emergency Medical Treatment Procedures 31
11.4.1 Standard Procedures for Injury 32
11.4.2 Chemical Overexposure 32
11.4.3 First Aid for Injuries Incurred During Field Work 33
11.4.4 First Aid Equipment List 33
11.4.5 Other Emergency Equipment 34
11.5 Record of Injuries Incurred On-Site 34
11.5.1 Occupational Injuries and Illnesses Form (OSHA 200) 34
11.5.2 Employer's First Report of Injury 34

APPENDICES

Appendix A: Acknowledgment Statement

Appendix B: OSHA Respirator Medical Evaluation Questionnaire

Appendix C: OSHA Form 200-Occupational Injuries & Illnesses

Appendix D: Safety Data Sheets

Appendix E: Accident Report Form

1 Introduction

This Construction Health and Safety Plan (CHASP) describes the procedures to be followed in order to reduce employee exposure to potential health and safety hazards that may be present during environmental investigation activities being performed at the Site. The emergency response procedures necessary to respond to such hazards are also described within this CHASP. All activities performed under this CHASP are targeted to comply with Occupational Safety and Health Administration (OSHA) Regulations 29 CFR Part 1910.1025.

This document is not, nor does it purport to be, a complete description of all safety and health requirements applicable to work performed at the site. Rather, the CHASP is a general overview of the compliance policies and work practices applicable to the primary tasks and hazards associated with the environmental assessment portion of the development project, as well as a recitation of minimum safety and health compliance obligations for contractors, subcontractors and workers at the site. All subcontractors of any tier operating at the worksite are obligated to implement and maintain comprehensive safety and health plans for their own employees and to ensure that their employees comply with all applicable safety and health requirements. All subcontractors operating at the worksite should refer to the applicable specific OSHA Standards for detailed requirements.

1.1 Purpose

The purpose of this CHASP is to provide the contractors' field personnel, as well as other site-occupants, with an understanding of the potential chemical and physical hazards that exist or may arise while portions of this project are being performed. To this end, this CHASP also presents information on the progression of the environmental restoration activities and specific details regarding the handling of materials excavated from the Site.

The primary objective is to ensure the well being of all field personnel and the community surrounding this site. In order to accomplish this, project staff and approved subcontractors of any tier shall acknowledge and adhere to the policies and procedures established herein. Accordingly, all personnel assigned to the remediation activities associated with this project (Remedial Personnel) shall read this CHASP and sign the Agreement and Acknowledgment Statement (**Appendix A**) to certify that they have read, understood, and agree to abide by its provisions. A copy of this CHASP will be available to anyone that requests it. Personnel involved in construction activities (Construction Personnel) and other Personnel (e.g. government officials, administrators, bank inspectors, assessors, etc.) that will have limited exposure to the site native soil/fill material during construction activities will be instructed on how to reduce the probability of exposure to site contaminants, but will not be required read the CHASP.

2 Application of Health and Safety Plan

The procedures of this CHASP apply for any person that will enter the boundaries of the site or a portion of the Site during environmental investigation/remediation activities or construction, until the existing soil/fill material has been covered with either a paved surface or an uncontaminated soil cap. When the Project Manager has designated an area of the site as clear of any environmental issues, construction contractors and subcontractors of any tier will perform the balance of the work in accordance with their individual OSHA-compliant corporate CHASP.

2.1 Restoration Personnel

Employees of contractors and subcontractors of any tier performing the following activities will be considered Restoration Personnel:

- Excavation of native soil/fill material
- Loading of native soil/fill onto vehicles
- Processing of native soil/fill into components
- Transporting of native soil/fill across the site
- Sampling of native soil/fill material for subsequent physical or chemical analysis
- Cleaning or decontaminating equipment or personnel
- Handling of ground waters

All subcontractors, of any tier, must submit a CHASP to the Site Health and Safety Officer for review and approval prior to mobilizing to the site. Only CHASPs that comply with this CHASP will be approved. Where a subcontractors CHASP is deficient, the Site Health and Safety Officer will provide written notification of any required changes. Approved CHASPs will be submitted to the Project Manager and retained on-site for reference by the Site Health and Safety Officer.

2.2 Construction Personnel

For this document, “Construction Personnel” is the term given for those employees of contractors and subcontractors of any tier performing activities associated with site development other than those performed by the Remedial Personnel. This designation does not preclude that Construction Personnel will traverse or work upon native soil/fill material, rather, it infers that it will not involve performing tasks that will create a route of exposure to the contaminants contained therein. Construction Personnel will receive instruction to limit the potential for exposure to these contaminants. Construction Personnel will be prohibited from entering Environmental Remediation Areas (i.e., active excavation / handling / processing areas, loading areas, exclusion zones or support zones).

3 Key Personnel / Identification of Health & Safety Personnel

3.1 Key Personnel

A list of the pertinent personnel authorized to be present on site is as follows:

Title	Name	Telephone Number
Senior Project Manager *Impact Environmental*	Kevin Kleaka	(O) 631-269-8800 ext: 129 (C) 631-252-5480
Project Manager *Impact Environmental*	Diana Posten	(O) 631-269-8800 ext: 189 (C) (631) 664-4425
Field Operations Leader *Impact Environmental*	Alex Keenan	(O) 631-269-8800 ext: 121 (C) 516-301-0675
Site Health & Safety Officer *Impact Environmental*	Chris Evertz	(O) 631-269-8800 ext: 197 (C) 973-534-2131

3.2 Organizational Responsibility

3.2.1 Senior Project Manager

The Senior Project Manager will be responsible for implementing the project and obtaining any necessary personnel or resources for the completion of the project. Specific duties will include:

- Selecting a Site Health and Safety Officer and field personnel for the work to be undertaken on site;
- Providing authority and resources to ensure that the Site Health and Safety Officer is able to implement and manage safety procedures;
- Preparing reports and recommendations about the project to clients and affected personnel;
- Ensuring that all persons allowed to enter the site (e.g., EPA, contractors, state officials, visitors) are made aware of the potential hazards associated with the substances known or suspected to be on site, and are knowledgeable as to the on-site copy of the specific CHASP; and
- Ensuring that the Site Health and Safety Officer is aware of all of the provisions of this CHASP and is instructing all personnel on site about the safety practices and emergency procedures defined in the plan.

3.2.2 Project Manager

The Project Manager will be responsible for implementing the Senior Project Manager' duties as well as oversee activities regarding the project both in the field and in the office as well as interact with environmental regulatory agencies, sub-contractors and internal company personnel.

- Coordinating the activities of all construction and Remedial Personnel, to include informing them of the required Personal Protective Equipment (PPE) and ensuring their signature acknowledging this CHASP;
- Ensuring that the tasks assigned are being completed as planned and on schedule; and
- Serving as liaison with public officials where there is no Public Affairs official designated.

3.2.3 Field Operations Leader

The Field Operations Leader will be responsible for field operations and safety. Specific duties will include, but are not limited to:

- Scheduling with the construction company and their subcontractors;
- Coordinating with the Site Health and Safety Officer in determining protection levels;
- Documenting field activities;
- Coordinate activities between environmental and construction personnel;
- Coordination with waste management contractors; and
- Review and approval of waste disposal facilities.

In the event that the Project Manager and the Site Health and Safety Officer are not on site, the Field Operations Leader will assume all responsibility of the Site Health and Safety Officer.

3.2.4 Site Health and Safety Officer

The Site Health and Safety Officer shall be responsible for the implementation of the CHASP on site. Specific duties will include:

- Monitoring the compliance of construction and environmental remediation activities personnel (field personnel) for the routine and proper use of the PPE that has been designated for each task;
- Routinely inspecting PPE and clothing to ensure that it is in good condition and is being stored and maintained properly;
- Stopping work on the site or changing work assignments or procedures if any operation threatens the health and safety of workers or the public;
- Monitoring personnel who enter and exit the site and all controlled access points;

- Reporting any signs of fatigue, work-related stress, or chemical exposures to the Project Manager;
- Dismissing field personnel from the site if their actions or negligence endanger themselves, co-workers, or the public, and reporting the same to the Project Manager;
- Reporting any accidents or violations of the CHASP plan to the Project Manager and documenting the same for the project in the records;
- Knowing emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire and police departments;
- Ensuring that all project-related personnel have signed the personnel agreement and acknowledgments form contained in this CHASP; and
- Coordinate upgrading and downgrading PPE as necessary due to changes in exposure levels, monitoring results, weather, and other site conditions.

4 Chemical Hazard Analysis and Control Measures

Based on historical subsurface investigations performed at the Site in 2019 and 2020 by Roux Associates (Roux) and Impact Environmental Consultants (IEC), the contaminants of concern include the following:

- Volatile organic compounds (VOC's) identified in soil: benzene, toluene, ethylbenzene, total xylenes, n-propylbenzene, 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene;
- Semi-volatile organic compounds (SVOC's) identified in soil: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene , and indeno(1,2,3-cd)pyrene, fluoranthene, naphthalene, dibenzofuran, 2-methylphenol, 3-methylphenol/4-methylphenol;
- Metals identified in soil: arsenic, barium, copper, lead, mercury, nickel and zinc;
- VOCs identified in groundwater: benzene, isopropylbenzene, n-propylbenzene and 1,2,4,5-tetramethylbenzene;
- Metals identified in groundwater: Arsenic (total), barium (total), chromium (total), iron (total), lead (total), magnesium (total), manganese (total), nickel (total), sodium (total) and thallium (total).
- VOCs identified in soil vapor: Trichloroethene (TCE).

VOCs, SVOCs and metals were detected in both soil and groundwater samples. In addition, TCE was detected in soil vapor samples. A summary of the health hazards associated with the contaminant of concerns are shown below.

4.1 Volatile Organic Compounds

The supplemental remedial investigation performed at the Site have identified gasoline related VOC's in soil and groundwater, as well as TCE in soil vapor.

Soil and groundwater sample results indicated elevated concentrations of VOCs, including benzene, toluene, ethylbenzene and total xylenes, in samples located adjacent to a former heating oil underground storage tanks (UST) and a former gasoline UST. In addition, soil vapor sampling results indicate elevated concentrations of TCE in sample SV-1, located in the western warehouse building. Prolonged exposure to VOCs above their respective OSHA permissible exposure limits may result in irritation of the mucous membranes of the respiratory system, eyes, and mouth. Overexposure to VOCs may also result in the depression of the central nervous system. Symptoms may include drowsiness, headache, and fatigue.

4.2 Semi-Volatile Organic Compounds

The supplemental remedial investigation performed at the Site have identified Polycyclic Aromatic Hydrocarbons (PAHs) related SVOC's in soil above applicable standards throughout the Site. These SVOCs include Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo (a,h)-anthracene, and indeno(1,2,3-cd)pyrene.

In addition, soil samples collected adjacent to a former heating oil UST and a former gasoline UST contained elevated concentrations of SVOCs related to fuel oil. Prolonged exposure to SVOCs above OSHA permissible exposure limits may result in adverse health effects including endocrine and thyroid disruption, immunotoxicity, reproductive toxicity, cancer, and adverse effects on fetal and child development and neurologic function.

4.3 Total Metals

The supplemental remedial investigation performed at the Site have identified heavy metals in soil and groundwater throughout the Site. Specifically, arsenic, barium, cadmium, copper, lead, mercury, nickel and zinc.

Prolonged exposure to the above mentions metals above OSHA permissible exposure limits may result in adverse health effects including endocrine and thyroid disruption, immunotoxicity, reproductive toxicity, cancer, and adverse effects on fetal and child development and neurologic function.

5 Health and Safety Risk Analysis

The field tasks covered by the CHASP will include supplemental investigated task such as, drilling, and containerization of soil/groundwater/soil vapor samples. Additionally, standard job task hazards that are inherent to an investigative project will exist.

5.1 Explosion and Fire

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to explosion and fire. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Fire Protection and Prevention Standard, set forth at 29 C.F.R. § 1910 part 1926.35, as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations. The following are possible fire and explosion hazards that may be encountered on the job site along with fire preventive measures to take.

5.1.1 Flammable Vapors

The presence of flammable vapors can pose a potential fire and health hazard. Hazard reduction procedures include monitoring the ambient air with an oxygen/LEL meter (combustible gas indicator). If the LEL reading exceeds 20%, all work will stop and employees will leave the site immediately and contact the fire department. For OSHA-defined "confined space" activities, work will stop if the LEL reading exceeds 10%.

5.1.2 High Oxygen Levels

Atmospheres that contain a level of oxygen greater than 23% pose an extreme fire hazard (the usual ambient oxygen level is approximately 20.5%). All personnel encountering atmospheres that contain a level of oxygen greater than 23% must evacuate the site immediately and must notify the Fire Department. If the oxygen level is less than 19.5%, do not enter the space without level B PPE.

5.1.3 Fire Prevention

- During equipment operation, periodic vapor concentration measurements should be taken with an explosimeter or combustimeter. If at any time the vapor concentrations exceed 20% of the lower explosive limit (LEL), then the Site Health and Safety Officer or designated field worker should immediately shut down all operations.
- Only approved safety cans will be used to transport and store flammable liquids.
- All gasoline and diesel-driven engines requiring refueling must be shut down and allowed to cool prior to filling.
- Smoking is not allowed during any operations within the work area in which petroleum products or solvents in free-floating, dissolved, or vapor forms, or other flammable liquids may be present.
- No open flame or spark is allowed in any area containing petroleum products or other flammable liquids.

5.2 Operational Safety Hazards

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to earth moving equipment. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Excavation Standard, set forth at 29 C.F.R. § 1910 Subpart P as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

5.2.1 Heavy Machinery / Equipment

All site employees must remain aware of those site activities that involve the use of heavy equipment and machinery. Respiratory protection and protective eyewear may be worn frequently during site activities. This protective equipment significantly reduces peripheral vision of the wearer. Therefore, it is essential that all employees at the site exercise extreme caution during operation of equipment and machinery to avoid physical injury to themselves or others.

5.2.2 Vehicular Traffic

All employees will be required to wear a fluorescent safety vest at all times while on site. In addition, supplemental traffic safety equipment use can be exercised when warranted by specific task. Supplemental equipment can be items such as cones, flags, barricades, and/or caution tape. Drivers of waste transportation vehicles will only exit vehicles in designated areas within the Support Zone. During this time, drivers will only be allowed to inspect the placement of waste loads and cover their trailers.

5.3 Noise Hazards

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to noise hazards. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Occupational Noise Exposure Standard, set forth at 29 C.F.R. § 1910 part 1926.52, as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

Hearing protection shall be provided to the employees where sound pressure levels exceed 85 dB. Hearing protection shall be worn where sound pressure levels in areas and/or on equipment exceeds 90 dB. Typical heavy excavation operations have been monitored with a sound level meter and indicate that hearing protection is required for all personnel while engaged in this action.

5.4 Safe Material Handling

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to safe material (soil/fill) handling. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Eye and Face, and Respiratory Safety Standards, set forth at 29 C.F.R. § 1910 Parts 1926.102 and 1926.103

as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

Skin and eye contact with contaminated soil/fill or materials in contact with the soil/fill may occur during excavation, drilling, sampling, handling and decontamination activities. Nitrile gloves and approved safety glasses must be worn to prevent exposure to the associated contaminants. Employees working at or near (within ten feet of) excavation fronts could be required to wear respiratory protection. If necessary, all associated activities will be performed pursuant to 29 C.F.R. § 1910 Parts 1926.134 (a)(2) and 1926.55.

5.5 Temperature Hazards

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to temperature stresses. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Technical Manual (TED 1-0.15A), Section III – Chapter 4 (1999) as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

Since climatic changes cannot be avoided, work schedules will be adjusted to provide time intervals for intake of juices, juice products, and water in an area free from contamination and in quantities appropriate for fluid replacement to prevent heat stress conditions from occurring.

5.5.1 Types of Heat Stress

Heat stress may occur even in moderate temperature areas and may present any or all of the following:

5.5.1.1 Heat Rash

Result of continuous exposure to heat, humid air, and chafing clothes. Heat rash is uncomfortable and decreases the ability to tolerate heat.

5.5.1.2 Heat Cramps

Result of the inadequate replacement of body electrolytes lost through perspiration. Signs include severe spasms and pain in the extremities and abdomen.

5.5.1.3 Heat Exhaustion

Result of increased stress on the vital organs of the body in the effort to meet the body's cooling demands. Signs include shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness.

5.5.1.4 Heat Stroke

Result of overworked cooling system. Heat stroke is the most serious form of heat stress. Body surfaces must be cooled and medical help must be obtained immediately to prevent severe injury and/or death. Signs include red,

hot, dry skin, absence of perspiration, nausea, dizziness and confusion, strong, rapid pulse that could lead to coma or death.

5.5.2 Heat Stress Prevention

A. Replace body fluids (water and electrolytes) lost through perspiration. Solutions may include a 0.1% salt and water solution or commercial mixes such as “Gatorade”. Employees must be encouraged to drink more than the amount required in order to satisfy thirst.
B. Use cooling devices to aid the natural body ventilation. Cooling occurs through evaporation of perspiration and limited body contact with heat-absorbing protective clothing. Utilize fans and air conditioners to assist in evaporation. Long, cotton underwear is suggested to absorb perspiration and limit any contact with heat-absorbing protective clothing (i.e., coated Tyvek suits).
C. Conduct non-emergency response activities in the early morning or evening during very hot weather.
D. Provide shelter against heat and direct sunlight to protect personnel. Take breaks in shaded areas.
E. Rotate workers utilizing protective clothing during hot weather.
F. Establish a work regime that will provide adequate rest periods, with personnel working in shifts.

5.6 Cold Exposure Hazards

Work schedules will be adjusted to provide sufficient rest periods in a heated area for warming up during operations conducted in cold weather. Also, thermal protective clothing such as wind and/or moisture resistant outerwear is recommended to be worn.

If work is performed continuously in the cold at or below -7 ºC (20 ºF), including wind chill factor, heated warming shelters (tents, cabins, company vehicles, rest rooms, etc.) shall be made available nearby and the worker should be encouraged to use these shelters at regular intervals, the frequency depending on the severity of the environmental exposure. The onset of heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability, or euphoria, are indications for immediate return to the shelter. When entering the heated shelter, the outer layer of clothing shall be removed and the remainder of the clothing loosened to permit sweat evaporation. A change of dry work clothing shall be provided as necessary to prevent workers from returning to their work with wet clothing.

Dehydration, or the loss of body fluids, occurs in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of a diuretic and circulatory effect (adapted from TLV's and Biological Exposure Indices 1988-1989, ACGIH).

5.7 Community Air Monitoring Program (CAMP)

Real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary during the Remedial Investigation as Per NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation.

- Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

- Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1 If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2 If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring

continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3 If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4 All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

5 If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

6 If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

7 All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

6 Personnel Training

6.1 Pre-assignment and OSHA Training

All Remedial Personnel that will be in direct contact (that is hand digging, sampling, processing) with the native soil/fill materials must complete an initial 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course and, where necessary, a current eight hour refresher course (as required annually after initial 40-hour training completion). Restoration Personnel that will not be in direct contact with native soil/fill materials are only required to prove they have read and understood the procedures presented in this CHASP.

On-site managers and supervisors of Restoration Personnel (Field Operations Leader, Site Health and Safety Officer) directly responsible for employees engaged in hazardous substance operations have received an initial 40-hour HAZWOPER training course and an additional (above the 40-hour HAZWOPER) eight hours of supervisory training. These training requirements comply with the OSHA Hazardous Waste Operations and Emergency Response Regulation, 29 CFR 1910.120. The Site Health and Safety Officer will be certified in First Aid and Cardiovascular Pulmonary Resuscitation.

The Site Health and Safety Officer will conduct an on-site training meeting for all Construction Personnel and observers that could potentially be exposed to the native soil/fill material during construction activities. Training meetings will be provided routinely for any new project personnel. This program will cover specific health and safety equipment and protocols and potential problems inherent to each project operation. The Site Health and Safety Officer will be present for any activities being performed by Construction Personnel that will involve the handling of soil/fill during construction activities to provide supervision on exposure reduction. This may include insuring the use of proper PPE and air quality monitoring.

6.2 Respirator Requirements

6.2.1 Respirator Requirements and Fit Testing

The OSHA respiratory protection standard, 29 CFR 1910.134, under paragraph (f)(2), requires fit testing for all employees using tight fitting respirators including filtering facepiece respirator. The fit test must be performed before the respirator is used and must be repeated at least annually and whenever a different respirator facepiece is used or a change in the employee's physical condition could affect the respirator fit.

The user seal check is a separate requirement under paragraph (g)(1)(iii) and must be performed each time the employee dons the respirator. Employers must adhere to the recommendations of the respirator's manufacturer; different manufacturers recommend different procedures.

6.2.2 Medical Surveillance

OSHA requires a medical evaluation to determine whether each employee required to wear a respirator is physically able to wear a respirator and perform the work. This evaluation can be a medical examination or an evaluation of employee responses to the OSHA Respirator Medical Evaluation Questionnaire located in **Appendix B** of the Respiratory Protection Standard. Either method must be performed by a physician or other licensed healthcare professional. **Appendix C** has a copy of the forms to be completed.

A medical examination may be necessary whenever the employee gives a positive response to any of questions 1 through 8 in Appendix B, Part A, Section 2.

7 Personal Protective Equipment

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to personal protective equipment. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Personal Protective Equipment Standard, set forth at 29 C.F.R. § 1910.Part 1926.28(a) as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

The purpose of personal protective clothing and equipment (PPE) is to shield or isolate individuals from the chemical, physical, and biological hazards that may be encountered on-site when engineering and other controls are not feasible or cannot provide adequate protection. Careful selection and use of adequate PPE should protect the health of all on-site workers. No single combination of PPE is capable of protecting against all hazards. Therefore, PPE should be used in conjunction with, not in place of, other protective methods, such as engineering controls and safe work practices.

Site-specific chemicals of concern include semi-volatile organic compounds. These chemicals are of moderate to low hazard. Therefore, level D personal protective equipment will be required at all times when on site. The following is a breakdown of the types of protective clothing and equipment to be used during the site activities.

7.1.1 Levels of Protection

The Site Health and Safety Officer will determine whether a level of protection should be upgraded or downgraded. Changes in the level of protection will be recorded in the dedicated site logbook along with the rationale for the changes (see Section 7.1.3 for additional information on PPE upgrades). Level D PPE will be the minimum requirement at all times during the environmental remediation portion of the project.

7.1.2 Level D Personal Protective Equipment

All initial site access and activities will be done in Level D attire. Level D protection is sufficient under conditions where no contaminants are present or those activities that do not pose a potential threat of unexpected inhalation of or contact with hazardous levels of any substances. Typical Level D activities may include sediment, logging and groundwater sampling, and as surficial site surveys.

- Hard hat
- Safety glasses (as appropriate)
- Steel toe and shank boots
- Fluorescent vest
- Hearing protection (as appropriate)

7.1.3 Modified Level D Personal Protective Equipment

- Hard hat
- Safety glasses
- Steel toe and shank boots
- Fluorescent vest
- Nitrile "N-Dex" inner gloves
- Latex outer boots (chemical resistant)
- Polyethylene coated Tyvek suit
- Hearing protection (as appropriate)

7.1.4 Level C Personal Protective Equipment

Level C protection, as described in this plan, will be available at a minimum for those activities that involve surface and subsurface soil (strata disturbance such as well installation, and all subsurface media sampling activities such as split-spoon sampling and borings). Level C protection equipment should be readily available at all times. Consistent with OSHA training, prior to donning Level C, oxygen percent must be continuously monitored.

- Buddy system required at all times
- Full face respirator with NIOSH approved OV/AG/HEPA combination cartridges (MSA GMC-H)
- Saranex coated Tyvek Suit
- Inner Nitrile "N-Dex" gloves
- Outer Nitrile (NBR) gloves
- Steel toe and shank boots
- Outer boots (chemical resistant)
- Hard hat
- Hearing protection (as appropriate)

7.1.5 Level B Personal Protective Equipment

Some activities may require Level B protection. In atmospheres potentially containing toluene and xylenes, the protective ensemble should include chemical resistant clothing since the two compounds have skin absorption potential.

Regional Health and Safety representatives must be on site upon start-up of <u>any</u> project requiring level B protection. This should be understood to include subcontractors conducting Level B activity.

- Buddy system required at all times
- Supplied air respirator or SCBA
- Saranex coated Tyvek Suit
- Inner Nitrile "N-Dex" gloves

- Outer Nitrile (NBR) gloves
- Steel toe and shank boots
- Outer boots (chemical resistant)
- Hard hat
- Hearing protection (as appropriate)

7.1.6 Personal Use Factors and Equipment Change Out Schedule

Prohibitive or precautionary measures should be taken as necessary to prevent workers from jeopardizing safety during equipment use.

If necessary, all respiratory protective equipment used will be approved by NIOSH/MSHA. Respirator cartridges will be changed once per eight-hour shift at a minimum. This can be accomplished at the end of the workday during respirator decontamination. Employees working within the excavation front should change the cartridge of their respirators once every four hours. If odor breakthrough is detected while wearing the respirator or if breathing becomes difficult, change cartridges immediately. A filter change out schedule is provided below.

Remedial Worker	**Work Area**	**Filter Type**	**Replacement Rate**
Site Screener	EZ – At Excavation Front	MSA GMC-H	Every 4 Hours
Laborer	EZ – At Excavation Front	MSA GMC-H	Every 2 Hours
	SZ, CRZ	MSA GMC-H	Every 8 Hours
Equipment Operator	EZ	MSA GMC-H	Every 4 Hours
	SZ, CRZ	MSA GMC-H	Every 8 Hours
Administrator	EZ	MSA GMC-H	Every 4 Hours
	SZ, CRZ	MSA GMC-H	Every 8 Hours

*Work Area Definitions are discussed in the following Section (8.1)

When utilizing protective garments such as Tyvek suits, gloves, and booties, all seams between protective items will be sealed with duct tape.

Contact with contaminated surfaces, or surfaces suspected of being contaminated, should be avoided. This includes walking through, kneeling in, or placing equipment in puddles, mud, discolored surfaces, or on drums and other containers.

Eating, smoking, drinking, and/or the application of cosmetics in the immediate work area is prohibited. Ingestion of contaminants or absorption of contaminants into the skin may occur.

The use of contact lenses on the job site is strongly advised against. Contact lenses may trap contaminants and/or particulate between the lens and eye, causing irritation. However, when glasses are not available, contact lenses are preferred over faulty vision. When contact lenses are worn, safety glasses and/or goggles must be worn at all times while on the job site. Wearing contact lenses with a respirator in a contaminated atmosphere is prohibited under 29 CFR ss1910.134 (e)(5)(iii).

8 Work Zones

8.1 Work Zone Definitions

Work and support areas shall be established based on ambient air data and proposed work sites. They shall be established in order to contain contamination within the smallest areas possible and shall ensure that each employee has the proper PPE for the area or zone in which work is to be performed.

8.1.1 Exclusion Zone (EZ)

It is within this zone that the excavation or environmental remediation activities such as tank abandonment, system installation or other soil disturbance operations are performed. No one shall enter this zone unless the appropriate PPE is donned. The location of this zone will change as the construction-related excavation activities are performed.

8.1.2 Contaminant Reduction Zone (CRZ)

It is within this zone that the decontamination process is undertaken. Personnel and their equipment must be adequately decontaminated before leaving this zone for the support zone. This zone will be set up between the EZ (no less than 100 feet away) and the site boundary.

8.1.3 Support Zone (SZ)

The support zone is considered to be uncontaminated; as such, protective clothing and equipment are not required but should be available for use in emergencies. All equipment and materials are stored and maintained within this zone. Protective clothing is put on within the SZ before entering the EZ or the CRZ. The SZ will be established in a safe environment at least 50 feet away from the EZ.

9 General Safety and Health Provisions

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to general safety and health provisions. Rather, contractors, subcontractors and workers at the site must refer to OSHA's General Safety and Health Provision Standard, set forth at 29 C.F.R. § 1910 subparts C and G as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

9.1 Safety Practices / Standing Orders

The following are important safety precautions that will be enforced during work activities.

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activity.
3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garments are removed.
4. No excessive facial hair that interferes with the effectiveness of a respirator will be permitted on personnel required to wear respiratory protection equipment. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges attached to the respirator. Fit testing shall be performed prior to respirator use to ensure the wearer obtains a proper seal.
5. Contact with potentially contaminated surfaces should be avoided whenever possible. One should not walk through puddles; kneel on the ground; lean, sit, or place equipment on drums, containers, vehicles, or the ground.
6. Medicine and alcohol can potentate the effect from exposure to certain compounds. Prescribed drugs and alcoholic beverages should not be consumed by personnel involved in the project.
7. Personnel and equipment in the work areas should be minimized, consistent with effective site operations.
8. Work areas for various operational activities should be established.
9. Procedures for leaving the work area must be planned and implemented prior to going to the site. Work areas and decontamination procedures must be established on the basis of prevailing site conditions.
10. Respirators will be issued for the exclusive use of one worker and will be cleaned and disinfected after each use.
11. Safety gloves and boots shall be taped to the disposable, chemical-protective suits as necessary.
12. All unsafe equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.
13. Noise mufflers or earplugs may be required for all site personnel working around heavy equipment. This requirement will be at the discretion of the Site Health and Safety Officer. Disposable, form-fitting plugs are preferred.

14. Cartridges for air-purifying respirators in use will be changed daily at a minimum.

9.2 Buddy System

Site personnel will employ the buddy system when working under certain circumstances, such as enclosed spacing. Under the buddy system, each site worker is responsible for monitoring the well-being of another worker. No one will work alone when the buddy system is implemented. At no time will fewer than two employees be present at the site if activities are underway.

9.3 Site Communications Plan

Mobile telephone and/or two-way radios will be used to communicate between the work parties on the site. The following standard hand signals will be used in case of failure of radio communication:

- Hands on top of head = Need assistance
- Thumbs up = OK, I am alright, I understand
- Thumbs down = No, negative

Personnel in the Contaminated Zone should remain in constant radio communication or within sight of the project team leader. Any failure of radio communication will require the team leader to evaluate whether personnel should leave the zone.

9.4 Retention of Records

The following records will be maintained on-site and in corporate records for no less than three years.

- Fit test results
- OSHA Training Certification
- Medical Questionnaire and/or Medical Clearance
- Medical Data Sheets
- Accident Report Forms

10 Decontamination Plan

10.1 General

Personnel involved in work activities at the site may be exposed to compounds in a number of ways, despite the most stringent protective procedures. Site personnel may come in contact with vapors, gases, mists, particulates in the air, or other site media while performing site duties. Use of monitoring instruments and site equipment can also result in exposure and transmittal of hazardous substances.

In general, decontamination involves scrubbing with a detergent water solution followed by clean water rinses. All disposable items shall be disposed of in a dry container. Certain parts of contaminated respirators, such as harness assemblies and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in detergent and water and scrubbed with a brush. In addition to being contaminated, all respirators, non-disposable protective clothing, and other personal articles must be sanitized or replaced before they can be used again if they become soiled from exhalation, body oils, and perspiration. The manufacturer's instructions should be followed in sanitizing the respirator masks. The Site Health and Safety Officer will be responsible for the proper maintenance, decontamination, and sanitizing of any respirator equipment that may be used on-site. The decontamination zone layout and procedures should match the prescribed levels of personal protection.

The following procedures have been established to provide site personnel with minimum guidelines for proper decontamination. Personnel leaving the point of operations designated as the EZ must follow these minimum procedures. The decontamination process shall take place within the contaminant reduction zone.

10.2 Minimum Decontamination Procedure

Personnel leaving the point of operations should remove or change outer gloves. At a minimum, boots shall be cleaned of all accumulated soil/fill. Outer boots must be properly washed where gross contamination is evident or disposed of. If Tyvek suits are being utilized, they should be removed or changed. Personnel should remove the Tyvek suits so that the inner clothing does not come in contact with any contaminated surfaces. After Tyvek removal, personnel shall remove and discard outer Nitrile gloves. Personnel shall then remove the respirator, where applicable. Respirators shall be disinfected between uses with towelettes or other sanitary methods. Potable water, at a minimum, will be present so that site personnel can thoroughly wash hands and face after leaving the point of operations.

The Site Health and Safety Officer will monitor decontamination procedures to ensure their effectiveness. Modifications of the decontamination procedure may be necessary as determined by the Site Health and Safety Officer's observations.

10.3 Standard Decontamination Procedure

The following decontamination procedures should be implemented during site operations for the appropriate level of protection.

10.3.1 Level B

Segregated equipment drop	Deposit equipment (tools, sampling devices, notes, monitoring instruments, radios, etc.) used on the site onto plastic drop cloths.
Boot covers and glove wash	Outer boots and outer gloves should be scrubbed with a decontamination solution of detergent and water or replaced.
Rinse off boot covers and gloves	Decontamination solution should be rinsed off boot covers and gloves using generous amounts of water. Repeat as many times as necessary.
Tape removal	Remove tape from around boots and gloves and place into container with plastic liner.
Boot cover removal	Remove disposable boot covers and place into container with plastic liner.
Outer glove removal	Remove outer gloves and deposit in container with plastic liner.
Suit / safety boot wash	Completely wash splash suit, SCBA, gloves, and safety boots. Care should be exercised that no water is allowed into the SCBA regulator. It is suggested that the SCBA regulator be wrapped in plastic.
Suit / safety boot rinse	Thoroughly rinse off all decontamination solution from protective clothing.
Tank or canister changes	This is the last step in the decontamination procedure for those workers wishing to change air tanks and return to the EZ. The worker's air tank or cartridge is exchanged, new outer glove and boot covers are donned, and joints taped.
Removal of safety boots	Remove safety boots and deposit in container with a plastic liner.
SCBA backpack removal	Without removing the face piece, the SCBA backpack should be removed and placed on a table. The face piece should then be disconnected from the remaining SCBA unit and then proceed to the next station.
Splash suit removal	With care, remove the splash suit. The exterior of the splash suit should not come in contact with any inner layers of clothing.
Inner glove wash	The inner gloves should be washed with a mild decontamination solution (detergent / water).
Inner glove rinse	Generously rinse the inner gloves with water.
Face piece removal	Without touching the face with gloves, remove the face piece. The face piece should be deposited into a container that has a plastic liner.
Inner glove removal	Remove the inner glove and deposit into a container that has a plastic liner.
Field wash	Wash hands and face thoroughly. If highly toxic, skin corrosive, or skin absorbent materials are known or suspected to be present, a shower should be taken.

10.3.2 Level C and Level D

The decontamination procedure for Level C and Level D will be satisfied with the Minimum procedures outlined in section 8.2.

10.4 Heavy Equipment and Handling Equipment Decontamination

Equipment traversing the site and exiting the site will be subjected to a decontamination protocol. At a minimum the protocol will consist of an inspection of the truck fenders, tires and mud flaps for accumulated soil/fill, and removal of all accumulations using hand tools (brush, broom and scrapers). If deemed necessary by the Health and Safety Officer,

this inspection will be performed over a thirty by fifteen-foot area that has been filled with ¾ inch crushed recycled concrete aggregate to facilitate the removal of soil/fill accumulations from the tires, and to immobilize soil/fill removed from the truck body. Additionally, all trucks hauling waste will be required to be covered prior to exiting the site.

At the conclusion of the use of each piece of excavation equipment on the site, it will be decontaminated with an Alconox / water solution followed by a clean water rinse within the Contaminant Reduction Zone. The rinsate will be allowed to charge into the site ground.

11 Emergency Response / Contingency Plan

11.1 Pre-Emergency Planning

In order to properly prepare for emergencies, Safety Data Sheets (SDS) will be maintained on-site for the type of contaminants to which workers may be exposed. Based upon the results of previous investigations, The COCs for the Site are

Soil: benzene, toluene, ethylbenzene, total xylenes, n-propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene , and indeno(1,2,3-cd)pyrene, fluoranthene, naphthalene, dibenzofuran, 2-methylphenol, 3-methylphenol/4-methylphenol, arsenic, barium, copper, lead, mercury, nickel and zinc.

Groundwater: benzene, isopropylbenzene, n-propylbenzene and 1,2,4,5-tetramethylbenzene, Arsenic (total), barium (total), chromium (total), iron (total), lead (total), magnesium (total), manganese (total), nickel (total), sodium (total) and thallium (total).

Soil Vapor: TCE.

The MSDS are provided in **Appendix D**.

In the event a suspected or known hazardous substance or substance container is encountered during site activities, a contingency plan will be triggered (see Section 11.3).

11.2 Emergency Contact Information

In the event of an accident or emergency situation, emergency procedures will be executed. Said procedures can and will be executed by the first person to observe an accident or emergency situation. The Project Field Manager will be notified about the situation immediately after emergency procedures are implemented.

11.2.1 Emergency Contacts

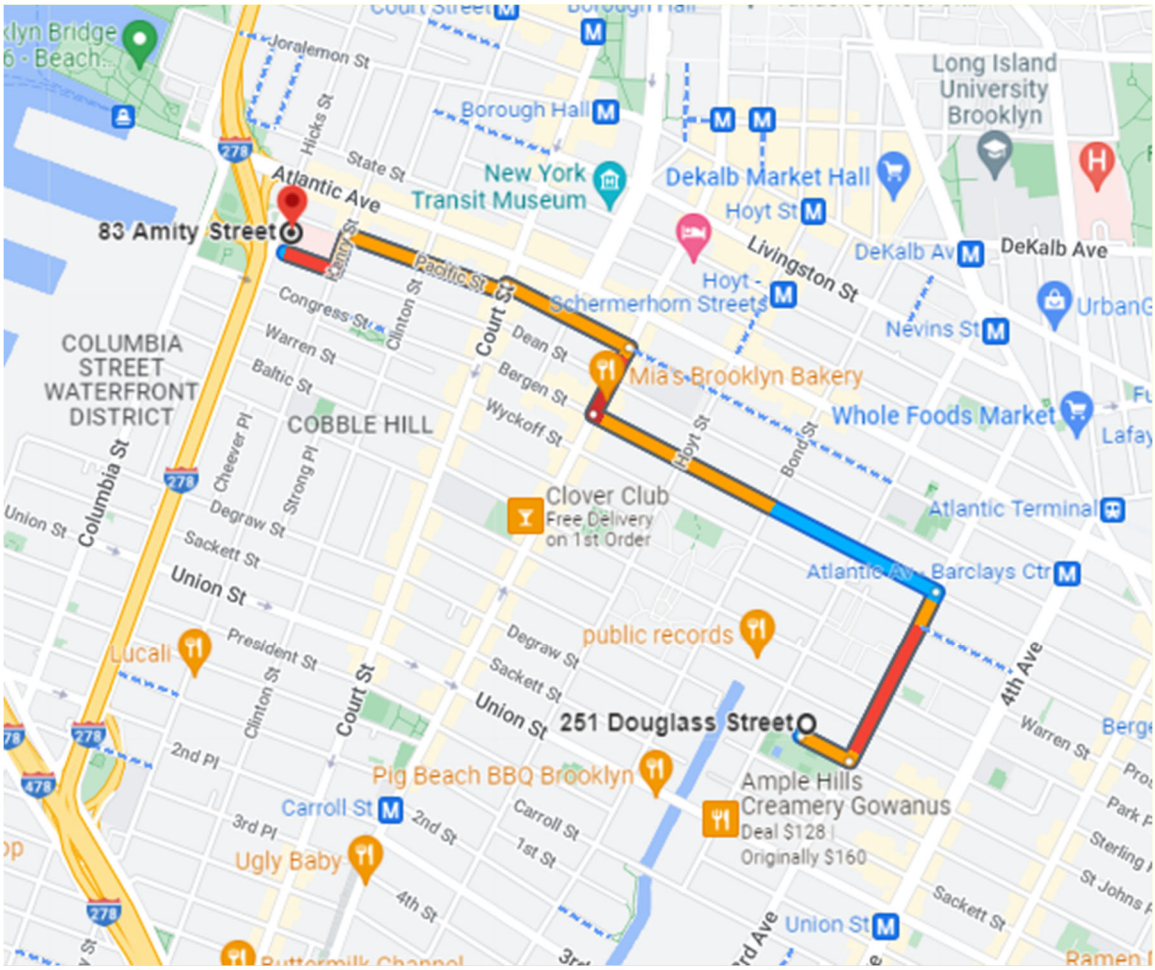
Emergency:	911	
Hospital:	(646) 754-7900	**NYU Langone Health-Cobble Hill**
Police:	911	NYPD
Fire Department:	911	NYFD
Chemtrec:	800-424-9300	
NYC Poison Control Center:	212-764-7667	
National Response Center:	800-424-8802	

US EPA (24-hour hotline):	800-424-9346	

Start: 251 Douglass Street, Brooklyn, NY 11215

- Head southeast on Douglass Street towards 3rd Avenue
- Turn left at the first cross street tonto 3rd Avenue
- Turn left onto Bergen Street/Reverend Timothy White Way
- Turn left onto Court Street
- Turn right onto Warren Street
- Turn right onto Hicks Street
- Turn right onto Amity Street

End: NYC Langone Health- Cobble Hill – 83 Amity Street, Brooklyn, NY 11201



11.2.2 Utility Emergencies / Initiating Subsurface Investigation Work

Where necessary, utility markouts will be called in via the one call center or to the individual entities listed below.

Mark Out One-Call Center (811)	1-800-272-4480	No-Cuts
Gas Company:	718-643-4050	Con Edison
Telephone Company:	516-661-6000	Verizon
Electric Company:	718-643-4050	Con Edison

11.3 Contingency / Evacuation Plan

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to emergency procedures. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Employee Emergency Action Plan Standard, set forth at 29 C.F.R. § 1910 Part 1926.35(a), as well as all supporting OSHA Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

If an unknown substance or substance container is encountered during site activities, the following contingency plan will be triggered.

1. The Site Health and Safety Officer, Project Manager and Field Operations Leader will be notified and an Exclusion Zone (the aerial extent of which will be determined by the above safety staff) will be established.
2. All staff will be evacuated from the Exclusion Zone.
3. Air monitoring will be conducted down-wind of the Exclusion Zone.
4. The NYSDEC, as well as any other Government regulatory agency whose need may be prompted by the particular situation, will be notified.
5. Upon arrival of the NYSDEC or Government regulatory agency representative(s), site control will transfer to the appropriate Government personnel.

It may be possible that a situation could develop site emergency could necessitate the evacuation of all personnel from the site. If such a situation develops, an audible alarm shall be given for site evacuation (consisting of an air horn). Personnel shall evacuate the site in a calm and controlled fashion and regroup at a predetermined location. The route of evacuation will be dependent on wind direction, severity, type of incident, etc. The site must not be re-entered until back-up help, monitoring equipment, and/or personal protective equipment are on hand and the appropriate regulatory agencies have been notified.

11.4 Emergency Medical Treatment Procedures

This Section is not, nor does it purport to be, a comprehensive recitation of safety and health requirements applicable to medical treatment and first aid. Rather, contractors, subcontractors and workers at the site must refer to OSHA's Medical Services and First Aid Standard, set forth at 29 C.F.R. § 1910 Part 1926.23 and 1926.50, as well as all supporting OSHA

Compliance Directives and Letters of Interpretation, for complete information on safety and health compliance obligations.

All injuries, no matter how slight, will be reported to the site safety supervisor immediately. The safety supervisor will complete an accident report for all incidents (**Appendix E**).

Some injuries, such as severe lacerations or burns, may require immediate treatment. Unless required due to immediate danger, seriously injured persons should not be moved without direction from attending medical personnel.

11.4.1 Standard Procedures for Injury

1. Notify the Site Health and Safety Officer, Project Manager, and the NYCDEP and NYCDHPD of all accidents, incidents, and near emergency situations.
2. If the injury is minor, trained personnel should proceed to administer appropriate first aid.
3. Telephone for ambulance/medical assistance if necessary. Whenever possible, notify the receiving hospital of the nature of physical injury or chemical overexposure. If no phone is available, transport the person to the nearest hospital. Refer to the map in section 11.2.1.
4. When transporting an injured person to a hospital, bring this Health and Safety Plan with the attached MSDS to assist medical personnel with diagnosis and treatment.

11.4.2 Chemical Overexposure

In all cases of chemical overexposure, follow standard procedures as outlined below for poison management, first aid, and, if applicable, cardiopulmonary resuscitation. Different routes of exposure and their respective first aid/poison management procedures are outlined below.

Ingestion	Do not induce vomiting unless prompted by a health professional. Transport person to nearest hospital immediately.
Inhalation / Confined Space	Do not enter a confined space to rescue someone who has been overcome unless properly equipped and a standby person present.
Inhalation / Other	Move the person from the contaminated environment. Initiate CPR if necessary. Call or have someone call for medical assistance. Refer to MSDS for additional specific information. If necessary, transport the victim to the nearest hospital as soon as possible.
Skin Contact / Non-Caustic Contaminant (Petroleum, Gasoline, etc.)	Wash off skin with a large amount of water immediately. Remove any affected clothing and rewash skin using soap, if available. Transport person to a medical facility if necessary.

Skin Contact / Corrosive Contaminant (Acids, Hydrogen Peroxide, etc.)	Wash off skin with a large amount of water immediately. Remove any affected clothing and rewash skin with water. Transport person to a medical facility if necessary.
Eyes	Hold eyelids open and rinse the eyes immediately with large amounts of water for 15 minutes. Never permit the eyes to be rubbed. Transport person to a medical facility as soon as possible.

11.4.3 First Aid for Injuries Incurred During Field Work

A first aid kit and an emergency eyewash will be available on-site. Field crews, when performing field operations, will carry portable first aid kits that include emergency eye wash stations.

11.4.4 First Aid Equipment List

The first aid kit(s) kept at the site will consist of a weatherproof container with individually sealed packages for each type of item.

The kit will include at least the following items:

- Gauze roller bandages, 1-inch and 2-inch
- Gauze compress bandages, 4-inch
- Gauze pads, 2-inch
- Adhesive tape, 1-inch
- Bandage, 1-inch
- Butterfly bandages
- Triangular bandages, 40-inch
- Ampules of ammonia inhalants
- Antiseptic applicators or swabs
- Burn dressing and sterilized towels
- Surgical scissors
- Eye dressing
- Portable emergency eye wash
- Emergency oxygen supply
- Alcohol
- Hydrogen peroxide
- Clinical grade thermometer
- Tourniquet

11.4.5 Other Emergency Equipment

One portable fire extinguisher with a rating (ratio) of 20 pound A/B/C and one portable fire extinguisher with a rating of 2A will be conspicuously and centrally located between the restricted and non-restricted zones. In addition, similar extinguishers of the same size and class will be located in the site office trailer so that maximum travel distance to the nearest unit shall not exceed 50 feet. Portable extinguishers will be properly tagged with inspection dates and maintained in accordance with standard maintenance procedures for portable fire extinguishers. Field personnel will be trained in fire extinguisher use before field operations begin.

An emergency at any part of the site, such as fire or chemical release, might require that some appropriately trained site workers direct traffic on or near the site.
The following safety equipment to be used for traffic should be kept readily available on site in the field office:

- reflective/fluorescent vests
- flares
- traffic cones (and flags, or the equivalent, as needed)
- hazard tape (barricades as needed)
- working flashlights

11.5 Record of Injuries Incurred On-Site

11.5.1 Occupational Injuries and Illnesses Form (OSHA 200)

All occupational injuries and illnesses that are required to be recorded under the Occupational Safety and Health Act will be registered on OSHA Form 200 (see **Appendix C**). The site safety supervisor will record occupational injuries and illnesses within 48 hours of occurrence, as required by statute.

11.5.2 Employer's First Report of Injury

The site safety supervisor for all accidents involving work injury at the site will complete this form (**Appendix E**). Follow-up procedures will include investigation of each accident or near-miss by the safety supervisor to assure that no similar accidents occur in the future.

Appendix A:
Acknowledgment Statement

DATE	EMPLOYEE NAME	SAFETY OFFICER/SUPERVISOR	ACKNOLEDGEMENT THAT YOU HAVE READ AND UNDERSTSAND THE HASP SUPPLEMENT – TARGET SAFETY TOPIC FOR CONSTRUCTION PERSONNEL

Appendix B:
OSHA Respirator Medical Evaluation Questionnaire

Attachment 4
Appendix C to 1910.134:OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:
Can you read (circle one): Yes No
Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place
that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health
care professional who will review it.
Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been
selected to use any type of respirator (please print).
1. Today's date:_____
2. Your name:_____
3. Your age (to nearest year):_____
4. Sex (circle one): Male Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title:_____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire
(include the Area Code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire
(circle one): . . . . . Yes No
11. Check the type of respirator you will use (you can check more than one category):
a. _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained
breathing apparatus).
12. Have you worn a respirator (circle one): . . . . . Yes No
If "yes," what
type(s):_____
_____
_____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been
selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: . . . . . Yes No
2. Have you ever had any of the following conditions?
a. Seizures (fits): . . . . . Yes No
b. Diabetes (sugar disease): . . . . . Yes No
c. Allergic reactions that interfere with your breathing: . . . . . Yes No
d. Claustrophobia (fear of closed-in places): . . . . . Yes No
e. Trouble smelling odors (except when you had a cold): . . . . . Yes No
3. Have you ever had any of the following pulmonary or lung problems?
a. Asbestosis: . . . . . Yes No
b. Asthma: . . . . . Yes No
c. Chronic bronchitis: . . . . . Yes No
d. Emphysema: . . . . . Yes No
e. Pneumonia: . . . . . Yes No
f. Tuberculosis: . . . . . Yes No
g. Silicosis: . . . . . Yes No
h. Pneumothorax (collapsed lung): . . . . . Yes No
i. Lung cancer: . . . . . Yes No
j. Broken ribs: . . . . . Yes No
k. Any chest injuries or surgeries: . . . . . Yes No
l. Any other lung problem that you've been told about: . . . . . Yes No
4. Do you currently have any of the following symptoms of pulmonary or lung illness?
a. Shortness of breath: . . . . . Yes No
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes No
c. Shortness of breath when walking with other people at an ordinary pace on level ground: . . Yes No
d. Have to stop for breath when walking at your own pace on level ground: . . . . . Yes No
e. Shortness of breath when washing or dressing yourself: . . . . . Yes No
f. Shortness of breath that interferes with your job: . . . . . Yes No
g. Coughing that produces phlegm (thick sputum): . . . . . Yes No
h. Coughing that wakes you early in the morning: . . . . . Yes No
i. Coughing that occurs mostly when you are lying down: . . . . . Yes No
j. Coughing up blood in the last month: . . . . . Yes No
k. Wheezing: . . . . . Yes No
l. Wheezing that interferes with your job: . . . . . Yes No
m. Chest pain when you breathe deeply: . . . . . Yes No
n. Any other symptoms that you think may be related to lung problems: . . . . . Yes No
5. Have you ever had any of the following cardiovascular or heart problems?
a. Heart attack: . . . . . Yes No
b. Stroke: . . . . . Yes No
c. Angina: . . . . . Yes No
d. Heart failure: . . . . . Yes No
e. Swelling in your legs or feet (not caused by walking): . . . . . Yes No
f. Heart arrhythmia (heart beating irregularly): . . . . . Yes No
g. High blood pressure: . . . . . Yes No
h. Any other heart problem that you've been told about: . . . . . Yes No

6. Have you ever had any of the following cardiovascular or heart symptoms?
a. Frequent pain or tightness in your chest: . . . . . Yes No
b. Pain or tightness in your chest during physical activity: . . . . . Yes No
c. Pain or tightness in your chest that interferes with your job: . . . . . Yes No
d. In the past two years, have you noticed your heart skipping or missing a beat: . . . . . Yes No
e. Heartburn or indigestion that is not related to eating: . . . . . Yes No
f. Any other symptoms that you think may be related to heart or circulation problems: . . . . . Yes No
7. Do you currently take medication for any of the following problems?
a. Breathing or lung problems: . . . . . Yes No
b. Heart trouble: . . . . . Yes No
c. Blood pressure: . . . . . Yes No
d. Seizures (fits): . . . . . Yes No
8. Has your wearing a respirator caused any of the following problems? (If you've never used a respirator, check the following space __ and go to question 9:)
a. Eye irritation: . . . . . Yes No
b. Skin allergies or rashes: . . . . . Yes No
c. Anxiety that occurs only when you use the respirator: . . . . . Yes No
d. Unusual weakness or fatigue: . . . . . Yes No
e. Any other problem that interferes with your use of a respirator: . . . . . Yes No
9. Would you like to talk to the health care professional who will review this questionnaire about your answers
to this questionnaire: . . . . . Yes No
Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been
selected to use other types of respirators, answering these questions is voluntary.
10. Have you ever lost vision in either eye (temporarily or permanently): . . . . . Yes No
11. Do you currently have any of the following vision problems?
a. Wear contact lenses: . . . . . Yes No
b. Wear glasses: . . . . . Yes No
c. Color blind: . . . . . Yes No
d. Any other eye or vision problem: . . . . . Yes No
12. Have you ever had an injury to your ears, including a broken ear drum: . . . . . Yes No
13. Do you currently have any of the following hearing problems?
a. Difficulty hearing: . . . . . Yes No
b. Wear a hearing aid: . . . . . Yes No
c. Any other hearing or ear problem: . . . . . Yes No
14. Have you ever had a back injury: . . . . . Yes No
15. Do you currently have any of the following musculoskeletal problems?
a. Weakness in any of your arms, hands, legs, or feet: . . . . . Yes No
b. Back pain: . . . . . Yes No
c. Difficulty fully moving your arms and legs: . . . . . Yes No
d. Pain or stiffness when you lean forward or backward at the waist: . . . . . Yes No
e. Difficulty fully moving your head up or down: . . . . . Yes No
f. Difficulty fully moving your head side to side: . . . . . Yes No
g. Difficulty bending at your knees: . . . . . Yes No
h. Difficulty squatting to the ground: . . . . . Yes No

i. Difficulty climbing a flight of stairs or a ladder carrying more than 25 lbs: . . . . . Yes No
j. Any other muscle or skeletal problem that interferes with using a respirator: . . . . . Yes No

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: . . . . . Yes No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: . . . . . Yes No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: . . . . . Yes No

If "yes," name the chemicals if you know them:_____
_____
_____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

a. Asbestos: . . . . . Yes No
b. Silica (e.g., in sandblasting): . . . . . Yes No
c. Tungsten/cobalt (e.g., grinding or welding this material): . . . . . Yes No
d. Beryllium: . . . . . Yes No
e. Aluminum: . . . . . Yes No
f. Coal (for example, mining): . . . . . Yes No
g. Iron: . . . . . Yes No
h. Tin: . . . . . Yes No
i. Dusty environments: . . . . . Yes No
j. Any other hazardous exposures: . . . . . Yes No

If "yes," describe these exposures:_____
_____
___
_____
___

4. List any second jobs or side businesses you have:_____
_____
____

5. List your previous occupations:_____
_____
_____

6. List your current and previous hobbies:_____
_____
_____

7. Have you been in the military services? . . . . . Yes No

If "yes," were you exposed to biological or chemical agents (either in training or combat): . . . . . Yes No

8. Have you ever worked on a HAZMAT team? . . . . . Yes No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): . . . . . Yes No
If "yes," name the medications if you know them:_____
10. Will you be using any of the following items with your respirator(s)?
a. HEPA Filters: . . . . . Yes No
b. Canisters (for example, gas masks): . . . . . Yes No
c. Cartridges: . . . . . Yes No
11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:
a. Escape only (no rescue): . . . . . Yes No
b. Emergency rescue only: . . . . . Yes No
c. Less than 5 hours per week: . . . . . Yes No
d. Less than 2 hours per day: . . . . . Yes No
e. 2 to 4 hours per day: . . . . . Yes No
f. Over 4 hours per day: . . . . . Yes No
12. During the period you are using the respirator(s), is your work effort:
a. Light (less than 200 kcal per hour): . . . . . Yes No
If "yes," how long does this period last during the average shift:_____hrs._____mins.
Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or
standing while operating a drill press (1-3 lbs.) or controlling machines.
b. Moderate (200 to 350 kcal per hour): . . . . . Yes No
If "yes," how long does this period last during the average shift:_____hrs._____mins.
Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at
trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.
c. Heavy (above 350 kcal per hour): . . . . . Yes No
If "yes," how long does this period last during the average shift:_____hrs._____mins.
Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working
on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade
about 2 mph; climbing stairs with a heavy load (about 50 lbs.).
13. Will you be wearing protective clothing and or equipment (other than the respirator) when you're using your
respirator: . . . . . Yes No
If "yes," describe this protective clothing and or equipment:_____
_____
____
14. Will you be working under hot conditions (temperature exceeding 77 deg. F): . . . . . Yes No
15. Will you be working under humid conditions: . . . . . Yes No

16. Describe the work you'll be doing while you're using your respirator(s):

_____

_____

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for
example, confined spaces, life-threatening gases):

_____

_____

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when
you're using your respirator(s):

Name of the first toxic substance:_____

Estimated maximum exposure level per shift:_____

Duration of exposure per shift_____

Name of the second toxic substance:_____

Estimated maximum exposure level per shift:_____

Duration of exposure per shift:_____

Name of the third toxic substance:_____

Estimated maximum exposure level per shift:_____

Duration of exposure per shift:_____

The name of any other toxic substances that you'll be exposed to while using your respirator:

_____

_____

_____

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and
well-being of others (for example, rescue, security):

_____

_____

_____

Apéndice C: Cuestionario de Evaluación Médico obligado por la OSHA (La agencia de seguridad y salud ocupacional)
Parte 29 CFR 1910.134 Mandatorio para Proteccion del Sistema Respiratorio

Marque con un circulo para indicar sus respuestas a cada pregunta.
Para el empleado: Puede usted leer (circule uno): Sí o No
Su patrón debe dejarlo responder estas preguntas durante horas de trabajo o en un tiempo y lugar que sea conveniente para usted. Para mantener este cuestionario confidencial, su patrón o supervisor no debe ver o revisar sus respuestas. Su patrón debe informarle a quien dar o enviar este cuestionario para ser revisado por un
profesional de sanidad con licencia autorizado por el estado.

Parte A. Sección 1. (Mandatorio). La siguiente información debe de ser proveida por cada empleado que ha
sido seleccionado para usar cualquier tipo de respirador (escriba claro por favor).

1. Fecha :_____
2. Nombre:_____
3. Edad:_____
4. Su sexo (circule uno) Masculino o Femenino
5. Altura: _____pies _____pulgadas
6. Peso: _____libras
7. Su ocupación, título o tipo de trabajo: _____
8. Número de teléfono al donde pueda ser llamado por un profesional de sanidad con licencia que revisara este cuestionario (incluya el área):_____
9. Indique la hora mas conveniente para llamarle a este numero:_____
10. ¿Le ha informado su patrón como comunicarse con el profesional de sanidad con licencia que va a revisar
este cuestionario (circule una respuesta)? . . . . . Sí o No
11. Anote el tipo de equipo protector respíratorio que va utilizar (puede anotar mas de una categoría)
a._____ Respirador disponible de clase N, R, o P (por ejemplo: respirador de filtro mécanico, respirador sin
cartucho)
b._____ Otros tipos (respirador con cartucho químico, máscara con cartucho químico, máscara con manguera con soplador (PAPR),máscara con manguera sin soplador (SAR), aparato respiratorio autónomos (SCBA)).
12. ¿Ha usado algun tipo de respirador ? . . . . . Sí o No

Si ha usado equipo protector respíratorio, que tipo(s) ha utilizado:
_____
_____

Parte A. Seccion 2. (Mandatorio): Preguntas del 1 al 9 deben ser contestadas por cada empleado que fue seleccionado a usar cualquier tipo de respirador. Marque con un circulo para indicar sus repuestas.

1. ¿Corrientemente fuma tabaco, o ha fumado tabaco durante el ultimo mes? . . . . . Sí o No
2. ¿Ha tenido algunas de las siguientes condiciones medicas?
a. Convulsiones : . . . . . Sí o No
b. Diabetes (azucar en la sangre): . . . . . Sí o No
c. Reacciones alergicas que no lo deja respirar: . . . . . Sí o No
d. Claustrofobia (miedo de estar en espacios cerrados): . . . . . Sí o No
e. Dificultad oliendo excepto cuando ha cogido un resfriado: . . . . . Sí o No
3. ¿Ha tenido algunas de los siguientes problemas pulmonares?
a. Asbestosis: . . . . . Sí o No
b. Asma: . . . . . Sí o No
c. Bronquitis cronica: . . . . . Sí o No
d. Emfisema: . . . . . Sí o No
e. Pulmonía: . . . . . Sí o No
f. Tuberculosis: . . . . . Sí o No
g. Silicosis: . . . . . Sí o No
h. Neumotorax (pulmon colapsado): . . . . . Sí o No
i. Cáncer en los pulmones: . . . . . Sí o No
j. Costillas quebradas: . . . . . Sí o No
k. Injuria o cirujía en el pecho: . . . . . Sí o No
l. Algun otro problema de los pulmones que le ha dicho su medico: . . . . . Sí o No
4. ¿Corrientemente tiene alguno de los siguientes síntomas o enfermedades en sus pulmones?
a. Respiración dificultosa . . . . . Sí o No
b. Respiración dificultosa cuando camina rapido sobre terreno plano o subiendo una colina: Sí o No
c. Respiración dificultosa cuando camina normalmente con otras personas sobre terreno plano: Sí o No
d. Cuando camina normalmente en terreno plano se encuentra corto de resuello? . . . . . Sí o No
e. Respiración dificultosa cuando se esta bañando o vistiendo: . . . . . Sí o No
f. Respiración dificultosa que lo impede trabajar: . . . . . Sí o No
g. Tos con flema: . . . . . Sí o No
h. Tos que lo despierta temprano en la mañana: . . . . . Sí o No
i. Tos que occure cuando esta acostado: . . . . . Sí o No
j. Ha tosido sangre en el ultimo mes: . . . . . Sí o No
k. Silbar o respirar con mucha dificultad: . . . . . Sí o No
l. Silbar que lo impede trabajar: . . . . . Sí o No
m. Dolor del pecho cuando respira profundamente: . . . . . Sí o No
n. Otros símtomas que crea usted estar relacionados a los pulmones: . . . . . Sí o No
5. ¿Ha tenido algunos de los siguientes problemas con el corazón?
a. Ataque cardiaco: . . . . . Sí o No
b. Ataque cerebrovascular: . . . . . Sí o No
c. Dolor en el pecho: . . . . . Sí o No
d. Falla de corazón: . . . . . Sí o No
e. Hinchazón en las piernas o pies (que no sea por caminar): . . . . . Sí o No
f. Latidos irregulares del corazón: . . . . . Sí o No
g. Alta presión: . . . . . Sí o No
h. Algun otro problema cardio-vascular o cardiaco: . . . . . Sí o No
6. ¿Ha tenido algunos de los siguientes síntomas causados por su corazón?
a. Dolor de pecho frecuente o pecho apretado: . . . . . Sí o No
b. Dolor o pecho apretado durante actividad fisica: . . . . . Sí o No

c. Dolor o pecho apretado que no lo deja trabajar normalmente: . . . . . Sí o No
d. En los ultimos dos años ha notado que su corazón late irregularmente: . . . . . Sí o No
e. Dolor en el pecho o indigestion que no es relacionado a la comida: . . . . . Sí o No
f. Algunos otros síntomas que usted piensa ser causado por problemas de su corazón o de su circulation.
. . . . . Sí o No
7. ¿Esta tomando medicina por algunso de los siguientes problemas?
a. Respiración dificultosa: . . . . . Sí o No
b. Problemas del corazón: . . . . . Sí o No
c. Alta presión : . . . . . Sí o No
d. Convulsiones: . . . . . Sí o No
8. ¿Le ha causado alguno de los siguientes problemas usando el respirador? (si no ha usado un respirador, deje
esta pregunta en blanco__ y continue con pregunta 9).
a. Irritación de los ojos: . . . . . Sí o No
b. Alergias del cutis o sarpullido: . . . . . Sí o No
c. Ansiedad que ocurre solamente cuando usa el respirado: . . . . . Sí o No
d. Debilidad, falta de vigor o fatiga desacostumbrada: . . . . . Sí o No
e. Algun otro problema que le impida utilizar su respirador: . . . . . Sí o No
9. ¿Le gustaria hablar con el profesional de sanidad con licencia autorizado por el estado que revisara este cuestionario sobre sus respuestas? . . . . . Sí o No

Las preguntas del 10 al 15 deben ser contestadas por los empleados seleccionados para usar una máscara
con cartucho químico o aparato respiratorio autónomo (SCBA). Los empleados que usan otro tipo de respirador no tienen que contestar estas preguntas.

10. ¿Ha perdido la vista en cualquiera de sus ojos (temporalmente o permanente): . . . . . Sí o No
11. ¿Corrientemente tiene algunos de los siguientes problemas con su vista?
a. Usa lentes de contacto: . . . . . Sí o No
b. Usa lentes: . . . . . Sí o No
c. Daltoniano (dificultad distinguiendo colores): . . . . . Sí o No
d. Tiene algún problema con sus ojos o su vista: . . . . . Sí o No
12. ¿Ha tenido daño en sus oidos incluyendo rotura del tímpano: . . . . . Sí o No
13. ¿Corrientemente tiene uno de las siguientes problemas para oir?
a. Dificultad oyendo: . . . . . Sí o No
b. Usa un aparato para oir: . . . . . Sí o No
c. Tiene algun otro problema con sus oidos o dificultad escuchando: . . . . . Sí o No
14. ¿Se ha dañado o lastimado su espalda? . . . . . Sí o No
15. ¿Tiene uno de los siguientes problemas de su aparato muscular or eskeleto?
a. Debilidad en sus brazos, manos, piernas o pies : . . . . . Sí o No
b. Dolor de espalda: . . . . . Sí o No
c. Dificultad para mover sus brazos y piernas completamente: . . . . . Sí o No
d. Dolor o engarrotamiento cuando se inclina para adelante o para atras: . . . . . Sí o No
e. Dificultad para mover su cabeza para arriba o para abajo completamente: . . . . . Sí o No
f. Dificultad para mover su cabeza de lado a lado: . . . . . Sí o No
g. Dificultad para agacharse doblando sus rodillas: . . . . . Sí o No
h. Dificultad para agacharse hasta tocar el piso: . . . . . Sí o No
i. Dificultad subiendo escaleras cargando mas de 25 libras: . . . . . Sí o No
j. Alguno problema muscular o con sus huesos que le evite usar un respirador: . . . . . Sí o No

Parte B - Las siguientes preguntas pueden ser agregadas al cuestionario a discrecion del profesional de
sanidad con licencia autorizado por el estado.

1. ¿Esta trabajando en las alturas arriba de 5,000 pies o en sitios que tienen menos oxígeno de lo normal? . . . . . Sí o No

Si la respuesta es "Sí", se ha sentido mareado, o ha tenido dificultad respirando, palpitaciones, o cualquier otro síntoma que usted no tiene cuando no esta trabajando bajo estas condiciones: . . . . . Sí o No

2. ¿En el trabajo o en su casa, ha estado expuesto a solventes o contaminantes peligrosos en el aire (por ejemplo, humos, neblina o polvos) o ha tenido contacto del cutis con químicas peligrosas? . . . . . Sí o No

Escriba las químicas y productos con las que ha estado expuesto, si sabe cuales son:_____

3. ¿Ha trabajado con los siguientes materiales o las condiciones anotadas abajo?:

a. Asbestos: . . . . . Sí o No
b. Sílice (Limpiar mediante un chorro de arena): . . . . . Sí o No
c. Tungsteno/Cobalto (pulverizar o soldadura): . . . . . Sí o No
d. Berilio: . . . . . Sí o No
e. Aluminio: . . . . . Sí o No
f. Carbón de piedra (minando): . . . . . Sí o No
g. Hierro: . . . . . Sí o No
h. Estaño: . . . . . Sí o No
i. Ambiente polvoriento: . . . . . Sí o No
j. Otra exposicion peligrosa: . . . . . Sí o No

Describa las exposiciones peligrosas:

_____
_____

4. ¿Tiene usted otro trabajo o un negocio aparte de este?

_____
_____

5. Apunte su previos trabajos:

_____

6. Apunte sus pasatiempos:

_____
_____

7. ¿Tiene servicio militar? . . . . . Sí o No

Si la respuesta es "Sí", ha estado expuesto a agentes químicos o biologicos durante entrenamiento o combate: . . . . . Sí o No

8. ¿Alguna vez ha trabajado en un equipo de HAZMAT (equipo respondedor a incidentes de materiales peligosos con emergencia)? . . . . . Sí o No

9. ¿Esta tomando alguna medicina que no haya mencionado en este cuestionario (incluyendo remedios caseros o
medicinas que compra sin receta)? . . . . . Sí o No
Si la respuesta es “Sí”, cuales son_____
10. ¿Va a usar algunas de las siguientes partes con su respirador?
a. filtros HEPA (filtro de alta eficiencia que remueve partículas tóxicas en la atmósfera): . . . . Sí o No
b. Canastillo (por ejemplo, máscara para gas): . . . . . Sí o No
c. Cartuchos: . . . . . Sí o No
11. ¿Cuántas veces espera usar un respirador?
a. Para salir de peligro solamente (no rescates): . . . . . Sí o No
b. Recates de emergencia solamente: . . . . . Sí o No
c. Menos de 5 horas *por semana*: . . . . . Sí o No
d. Menos de 2 horas *por día*: . . . . . Sí o No
e. 2 a 4 horas *por día*: . . . . . Sí o No
f. Mas de 4 horas *por día*: . . . . . Sí o No
12. ¿Durante el tiempo de usar el respirador, su trabajo es...?
a. **Ligero** (menos de 200 kcal por hora): . . . . . Sí o No
Si la respuesta es “sí”, cuanto tiempo dura la obra _____horas _____minutos
Ejemplos de trabajos ligeros: estar sentado escribiendo, escribiendo a máquina, diseñando, trabajando la línea de
montaje, o estar parado gobernando un taladro o máquinas:
b. **Moderado** (200-350 kcal por hora): . . . . . Sí o No
Si la respuesta es “sí”cuanto tiempo dura en promedio por jornada _____horas_____minutos
Ejemplos de trabajos moderados : sentado clavando o archivando; manejando un camión o autobús en trafico
pesado; estar de pie taladrando, clavando, trabajando la línea de montaje, o transferiendo una carga (de 35 libras)
a la altura de la cintura; caminando sobre tierra plana a 2 millas por hora o bajando a 3 millas por hora; empujando una carretilla con una carga pesada (de 100 libras) sobre terreno plano.
c. **Pesado** (mas de 350 kcal por hora): . . . . . Sí o No
Si la respuesta es “sí”cuanto tiempo dura en promedio por jornada _____horas_____minutos
Ejemplos de trabajos pesados: levantando cargas pesadas (mas de 50 libras) desde el piso hasta la altura de la
cintura o los hombros; trabajando cargando o descargando; transpalear; estar de pie trabajando de albañil o demenuzando moldes; subiendo a 2 millas por hora; subiendo la escalera con una carga pesada (mas de 50 libras).
13. ¿Va a estar usando ropa o equipo protectivo cuando use el respirador? . . . . . Sí o No
Si la respuesta es “sí” describa que va a estar
usando_____
_____
_____
14. ¿Va a estar trabajando en condiciones calurosas (temperatura mas de 77 grados F)? . . . . . Sí o No
15. ¿Va a estar trabajando en condiciones humedas? . . . . . Sí o No

16. Describa el tipo de trabajo que va a estar usted haciendo cuando use el respirador.

_____

_____

17. Describa cualquier situacion especial o peligrosa que pueda encontrar cuando este usando el respirador (por
ejemplo, espacios encerrados, gases que lo puedan matar, etc.)

_____

18. Provea la siguiente informacion si la sabe, por cada sustancia tóxica que usted va a estar expuesto cuando
este usando el respirador(s):

Nombre de la primera sustancia tóxica_____

Maximo nivel de exposición por jornada de trabajo_____

Tiempo de exposición por jornada_____

Nombre de la segunda sustancia tóxica_____

Maximo nivel de exposición por jornada de trabajo_____

Tiempo de exposición por jornada_____

Nombre de la tercera sustancia tóxica_____

Máximo nivel de exposición por jornada de trabajo_____

Tiempo de exposición por jornada_____

El nombre de cualquier sustancia tóxica que usted va a estar expuesto cuando este usted usando el
respirador_____

_____

19. Describa alguna responsabilidad especial que usted va a tener cuando usted este usado el respirador(s) que
pueda afectar la seguridad o la vida de otros (por ejemplo, rescate, seguridad).

_____

Appendix C:
OSHA Form 200-Occupational Injuries & Illnesses

Log and Summary of Occupational Injuries and illnesses

NOTE: This form is required by Public Law 91-596 and must be kept in the establishment for 5 years. Failure to maintain and post can result in issuance of citations and assessment of penalties. (*See posting requirements on the other side of form*)

RECORDABLE CASES: You are required to record information about every occupational death; every nonfatal occupational illness; and those nonfatal occupational injuries which involve one or more of the following: loss of conciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid) (*See definitions on the other side of form*)

Case or File Number	Date of Injury or Onset of Illness	Employee's Name	Occupation	Department	Description of Injury or Illness
Enter a nonduplicating number which will facilitate comparisons with supplementary records.	Enter Mo/Day	Enter first name or initial, middle initial, last name	Enter regular job title, not activity employee was performing when injury occurred or at onset of illness. In the absence of a formal title, enter a brief description of the employee's duties.	Enter department in which the employee is regularly employed or a description of normal workplace to which employee is assigned, even though temporarily working in another department at the time of injury or illness.	Enter a brief description of the injury or illness and indicate the part or parts of the body affected. Typical entries for this column might be: Amputation of 1st joint right forefinger; Strain of lower back; Contact dermatitis on both hands; Electrocution - body.
(A)	(B)	(C)	(D)	(E)	(F)
					PREVIOUS PAGE TOTALS =>
					TOTALS (Instructions on other side of form) =>

OSHA No. 200

U.S. Department of Labor

For Calendar Year _____ Page: _____ of _____

Company Name

Establishment Name

Establishment Address

Form Approved
O.M.B. No. 1218-0176
See OMB Disclosure Statement on reverse.

Extent of and Outcome of Injury						Type, Extent of, and Outcome of Illness												
Fatalities	Nonfatal Injuries					Type of Illness							Fatalities	Nonfatal Illnesses				
	Injuries with Lost Workdays				Injuries Without Lost Workdays	CHECK Only One Column for Each Illness (See other side of form for terminations or permanent transfers)								Illnesses with Lost Workdays				
Injury Related													Illness Related					Illnesses without Lost Workdays
Enter Date of death. mm/dd/yy	Enter a Check if injury involves DAYS away from work or restricted work activity or both.	Enter a Check if injury involves DAYS away from work.	Enter number of DAYS away from work	Enter number of DAYS of restricted work activity	Enter a Check if no entry was made in column 1 or 2 but the injury is recordable as defined above.	Occupational Skin Disorder or Disease	Dust Disease of the lungs	Respiratory Conditions due to toxic agents	Poisoning (systemic effects of toxic materials)	Disorders due to physical agents	Disorders associated with repeated trauma	All other occupational illnesses	Enter DATE of death, mm/dd/yy	Enter a CHECK if Illness involves DAYS away from work, or DAYS of restricted work activity or both.	Enter a CHECK if Illness involves DAYS away from work.	Enter number of DAYS away from work.	Enter number of DAYS of restricted work activity	Enter a CHECK if no entry was made in columns 8 or 9
						(7)												
(1)	(2)	(3)	(4)	(5)	(6)	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(8)	(9)	(10)	(11)	(12)	(13)

Certification of Annual Summary Totals by: _____ Title: _____ Date: _____

OSHA 200

POST ONLY THIS PORTION OF THE LAST PAGE NO LATER THAN FEBRUARY 1

OMB DISCLOSURE STATEMENT

Public reporting burden for this collection of information is estimated to vary from 4 to 30 (time in minutes) per response with an average of 15 (time in minutes) per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments regarding this estimate or any other aspect of this information collection, including suggestions for reducing this burden, please send them to the OSHA Office of Statistics, Room N-3644, 200 Constitution Avenue, N.W. Washington, D.C. 20210

Instructions for OSHA No. 200

I. Log and Summary of Occupational Injuries and Illnesses

Each employer who is subject to the recordkeeping requirements of the Occupational Safety and Health Act of 1970 must maintain for each establishment, a log of all recordable occupational injuries and illnesses. This form (OSHA No. 200) may be used for that purpose. A substitute for the OSHA No. 200 is acceptable if it is as detailed, easily readable, and understandable as the OSHA No. 200.

Enter each recordable case on the log within six (6) workdays after learning of its occurrence. Although other records must be maintained at the establishment to which they refer, it is possible to prepare and maintain the log at another location, using data processing equipment if desired. If the log is prepared elsewhere, a copy updated to within 45 calendar days must be present at all times in the establishment.

Logs must be maintained and retained for five (5) years following the end of the calendar year to which they relate. Logs must be available (normally at the establishment) for inspection and copying by representatives of the Department of Labor, or the Department of Health and Human Services, or States accorded jurisdiction under the Act. Access to the log is also provided to employees, former employees and their representatives.

II. Changes in Extent of or Outcome of Injury or Illness

If, during the 5-year period the log must be retained, there is a change in an extent and outcome of an injury or illness which affects entries in columns 1, 2, 6, 8, 9, or 13, the first entry should be lined out and a new entry made. For example, if an injured employee at first required only medical treatment but later lost workdays away from work, the check in column 6 should be lined out and checks entered in columns 2 and 3 and the number of lost workdays entered in column 4.

In another example, if an employee with an occupational illness lost wordays, returned to work, and then died of the illness, any entries in columns 9 through 12 would be lined out and the date of death entered in column 8.

The entire entry for an injury or illness should be lined out if later found to be nonrecordable. For example, an injury which is later determined not to be work related, or which was initially thought to involve medical treatement but later was determined to have involved only first aid.

III. Posting Requirements

A copy of the totals and information following the total line of the last page for the year, must be posted at each establishment in the place or places where notices to employees are customarily posted. This copy must be posted no later than February 1 and must remain in place until March 1. Even though there were no injuries or illnessed during the year, zeros must be entered on the totals line, and the form posted.

The person responsible for the annual summary totals shall certify that the totals are true and complete by signing at the bottom of the form.

IV. Instructions for Completing Log and Summary of Occupational injuries and illnesses

Column A - CASE OR FILE NUMBER. Self Expanatory

Column B - DATE OF INJURY OR ONSET OF ILLNESS

For occupational injuries, enter the date of the work accident which resulted in the injury. For occupational illnesses, enter the date of initial diagnosis of illness, or, if absence from work occurred before diagnosis, enter the first day of the absence attributable to the illness which was later diagnosed or recognized.

Columns C through F - Self Explanatory

Columns 1 and 8 - INJURY OR ILLNESS-RELATED DEATHS - Self Explanatory

Columns 2 and 9 - INJURIES OR ILLNESSES WITH LOST WORKDAYS - Self Explanatory

Any injury which involves days away from work, or days of restricted work activitiy, or both, must be recorded since it always involves one or more of the criteria for recordability.

Columns 3 and 10 - INJURIES OR ILLNESSES INVOLVING DAYS AWAY FROM WORK - Self Explanatory

Columns 4 and 11 - LOST WORKDAYS -- DAYS AWAY FROM WORK.
Enter the number of workdays (consecutive or not) on which the employee would have worked but could not because of occupational injury or illness. The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work. NOTE: For employees not having a regularly scheduled shift, such as certain truck drivers, construction workers, farm labor, casual labor, part-time employees, etc., it may be necessary to estimate the number of lost workdays. Estimates of lost workdays shall be based on prior work history of the employee AND days worked by employees, not ill or injured, working in the department and/or occupation of the ill or injured employee.

Columns 5 and 12 - LOST WORKDAYS -- DAYS OF RESTRICTED WORK ACTIVITY.
Enter the number of workdays (consecutive or not) on which because of injury or illness:
(1) the employee was assigned to another job on a temporary basis, or
(2) the employee worked at a permanent job less than full time, or
(3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

Columns 6 and 13 - INJURIES OR ILLNESSES WITHOUT LOST WORKDAYS - Self Explanatory

Columns 7a through 7g - TYPE OF ILLNESS. Enter a check in only *one* column for each illness.
TERMINATION OR PERMANENT TRANSFER - Place an asterisk to the right of the entry in columns 7a through 7g (type of illness) which represented a termination of employment or permanent transfer.

V. Totals
Add number of entries in columns 1 and 8.
Add number of checks in columns 2, 3, 6, 7, 9, 10 and 13.
Add number of days in columns 4, 5, 11 and 12.
Yearly totals for each column (1-13) are required for posting. Running or page totals may be generated at the discretion of the employer.

In an employee's loss of workdays is continuing at the time the totals are summarized, estimate the number of future workdays the employee will lose and add that estimate to the workdays already lost and include this figure in the annual totals. No further entries are to be made with respect to such cases in the next year's log.

VI. Definitions
OCCUPATIONAL INJURY is any injury such as a cut, fracture, sprain, amputation, etc. which results from a work accident or from an exposure involving a single incident in the work environment. NOTE: Conditions resulting from animal bites, such as insect or snake bites or from one-time exposure to chemicals, are considered to be injuries.

OCCUPATIONAL ILLNESS of an amployee is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

The following listing gives the categories of occupational illnesses and disorders that will be utilized for the purpose of classifying recordable illnesses. For porposes of information, examples of each category are given. These are typical examples, however, and are not to be considered the complete listing of the types of illnesses and disorders that are to be counted under each category.

7a. Occupational Skin Diseases or Disorders. Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; chrome ulcers; chemical burns or inflamation, etc.

7b. Dust Diseases of the Lungs (Pneumaconioses). Examples: Silicosis, asbestosis and other asbestos-related diseases, coal worker's pneumaconioses, byssinosis, siderosis, and other pneumaconioses.

7c. Respiratory Conditions Due to Toxic Agents. Examples: Pneumonitis, pharyngitis, rhinitis or acute congestion due to chemicals, dusts, gases, or fumes; farmer's lung; etc.

7d. Poisoning (Systemic Effects of Toxic Materials). Examples: Poisoning by lead, mercury, cadmium, arsenic, or other metals; poisoning by

carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays such as parathion, lead arsenate; poisoning by other chemicals such as formaldehyde, plastics, and resins; etc.

7e. Disorders Due to Physical Agents (Other than Toxic Materials). Examples: Heatstroke, sunstroke, heat exhaustion, and other effects of environmental heat, freezing, frostbite, and effects of exposure to low temperatures; caisson disease; effects of ionizing radiation (isotopes, X-rays, radium); effects of nonionizing radiation (welding flash, ultraviolet rays, microwaves, sunburn); etc.

7f. Disorders Associated with Repeated Trauma. Examples: Noise-induced hearing loss; synovitis, tenosynovitis, and bursitis. Raynaud's phenomena; and other conditions due to repeated motion, vibration, or pressure.

7g. All Other Occupational Illnesses. Examples: Anthrax, brucellosis, infectious hepatitis, malignant and benign tumors, food poisoning, histoplasmosis, coccidioidomycosis, etc.

MEDICAL TREATMENT includes treatment (other than first aid) administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does NOT include first aid treatment (one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care) even though provided by a physician or registered professional personnel.

ESTABLISHMENT: A single physical location where business is conducted or where services or industrial operations are performed (for example: a factory, mill, store, hotel, resturant, movie theater, farm, ranch, bank, sales office, warehouse, or central administrative office). Where distinctly separate activities are performed at a single physicial location, such as construction activities operated from the same physical locations as a lumber yard, each activity shall be treated as a separate establishment.

For firms engaged in activities which may be physically dispersed, such as agriculture; construction; transportation; communications and electric, gas, and sanitary services, records may be maintained at a place to which employees report each day.

Records for personnel who do not primarily report or work at a single establishment, such as traveling salesmen, technicians, engineers, etc., shall be maintained at the location from which they are paid or the base from which personnel operate to carry out their activities.

WORK ENVIRONMENT is comprised of the physical location, equipment, materials processed or used, and the kinds of operations performed in the course of an employee's work, wether on or off the employer's premisis.

Appendix D:
MSDS Sheets

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006
Version 5.0 Revision Date 29.10.2012
Print Date 19.04.2017
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name : Arsenic

Product Number : 267961
Brand : Aldrich
Index-No. : 033-001-00-X
CAS-No. : 7440-38-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Israel Ltd.
3 PARK RABIN, PLAUT
7670603 REHOVOT
ISRAEL

Telephone : +972 8948-4222
Fax : +972 8948-4200

1.4 Emergency telephone number

Emergency Phone # : +972 (8) 948-4222

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Oral (Category 3)

Classification according to EU Directives 67/548/EEC or 1999/45/EC
Toxic by inhalation and if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]
Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H331 Toxic if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/

physician.

P311	Call a POISON CENTER or doctor/ physician.
P501	Dispose of contents/ container to an approved waste disposal plant.

Supplemental Hazard Statements: none

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)

R-phrase(s)

R23/25	Toxic by inhalation and if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S20/21	When using do not eat, drink or smoke.
S28	After contact with skin, wash immediately with plenty of soap and water.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60	This material and its container must be disposed of as hazardous waste.
S61	Avoid release to the environment. Refer to special instructions/ Safety data sheets.

2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : As
Molecular Weight : 74,92 g/mol

Component		Concentration
Arsenic		
CAS-No.	7440-38-2	-
EC-No.	231-148-6	
Index-No.	033-001-00-X	

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

4.3 Indication of any immediate medical attention and special treatment needed

no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Arsenic oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end uses
no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: > 480 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: > 30 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	Melting point/range: 817 °C - lit.
f)	Initial boiling point and boiling range	613 °C - lit.
g)	Flash point	not applicable
h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	5,727 g/mL at 25 °C
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available

p)	Autoignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
no data available

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat. Exposure to air may affect product quality.

10.5 Incompatible materials
Oxidizing agents, Halogens, Palladium undergoes a violent reaction with arsenic, Zinc, Platinum oxide, Nitrogen trichloride, Bromine azide

10.6 Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 763 mg/kg
Remarks: Behavioral:Ataxia. Diarrhoea

LD50 Oral - mouse - 145 mg/kg
Remarks: Behavioral:Ataxia. Diarrhoea

Inhalation: no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

IARC: 1 - Group 1: Carcinogenic to humans (Arsenic)

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	Toxic if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

Additional Information
RTECS: CG0525000

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 9,9 mg/l - 96,0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 3,8 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
no data available

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: 1558 IMDG: 1558 IATA: 1558

14.2 UN proper shipping name
ADR/RID: ARSENIC
IMDG: ARSENIC
IATA: Arsenic

14.3 Transport hazard class(es)

ADR/RID: 6.1	IMDG: 6.1	IATA: 6.1

14.4 Packaging group

ADR/RID: II	IMDG: II	IATA: II

14.5 Environmental hazards

ADR/RID: yes	IMDG Marine pollutant: yes	IATA: no

14.6 Special precautions for user

no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

no data available

15.2 Chemical Safety Assessment

no data available

16. OTHER INFORMATION

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

Revision Date 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **1,2-Benzanthracene**

Cat No. : **AC105250000; AC105250010; AC105252500**

Synonyms Benzóa!anthracene; Tetraphene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benz[a]anthracene	56-55-3	99

4. First-aid measures

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion Call a physician immediately. Clean mouth with water.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable

Explosion Limits
Upper No data available

Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling	Do not breathe dust. Do not get in eyes, on skin, or on clothing. Handle product only in closed system or provide appropriate exhaust ventilation.
Storage	Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid

Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	158 - 161 °C / 316.4 - 321.8 °F
Boiling Point/Range	437.6 °C / 819.7 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C18 H12
Molecular Weight	228.29

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benz[a]anthracene	56-55-3	Group 2B	Reasonably Anticipated	A2	X	A2

Mutagenic Effects Ames test: positive.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benz[a]anthracene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benz[a]anthracene	Not listed	Not listed	EC50 = 0.26 mg/L 15 min	LC50: = 0.01 mg/L, 96h Static (Daphnia magna) EC50: = 0.0042 mg/L, 48h (Daphnia magna)

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benz[a]anthracene	5.61

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benz[a]anthracene - 56-55-3	U018	-

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substances, solid, n.o.s.

Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Benz[a]anthracene	56-55-3	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Benz[a]anthracene	56-55-3	-	X	200-280-6	-	-	-	X	-

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benz[a]anthracene	56-55-3	99	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benz[a]anthracene	-	-	-	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benz[a]anthracene	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benz[a]anthracene	56-55-3	Carcinogen	0.033 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benz[a]anthracene	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): N

DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 19-Jan-2018
Print Date 19-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 14-Feb-2020 **Revision Number** 2

1. Identification

Product Name **Benzo[a]pyrene**

Cat No. : **15856**

CAS-No 50-32-8
Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility. May damage the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable. . May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzo[a]pyrene		TWA: 0.2 mg/m³		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard

EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	175 - 179 °C / 347 - 354.2 °F
Boiling Point/Range	495 °C / 923 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	A2

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a

hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name Benzo[a]pyrene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Benzo[a]pyrene	50-32-8	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Benzo[a]pyrene	50-32-8	X	-	200-028-5	X	-	-	X	KE-05-0184

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo[a]pyrene	50-32-8	> 96	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo[a]pyrene	1 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Health, Safety and Environmental Department
Email: tech@alfa.com
www.alfa.com

Revision Date 14-Feb-2020
Print Date 14-Feb-2020
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 50-32-8/1.

Disclaimer

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End of SDS

Safety Data Sheet

Revision Date: 07/31/19
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31272 / Benzo(b)fluoranthene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	11
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Carcinogenicity Category 1B Flammable Liquid Category 2 Serious Eye Damage/Eye Irritation Category 2 Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness. May cause cancer.
GHS Precautions:	
Safety Precautions:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 3: H336 May cause drowsiness or dizziness.

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.9
benzo (b) fluoranthene	205-99-2	205-911-9	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal

evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions:	Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	750 ppm STEL; 1782 mg/m3 STEL	500 ppm TWA; 1188 mg/m3 TWA	1000 ppm TWA; 2400 mg/m3 TWA
benzo (b) fluoranthene	205-99-2	Not established	None Known	Not established	No data available

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work
Medical Conditions Aggravated By Exposure:	Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Depends upon product selection
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.0 (air = 1)
Boiling Point (°C):	56.05 °C at 1013.25 hPa
Melting Point (°C):	-95.4 °C Melting Point
Flash Point (°F):	39
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	465 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.7845 g/cm3 at 25 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Complete; 100%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	99.9
Molecular Weight:	58.08

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Strong acids
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion

Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Respiratory Tract, Skin

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.

Skin Contact: Can cause minor skin irritation, defatting, and dermatitis.

Eye Contact: Can cause minor irritation, tearing and reddening.

Ingestion Irritation: May be harmful if swallowed.

Ingestion Toxicity: Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.

Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.

Skin Contact: Upon prolonged or repeated contact, can cause minor skin irritation, defatting, and dermatitis.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Dermal LD50 Rabbit >15700 mg/kg; Inhalation LC50 Rat 50100 mg/m3 8 h; Oral LD50 Rat 5800 mg/kg

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.	
Benzo(b)fluoranthene	205-99-2	Present

ACGIH:

Chemical Name	CAS No.	
Benzo[b]fluoranthene	205-99-2	A2 - Suspected Human Carcinogen
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983]	205-99-2	Group 2B

12. ECOLOGICAL INFORMATION

Overview: This material is not expected to be harmful to the ecology.

Mobility: No data

Persistence: No data

Bioaccumulation: No data

Degradability: No data

Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Acetone
UN Number: UN1090
Hazard Class: 3
Packing Group: II

International:

IATA Proper Shipping Name: Acetone
UN Number: UN1090
Hazard Class: 3
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X
benzo (b) fluoranthene	205-99-2	X	X	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Benzo[b]fluoranthene	205-99-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
benzo (b) fluoranthene	205-99-2	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 08/13/18

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Material Safety Data Sheet
Chrysene, 98%

MSDS# 95251

Section 1 - Chemical Product and Company Identification

MSDS Name:	Chrysene, 98%
Catalog Numbers:	AC224140000, AC224140010, AC224140050, AC224145000
Synonyms:	1,2-Benzophenanthrene; Benzo(a)phenanthrene; 1,2,5,6-Dibenzonaphthalene.
Company Identification:	Acros Organics BVBA Janssen Pharmaceuticalaan 3a 2440 Geel, Belgium
Company Identification: (USA)	Acros Organics One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	800-ACROS-01
For information in Europe, call:	+32 14 57 52 11
Emergency Number, Europe:	+32 14 57 52 99
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300
CHEMTREC Phone Number, Europe:	703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#:	218-01-9
Chemical Name:	Chrysene
%:	98
EINECS#:	205-923-4

Hazard Symbols: T

Risk Phrases: 45 50/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Caution! May cause respiratory tract irritation. May cause eye and skin irritation. May cause cancer in humans. Target Organs: Liver, skin.

Potential Health Effects

Eye:	May cause eye irritation.
Skin:	May cause skin irritation.
Ingestion:	May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation:	May cause respiratory tract irritation.
Chronic:	May cause cancer according to animal studies.

Section 4 - First Aid Measures

Eyes:	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: Not available.

Flash Point: Not applicable.

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: ; flammability: 1; instability: ;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Avoid breathing dust.

Storage: Store in a tightly closed container. Store in a cool, dry area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Chrysene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA	0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches).

OSHA Vacated PELs: Chrysene: 0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches)

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State:	Solid
Color:	very light beige
Odor:	Not available
pH:	Not available
Vapor Pressure:	Not available
Vapor Density:	Not available
Evaporation Rate:	Not available
Viscosity:	Not available
Boiling Point:	448 deg C @ 760 mm Hg (838.40°F)
Freezing/Melting Point:	250-255 deg C
Decomposition Temperature:	Not available
Solubility in water:	insoluble
Specific Gravity/Density:	
Molecular Formula:	C18H12
Molecular Weight:	228.29

Section 10 - Stability and Reactivity

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Dust generation.
Incompatibilities with Other Materials	Not available
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 218-01-9: GC0700000

LD50/LC50: RTECS: Not available.

Carcinogenicity: Chrysene - ACGIH: A1 - Confirmed Human Carcinogen (Coal tar pitches). California: carcinogen, initial date 1/1/90 NTP: Known carcinogen (Coal tar pitches). IARC: Group 1 carcinogen (Coal tar pitches).

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Water flea LC50 = 1.9 mg/L; 2 Hr.; Unspecified

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Please contact Fisher Scientific for shipping information
Hazard Class:
UN Number:
Packing Group:
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

USA RQ: CAS# 218-01-9: 100 lb final RQ; 45.4 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 45 May cause cancer.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 218-01-9: Not available

Canada

CAS# 218-01-9 is listed on Canada's DSL List

Canadian WHMIS Classifications: D2A

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 218-01-9 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 218-01-9 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 6/30/1999

Revision #6 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

Safety Data Sheet

Revision Date: 10/02/19
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31276 / Dibenzo(a,h)anthracene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Carcinogenicity Category 2
GHS Signal Word:	Warning
GHS Hazard:	Suspected of causing cancer.
GHS Precautions:	
Safety Precautions:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF exposed or concerned: Get medical advice/attention.
Storage:	Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	No data available
Repeated Exposure Target Organs:	No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Dichloromethane	75-09-2	200-838-9	99.9
dibenz (a,h) anthracene	53-70-3	200-181-8	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention and monitor the eye daily as advised by your physician. Serious harm (damage) may result if treatment is delayed. Continue to flush eyes while awaiting medical attention

Skin Contact: Wash with soap and water. Remove contaminated clothing, launder immediately, and discard contaminated leather goods. Get medical attention immediately.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS. Never give anything by mouth to an unconscious person

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do Not direct a stream of water into the hot burning liquid. Use methods suitable to fight surrounding fire.

Fire and/or Explosion Hazards: No data.

Fire Fighting Methods and Protection: Use methods for the surrounding fire.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Technical Measures and Conditions: Store in a cool dry place. Isolate from incompatible materials. Keep container closed when not in use

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Dichloromethane	75-09-2	2300 ppm IDLH	None Known	50 ppm TWA	25 ppm TWA; 125 ppm STEL (15 min. TWA)
dibenz (a,h) anthracene	53-70-3	Not established	None Known	Not established	No data available

Personal Protection:

Engineering Measures: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to

	eliminate symptoms.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.
Skin Protection:	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
Medical Conditions Aggravated By Exposure:	Eye disease Skin disease including eczema and sensitization Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Colorless
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.93 (air = 1)
Boiling Point (°C):	524 °C Boiling Point
Melting Point (°C):	-96.7 °C
Flash Point (°F):	No data available
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	556 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	1.3254 - 1.3258 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	99.9
Molecular Weight:	No data available

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.Contamination High temperatures
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Caustics (bases)
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation Absorption Ingestion Skin contact Eye contact
Target Organs Potentially Affected By Exposure:	Skin, Cardiovascular System, Eyes, Liver
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Inhalation may cause severe central nervous system depression (including unconsciousness).
Skin Contact:	Contact causes severe skin irritation and possible burns.
Skin Absorption:	Harmful if absorbed through the skin. May cause severe irritation and systemic damage.
Eye Contact:	Contact with the eyes may cause moderate to severe eye injury. Eye contact may result in tearing and reddening, but not likely to permanently injure eye tissue. Temporary vision impairment (cloudy or blurred vision) is possible.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components

present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Absorption: Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methane, dichloro-	75-09-2	Inhalation LC50 Rat 53 mg/L 6 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.	
Dibenz[a,h]anthracene	53-70-3	Present
Methylene chloride	75-09-2	25 ppm TWA (8 hr.); 125 ppm STEL (15 min.); 12.5 ppm Action Level (see 29 CFR 1910.1051); effective date for respiratory protection for certain employers to acheive the 8-hour TWA PEL is August 31, 1998; the start up date to install engineering controls is December 10, 1998.; {OSHA - 29 CFR 1910 Specifically Regulate

ACGIH:

Chemical Name	CAS No.	
Dichloromethane	75-09-2	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

NIOSH:

Chemical Name	CAS No.	
Methylene chloride	75-09-2	potential occupational carcinogen

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983] (overall evaluation upgraded from 2B to 2A with supporting evidence from other relevant data)	53-70-3	Group 2A
Monograph 110 [in preparation]; Monograph 71 [1999]	75-09-2	Group 2A

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife. Keep out of waterways.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Incinerate spent or discarded material a permitted hazardous waste facility.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Dichloromethane
UN Number: UN1593
Hazard Class: 6.1
Packing Group: III

International:

IATA Proper Shipping Name: Dichloromethane
UN Number: UN1593
Hazard Class: 6.1
Packing Group: III

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Dichloromethane	75-09-2	X	X	-	X
dibenz (a,h) anthracene	53-70-3	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Dibenz[a,h]anthracene	53-70-3	Prop 65 Cancer
Dichloromethane Dichloromethane (Methylene chloride)	75-09-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Dichloromethane	75-09-2	X	X	X	X
dibenz (a,h) anthracene	53-70-3	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 06/20/18

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Safety Data Sheet

Revision Date: 06/04/19
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31279 / Indeno(1,2,3-c,d)pyrene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	11
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Carcinogenicity Category 2
GHS Signal Word:	Warning
GHS Hazard:	Suspected of causing cancer.
GHS Precautions:	
Safety Precautions:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF exposed or concerned: Get medical advice/attention.
Storage:	Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	No data available
Repeated Exposure Target Organs:	No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Dichloromethane	75-09-2	200-838-9	99.9
indeno (1,2,3-c,d) pyrene	193-39-5	205-893-2	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention and monitor the eye daily as advised by your physician. Serious harm (damage) may result if treatment is delayed. Continue to flush eyes while awaiting medical attention

Skin Contact: Wash with soap and water. Remove contaminated clothing, launder immediately, and discard contaminated leather goods. Get medical attention immediately.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS. Never give anything by mouth to an unconscious person

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do Not direct a stream of water into the hot burning liquid. Use methods suitable to fight surrounding fire.

Fire and/or Explosion Hazards: No data.

Fire Fighting Methods and Protection: Use methods for the surrounding fire.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Technical Measures and Conditions: Store in a cool dry place. Isolate from incompatible materials. Keep container closed when not in use

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Dichloromethane	75-09-2	2300 ppm IDLH	None Known	50 ppm TWA	25 ppm TWA; 125 ppm STEL (15 min. TWA)
indeno (1,2,3-c,d) pyrene	193-39-5	Not established	None Known	Not established	No data available

Personal Protection:

Engineering Measures: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to

	eliminate symptoms.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.
Skin Protection:	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
Medical Conditions Aggravated By Exposure:	Eye disease Skin disease including eczema and sensitization Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Colorless
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.93 (air = 1)
Boiling Point (°C):	530 °C
Melting Point (°C):	-96.7 °C
Flash Point (°F):	No data available
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	556 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	1.3254 - 1.3258 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	99.9
Molecular Weight:	No data available

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.Contamination High temperatures
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Caustics (bases)
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation Absorption Ingestion Skin contact Eye contact
Target Organs Potentially Affected By Exposure:	Skin, Cardiovascular System, Eyes, Liver
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Inhalation may cause severe central nervous system depression (including unconsciousness).
Skin Contact:	Contact causes severe skin irritation and possible burns.
Skin Absorption:	Harmful if absorbed through the skin. May cause severe irritation and systemic damage.
Eye Contact:	Contact with the eyes may cause moderate to severe eye injury. Eye contact may result in tearing and reddening, but not likely to permanently injure eye tissue. Temporary vision impairment (cloudy or blurred vision) is possible.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components

present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Absorption: Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methane, dichloro-	75-09-2	Inhalation LC50 Rat 53 mg/L 6 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.	
Indeno[1,2,3-cd]pyrene	193-39-5	Present
Methylene chloride	75-09-2	25 ppm TWA (8 hr.); 125 ppm STEL (15 min.); 12.5 ppm Action Level (see 29 CFR 1910.1051); effective date for respiratory protection for certain employers to acheive the 8-hour TWA PEL is August 31, 1998; the start up date to install engineering controls is December 10, 1998.; {OSHA - 29 CFR 1910 Specifically Regulate

ACGIH:

Chemical Name	CAS No.	
Dichloromethane	75-09-2	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

NIOSH:

Chemical Name	CAS No.	
Methylene chloride	75-09-2	potential occupational carcinogen

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 110 [in preparation]; Monograph 71 [1999]	75-09-2	Group 2A
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983]	193-39-5	Group 2B

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife. Keep out of waterways.

Mobility: No data

Persistence: No data

Bioaccumulation: No data

Degradability: No data

Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Incinerate spent or discarded material a permitted hazardous waste facility.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial

Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Dichloromethane
UN Number: UN1593
Hazard Class: 6.1
Packing Group: III

International:
IATA Proper Shipping Name: Dichloromethane
UN Number: UN1593
Hazard Class: 6.1
Packing Group: III

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Dichloromethane	75-09-2	X	X	-	X
indeno (1,2,3-c,d) pyrene	193-39-5	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Indeno[1,2,3-cd]pyrene	193-39-5	Prop 65 Cancer
Dichloromethane Dichloromethane (Methylene chloride)	75-09-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Dichloromethane	75-09-2	X	X	X	X
indeno (1,2,3-c,d) pyrene	193-39-5	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 03/22/18
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Lead

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 12/15/2014 Revision date: 12/15/2014 Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance

CAS No : 7439-92-1

Formula : Pb

Synonyms : C.I. 77575, in massive state / elemental lead, in massive state / glover, in massive state

BIG no : 10073

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Solder
Battery: component
Construction
Electrodes

1.3. Details of the supplier of the safety data sheet

GSC International, Inc.
1747 N. Deffer Drive
Nixa,
MO 65714
United States of America

Tel: 417-374-7431
Fax: 417-374-7442
Email: info@gscinternationalinc.com

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number
MEXICO	Servicio de Informacion Toxicologica Sintox	Tintoreto #32 Edif. a Desp. Col. Nochebuena Mixcoac México, D.F.	1 800 009 2800 +52 55 5611 2634 /+52 55 5598 9095
UNITED STATES OF AMERICA	American Association of Poison Control Centers		1-800-222-1222

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation)	H332
Carc. 1B	H350
Repr. 1A	H360
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS07 GHS08 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302+H332 - Harmful if swallowed or if inhaled
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure

H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust, fume
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P308+P313 - If exposed or concerned: Get medical advice/attention
P314 - Get medical advice/attention if you feel unwell
P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Name	Product identifier	%	Classification (GHS-US)
Lead (Main constituent)	(CAS No) 7439-92-1	> 99,9	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Carc. 1B, H350 Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice. IF exposed or concerned: Get medical advice/attention. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Not applicable. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after skin contact : Not applicable. Wash skin with plenty of water.

First-aid measures after eye contact : Not applicable. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Not applicable. Rinse mouth. Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : No effects known.

Symptoms/injuries after skin contact : No effects known.

Symptoms/injuries after eye contact : No effects known.

Symptoms/injuries after ingestion : No effects known.

Chronic symptoms : No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Non combustible.

Explosion hazard	:	DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.
Reactivity	:	On burning: formation of metallic fumes. Oxidizes on exposure to air.

5.3. Advice for firefighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to heat: have neighborhood close doors and windows.
Firefighting instructions	:	Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	:	Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves. Protective clothing. See "Material-Handling" to select protective clothing.
Emergency procedures	:	Mark the danger area. No naked flames.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent soil and water pollution. Prevent spreading in sewers. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	:	Not applicable. Collect spillage.
Methods for cleaning up	:	Recover mechanically the product. Pick-up the material. Take collected spill to manufacturer/competent authority. Notify authorities if product enters sewers or public waters.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Meet the legal requirements. Do not discharge the waste into the drain. Handle unclean empty containers as full ones. Observe strict hygiene. Measure the concentration in the atmosphere. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust, fume. Use only outdoors or in a well-ventilated area. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly.
Hygiene measures	:	Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Does not require any specific or particular technical measures. Comply with applicable regulations.
Storage conditions	:	Store locked up. Store in a well-ventilated place. Keep cool.
Incompatible materials	:	Strong acids, strong bases and oxidation agents.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. Strong acids. Strong bases.
Storage area	:	Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. correctly labeled. meet the legal requirements. Secure fragile packaging in solid containers.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Lead (7439-92-1)		
ACGIH	ACGIH TWA (mg/m³)	0,05 mg/m³
ACGIH	Remark (ACGIH)	CNS & PNS impair
OSHA	Not applicable	

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Ensure good ventilation of the work station.

Personal protective equipment : Protective goggles. Gloves.

Materials for protective clothing : GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: butyl rubber. PVC. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: No data available.

Hand protection : protective gloves.

Eye protection : Safety glasses.

Skin and body protection : Not required for normal conditions of use.

Respiratory protection : Wear respiratory protection.

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Metal.

Molecular mass : 207,20 g/mol

Color : White to blue-grey

Odor : Odorless

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : 327 °C

Freezing point : No data available

Boiling point : 1740 °C

Flash point : Not applicable

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapor pressure : < 0,1 hPa

Relative vapor density at 20 °C : No data available

Relative density : 11,3

Specific gravity / density : 11340 kg/m³

Solubility : insoluble in water. Substance sinks in water. Soluble in nitric acid. Insoluble in organic solvents. Water: < 0,1 g/100ml

Log Pow : 0,73 (Estimated value)

Log Kow : No data available

Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

VOC content : Not applicable (inorganic)

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: formation of metallic fumes. Oxidizes on exposure to air.

10.2. Chemical stability

Unstable on exposure to air.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Acids. Bases.

10.6. Hazardous decomposition products

Thermal decomposition generates : fume.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation: Harmful if inhaled.

Lead (\f)7439-92-1	
LD50 oral rat	> 2000 mg/kg body weight (Rat; Weight of evidence)
LD50 dermal rat	> 2000 mg/kg body weight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)
ATE US (oral)	500,000 mg/kg body weight
ATE US (gases)	4500,000 ppmV/4h
ATE US (vapors)	11,000 mg/l/4h
ATE US (dust, mist)	1,500 mg/l/4h
Additional information	Lead massive metal is not considered to be acutely toxic. It is not easily inhaled or ingested, and if it is accidentally ingested normally passes through the gastrointestinal system without significant absorption into the body. Lead is not easily absorbed through the skin.

Skin corrosion/irritation : Not classified
(Based on available data, the classification criteria are not met)

Serious eye damage/irritation : Not classified
(Based on available data, the classification criteria are not met)

Respiratory or skin sensitization : Not classified
(Based on available data, the classification criteria are not met)

Germ cell mutagenicity : Not classified
(Based on available data, the classification criteria are not met)

Carcinogenicity : May cause cancer.

Lead (7439-92-1)	
Additional information	There is some evidence that inorganic lead compounds may have a carcinogenic effect, and they have been classified by IARC as probably carcinogenic to humans. However, it is considered that this classification does not apply to lead in articles, given the very low bioavailability of metallic lead. Carcinogenicity studies of lead metal powder have been negative. Epidemiology studies of workers exposed to inorganic lead compounds have found a limited association with stomach cancer. IARC has concluded that lead metal is possibly carcinogenic to humans (Group aB).
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	3 - Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : May damage fertility or the unborn child.

Specific target organ toxicity (single exposure) : Not classified

(Based on available data, the classification criteria are not met)

Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Lead (7439-92-1)	
Additional information	Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Although inhalation and ingestion of lead in massive form are unlikely, poor hygiene practises may result in hand to mouth transfer which maybe significant over a prolonged period of time. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the haemotopoetic (blood) system, kidney function, reproductive function and the central nervous system.

Aspiration hazard : Not classified

(Based on available data, the classification criteria are not met)

Symptoms/injuries after inhalation : No effects known.

Symptoms/injuries after skin contact : No effects known.

Symptoms/injuries after eye contact : No effects known.

Symptoms/injuries after ingestion : No effects known.

Chronic symptoms : No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment. Very toxic to aquatic life with long lasting effects.

Ecology - air : Not dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.2/II.

Ecology - water : No water pollutant (surface water). Maximum concentration in drinking water: 0.010 mg/l (lead) (Directive 98/83/EC). Highly toxic to aquatic organisms.

Lead (7439-92-1)	
LC50 fish 1	2,8 (0,44 - 542) mg/l (96h) Coughlan, D.J., S.P. Gloss, and J. Kubota 1986. Acute and Sub-Chronic Toxicity of Lead to the Early Life Stages of Small mouth Bass (Micropterus dolomieui). Water Air Soil Pollut. 28(3/4):265-275
EC50 Daphnia 1	4,46 (0,53 - 5,1) mg/l (48h) Govindarajan, S., C.P. Valsaraj, R. Mohan, V. Hariprasad, and R. Ramasubramanian 1993. Toxicity of Heavy Metals in Aquaculture Organisms: Penaeus indicus, Perna viridis, Artemia salina and Skeletonema costatum. Pollut.Res. 12(3):187-189

12.2. Persistence and degradability

Lead (7439-92-1)	
Persistence and degradability	Biodegradability: Not applicable. No (test)data available on mobility of the substance.
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

Lead (7439-92-1)	
Log Pow	0,73 (Estimated value)
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer :

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Reuse or recycle following decontamination. Remove to an authorized dump (Class I). Do not discharge into surface water (2000/60/EC, Council decision 2455/2001/EC, O.J. L331 of 15/12/2001).

Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN3077 Environmentally hazardous substances, solid, n.o.s. Lead(7439-92-1), 9, III

UN-No.(DOT) : UN3077

Proper Shipping Name (DOT) : Environmentally hazardous substances, solid, n.o.s.
Lead(7439-92-1)

Department of Transportation (DOT) Hazard Classes : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)

DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102)	:	8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.”, as appropriate. In addition, for solid materials, special provision B54 applies. 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination. 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging. A112 - Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg: a. Metal: 11A, 11B, 11N, 21A, 21B and 21N b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2 c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2 d. Fiberboard: 11G e. Wooden: 11C, 11D and 11F (with inner liners) f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner). B54 - Open-top, sift-proof rail cars are also authorized. IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2). IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner. N20 - A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle. T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2) TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	155
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	213
DOT Packaging Bulk (49 CFR 173.xxx)	:	240
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	No limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	No limit
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

UN-No. (IMDG)	:	3077
Proper Shipping Name (IMDG)	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Class (IMDG)	:	9 - Miscellaneous dangerous compounds
Packing group (IMDG)	:	III - substances presenting low danger

Air transport

UN-No.(IATA)	:	3077
Proper Shipping Name (IATA)	:	Environmentally hazardous substance, solid, n.o.s.
Class (IATA)	:	9 - Miscellaneous Dangerous Goods
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Lead (7439-92-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 Not listed on the United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Repr. 1A	H360Df
Acute Tox. 4 (Inhalation)	H332
Acute Tox. 4 (Oral)	H302
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Repr.Cat.1; R61
Repr.Cat.3; R62
Xn; R20/22
R33
N; R50/53

Full text of R-phrases: see section 16

15.2.2. National regulations

Lead (7439-92-1)
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Revision date	:	12/15/2014

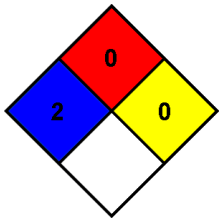
Full text of H-phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Carc. 1B	Carcinogenicity Category 1B
Repr. 1A	Reproductive toxicity Category 1A
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H302	Harmful if swallowed
H332	Harmful if inhaled
H350	May cause cancer
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : * Chronic Hazard - Chronic (long-term) health effects may result from repeated overexposure

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

Personal Protection : B

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

SAFETY DATA SHEET

Creation Date 20-Aug-2014 **Revision Date** 17-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Mercury (Certified ACS)**

Cat No. : **M141-1LB; M141-6LB**

Synonyms Colloidal mercury; Hydrargyrum; Metallic mercury

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Acute Inhalation Toxicity - Vapors	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Central nervous system (CNS), Kidney.	

Label Elements

Signal Word
Danger

Hazard Statements
May be corrosive to metals
Fatal if inhaled
May damage the unborn child
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Do not get in eyes, on skin, or on clothing
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Skin
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN: Gently wash with plenty of soap and water
Remove/Take off immediately all contaminated clothing
Wash contaminated clothing before reuse
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Mercury	7439-97-6	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Very toxic. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Mercury oxide Highly toxic fumes
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	0	N/A

6. Accidental release measures

Personal Precautions Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Wear self-contained breathing apparatus and protective suit. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Mercury	TWA: 0.025 mg/m³ Skin	(Vacated) TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³ (Vacated) STEL: 0.03 mg/m³ Skin (Vacated) Ceiling: 0.1 mg/m³	IDLH: 10 mg/m³ TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³	TWA: 0.05 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Silver
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-38.87 °C / -38 °F
Boiling Point/Range	356.72 °C / 674.1 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.002 mmHg @ 25 °C
Vapor Density	7.0
Specific Gravity	13.59 (H2O=1)
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Hg
Molecular Weight	200.59

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Ammonia, Metals, Halogens

Hazardous Decomposition Products Mercury oxide, Highly toxic fumes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Mercury	7439-97-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects May cause harm to the unborn child.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure Central nervous system (CNS) Kidney

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Mercury	Not listed	0.9 mg/L LC50 96h 0.18 mg/L LC50 96h 0.16 mg/L LC50 96h 0.5 mg/L LC50 96h	Not listed	EC50: = 5.0 µg/L, 96h (water flea)

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Mercury - 7439-97-6	U151	-

14. Transport information

DOT

UN-No	UN2809
Proper Shipping Name	MERCURY
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

TDG

UN-No	UN2809
Proper Shipping Name	MERCURY
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

IATA

UN-No	UN2809
Proper Shipping Name	MERCURY
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

IMDG/IMO

UN-No	UN2809
Proper Shipping Name	MERCURY
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Mercury	X	X	-	231-106-7	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

Component	TSCA 12(b)
Mercury	Section 5

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Mercury	7439-97-6	100	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Mercury	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Mercury	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Mercury	1 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Mercury	7439-97-6	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Mercury	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 20-Aug-2014
Revision Date 17-Jan-2018
Print Date 17-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Trichloroethylene

Section 1. Identification

GHS product identifier : Trichloroethylene

Chemical name : trichloroethylene

Other means of identification : trichloroethene; Ethene, 1,1,2-trichloro-; Ethene, trichloro-; Trichlorethylene; Ethylene, trichloro-

Product use : Synthetic/Analytical chemistry.

Synonym : trichloroethene; Ethene, 1,1,2-trichloro-; Ethene, trichloro-; Trichlorethylene; Ethylene, trichloro-

SDS # : 001206

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
GERM CELL MUTAGENICITY - Category 2
CARCINOGENICITY - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Causes serious eye irritation.
Causes skin irritation.
May cause cancer.
Suspected of causing genetic defects.
Harmful to aquatic life with long lasting effects.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Avoid release to the environment. Wash hands thoroughly after handling.

Response : IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : trichloroethylene

Other means of identification : trichloroethene; Ethene, 1,1,2-trichloro-; Ethene, trichloro-; Trichlorethylene; Ethylene, trichloro-

CAS number/other identifiers

CAS number : 79-01-6

Product code : 001206

Ingredient name	%	CAS number
trichloroethylene	100	79-01-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : No known significant effects or critical hazards.

Section 4. First aid measures

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, pain or irritation, watering, redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, irritation, redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
carbonyl halides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

trichloroethylene

ACGIH TLV (United States, 3/2016).
STEL: 25 ppm 15 minutes.
TWA: 10 ppm 8 hours.
OSHA PEL 1989 (United States, 3/1989).
STEL: 1080 mg/m³ 15 minutes.
STEL: 200 ppm 15 minutes.
TWA: 270 mg/m³ 8 hours.
TWA: 50 ppm 8 hours.
OSHA PEL Z2 (United States, 2/2013).
AMP: 300 ppm 5 minutes.
CEIL: 200 ppm
TWA: 100 ppm 8 hours.

Section 8. Exposure controls/personal protection

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Watery liquid.]

Color : Colorless.

Molecular weight : 131.38 g/mole

Molecular formula : C2-H-Cl3

Boiling/condensation point : 86.7°C (188.1°F)

Melting/freezing point : -84.8°C (-120.6°F)

Critical temperature : Not available.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : 6.39 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Section 9. Physical and chemical properties

Lower and upper explosive (flammable) limits : Lower: 8%
Upper: 10.5%

Vapor pressure : 9.9 kPa (74.256033302 mm Hg) [room temperature]

Vapor density : 4.5 (Air = 1)

Specific Volume (ft ^{3}/lb) : 0.6849

Gas Density (lb/ft ^{3}) : 1.46

Relative density : 1.5

Solubility : Not available.

Solubility in water : 1.1 g/l

Partition coefficient: n-octanol/water : 2.53

Auto-ignition temperature : 410°C (770°F)

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Dynamic (room temperature): 0.58 mPa·s (0.58 cP)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
trichloroethylene	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Rat	140700 mg/m³ >20 g/kg 4920 mg/kg	1 hours - -

IDLH : 1000 ppm

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
trichloroethylene	Eyes - Moderate irritant Skin - Severe irritant	Rabbit Rabbit	- -	24 hours 20 milligrams 24 hours 2 milligrams	- -

Sensitization

Not available.

Section 11. Toxicological information

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
trichloroethylene	-	1	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:, pain or irritation, watering, redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, irritation, redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : Suspected of causing genetic defects.

Section 11. Toxicological information

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
trichloroethylene	Acute EC50 95000 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 36.5 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Acute LC50 20 mg/l Marine water	Crustaceans - Elminius modestus	48 hours
	Acute LC50 18 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 3100 µg/l Fresh water	Fish - Jordanella floridae - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic EC10 12.3 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Chronic NOEC 10 mg/l Fresh water	Daphnia - Daphnia magna	21 days

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
trichloroethylene	2.53	17	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 13. Disposal considerations

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Trichloroethylene; Ethene, trichloro-	79-01-6	Listed	U228

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1710	UN1710	UN1710	UN1710	UN1710
UN proper shipping name	TRICHLOROETHYLENE	TRICHLOROETHYLENE	TRICHLOROETHYLENE	TRICHLOROETHYLENE	TRICHLOROETHYLENE
Transport hazard class(es)	6.1	6.1	6.1	6.1	6.1
Packing group	III	III	III	III	III
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 100 lbs / 45.4 kg [8. 2147 gal / 31.096 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. **Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 60 L **Cargo aircraft** Quantity limitation: 220 L **Special provisions** IB3, N36, T4, TP1, T1	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.26-2.36 (Class 6). **Explosive Limit and Limited Quantity Index** 5	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 60 L **Cargo Aircraft Only** Quantity limitation: 220 L **Limited Quantities - Passenger Aircraft** Quantity limitation: 2 L

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 5(a)2 final significant new use rules**: trichloroethylene
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
TSCA 12(b) one-time export: trichloroethylene
United States inventory (TSCA 8b): This material is listed or exempted.
Clean Water Act (CWA) 307: trichloroethylene
Clean Water Act (CWA) 311: trichloroethylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
trichloroethylene	100	No.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	trichloroethylene	79-01-6	100
Supplier notification	trichloroethylene	79-01-6	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 15. Regulatory information

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
trichloroethylene	Yes.	Yes.	14 µg/day (ingestion) 50 µg/day (inhalation)	No.

International regulations

International lists

National inventory

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : This material is listed or exempted.

Malaysia : This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Canada

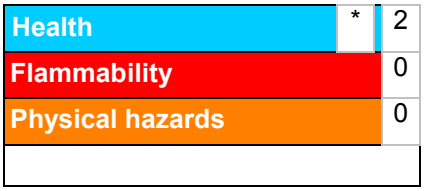
WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Section 16. Other information

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Skin Irrit. 2, H315	Expert judgment
Eye Irrit. 2A, H319	Expert judgment
Muta. 2, H341	Expert judgment
Carc. 1, H350	Expert judgment
Aquatic Chronic 3, H412	Expert judgment

History

Date of printing : 11/21/2016

Date of issue/Date of revision : 11/21/2016

Date of previous issue : No previous validation

Version : 0.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Zinc Metal Mossy, Reagent

SECTION 1: Identification of the substance/mixture and of the supplier

Product name: **Zinc Metal Mossy, Reagent**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25636A**

Recommended uses of the product and restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific, Inc
9 Barnhart Drive, Hanover, PA 17331
(717) 632-1291

Supplier Details:

Fisher Science Education
6771 Silver Crest Road, Nazareth, PA 18064
(724)517-1954

Emergency telephone number:

Fisher Science Education
Emergency Telephone No.: 800-535-5053

SECTION 2: Hazards identification

Classification of the substance or mixture:

Corrosive
Serious eye damage, category 1

Irritant
Acute toxicity (oral, dermal, inhalation), category 4

Environmentally Damaging
Acute hazards to the aquatic environment, category 1
Chronic hazards to the aquatic environment, category 1

Eye Damage 1.
Acute Toxicity 4 (oral).
Aquatic Acute Toxicity 1.
Aquatic Chronic Toxicity 1.

Signal word: Danger

Hazard statements:

Causes serious eye damage.
Harmful if swallowed.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements:

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Do not eat, drink or smoke when using this product.

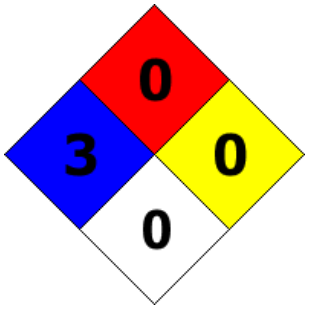
Wear protective gloves/protective clothing/eye protection/face protection.
Wash skin thoroughly after handling.
Avoid release to the environment.
Rinse mouth.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Dispose of contents and container as instructed in Section 13.

Other Non-GHS Classification:

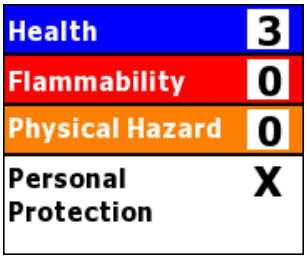
WHMIS

D2B

NFPA/HMIS



NFPA SCALE (0-4)



HMIS RATINGS (0-4)

SECTION 3: Composition/information on ingredients

Ingredients:		
CAS 7446-20-0	Zinc sulfate heptahydrate	100 %
		Percentages are by weight

SECTION 4: First aid measures

Description of first aid measures

After inhalation:

Loosen clothing as necessary and position individual in a comfortable position. Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Get medical assistance if cough or other symptoms appear.

After skin contact:

Rinse/flush exposed skin gently using soap and water for 15-20 minutes. Seek medical advice if discomfort or irritation persists.

After eye contact:

Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly. Do not induce vomiting. Seek medical attention if irritation, discomfort, or vomiting persists. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Irritation- all routes of exposure. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. Headache. Nausea. Shortness of breath. May cause bronchitis.

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention provide SDS document to physician. Physician should treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents:

Use agent most suitable for extinguishing surrounding fire. Use water spray to keep fire-exposed containers cool.

Unsuitable extinguishing agents:

None identified.

Special hazards arising from the substance or mixture:

Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode in the heat of a fire.

Advice for firefighters:

Protective equipment:

Wear protective eyeware, gloves, and clothing. Refer to Section 8. Use NIOSH-approved respiratory protection/breathing apparatus.

Additional information (precautions):

Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Ensure that air-handling systems are operational.

Environmental precautions:

Should not be released into environment. Prevent from reaching drains, sewer, or waterway.

Methods and material for containment and cleaning up:

Wear protective eyeware, gloves, and clothing. Refer to Section 8. Always obey local regulations. Containerize for disposal. Refer to Section 13. Sweep up and containerize for disposal. Avoid generating dust. If necessary use trained response staff or contractor. Evacuate personnel to safe areas. Keep in suitable closed containers for disposal.

Reference to other sections: None

SECTION 7: Handling and storage

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Follow proper disposal methods. Refer to Section 13. Do not eat, drink, smoke, or use personal products when handling chemical substances.

Conditions for safe storage, including any incompatibilities:

Store in a cool location. Keep away from food and beverages. Protect from freezing and physical damage.

Provide ventilation for containers. Keep container tightly sealed. Store away from incompatible materials.

SECTION 8: Exposure controls/personal protection

Control Parameters: 7446-20-0, Zinc, ACGIH TLV: NA, OSHA PEL: NA.

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.

Respiratory protection: Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.

Protection of skin: Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.

Eye protection: Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses or goggles are appropriate eye protection.

General hygienic measures: Perform routine housekeeping. Wash hands before breaks and at the end of work. Avoid contact with skin, eyes, and clothing. Before wearing wash contaminated clothing.

SECTION 9: Physical and chemical properties

Appearance (physical state, color):	Gray solid	**Explosion limit lower**: **Explosion limit upper**:	Not determined Not determined
Odor:	Odorless	**Vapor pressure at 20°C**:	1 mmHg @ 487C
Odor threshold:	Not determined	**Vapor density**:	Not determined
pH-value:	Not determined	**Relative density**:	Not determined
Melting/Freezing point:	419C	**Solubilities**:	Reacts with water.
Boiling point/Boiling range:	908C	**Partition coefficient (n-octanol/water)**:	Not determined
Flash point (closed cup):	Not determined	**Auto/Self-ignition temperature**:	460C
Evaporation rate:	Not determined	**Decomposition temperature**:	Not determined
Flammability (solid, gaseous):	Not determined	**Viscosity**:	a. Kinematic: Not determined b. Dynamic: Not determined
Density at 20°C:	7.14 g/cm3 at 20 °C **Specific Gravity: :**7.14		

SECTION 10: Stability and reactivity

Reactivity:

Nonreactive under normal conditions. Reacts with water.

Chemical stability:

Stable under normal conditions.

Possible hazardous reactions:

None under normal processing.

Conditions to avoid:

Incompatible materials. Excess heat.

Incompatible materials:

Oxidizing agents. Strong acids or bases.

Hazardous decomposition products:

Zinc oxides.

SECTION 11: Toxicological information

Acute Toxicity: No additional information.
Chronic Toxicity: No additional information.
Corrosion Irritation: No additional information.
Sensitization: No additional information.
Numerical Measures: No additional information.
Carcinogenicity:

EPA: IRIS Carcinogenicity Assessment- D (data are inadequate for an assessment of human carcinogenic potential; inadequate information to assess carcinogenic potential) Zinc

Mutagenicity: No additional information.
Reproductive Toxicity:

Reproductive effects shown in laboratory animals.

SECTION 12: Ecological information

Ecotoxicity:

Fish (acute 7440-66-6): : 96 Hr LC50 Pimephales promelas: 2.16 - 3.05 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.211 - 0.269 mg/L [semi-static]; 96 Hr LC50 Pimephales promelas: 2.66 mg/L [static]; 96 Hr LC50 Cyprinus carpio: 30 mg/L; 96 Hr LC50 Cyprinus carpio: 0.45 mg/L [semi-static]; 96 Hr LC50 Cyprinus carpio: 7.8 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 3.5 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 0.24 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 0.59 mg/L [semi-static]; 96 Hr LC50 Oncorhynchus mykiss: 0.41 mg/L [static]

Crustacea (acute 7440-66-6): : 48 Hr EC50 Daphnia magna: 0.139 - 0.908 mg/L [Static]

Algae (acute 7440-66-6): 96 Hr EC50 Pseudokirchneriella subcapitata: 0.11 - 0.271 mg/L [static]; 72 Hr EC50 Pseudokirchneriella subcapitata: 0.09 - 0.125 mg/L [static]

Persistence and degradability: No additional information.
Bioaccumulative potential: No additional information.
Mobility in soil: No additional information.
Other adverse effects: No additional information.

SECTION 13: Disposal considerations

Waste disposal recommendations:

Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14: Transport information

US DOT

UN Number:
ADR, ADN, DOT, IMDG, IATA Not Regulated.

Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: Not Regulated.
Hazard Class: None
Packing Group: Not Regulated.
Marine Pollutant (if applicable): No additional information.
Comments: None

Non Bulk:
RQ (if applicable): None
Proper shipping Name: Not Regulated.
Hazard Class: None
Packing Group: Not Regulated.
Marine Pollutant (if applicable): No additional information.
Comments: None

SECTION 15: Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

None of the ingredients are listed.

SARA Section 313 (Specific toxic chemical listings):

7440-66-6 Zinc Compounds (N982).

RCRA (hazardous waste code):

7440-66-6 Zinc [Phase 4 LDR Rule - Universal Treatment Standards 2.61 mg/L (wastewater); 4.3 mg/L TCLP (nonwastewater)].

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

7440-66-6 Zinc 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm).

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients are listed.

SECTION 16: Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases: None

Abbreviations and Acronyms:

IMDG International Maritime Code for Dangerous Goods.
IATA International Air Transport Association.
GHS Globally Harmonized System of Classification and Labelling of Chemicals.
ACGIH American Conference of Governmental Industrial Hygienists.
CAS Chemical Abstracts Service (division of the American Chemical Society).
NFPA National Fire Protection Association (USA).
HMIS Hazardous Materials Identification System (USA).
WHMIS Workplace Hazardous Materials Information System (Canada).
DNEL Derived No-Effect Level (REACH).
PNEC Predicted No-Effect Concentration (REACH).
CFR Code of Federal Regulations (USA).
SARA Superfund Amendments and Reauthorization Act (USA).
RCRA Resource Conservation and Recovery Act (USA).
TSCA Toxic Substances Control Act (USA).
NPRI National Pollutant Release Inventory (Canada).
DOT US Department of Transportation.

Effective date: 10.24.2014
Last updated: 06.19.2015

SAFETY DATA SHEET

Version 6.2
Revision Date 10/02/2020
Print Date 08/23/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 2-Methylphenol

Product Number : 442361
Brand : Supelco
Index-No. : 604-004-00-9
CAS-No. : 95-48-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Signal word	Danger
Hazard statement(s)	
H301 + H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P260	Do not breathe dusts or mists.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	o-Cresol 2-Methylphenol
Formula	:	C7H8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	95-48-7
EC-No.	:	202-423-8
Index-No.	:	604-004-00-9

Component	Classification	Concentration
o-cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301, H311, H314, H318, H401, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

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6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Store at room temperature. Air and light sensitive. Keep in a dry place.
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-cresol	95-48-7	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation The value in mg/m3 is approximate.		
		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

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		PEL	5 ppm 22 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: white
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	4.5 at 25.00000 g/l
e)	Melting point/freezing point	Melting point/range: 29 - 31 °C (84 - 88 °F) - lit.
f)	Initial boiling point and boiling range	191 °C 376 °F - lit.
g)	Flash point	81.0 °C (177.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 58 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapor pressure	3.1 hPa at 60.0 °C (140.0 °F) 1.3 hPa at 38.2 °C(100.8 °F) 0.4 hPa at 20.0 °C(68.0 °F)
l)	Vapor density	No data available
m)	Relative density	1.05 g/cm3 at 20.00 °C (68.00 °F)
n)	Water solubility	25 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	599.0 °C (1110.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 121.0 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea. Gastrointestinal:Ulceration or bleeding from stomach.
LC50 Inhalation - Rat - 1 h - > 1,220 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Somnolence (general depressed activity).
LD50 Dermal - Rabbit - 890.0 mg/kg
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation
(Draize Test)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6300000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Central nervous system depression, Diarrhea, Gastrointestinal disturbance
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 10.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 15.8 mg/l - 48 h
Toxicity to algae	EC50 - SELENASTRUM - 100.00 mg/l - 72 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.
No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

SECTION 15: Regulatory information

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
o-cresol	95-48-7	2007-03-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-cresol	95-48-7	2007-03-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D023 lbs

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Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-cresol	95-48-7	2007-03-01

SECTION 16: Other information

Further information

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Version: 6.2 Revision Date: 10/02/2020 Print Date: 08/23/2021

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SAFETY DATA SHEET

Version 8.4
Revision Date 02/25/2021
Print Date 08/21/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 3-Methylphenol

Product Number : 442391
Brand : Supelco
Index-No. : 604-004-00-9
CAS-No. : 108-39-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal word	Danger
Hazard statement(s)	
H227	Combustible liquid.
H301 + H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H401	Toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	m-Cresol 3-Methylphenol
Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	108-39-4
EC-No.	:	203-577-9
Index-No.	:	604-004-00-9

Component	Classification	Concentration
meta-Cresol		
	Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam.	<= 100 %

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	1; Aquatic Acute 2; Aquatic Chronic 3; H227, H301, H311, H314, H318, H401, H412	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aider needs to protect himself. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

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5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
meta-Cresol	108-39-4	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen Danger of cutaneous absorption		
		PEL	5 ppm 22 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Chloroprene
Minimum layer thickness: 0.65 mm
Break through time: 480 min
Material tested:KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 60 min

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Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless, light yellow
b)	Odor	phenol-like
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 8 - 10 °C (46 - 50 °F) - lit.
f)	Initial boiling point and boiling range	203 °C 397 °F - lit.
g)	Flash point	86 °C (187 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 1.35 %(V) Lower explosion limit: 1.06 %(V)
k)	Vapor pressure	< 1 hPa at 20 °C (68 °F)
l)	Vapor density	3.73 - (Air = 1.0)
m)	Relative density	1.03 at 20 °C (68 °F)
n)	Water solubility	22.7 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 1.96 - Bioaccumulation is not expected.
p)	Autoignition temperature	559 °C (1038 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

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9.2 Other safety information

Dissociation constant	10.09 at 25 °C (77 °F)
Relative vapor density	3.73 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Nitric acid
fuming sulfuric acid
chlorosulfonic acid
alkalines

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
bronze, brass, Iron, Lead

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 242 mg/kg
(OECD Test Guideline 401)
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Inhalation: No data available
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Inhalation: Corrosive to respiratory system.
LD50 Dermal - Rabbit - 620 mg/kg
Remarks:
Behavioral:Somnolence (general depressed activity).
Behavioral:Tetany.
(RTECS)
No data available

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Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns. - 24 h
Remarks:
(ECHA)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Ames test
Escherichia coli/Salmonella typhimurium
Result: negative
Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster lung cells
Result: positive
In vitro mammalian cell gene mutation test
mouse lymphoma cells
Result: negative
OECD Test Guideline 475
Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity

IARC:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available
Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 50 mg/kg
RTECS: GO6125000

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Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Systemic effects:

Headache
Nausea
Vomiting
Dizziness
agitation, spasms
respiratory arrest
Unconsciousness

Damage to:

Central nervous system
Liver
Kidney

This substance should be handled with particular care.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Salvelinus fontinalis - 7.6 mg/l - 96 h Remarks: (ECHA)
	static test LC50 - Oncorhynchus mykiss (rainbow trout) - 8.6 mg/l - 96 h Remarks: (ECHA)
	static test LC50 - Salmo trutta (brown trout) - 8.4 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Daphnia pulicaria - > 99.5 mg/l - 48 h (US-EPA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 10 d Result: 96 % - Inherently biodegradable. (OECD Test Guideline 302B)

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12.3 Bioaccumulative potential

Bioaccumulation Leuciscus idus (Golden orfe) - 3 d
- 0.05 mg/l(meta-Cresol)

Bioconcentration factor (BCF): 17 - 20

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Biological effects:
Hazard for drinking water supplies.
Change in the flavour characteristics of fish protein.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 2076 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, liquid
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2076 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, LIQUID

IATA

UN number: 2076 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, liquid

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

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The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
meta-Cresol	108-39-4	2007-03-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D024 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 8.4 Revision Date: 02/25/2021 Print Date: 08/21/2021

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SAFETY DATA SHEET

Version 6.2
Revision Date 09/30/2020
Print Date 08/21/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 4-Methylphenol

Product Number : 442418
Brand : Supelco
Index-No. : 604-004-00-9
CAS-No. : 106-44-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal word	Danger
Hazard statement(s)	
H301 + H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P260	Do not breathe dusts or mists.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	p-Cresol 4-Methylphenol
Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	106-44-5
EC-No.	:	203-398-6
Index-No.	:	604-004-00-9

Component	Classification	Concentration
p-cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; H301, H311, H314, H318, H401	<= 100 %

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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

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6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Store at room temperature. hygroscopic Air and light sensitive. Handle and store under inert gas.
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
p-cresol	106-44-5	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen Danger of cutaneous absorption		
		PEL	5 ppm 22 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

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8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 32 - 34 °C (90 - 93 °F) - lit.
f)	Initial boiling point and boiling range	202 °C 396 °F - lit.
g)	Flash point	85.0 °C (185.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 1.1 %(V)
k)	Vapor pressure	1.3 hPa at 20.0 °C (68.0 °F)
l)	Vapor density	No data available
m)	Relative density	1.034 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 1.94
p)	Autoignition temperature	559.0 °C (1038.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

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10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Bases

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 207.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes. Behavioral:Convulsions or effect on seizure threshold. Gastrointestinal:Ulceration or bleeding from stomach. (ECHA)
LC50 Inhalation - Rat - 1 h - > 710 mg/m3
Remarks: (RTECS)
LD50 Dermal - Rabbit - 301.0 mg/kg
Remarks: Behavioral:Tremor. Gastrointestinal:Changes in structure or function of salivary glands. Kidney, Ureter, Bladder:Other changes. (ECHA)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns.
Remarks: (ECHA)

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization
Draize Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Ames test
Salmonella typhimurium
Result: negative
In vitro mammalian cell gene mutation test
mouse lymphoma cells
Result: negative
Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster ovary cells
Result: positive
OECD Test Guideline 478
Mouse - male
Result: negative

Carcinogenicity

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IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available
Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 50 mg/kg
RTECS: GO6475000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, laryngitis, Dizziness, Cardiovascular effects., Muscle cramps/spasms., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Salmo trutta (brown trout) - 4.4 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 7.7 mg/l - 48 h (DIN 38412)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 21 mg/l - 48 h (DIN 38412)
Toxicity to bacteria	static test EC50 - Tetrahymena pyriformis - 157 mg/l - 48 h Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 10 d

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Result: 100 % - Inherently biodegradable.
(OECD Test Guideline 302B)

12.3 Bioaccumulative potential

Bioaccumulation Danio rerio (zebra fish)(p-cresol)

Bioconcentration factor (BCF): 10.7
(OECD Test Guideline 305)

Remarks: Does not bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Biological effects:
Change in the flavour characteristics of fish protein.
Hazard for drinking water supplies.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA

UN number: 3455 Class: 6.1 (8) Packing group: II

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Proper shipping name: Cresols, solid

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
p-cresol	106-44-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Reportable Quantity : D025 lbs

Massachusetts Right To Know Components

	CAS-No.	Revision Date
p-cresol	106-44-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
p-cresol	106-44-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
p-cresol	106-44-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.2 Revision Date: 09/30/2020 Print Date: 08/21/2021

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Material Safety Data Sheet

Version 5.0
Revision Date 12/18/2012
Print Date 11/20/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	1,3,5-Trimethylbenzene solution
Product Number	:	41103
Brand	:	Supelco
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption

Target Organs

Eyes, Kidney, Liver, Heart, Central nervous system

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H301 + H311	Toxic if swallowed or in contact with skin
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H370	Causes damage to organs.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing.

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	3
Reactivity Hazard:	0

Potential Health Effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Skin	Toxic if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Mesitylenesolution

Component		Classification	Concentration
Methanol			
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	90 - 100 %
EC-No.	200-659-6		
Index-No.	603-001-00-X		
Registration number	01-2119433307-44-XXXX		

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption			
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption			
		TWA	200 ppm 260 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		STEL	250 ppm 325 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	200 ppm 260 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.			
		TWA	200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits

	Potential for dermal absorption			
		ST	250 ppm 325 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	colourless

Safety data

pH	no data available
Melting point/freezing point	Melting point/range: -98 °C (-144 °F)
Boiling point	64 - 65 °C (147 - 149 °F) at 1,013 hPa (760 mmHg)
Flash point	11 °C (52 °F) - closed cup
Ignition temperature	no data available
Auto-ignition temperature	385 °C (725 °F)
Lower explosion limit	6 %(V)
Upper explosion limit	36 %(V)
Vapour pressure	130.23 hPa (97.68 mmHg) at 20 °C (68 °F) 547 hPa (410 mmHg) at 50 °C (122 °F)
Density	0.791 g/cm3
Water solubility	completely miscible
Partition coefficient: n-octanol/water	no data available
Relative vapor density	no data available

Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Acid chlorides, Acid anhydrides, Reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
Inhalation LC50
Dermal LD50
Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Toxic if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, May cause convulsions.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol, solution
Marine Pollutant: No
Poison Inhalation Hazard: No

IMDG

UN number: 1230 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHANOL, SOLUTION
Marine Pollutant: No

IATA
UN number: 1230 Class: 3 (6.1) Packing group: II
Proper shipping name: Methanol, solution

15. REGULATORY INFORMATION

OSHA Hazards
Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H370	Causes damage to organs.
STOT SE	Specific target organ toxicity - single exposure

Further information
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SAFETY DATA SHEET

Version 6.3
Revision Date 10/11/2020
Print Date 08/21/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 1,2,4,5-Tetramethylbenzene

Product Number : T19607
Brand : Aldrich
CAS-No. : 95-93-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H228 Flammable solid.

Precautionary statement(s)
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No

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	smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Durene 1,2,4,5-Tetramethylbenzene
Formula	:	$C_{10}H_{14}$
Molecular weight	:	134.22 g/mol
CAS-No.	:	95-93-2
EC-No.	:	202-465-7

No components need to be disclosed according to the applicable regulations.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 76 - 80 °C (169 - 176 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	74 °C (165 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	0.838 g/mL at 25 °C (77 °F)
n)	Water solubility	0.00348 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 4.17
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

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10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,700 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation

Serious eye damage/eye irritation

Respiratory or skin sensitization

Germ cell mutagenicity

Carcinogenicity

IARC:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

Aspiration hazard

Additional Information
RTECS: DC0500000

The data available to us do not suffice to permit any industrial-toxicological assessment.
Further toxicological data:
Risk of absorption.
Other dangerous properties can not be excluded.
Further data:

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Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC0 - Leuciscus idus (Golden orfe) - 10 mg/l - 48 h Remarks: (ECOTOX Database) LC50 - Leuciscus idus (Golden orfe) - 30 mg/l - 48 h Remarks: (ECOTOX Database) LC100 - Leuciscus idus (Golden orfe) - 50 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.47 mg/l - 48 h Remarks: (External MSDS)

12.2 Persistence and degradability
Not readily biodegradable.

12.3 Bioaccumulative potential

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 1325 Class: 4.1 Packing group: II
Proper shipping name: Flammable solids, organic, n.o.s. (1,2,4,5-tetramethylbenzene)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

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IMDG
UN number: 1325 Class: 4.1 Packing group: II EMS-No: F-A, S-G
Proper shipping name: FLAMMABLE SOLID, ORGANIC, N.O.S. (1,2,4,5-tetramethylbenzene)

IATA
UN number: 1325 Class: 4.1 Packing group: II
Proper shipping name: Flammable solid, organic, n.o.s. (1,2,4,5-tetramethylbenzene)

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

1,2,4,5-tetramethylbenzene	CAS-No. 95-93-2	Revision Date

New Jersey Right To Know Components

1,2,4,5-tetramethylbenzene	CAS-No. 95-93-2	Revision Date

California Prop. 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information

Further information
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information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.3 Revision Date: 10/11/2020 Print Date: 08/21/2021

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Barium Chloride Dihydrate

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : **Barium Chloride Dihydrate**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25187A**

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Toxic
Acute toxicity (oral, dermal, inhalation), category 3

Irritant
Acute toxicity (oral, dermal, inhalation), category 4

AcTox Oral 3
AcTox Inhaln. 4

Signal word :Danger

Hazard statements:
Toxic if swallowed
Harmful if inhaled
Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapours/spray
Wash skin thoroughly after handling
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Specific treatment (see supplemental first aid instructions on this label)
Call a POISON CENTER or doctor/physician if you feel unwell
Store locked up

Dispose of contents and container as instructed in Section 13

Other Non-GHS Classification:

WHMIS

D1B

NFPA/HMIS

NFPA SCALE (0-4)

HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 10326-27-9	Barium Chloride Dihydrate	100 %
		Percentages are by weight

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Loosen clothing as necessary and position individual in a comfortable position.Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen.Seek medical attention.Do NOT use mouth - to - mouth resuscitation.

After skin contact: Wash affected area with soap and water. Rinse exposed skin with water for 20 minutes.Enter emergency shower rinsing while removing contaminated clothing and shoes.Transport victim to the hospital.

After eye contact: Protect unexposed eye. Rinse or flush exposed eye gently using water for 15-20 minutes. Occasionally lift the upper and lower eyelids while rinsing.Immediately seek medical attention.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Do not perform mouth-to-mouth on an unconscious person.Never give anything by mouth to an unconscious person.Call Poison Control Center or a physician immediately.

Most important symptoms and effects, both acute and delayed:

Irritation.Nausea.Headache.Shortness of breath.;Eye, Skin, & Gastrointestinal irritation.Muscular stimulation

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention provide SDS document to physician.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use water, dry chemical, chemical foam, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.Decomposes at high temperatures, resulting in toxic and corrosive products.

Advice for firefighters:

Protective equipment: Wear protective eyeware, gloves, and clothing.

Additional information (precautions): Normal ventilation is adequate.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure that air-handling systems are operational.Ensure adequate ventilation.

Environmental precautions:

Prevent from reaching drains, sewer, or waterway. Should not be released into environment.

Methods and material for containment and cleaning up:

Wear protective eyeware, gloves, and clothing. Refer to Section 8.Always obey local regulations.If necessary use trained response staff or contractor.Evacuate personnel to safe areas. Containerize for disposal. Refer to Section 13.Keep in suitable closed containers for disposal.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing.Follow good hygiene procedures when handling chemical materials. Refer to Section 8.Follow proper disposal methods. Refer to Section 13.Do not eat, drink, smoke, or use personal products when handling chemical substances.Avoid ingestion and inhalation.

Conditions for safe storage, including any incompatibilities:

Store in a cool location.Store in a cool location.Protect from freezing and physical damage.Provide ventilation for containers.Keep container tightly sealed. Store away from incompatible materials.

SECTION 8 : Exposure controls/personal protection

Control Parameters:	10326-27-9, Barium chloride dihydrate, TWA 0.5 mg/m3 USA. NIOSH 10326-27-9 , Barium chloride dihydrate, WA 0.5 mg/m3 USA. OSHA 10326-27-9, Barium chloride dihydrate, TWA 0.5 mg/m3 USA. ACGIH
Appropriate Engineering controls:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.
Respiratory protection:	Normal ventilation is adequate.

Protection of skin:	Select glove material impermeable and resistant to the substance.Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves.Wear protective clothing.
Eye protection:	Safety glasses with side shields or goggles.Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
General hygienic measures:	Wash hands before breaks and at the end of work. Avoid contact with skin, eyes, and clothing.Remove contaminated clothing and shoes.Before wearing wash contaminated clothing.Perform routine housekeeping.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	White solid	**Explosion limit lower**: **Explosion limit upper**:	Not Determined Not Determined
Odor:	Odorless	**Vapor pressure**:	Not Determined
Odor threshold:	Not Determined	**Vapor density**:	Not Determined
pH-value:	5.0 - 8.0 at 50 g/l at 25 °C	**Relative density**:	3.100 g/cm3
Melting/Freezing point:	962 °C	**Solubilities**:	Soluble in water
Boiling point/Boiling range:	1560 °C	**Partition coefficient (n-octanol/water)**:	Not Determined
Flash point (closed cup):	Not Determined	**Auto/Self-ignition temperature**:	Not Determined
Evaporation rate:	Not Determined	**Decomposition temperature**:	> 100°C
Flammability (solid,gaseous):	Not Determined	**Viscosity**:	a. Kinematic:Not Determined b. Dynamic: Not Determined
Density: Not Determined			

SECTION 10 : Stability and reactivity

Reactivity: Nonreactive under normal conditions.
Chemical stability: Stable under normal conditions.
Possible hazardous reactions: None under normal processing
Conditions to avoid: Excessive heat.Incompatible materials.Dust formation.
Incompatible materials: Oxidizing Agents
Hazardous decomposition products: Hydrogen chloride gas, chlorine.

SECTION 11 : Toxicological information

Acute Toxicity:		
Oral:	10326-27-9	LD50 oral - rat: 118 mg/kg

Chronic Toxicity: No additional information.	
Corrosion Irritation: No additional information.	
Sensitization:	Irritation: Irritating to eyes and skin
Single Target Organ (STOT):	No additional information.
Numerical Measures:	No additional information.
Carcinogenicity:	No additional information.
Mutagenicity:	No additional information.
Reproductive Toxicity:	No additional information.

SECTION 12 : Ecological information

Ecotoxicity Persistence and degradability: Readily degradable in the environment.
Bioaccumulative potential:
Mobility in soil:
Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Product or containers must not be disposed together with household garbage. Contact a licensed professional waste disposal service to dispose of this material.Consult federal, state, provincial, and local regulations regarding the proper disposal of waste material that may incorporate some amount of this product. Dilute with water and flush to sewer.

SECTION 14 : Transport information

UN-Number

1564

UN proper shipping name

Barium Compounds, N.O.S.

Transport hazard class(es)

Class:
6.1 Toxic substances

Packing group:III
Environmental hazard:
Transport in bulk:
Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute, Chronic

SARA Section 313 (Specific toxic chemical listings):

10326-27-9 Barium chloride dihydrate

RCRA (hazardous waste code):

10326-27-9, Not applicable

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients is listed

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.Note:. The responsibility to provide a safe workplace remains with the user.The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.The information contained herein is, to the best of our knowledge and belief, accurate.However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material.It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods
PNEC: Predicted No-Effect Concentration (REACH)
CFR: Code of Federal Regulations (USA)
SARA: Superfund Amendments and Reauthorization Act (USA)
RCRA: Resource Conservation and Recovery Act (USA)
TSCA: Toxic Substances Control Act (USA)

NPRI: National Pollutant Release Inventory (Canada)
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)

Effective date : 12.21.2014
Last updated : 03.23.2015

Material Safety Data Sheet
Benzene

ACC# 02610

Section 1 - Chemical Product and Company Identification

MSDS Name: Benzene
Catalog Numbers: AC167660000, AC167660010, AC167660025, AC167660250, AC167665000, AC168650250, AC295330000, AC295330010, AC295330025, AC295330250, AC296880000, AC296880010, AC296880025, AC296880250, AC610230010, AC610231000, AC611001000, B243-4, B245-4, B245-500, B411-1, B411-4, B412-1, S79920ACS
Synonyms: Benzol; Cyclohexatriene; Phenyl hydride.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
71-43-2	Benzene	> 99	200-753-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colorless liquid. Flash Point: -11 deg C.
Danger! Extremely flammable liquid and vapor. Vapor may cause flash fire. Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye, skin, and respiratory tract irritation. Contains benzene. Benzene can cause cancer. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause blood abnormalities. May cause central nervous system effects.
Target Organs: Blood, central nervous system, respiratory system, eyes, bone marrow, immune system, skin.

Potential Health Effects

Eye: Causes eye irritation.
Skin: Causes skin irritation. Harmful if absorbed through the skin. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.
Ingestion: May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause effects similar to those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.
Inhalation: Causes respiratory tract irritation. May cause drowsiness, unconsciousness, and central nervous system depression. Exposure may lead to irreversible bone marrow injury. Exposure may lead to aplastic anemia. Potential symptoms of overexposure by inhalation are dizziness, headache, vomiting, visual disturbances, staggering gait, hilarity, fatigue, and other symptoms of CNS depression.
Chronic: May cause bone marrow abnormalities with damage to blood forming tissues. May cause anemia

and other blood cell abnormalities. Chronic exposure to benzene has been associated with an increased incidence of leukemia and multiple myeloma (tumor composed of cells of the type normally found in the bone marrow). Immunodepressive effects have been reported. This substance has caused adverse reproductive and fetal effects in laboratory animals.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.
Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
Ingestion: Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid and vapor. Vapor may cause flash fire. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire. May accumulate static electricity.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: -11 deg C (12.20 deg F)
Autoignition Temperature: 498 deg C (928.40 deg F)
Explosion Limits, Lower:1.3 vol %
Upper: 7.1 vol %
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Remove all sources of ignition. Provide ventilation. Approach spill from upwind. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. See 29CFR 1910.1028 for the regulatory requirements for the control of employee exposure to benzene.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Benzene	0.5 ppm TWA; 2.5 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous r oute	0.1 ppm TWA 500 ppm IDLH	1 ppm TWA; 10 ppm TWA (applies to industry segments exempt from the benzene stan dard at 29 CFR 1910.1028); 25 ppm Ceiling (applies to industry segments exempt from the 1 ppm TWA and 5 ppm STEL of th e benzene standard); 0.5 ppm Action Level; 1 ppm TWA; 5 ppm STEL (Cancer hazard, Flammable - see 29 C FR 1910.1028)

OSHA Vacated PELs: Benzene: 10 ppm TWA (unless specified in 1910.1028)

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear colorless

Odor: sweetish odor - aromatic odor

pH: Not applicable.

Vapor Pressure: 75 mm Hg @ 20 deg C

Vapor Density: 2.8 (air=1)

Evaporation Rate: Not available.

Viscosity: 0.647mPa @ 20 deg C

Boiling Point: 80.1 deg C

Freezing/Melting Point:5.5 deg C

Decomposition Temperature: Not available.

Solubility: 0.180 g/100 ml @ 25°C

Specific Gravity/Density:0.8765 @ 20°C

Molecular Formula:C6H6

Molecular Weight:78.11

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, excess heat, confined spaces.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 71-43-2: CY1400000
LD50/LC50:
CAS# 71-43-2:
Dermal, guinea pig: LD50 = >9400 uL/kg;
Draize test, rabbit, eye: 88 mg Moderate;
Draize test, rabbit, eye: 2 mg/24H Severe;
Draize test, rabbit, skin: 20 mg/24H Moderate;
Inhalation, mouse: LC50 = 9980 ppm;
Inhalation, mouse: LC50 = 24 mL/kg/2H;
Inhalation, rat: LC50 = 10000 ppm/7H;
Inhalation, rat: LC50 = 34 mL/kg/2H;
Inhalation, rat: LC50 = 6.5 mL/kg/4H;
Oral, mouse: LD50 = 4700 mg/kg;
Oral, rat: LD50 = 930 mg/kg;
Oral, rat: LD50 = 1 mL/kg;
Oral, rat: LD50 = 1800 Benzene is considered very toxic; probable human oral lethal dose would be 50-500 mg/kg. Human inhalation of approximately 20,000 ppm (2% in air) was fatal in 5-10 minutes.While percutaneous absorption of liquid benzene through intact human skin can be limited (e.g., 0.05% of the applied dose), the absorbed dose via direct dermal contact combined with that received from body surface exposure to benzene in workplace air is such that a substantial fraction (20-40%) of the total exposure is due to skin absorption.
Carcinogenicity:
CAS# 71-43-2:

- **ACGIH:** A1 - Confirmed Human Carcinogen
- **California:** carcinogen, initial date 2/27/87
- **NTP:** Known carcinogen
- **IARC:** Group 1 carcinogen

Epidemiology: IARC has concluded that epidemiological studies have established the relationship between benzene exposure and the development of acute myelogenous leukemia, and that there is sufficient evidence that benzene is carcinogenic to humans.
Teratogenicity: Inhalation, rat: TCLO = 50 ppm/24H (female 7-14 day(s) after conception) Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord) and Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).; Inhalation,mouse: TCLo = 5 ppm (female 6-15 day(s) after conception) Effects on Embryo or Fetus - cytological changes (including somatic cell genetic material) and Specific Developmental Abnormalities - blood and lymphatic systems (including spleen and marrow).
Reproductive Effects: Inhalation, rat: TCLO = 670 mg/m3/24H (female 15 day(s) pre-mating and female 1-22 day(s) after conception) female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).; Oral, mouse: TDLo = 12 gm/kg (female 6-15 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).
Mutagenicity: DNA Inhibition: Human, Leukocyte = 2200 umol/L.; DNA Inhibition: Human, HeLa cell = 2200 umol/L.; Mutation Test Systems - not otherwise specified: Human, Lymphocyte = 5 umol/L.; Cytogenetic Analysis: Inhalation, Human = 125 ppm/1Y.; Cytogenetic Analysis: Human, Leukocyte = 1 mmol/L/72H.; Cytogenetic Analysis: Human, Lymphocyte = 1 mg/L.

Neurotoxicity: See actual entry in RTECS for complete information.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Mosquito Fish: TLm = 395 mg/L; 24 Hr; UnspecifiedFish: Goldfish: LC50 =46 mg/L; 24 Hr; Modified ASTM D 1345Fish: Fathead Minnow: LC50 = 15.1 mg/L; 96 Hr; Flow-through at 25°C (pH 7.9-8.0)Fish: Rainbow trout: LC50 = 5.3 mg/L; 96 Hr; Flow-through at 25°C (pH 7.9-8.0)Fish: Bluegill/Sunfish: LD50 = 20 mg/L; 24-48 Hr; Unspecified If benzene is released to soil, it will be subject to rapid volatilization near the surface and that which does not evaporate will be highly to very highly mobile in the soil and may leach to groundwater. If benzene is released to water, it will be subject to rapid volatilization. It will not be expected to significantly adsorb to sediment, bioconcentrate in aquatic organisms or hydrolyze. It may be subject to biodegradation.
Environmental: If benzene is released to the atmosphere, it will exist predominantly in the vapor phase. Gas-phase benzene will not be subject to direct photolysis but it will react with photochemically produced hydroxyl radicals with a half-life of 13.4 days. The reaction time in polluted atmospheres which contain nitrogen oxides or sulfur dioxide is accelerated with the half-life being reported as 4-6 hours. Benzene is fairly soluble in water and is removed from the atmosphere in rain.
Physical: Products of photooxidation include phenol, nitrophenols, nitrobenzene, formic acid, and peroxyacetyl nitrate.
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 71-43-2: waste number U019 (Ignitable waste, Toxic waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	BENZENE	BENZENE
Hazard Class:	3	3
UN Number:	UN1114	UN1114
Packing Group:	II	II
Additional Info:		FLASHPOINT -11 C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 71-43-2 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 71-43-2: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogeni

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 71-43-2: immediate, delayed, fire.

Section 313

This material contains Benzene (CAS# 71-43-2, > 99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 71-43-2 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 71-43-2 is listed as a Hazardous Substance under the CWA. CAS# 71-43-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 71-43-2 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 71-43-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Benzene, a chemical known to the state of California to cause cancer.
WARNING: This product contains Benzene, a chemical known to the state of California to cause male reproductive toxicity.
California No Significant Risk Level: CAS# 71-43-2: 6.4 æg/day NSRL (oral); 13 æg/day NSRL (inhalation)

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T F

Risk Phrases:

R 11 Highly flammable.
R 36/38 Irritating to eyes and skin.
R 45 May cause cancer.
R 46 May cause heritable genetic damage.
R 48/23/24/25 Toxic : danger of serious damage to health by prolonged exposure through inhalation, contact with skin and if swallowed.
R 65 Harmful: may cause lung damage if swallowed.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.

WGK (Water Danger/Protection)

CAS# 71-43-2: 3

Canada - DSL/NDSL

CAS# 71-43-2 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 71-43-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/11/1999
Revision #8 Date: 9/11/2008

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Chromium, Reagent Grade,

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : **Chromium, Reagent Grade,**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25249A**

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Environmentally Damaging
Chronic hazards to the aquatic environment, category 1
Acute hazards to the aquatic environment, category 1

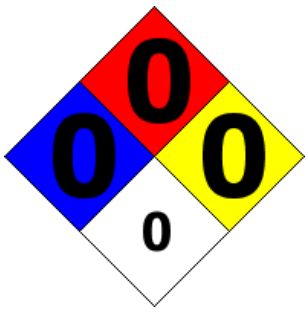
Aquatic Acute 1
Aquatic Chronic 1

Signal word :Warning

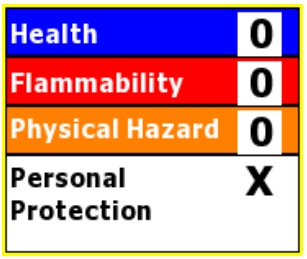
Hazard statements:
Very toxic to aquatic life with long lasting effects
Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Do not eat, drink or smoke when using this product
Avoid release to the environment
Collect spillage
Dispose of contents and container to an approved waste disposal plant

Other Non-GHS Classification:

WHMIS
NFPA/HMIS



NFPA SCALE (0-4)



HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 7440-47-3	Chromium	>98 %
		Percentages are by weight

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Loosen clothing as necessary and position individual in a comfortable position.Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen.Get medical assistance if cough or other symptoms appear.

After skin contact: Rinse/flush exposed skin gently using soap and water for 15-20 minutes.Seek medical advice if discomfort or irritation persists.

After eye contact: Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Irritation, Nausea,Headache, Shortness of breath.;

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention, provide SDS document to physician.Physician should treat symptomatically.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition. Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors.Thermal decomposition can lead to release of irritating gases and vapors.

Advice for firefighters:

Protective equipment: Use NIOSH-approved respiratory protection/breathing apparatus.

Additional information (precautions): Move product containers away from fire or keep cool with water spray as a protective measure, where feasible.Use spark-proof tools and explosion-proof equipment.Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols.Avoid contact with skin, eyes, and clothing.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Ensure that air-handling systems are operational.Ensure adequate ventilation.

Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13. Should not be released into environment.

Methods and material for containment and cleaning up:

Keep in suitable closed containers for disposal.Wear protective eyeware, gloves, and clothing. Refer to Section 8.Always obey local regulations.Evacuate personnel to safe areas.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Minimize dust generation and accumulation. Follow good hygiene procedures when handling chemical materials. Refer to Section 8.Avoid release to the environment.Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with eyes, skin, and clothing.

Conditions for safe storage, including any incompatibilities:

Store away from incompatible materials.Protect from freezing and physical damage.Keep away from food and beverages.Provide ventilation for containers. Store in cool, dry conditions in well sealed containers. Store with like hazards

SECTION 8 : Exposure controls/personal protection

Control Parameters:	7440-47-3, Chromium, NIOSH REL: TWA 0.5 mg/m3
Appropriate Engineering controls:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling.Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment.Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).Use under a fume hood

Respiratory protection:	Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls.When necessary use NIOSH approved breathing equipment.
Protection of skin:	Select glove material impermeable and resistant to the substance.Select glove material based on rates of diffusion and degradation.Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves.Wear protective clothing.
Eye protection:	Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).Safety glasses or goggles are appropriate eye protection.
General hygienic measures:	Perform routine housekeeping.Wash hands before breaks and at the end of work.Avoid contact with skin, eyes, and clothing.Before wearing wash contaminated clothing.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	Silver-gray solid	**Explosion limit lower**: **Explosion limit upper**:	Not determined Not determined
Odor:	Not Determined	**Vapor pressure**:	Not determined
Odor threshold:	Not determined	**Vapor density**:	Negligible
pH-value:	Not Determined	**Relative density**:	Not determined
Melting/Freezing point:	1857.2°C (3374.96°F)	**Solubilities**:	insoluble
Boiling point/Boiling range:	2642°C (4787.6°F)	**Partition coefficient (n-octanol/water)**:	Not determined
Flash point (closed cup):	Not determined	**Auto/Self-ignition temperature**:	Not determined
Evaporation rate:	Not determined	**Decomposition temperature**:	Not determined
Flammability (solid,gaseous):	Not determined	**Viscosity**:	a. Kinematic:Not determined b. Dynamic: Not determined
Density: 7.2 @ 28°C			

SECTION 10 : Stability and reactivity

Reactivity: Nonreactive under normal conditions.
Chemical stability: Stable under normal conditions.
Possible hazardous reactions: None under normal processing
Conditions to avoid: Incompatible Materials.
Incompatible materials: Strong acids.Strong bases.Oxidizing agents.
Hazardous decomposition products:

SECTION 11 : Toxicological information

Acute Toxicity: No additional information.	
Chronic Toxicity: No additional information.	
Corrosion Irritation: No additional information.	
Sensitization:	No additional information.
Single Target Organ (STOT):	No additional information.
Numerical Measures:	No additional information.
Carcinogenicity:	No additional information.
Mutagenicity:	No additional information.
Reproductive Toxicity:	No additional information.

SECTION 12 : Ecological information

Ecotoxicity

Toxicity to fish: LC50 - Cyprinus carpio (Carp) - 14.3 mg/l - 96 h

Persistence and degradability:
Bioaccumulative potential:
Mobility in soil:
Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

Contact a licensed professional waste disposal service to dispose of this material.Dispose of empty containers as unused product.Product or containers must not be disposed with household garbage.It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11).Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14 : Transport information

UN-Number

3077

UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Chromium)

Transport hazard class(es)

Class:
9 Miscellaneous dangerous substances and articles

Packing group:Marine pollutant
Environmental hazard:
Transport in bulk:
Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

None of the ingredients is listed

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients is listed

RCRA (hazardous waste code):

None of the ingredients is listed

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

7440-47-3 Chromium: RQ 5000 LB

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

7440-47-3 Chromium

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.Note:. The responsibility to provide a safe workplace remains with the user.The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.The information contained herein is, to the best of our knowledge and belief, accurate.However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material.It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
CFR: Code of Federal Regulations (USA)
SARA: Superfund Amendments and Reauthorization Act (USA)
RCRA: Resource Conservation and Recovery Act (USA)
TSCA: Toxic Substances Control Act (USA)
NPRI: National Pollutant Release Inventory (Canada)
DOT: US Department of Transportation

Effective date : 10.24.2014
Last updated : 03.19.2015

Copper, Metal Foil

SECTION 1: Identification of the substance/mixture and of the supplier

Product name: **Copper, Metal Foil**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25267**

Recommended uses of the product and restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific, Inc
9 Barnhart Drive, Hanover, PA 17331
(717) 632-1291

Supplier Details:

Fisher Science Education
6771 Silver Crest Road, Nazareth, PA 18064
(724)517-1954

Emergency telephone number:

Fisher Science Education
Emergency Telephone No.: 800-535-5053

SECTION 2: Hazards identification

Classification of the substance or mixture:

Toxic
Acute toxicity (oral, dermal, inhalation), category 2

Irritant
Eye irritation, category 2A
Skin sensitization, category 1

Health hazard
Germ cell mutagenicity, category 1A
Specific target organ toxicity following repeated exposure, category 2

Acute toxicity - Oral - Category 2: H300 Fatal if swallowed.
Acute toxicity - Inhalation - Category 2: H330 Fatal if inhaled.
Specific target organ toxicity - Repeated exposure - (Oral,Inhalation) - Category 2: H373 May cause damage to digestive system, hematopoietic system, kidneys, nose, respiratory system, and/or skin through prolonged or repeated exposure if inhaled.
Hazards Not Otherwise Classified - Combustible Dust.
Not classified for physical or health hazards under GHS.
Hazards Not Otherwise Classified - Combustible Dust.
Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation.
Skin sensitizers - Category 1: H317 May cause allergic skin reaction.
Germ cell mutagenicity - Category 1: H340 May cause genetic defects.
Hazardous to aquatic environment - acute hazard - Category 1: H400 Very toxic to aquatic life.

Signal word: Danger

Hazard statements:

Fatal if swallowed.
Fatal if inhaled.

May cause an allergic skin reaction.
Causes serious eye irritation.
May cause genetic defects.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.

Precautionary statements:

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Wash skin thoroughly after handling.
Avoid release to the environment.
Do not eat, drink or smoke when using this product.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use personal protective equipment as required.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Wash contaminated clothing before reuse.
IF exposed or concerned: Get medical advice/attention.
Collect spillage.
Specific treatment (see supplemental first aid instructions on this label).
Rinse mouth.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.
Continue rinsing.
If eye irritation persists get medical advice/attention.
IF ON SKIN: Wash with soap and water.
If skin irritation or a rash occurs: Get medical advice/attention.
Store locked up.
Dispose of contents and container as instructed in Section 13.

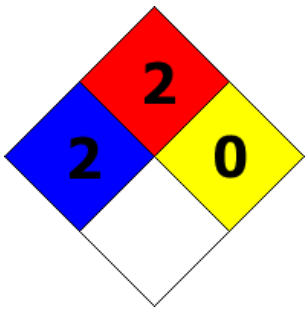
Other Non-GHS Classification:

WHMIS

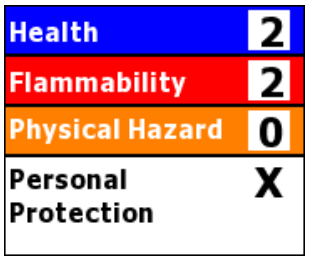
D2B

B4

NFPA/HMIS



NFPA SCALE (0-4)



HMIS RATINGS (0-4)

SECTION 3: Composition/information on ingredients

Ingredients:		
CAS 7440-50-8	Copper	100 %
		Percentages are by weight

SECTION 4: First aid measures

Description of first aid measures

After inhalation:

Loosen clothing as necessary and position individual in a comfortable position. Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Get medical assistance if cough or other symptoms appear.

After skin contact:

Rinse/flush exposed skin gently using soap and water for 15-20 minutes. Seek medical advice if discomfort or irritation persists.

After eye contact:

Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Irritation. Nausea. Headache. Shortness of breath.

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention, provide SDS document to physician. Physician should treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition. Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

Unsuitable extinguishing agents:

None identified.

Special hazards arising from the substance or mixture:

Oxides of copper. Combustion products may include carbon oxides or other toxic vapors. Thermal decomposition can lead to release of irritating gases and vapors. Dust can be an explosion hazard when exposed to heat or flame. Noncombustible solid in bulk form, but powdered form may ignite.

Advice for firefighters:

Protective equipment:

Use NIOSH-approved respiratory protection/breathing apparatus.

Additional information (precautions):

Move product containers away from fire or keep cool with water spray as a protective measure, where feasible. Use spark-proof tools and explosion-proof equipment. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Use spark-proof tools and explosion-proof equipment. Ensure that air-handling systems are operational. Ensure adequate ventilation.

Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13. Should not be released into environment.

Methods and material for containment and cleaning up:

Keep in suitable closed containers for disposal. Wear protective eyeware, gloves, and clothing. Refer to Section 8. Always obey local regulations. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect solids in powder form using vacuum with (HEPA filter). Evacuate personnel to safe areas. Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions.

Reference to other sections: None

SECTION 7: Handling and storage

Precautions for safe handling:

Minimize dust generation and accumulation. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with eyes, skin, and clothing.

Conditions for safe storage, including any incompatibilities:

Store away from incompatible materials. Protect from freezing and physical damage. Keep away from food and beverages. Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame. Store in cool, dry conditions in well sealed containers. Store with like hazards.

SECTION 8: Exposure controls/personal protection

Control Parameters: 7440-50-8 , Copper , OSHA PEL TWA (Total Dust) TWA 1 mg/m3.
7440-50-8, Copper, ACGIH TLV: 0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists).
7440-50-8, Copper, OSHA PEL: 0.1 mg/m3 TWA (fume).

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use under a fume hood.

Respiratory protection: Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.

Protection of skin: Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.

Eye protection: Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses or goggles are appropriate eye protection.

General hygienic measures: Perform routine housekeeping. Wash hands before breaks and at the end of work. Avoid contact with skin, eyes, and clothing. Before wearing wash contaminated clothing.

SECTION 9: Physical and chemical properties

Appearance (physical state, color):	Red to brown solid	**Explosion limit lower**: **Explosion limit upper**:	Not determined Not determined
Odor:	Odorless	**Vapor pressure at 20°C**:	Not determined
Odor threshold:	Not determined	**Vapor density**:	Not determined
pH-value:	Not determined	**Relative density**:	Not determined
Melting/Freezing point:	1083°C (1981.4°F)	**Solubilities**:	Insoluble.
Boiling point/Boiling range:	2595°C (4703°F)	**Partition coefficient (n-octanol/water)**:	Not determined
Flash point (closed cup):	Not determined	**Auto/Self-ignition temperature**:	Not determined
Evaporation rate:	Not determined	**Decomposition temperature**:	Not determined
Flammability (solid, gaseous):	Not determined	**Viscosity**:	a. Kinematic: Not determined b. Dynamic: Not determined
Density at 20°C:	8.94 (Water = 1)		

SECTION 10: Stability and reactivity

Reactivity:

Stable at room temperature in closed containers under normal storage and handling conditions.

Chemical stability:

Stable under normal conditions.

Possible hazardous reactions:

None under normal processing.

Conditions to avoid:

Incompatible Materials. Dust formation. Moisture. Exposure to air.

Incompatible materials:

Liquid copper explodes on contact with water. Reacts violently with ammonium nitrate, bromates, iodates, chlorates, ethylene oxide, hydrazoic acid, potassium oxide, dimethyl sulfoxide Page 3 of 4 CU4500 + trichloroacetic acid, hydrogen peroxide, sodium peroxide, sodium azide, sulfuric acid, hydrogen sulfide + air, and lead azide. Ignites on contact with chlorine, fluorine (above 121C), chlorine trifluoride, and hydrazinium nitrate (above 70C). Incompatible with 1-bromo-2-propyne, potassium dioxide, and actylenic compounds.

Hazardous decomposition products:

Oxides of copper.

SECTION 11: Toxicological information

Acute Toxicity:

Oral:

7440-50-8 LD50, Rat 472mg/KG

Chronic Toxicity:

Oral:

7440-50-8 Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has led to hemolytic anemia and accelerates arteriosclerosis.

Corrosion Irritation:

Dermal:

7440-50-8 Dust is irritating to the respiratory tract. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

Sensitization: No additional information.
Numerical Measures: No additional information.
Carcinogenicity: No additional information.
Mutagenicity:

Please refer to RTECS# BO9000000 for specific informaton.

Reproductive Toxicity:

Fertility: Post-implantation mortality, oral-rat TDLo=40mg/kg.

SECTION 12: Ecological information

Ecotoxicity:

Freshwater fish: 96 Hr LC50 Pimephales promelas: 0.0068 - 0.0156 mg/L; 96 Hr LC50 Pimephales promelas: <0.3 mg/L [static]; 96 Hr LC50 Pimephales promelas: 0.2 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus

mykiss: 0.052 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 1.25 mg/L [static]; 96 Hr LC50 Cyprinus carpio: 0.3 mg/L [semi-static]; 96 Hr LC50 Cyprinus carpio: 0.8 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 0.112 mg/L [flow-through]

Water flea: 48 Hr EC50 Daphnia magna: 0.03 mg/L [Static]

Persistence and degradability:

No information available.

Bioaccumulative potential:

No information available.

Mobility in soil: No additional information.

Other adverse effects:

No information available.

SECTION 13: Disposal considerations

Waste disposal recommendations:

Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14: Transport information

US DOT

UN Number:
ADR, ADN, DOT, IMDG, IATA 3089

Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: Metal Powder, Flammable, NOS (Copper Sulfate).
Hazard Class: 4
Packing Group: II.
Marine Pollutant (if applicable): No additional information.
Comments: None

Non Bulk:
RQ (if applicable): None
Proper shipping Name: Metal Powder, Flammable, NOS (Copper Sulfate).
Hazard Class: 4
Packing Group: II.
Marine Pollutant (if applicable): No additional information.
Comments: None

SECTION 15: Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute, Chronic, Fire

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

RCRA (hazardous waste code):

None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

7440-50-8 Copper Sulfate 5000 Lbs.

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients are listed.

SECTION 16: Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases: None

Abbreviations and Acronyms:

IMDG International Maritime Code for Dangerous Goods.
PNEC Predicted No-Effect Concentration (REACH).

CFR Code of Federal Regulations (USA).
SARA Superfund Amendments and Reauthorization Act (USA).
RCRA Resource Conservation and Recovery Act (USA).
TSCA Toxic Substances Control Act (USA).
NPRI National Pollutant Release Inventory (Canada).
DOT US Department of Transportation.
IATA International Air Transport Association.
GHS Globally Harmonized System of Classification and Labelling of Chemicals.
ACGIH American Conference of Governmental Industrial Hygienists.
CAS Chemical Abstracts Service (division of the American Chemical Society).
NFPA National Fire Protection Association (USA).
HMIS Hazardous Materials Identification System (USA).
WHMIS Workplace Hazardous Materials Information System (Canada).
DNEL Derived No-Effect Level (REACH).

Effective date: 03.02.2015
Last updated: 06.17.2015

SAFETY DATA SHEET

Version 6.2
Revision Date 10/05/2020
Print Date 08/21/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Dibenzofuran

Product Number : 236373
Brand : Aldrich
CAS-No. : 132-64-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Diphenylene oxide

Formula : $C_{12}H_8O$

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Molecular weight	:	168.19 g/mol
CAS-No.	:	132-64-9
EC-No.	:	205-071-3

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

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6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

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If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder, finecrystalline Color: white, beige
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 80 - 82 °C (176 - 180 °F) - lit.
f)	Initial boiling point and boiling range	154 - 155 °C 309 - 311 °F at 27 hPa - lit.
g)	Flash point	130 °C (266 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	1.3 g/cm3 at 20 °C (68 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 4.12 - (Lit.), Potential bioaccumulation
p)	Autoignition temperature	No data available

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q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Hazardous properties cannot be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No ecological problems are to be expected when the product is handled and used with due care and attention.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

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Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

SECTION 16: Other information

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See

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www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.2 Revision Date: 10/05/2020 Print Date: 08/21/2021

The life science business of Merck KGaA, Darmstadt, Germany
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Material Safety Data Sheet
Ethylbenzene

ACC# 00596

Section 1 - Chemical Product and Company Identification

MSDS Name: Ethylbenzene
Catalog Numbers: AC118080000, AC118080025, AC118080250, AC118080251, AC118085000, 11808-0010, O2751-1
Synonyms: Ethylbenzol; Phenylethane.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
100-41-4	Ethylbenzene	>99	202-849-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 15 deg C.
Warning! Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. May be harmful if inhaled. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause central nervous system depression.
Target Organs: Central nervous system.

Potential Health Effects

Eye: Causes severe eye irritation. Causes redness and pain.
Skin: Causes skin irritation. Prolonged and/or repeated contact may cause irritation and/or dermatitis. May be absorbed through the skin. Causes redness and pain.
Ingestion: May cause irritation of the digestive tract. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.
Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. Vapors may cause dizziness or suffocation.
Chronic: Chronic inhalation may cause effects similar to those of acute inhalation.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire. May accumulate static electricity.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: 15 deg C (59.00 deg F)
Autoignition Temperature: 432 deg C (809.60 deg F)
Explosion Limits, Lower:1.2%
Upper: 6.8%
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Provide ventilation. Control runoff and isolate discharged material for proper disposal. Use water spray to cool and disperse vapors and protect personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Avoid breathing vapor or mist.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs

Ethylbenzene	100 ppm TWA; 125 ppm STEL	100 ppm TWA; 435 mg/m3 TWA 800 ppm IDLH	100 ppm TWA; 435 mg/m3 TWA

OSHA Vacated PELs: Ethylbenzene: 100 ppm TWA; 435 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: aromatic odor
pH: Not available.
Vapor Pressure: 9.6 mm Hg @ 25 deg C
Vapor Density: 3.7 (air=1)
Evaporation Rate:<1 (butyl acetate=1)
Viscosity: 0.63 mPa s 20 C
Boiling Point: 136 deg C
Freezing/Melting Point:-95 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:0.86
Molecular Formula:C8H10
Molecular Weight:106.17

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 100-41-4: DA0700000
LD50/LC50:
CAS# 100-41-4:
Draize test, rabbit, eye: 500 mg Severe;
Inhalation, mouse: LC50 = 35500 mg/m3/2H;
Inhalation, rat: LC50 = 55000 mg/m3/2H;
Oral, rat: LD50 = 3500 mg/kg;
Oral, rat: LD50 = 3500 mg/kg;
Skin, rabbit: LD50 = 17800 uL/kg;
.
Inhalation rat LC50: 17.2 mg/l/4H from BASF.
Carcinogenicity:
CAS# 100-41-4:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 6/11/04
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: Mutation in mammalian somatic cells(Rodent,mouse) Lymphocyte = 80 mg/L.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 14.0 mg/L; 96 Hr.; Static BioassayFish: Fathead Minnow: LC50 = 12.1 mg/L; 96 Hr.; Flow-through BioassayFish: Bluegill/Sunfish: LC50 = 150.0 mg/L; 96 Hr.; Static Bioassay, pH 6.5-7.9, 21-23 degrees CWater flea EC50 = 2.1 mg/L; 48 Hr.; Static BioassayWater flea EC50 = 75.0 mg/L; 48 Hr.; Static Bioassay Shrimp (mysidoposis bahia), LC50=87.6 mg/L/96hr. Sheepshead minnow LC50=275 mg/L/96hr. Fathead minnow LC50=42.3 mg/L/96hr in hard water &48.5 mg/L/96hr in softwater.
Environmental: Experimental data on the bioconcentration of ethylbenzene include a log BCF of 1.9 in goldfish and the log BCF of 0.67 for clams exposed to the water-soluble fraction of crude oil. Using its octanol/water partition coefficient (log Kow= 3.15) and using a recommended regression equation, one can calculate a log BCF in fish of 2.16 indicating that ethylbenzene should not significantly bioconcentrate in aquatic organisms. Ethylbenzene has a moderate adsorption for soil. The measured Koc for silt loam was 164
Physical: The predominant photochemical reaction of ethylbenzene in the atmosphere is with hydroxyl radicals; the tropospheric half-life for this reaction is 5.5 and 24 hr in the summer and winter, actively. Degradation is somewhat faster under photochemical smog situations. Photooxidation products which have been identified include ethylphenol, benzaldehyde, acetophenone and m- and p-ethylnitrobenzene. Ethylbenzene is resistant to hydrolysis. Ethylbenzene does not significantly absorb light above 290 nm in methanol solution.
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	ETHYLBENZENE	ETHYLBENZENE
Hazard Class:	3	3
UN Number:	UN1175	UN1175
Packing Group:	II	II
Additional Info:		FLASHPOINT 15 C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 100-41-4 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 100-41-4: Effective 6/19/87, Sunset 6/19/97
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 100-41-4: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 100-41-4: immediate, delayed, fire.
Section 313
This material contains Ethylbenzene (CAS# 100-41-4, >99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 100-41-4 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 100-41-4 is listed as a Hazardous Substance under the CWA. CAS# 100-41-4 is listed as a Priority Pollutant under the Clean Water Act. CAS# 100-41-4 is listed as a Toxic Pollutant under the Clean Water Act.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 100-41-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains Ethylbenzene, a chemical known to the state of California to cause cancer.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols:
XN F
Risk Phrases:
R 11 Highly flammable.
R 20 Harmful by inhalation.

Safety Phrases:
S 16 Keep away from sources of ignition - No smoking.
S 24/25 Avoid contact with skin and eyes.
S 29 Do not empty into drains.

WGK (Water Danger/Protection)
CAS# 100-41-4: 1
Canada - DSL/NDSL
CAS# 100-41-4 is listed on Canada's DSL List.
Canada - WHMIS

This product has a WHMIS classification of B2, D2B, D2A.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 100-41-4 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 4/28/1999
Revision #6 Date: 11/29/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Material Safety Data Sheet
Fluoranthene, 93%

MSDS# 01667

Section 1 - Chemical Product and Company Identification

MSDS Name:	Fluoranthene, 93%
Catalog Numbers:	AC345980000, AC345980010, AC345982500
Synonyms:	
Company Identification:	Acros Organics BVBA Janssen Pharmaceuticalaan 3a 2440 Geel, Belgium
Company Identification: (USA)	Acros Organics One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	800-ACROS-01
For information in Europe, call:	+32 14 57 52 11
Emergency Number, Europe:	+32 14 57 52 99
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300
CHEMTREC Phone Number, Europe:	703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#:	206-44-0
Chemical Name:	Fluoranthene
%:	93%
EINECS#:	205-912-4

Hazard Symbols: XN

Risk Phrases: 22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Not available Target Organs: None known.

Potential Health Effects

Eye:	May cause eye irritation.
Skin:	May cause skin irritation.
Ingestion:	Harmful if swallowed. May cause irritation of the digestive tract.
Inhalation:	May cause respiratory tract irritation.
Chronic:	

Section 4 - First Aid Measures

Eyes:	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin:	Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated

clothing and shoes.

Ingestion: Get medical aid. Wash mouth out with water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

Autoignition Temperature: Not available

Flash Point: > 100 deg C (> 212.00 deg F)

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: Not published

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container.

Section 7 - Handling and Storage

Handling: Avoid breathing dust, mist, or vapor. Avoid contact with skin and eyes.

Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Fluoranthene	none listed	none listed	none listed

OSHA Vacated PELs: Fluoranthene: None listed

Engineering Controls:

Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: Not available

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Crystalline powder

Color: yellow

Odor: odorless

pH: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: 380 - 34.0 deg C @

Freezing/Melting Point: 109.00 - 111
Decomposition Temperature: Not available
Solubility in water: insoluble
Specific Gravity/Density:
Molecular Formula: C16H10
Molecular Weight: 202.07

Section 10 - Stability and Reactivity

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Incompatible materials.
Incompatibilities with Other Materials	Not available
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 206-44-0: LL4025000

LD50/LC50:
RTECS:
CAS# 206-44-0: Oral, rat: LD50 = 2 gm/kg;
Skin, rabbit: LD50 = 3180 mg/kg;
.

Carcinogenicity: Fluoranthene - IARC: Group 3 (not classifiable)

Other: The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Other: No information available.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Please contact Fisher Scientific for shipping information
Hazard Class:
UN Number:
Packing Group:
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

USA RQ: CAS# 206-44-0: 100 lb final RQ; 45.4 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN

Risk Phrases:

R 22 Harmful if swallowed.

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 206-44-0: Not available

Canada

CAS# 206-44-0 is listed on Canada's NDSL List

Canadian WHMIS Classifications: Not available

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 206-44-0 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 206-44-0 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 10/27/1999

Revision #5 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

Iron Powder

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : **Iron Powder**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25370A**

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Flammable
Flammable solids, category 1
Self-heating substances and mixtures, category 1

Flam. Sol. 1
Self-heat. 1
Hazards Not Otherwise Classified - Combustible Dust

Signal word :Danger

Hazard statements:
Flammable solid
Self-heating; may catch fire
Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Keep away from heat/sparks/open flames/hot surfaces. No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/light/equipment
Wear protective gloves/protective clothing/eye protection/face protection
Do not eat, drink or smoke when using this product

Combustible Dust Hazard: :
May form combustible dust concentrations in air (during processing).

Other Non-GHS Classification:

WHMIS

B4

D2B

NFPA/HMIS

NFPA SCALE (0-4)

HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 7439-89-6	Iron	>97 %
		Percentages are by weight

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position.Seek medical advice if discomfort or irritation persists.If breathing difficult, give oxygen.

After skin contact: Wash affected area with soap and water. Rinse/flush exposed skin gently using water for 15-20 minutes. Seek medical advice if discomfort or irritation persists.

After eye contact: Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.

Most important symptoms and effects, both acute and delayed:

Irritation, Nausea,Headache, Shortness of breath.;

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention, provide SDS document to physician.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: If in laboratory setting, follow laboratory fire suppression procedures. Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors.Thermal decomposition can lead to release of irritating gases and vapors.Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Advice for firefighters:

Protective equipment: Use NIOSH-approved respiratory protection/breathing apparatus.

Additional information (precautions): Move product containers away from fire or keep cool with water spray as a protective measure, where feasible.Use spark-proof tools and explosion-proof equipment.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Transfer to a disposal or recovery container.Use spark-proof tools and explosion-proof equipment.Use respiratory protective device against the effects of fumes/dust/aerosol. Keep unprotected persons away. Ensure adequate ventilation.Keep away from ignition sources. Protect from heat.Stop the spill, if possible. Contain spilled material by diking or using inert absorbent.

Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13

Methods and material for containment and cleaning up:

If in a laboratory setting, follow Chemical Hygiene Plan procedures.Place into properly labeled containers for recovery or disposal. If necessary, use trained response staff/contractor.Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect solids in powder form using vacuum with (HEPA filter)

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Minimize dust generation and accumulation. Wash hands after handling. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Follow good hygiene procedures when handling chemical materials. Use only in well ventilated areas.Avoid contact with eyes, skin, and clothing.

Conditions for safe storage, including any incompatibilities:

Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame. Store away from foodstuffs. Store away from oxidizing agents.Store in cool, dry conditions in well sealed containers. Store with like hazards

SECTION 8 : Exposure controls/personal protection

Control Parameters: , , OSHA PEL TWA (Total Dust) 15 mg/m3 (50 mppcf*)
, , ACGIH TLV TWA (inhalable particles) 10 mg/m3

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling.Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.Use under a fume hood. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment.Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Respiratory protection: Not required under normal conditions of use. Use suitable respiratory protective device when high concentrations are present. Use suitable respiratory protective device when aerosol or mist is formed. For spills, respiratory protection may be advisable.

Protection of skin: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation being used/handled.Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Eye protection: Safety glasses with side shields or goggles.

General hygienic measures: The usual precautionary measures are to be adhered to when handling chemicals. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Do not inhale gases/fumes/dust/mist/vapor/aerosols. Avoid contact with the eyes and skin.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	Black to gray solid	**Explosion limit lower**: **Explosion limit upper**:	Not Determined Not Determined
Odor:	Odorless	**Vapor pressure**:	1 mm Hg @ 1787C
Odor threshold:	Not Determined	**Vapor density**:	Not Determined
pH-value:	Not Determined	**Relative density**:	7.86 @ 20C
Melting/Freezing point:	1535C	**Solubilities**:	Insoluble in water.
Boiling point/Boiling range:	2750C	**Partition coefficient (n-octanol/water)**:	Not Determined
Flash point (closed cup):	Not Determined	**Auto/Self-ignition temperature**:	Not Determined
Evaporation rate:	Not Determined	**Decomposition temperature**:	Not Determined
Flammability (solid,gaseous):	Not Determined	**Viscosity**:	a. Kinematic:Not Determined b. Dynamic: Not Determined
Density: Not Determined **Iron:**Molecular Weight: 55.847			

SECTION 10 : Stability and reactivity

Reactivity:
Chemical stability: Decomposes when heated. Oxidizes when exposed to air.
Possible hazardous reactions:
Conditions to avoid: Store away from oxidizing agents, strong acids or bases.Incompatible materials, moisture, exposure to air, excess heat.
Incompatible materials: Strong acids.Strong bases.
Hazardous decomposition products: Oxides of iron

SECTION 11 : Toxicological information

Acute Toxicity:		
Oral:	30 mg/kg	LD50 orl - rat
Chronic Toxicity: No additional information.		
Corrosion Irritation: No additional information.		
Sensitization:		No additional information.
Single Target Organ (STOT):		No additional information.
Numerical Measures:		No additional information.
Carcinogenicity:		No additional information.
Mutagenicity:		No additional information.
Reproductive Toxicity:		No additional information.

SECTION 12 : Ecological information

Ecotoxicity Persistence and degradability: Readily degradable in the environment.
Bioaccumulative potential:
Mobility in soil:
Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

Product/containers must not be disposed together with household garbage. Do not allow product to reach sewage system or open water.It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Consult federal state/ provincial and local regulations regarding the proper disposal of waste material that may incorporate some amount of this product.

SECTION 14 : Transport information

UN-Number

3089

UN proper shipping name

METAL POWDERS, FLAMM ABLE, N.O.S.

Transport hazard class(es)

Class:
4.1 Flammable solids, self-reactive substances and solid desensitized explosives

Packing group:II
Environmental hazard:
Transport in bulk:
Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

None of the ingredients is listed

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients is listed

RCRA (hazardous waste code):

None of the ingredients is listed

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients is listed

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.Note:. The responsibility to provide a safe workplace remains with the user.The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct

employees and develop work practice procedures for a safe work environment.The information contained herein is, to the best of our knowledge and belief, accurate.However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material.It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:
IMDG: International Maritime Code for Dangerous Goods
PNEC: Predicted No-Effect Concentration (REACH)
CFR: Code of Federal Regulations (USA)
SARA: Superfund Amendments and Reauthorization Act (USA)
RCRA: Resource Conservation and Recovery Act (USA)
TSCA: Toxic Substances Control Act (USA)
NPRI: National Pollutant Release Inventory (Canada)
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)

Effective date : 01.23.2015
Last updated : 03.19.2015

SAFETY DATA SHEET

Creation Date 16-Apr-2012 **Revision Date** 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Cumene**

Cat No. : **AC329730000; AC329730025; AC329730050; AC329735000**

CAS-No 98-82-8
Synonyms Isopropylbenzene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute oral toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor

Harmful if swallowed
Causes skin irritation
Causes eye irritation
Suspected of causing cancer
May cause respiratory irritation
May be fatal if swallowed and enters airways

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Response
Call a POISON CENTER or doctor/physician if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
Take off contaminated clothing and wash before reuse
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
Rinse mouth
Do NOT induce vomiting
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %

Cumene	98-82-8	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation Remove to fresh air. Get medical attention. If not breathing, give artificial respiration. Risk of serious damage to the lungs (by aspiration).

Ingestion Do NOT induce vomiting. Get medical attention. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire

Flash Point 31 °C / 87 °F

Method - No information available

Autoignition Temperature 424 °C / 795 °F

Explosion Limits

Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	2	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.

Storage Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Cumene	TWA: 50 ppm	(Vacated) TWA: 50 ppm (Vacated) TWA: 245 mg/m³ Skin TWA: 50 ppm TWA: 245 mg/m³	IDLH: 900 ppm TWA: 50 ppm TWA: 245 mg/m³	TWA: 50 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-96 °C / -141 °F
Boiling Point/Range	152 - 154 °C / 306 - 309 °F
Flash Point	31 °C / 87 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable

Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	5.3 hPa @ 20 °C
Vapor Density	No information available
Specific Gravity	0.862
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	424 °C / 795 °F
Decomposition Temperature	No information available
Viscosity	0.79 mPa.s at 20 °C
Molecular Formula	C9 H12
Molecular Weight	120.19

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Excess heat. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cumene	1400 mg/kg (Rat) 2700 mg/kg (Rat)	LD50 = 12300 µL/kg (Rabbit)	LC50 > 3577 ppm (Rat) 6 h LC50 = 39000 mg/m³ (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Cumene	98-82-8	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard Category 1

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is:. Very toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cumene	EC50: = 2.6 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: = 2.7 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: = 4.8 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 6.04 - 6.61 mg/L, 96h flow-through (Pimephales promelas) LC50: = 5.1 mg/L, 96h semi-static (Poecilia reticulata)	EC50 = 0.89 mg/L 5 min EC50 = 1.10 mg/L 15 min EC50 = 1.48 mg/L 30 min EC50 = 172 mg/L 24 h	EC50: 7.9 - 14.1 mg/L, 48h Static (Daphnia magna) EC50: = 0.6 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Cumene	3.7

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Cumene - 98-82-8	U055	-

14. Transport information

DOT

UN-No UN1918
Proper Shipping Name ISOPROPYLBENZENE
Hazard Class 3
Packing Group III

TDG

UN-No UN1918
Proper Shipping Name ISOPROPYLBENZENE
Hazard Class 3
Packing Group III

IATA

UN-No UN1918
Proper Shipping Name ISOPROPYLBENZENE
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN1918
Proper Shipping Name ISOPROPYLBENZENE
Hazard Class 3
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Cumene	98-82-8	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Cumene	98-82-8	X	-	202-704-5	X	X	X	X	KE-23957

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Cumene	98-82-8	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Cumene	X		-

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Cumene	5000 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Cumene	98-82-8	Carcinogen	-	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cumene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 16-Apr-2012
Revision Date 19-Jan-2018
Print Date 19-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Material Safety Data Sheet
Magnesium, turnings and ribbons

ACC# 13290

Section 1 - Chemical Product and Company Identification

MSDS Name: Magnesium, turnings and ribbons
Catalog Numbers: AC191080000, AC191080025, AC191085000, S72223D, S72233D, S75532, S75551, S755511, S755512, M11-500, M8-1OZ, M8-212, NC9327500
Synonyms: Magnesium metal (ribbons/turnings)
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7439-95-4	Magnesium	>99	231-104-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: silver white solid.
Warning! Flammable solid. Water-reactive. Contact with water liberates extremely flammable gases. May cause eye and skin irritation. May cause respiratory tract irritation. Inhalation of fumes may cause metal-fume fever. Air sensitive.
Target Organs: None.

Potential Health Effects

Eye: Dust may cause mechanical irritation.
Skin: Dust may cause mechanical irritation. May be harmful if absorbed through the skin. Particles embedded in the skin may cause "chemical gas gangrene" with symptoms of persistent lesions, inflammation and gas bubbles under the skin.
Ingestion: May cause irritation of the digestive tract. Low hazard for usual industrial handling.
Inhalation: May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May be harmful if inhaled.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: The use of calcium gluconate as antidotal treatment for magnesium over dose should be determined only by qualified medical personnel (Medical Toxicology, 1988).
Antidote: The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water reactive. Material will react with water and may release a flammable and/or toxic gas. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion. Flammable solid. May react with acids or moisture to form explosive hydrogen gas.
Extinguishing Media: Use approved class D extinguishing agents or smother with dry sand, clay, or sodium bicarbonate. Do NOT use water, carbon dioxide, or foam.
Flash Point: Not applicable.
Autoignition Temperature: 472.8 deg C (883.04 deg F)
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 0; Flammability: 1; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Scoop up with a nonsparking tool, then place into a suitable container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Place under an inert atmosphere.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Store protected from air. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Water free area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Magnesium	none listed	none listed	none listed

OSHA Vacated PELs: Magnesium: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear chemical splash goggles and face shield.
Skin: Wear impervious gloves.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: silver white
Odor: none reported
pH: >7 (water solution)
Vapor Pressure: Negligible.
Vapor Density: Negligible.
Evaporation Rate: Negligible.
Viscosity: Not available.
Boiling Point: 1107.2 deg C
Freezing/Melting Point:650 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble in water.
Specific Gravity/Density:1.74
Molecular Formula: Mg
Molecular Weight:24.3

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Air sensitive. Reacts with water.
Conditions to Avoid: Ignition sources, exposure to air, contact with water.
Incompatibilities with Other Materials: Strong oxidizing agents, acids, acid chlorides, chlorinated solvents, halogens.
Hazardous Decomposition Products: Oxides of magnesium.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 7439-95-4: FW6475100
LD50/LC50:
Not available.

Carcinogenicity:
CAS# 7439-95-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Mutagenicity: No data available.
Neurotoxicity: No data available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.
Environmental: No information avialable.
Physical: No information available.
Other: None.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	MAGNESIUM	MAGNESIUM
Hazard Class:	4.1	4.1
UN Number:	UN1869	UN1869
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 7439-95-4 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 7439-95-4: immediate, fire, reactive.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 7439-95-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

F

Risk Phrases:

R 11 Highly flammable.
R 15 Contact with water liberates extremely flammable gases.

Safety Phrases:

S 7/8 Keep container tightly closed and dry.
S 43A In case of fire, use dry chemical (never use water).

WGK (Water Danger/Protection)

CAS# 7439-95-4: No information available.

Canada - DSL/NDSL

CAS# 7439-95-4 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B4.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997
Revision #7 Date: 11/05/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

SAFETY DATA SHEET

Creation Date 24-Nov-2010 **Revision Date** 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Manganese, powder, -325 mesh**

Cat No. : **AC317440000; AC317440010; AC317442500**

CAS-No 7439-96-5
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Serious Eye Damage/Eye Irritation	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
Flammable solid
Causes serious eye irritation

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Wear protective gloves/protective clothing/eye protection/face protection
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Manganese	7439-96-5	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

Inhalation Remove from exposure, lie down. Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Dry chemical.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Combustible material.

Hazardous Combustion Products
None known.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	2	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions	See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling	Avoid contact with skin and eyes. Do not breathe dust. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools.
Storage	Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed. Keep away from heat, sparks and flame. Keep under nitrogen.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Manganese	TWA: 0.02 mg/m³ TWA: 0.1 mg/m³	(Vacated) TWA: 1 mg/m³ Ceiling: 5 mg/m³ (Vacated) STEL: 3 mg/m³ (Vacated) Ceiling: 5 mg/m³	IDLH: 500 mg/m³ TWA: 1 mg/m³ STEL: 3 mg/m³	TWA: 0.2 mg/m³ TWA: 1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark brown
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	1260 °C / 2300 °F
Boiling Point/Range	1900 °C / 3452 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Mn
Molecular Weight	54.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Moisture sensitive.

Conditions to Avoid Incompatible products. Exposure to moisture.

Incompatible Materials Acids, Bases, Halogens

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese	LD50 = 9 g/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Manganese	7439-96-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Manganese	Not listed	LC50: > 3.6 mg/L, 96h semi-static (Oncorhynchus mykiss)	Not listed	Not listed

Persistence and Degradability Insoluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No UN3089
Proper Shipping Name Metal powder, flammable, n.o.s.
Technical Name Manganese
Hazard Class 4.1
Packing Group III

TDG
UN-No UN3089
Proper Shipping Name Metal powder, flammable, n.o.s.
Hazard Class 4.1
Packing Group III

IATA

UN-No	UN3089
Proper Shipping Name	Metal powder, flammable, n.o.s.
Hazard Class	4.1
Packing Group	III

IMDG/IMO

UN-No	UN3089
Proper Shipping Name	Metal powder, flammable, n.o.s.
Hazard Class	4.1
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Manganese	7439-96-5	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Manganese	7439-96-5	X	-	231-105-1	X	X	X	X	KE-22999

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Manganese	7439-96-5	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Manganese	X		-

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Manganese	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	24-Nov-2010
Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Naphthalene-d8**

Cat No. : **AC174960000; AC174960010; AC174960050**

Synonyms (2H8)Naphthalene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Combustible dust	Yes

Label Elements

Signal Word
Warning

Hazard Statements
May form combustible dust concentrations in air
Harmful if swallowed, in contact with skin or if inhaled

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
Wash contaminated clothing before reuse
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
(2H8)Naphthalene	1146-65-2	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In the case of skin irritation or allergic reactions see a physician.

Inhalation Remove from exposure, lie down. Remove to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration.

Ingestion Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water mist may be used to cool closed containers. Carbon dioxide (CO_2). Dry chemical.

Unsuitable Extinguishing Media No information available

Flash Point 78 °C / 172.4 °F

Method - No information available

Autoignition Temperature 526.1 °C / 979 °F

Explosion Limits
Upper 5.9%
Lower 0.9%
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Dust can form an explosive mixture with air. Combustible material. Fine dust dispersed in air may ignite. Combustible material. Containers may explode when heated.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	1	N/A

6. Accidental release measures

Personal Precautions Remove all sources of ignition. Take precautionary measures against static discharges.
Environmental Precautions See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Avoid breathing vapors or mists. Do not ingest. If swallowed then seek immediate medical assistance. Handle product only in closed system or provide appropriate exhaust ventilation. Wash thoroughly after handling. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Use only in well-ventilated areas. Keep away from open flames, hot surfaces and sources of ignition.

Storage Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep away from heat, sparks and flame. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Use explosion-proof

electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	81 - 83 °C / 177.8 - 181.4 °F
Boiling Point/Range	No information available
Flash Point	78 °C / 172.4 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	5.9%
Lower	0.9%
Vapor Pressure	0.3 mmHg @ 25 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	526.1 °C / 979 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C10 D8
Molecular Weight	136.22

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions. Hygroscopic.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
(2H8)Naphthalene	1146-65-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** UN1334
- **Proper Shipping Name** NAPHTHALENE, CRUDE
- **Hazard Class** 4.1
- **Packing Group** III

IMDG/IMO

UN-No	UN1334
Proper Shipping Name	NAPHTHALENE, CRUDE
Hazard Class	4.1
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
(2H8)Naphthalene	1146-65-2	-	-	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
(2H8)Naphthalene	1146-65-2	-	-	214-552-7	-	-	-	-	-

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Nickel Metal Shot,

SECTION 1: Identification of the substance/mixture and of the supplier

Product name: **Nickel Metal Shot,**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25444A**

Recommended uses of the product and restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific, Inc
9 Barnhart Drive, Hanover, PA 17331
(717) 632-1291

Supplier Details:

Fisher Science Education
6771 Silver Crest Road, Nazareth, PA 18064
(724)517-1954

Emergency telephone number:

Fisher Science Education
Emergency Telephone No.: 800-535-5053

SECTION 2: Hazards identification

Classification of the substance or mixture:

Irritant

Residual powder can cause irritation to eyes and skin sensitization.

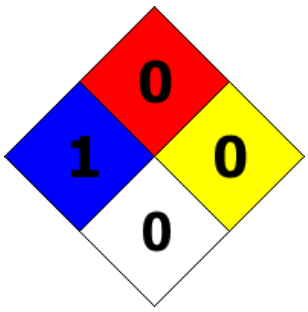
Signal word: Warning

Hazard statements:
Causes eye irritation.

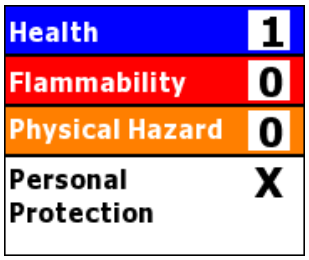
Precautionary statements:
If medical advice is needed, have product container or label at hand.
Do not eat, drink or smoke when using this product.
If on skin: Wash with soap and water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
Store in a well ventilated place.
Dispose of contents and container as instructed in Section 13.

Other Non-GHS Classification:

WHMIS
None
NFPA/HMIS



NFPA SCALE (0-4)



HMIS RATINGS (0-4)

SECTION 3: Composition/information on ingredients

Ingredients:		
CAS 7440-02-0	Nickel Metal	100 %
		Percentages are by weight

SECTION 4: First aid measures

Description of first aid measures

After inhalation:

If inhaled, remove to fresh air.

After skin contact:

Wash affected areas with soap and water.

After eye contact:

Seek medical attention. Protect unexposed eye. Flush exposed eye gently using water for 15-20 minutes. Remove contact lenses while rinsing.

After swallowing:

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: None

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention provide SDS document to physician. Physician should treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents:

Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam. Use water spray to cool unopened containers.

Unsuitable extinguishing agents:

No information available.

Special hazards arising from the substance or mixture: None

Advice for firefighters:

Protective equipment:

Wear protective eyeware, gloves, and clothing. Refer to Section 8.

Additional information (precautions):

Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing. Avoid dust generation.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Ensure that air-handling systems are operational.

Environmental precautions: None

Methods and material for containment and cleaning up: None

Reference to other sections: None

SECTION 7: Handling and storage

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing. Do not eat, drink, smoke, or use personal products when handling chemical substances.

Conditions for safe storage, including any incompatibilities:

Provide ventilation for containers.

SECTION 8: Exposure controls/personal protection

Control Parameters:	7440-02-0, Nickel , TWA 1.5 mg/m3 USA. ACGIH. 7440-02-0, Nickel, TWA 1.000000 mg/m3 USA. OSHA. 7440-02-0 , Nickel, TWA 0.015000 mg/m3 USA. NIOSH.
Appropriate Engineering controls:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.
Respiratory protection:	Not required under normal conditions of use.
Protection of skin:	Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.
Eye protection:	Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
General hygienic measures:	Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes, and clothing.

SECTION 9: Physical and chemical properties

Appearance (physical state, color):	Gray solid	**Explosion limit lower**: **Explosion limit upper**:	Not Determined Not Determined
Odor:	Odorless	**Vapor pressure at 20°C**:	1 mm Hg @ 1810°C
Odor threshold:	Not Determined	**Vapor density**:	Not Determined
pH-value:	9 - 11 at 20 °C	**Relative density**:	Not Determined

Melting/Freezing point:	1455°C	**Solubilities**:	Insoluble.
Boiling point/Boiling range:	2730°C	**Partition coefficient (n-octanol/water)**:	Not Determined
Flash point (closed cup):	Not Determined	**Auto/Self-ignition temperature**:	87 °C
Evaporation rate:	Not Determined	**Decomposition temperature**:	Not Determined
Flammability (solid, gaseous):	Flammable	**Viscosity**:	a. Kinematic: Not Determined b. Dynamic: Not Determined
Density at 20°C:	Not Determined		

SECTION 10: Stability and reactivity

Reactivity:

Nonreactive under normal conditions.

Chemical stability:

Stable under normal conditions.

Possible hazardous reactions:

None under normal processing.

Conditions to avoid:

Incompatible materials. Dust generation. Excessive heat.

Incompatible materials:

Reactive with oxidizing agents, combustible materials, metals, acids.

Hazardous decomposition products:

Nickel oxides.

SECTION 11: Toxicological information

Acute Toxicity:

Oral:

7440-02-0 LD50 oral-rat: 105mg/kg

Chronic Toxicity: No additional information.
Corrosion Irritation: No additional information.
Sensitization:

Irritating to skin and gastrointestinal tract.

Numerical Measures: No additional information.
Carcinogenicity:

7440-02-0 : IARC: 2B - Group 2B: Possibly carcinogenic to humans (Nickel) NTP: Reasonably anticipated to be a human carcinogen (Nickel)

Mutagenicity: No additional information.
Reproductive Toxicity: No additional information.

SECTION 12: Ecological information

Ecotoxicity: No additional information.
Persistence and degradability: No additional information.

Bioaccumulative potential: No additional information.
Mobility in soil: No additional information.
Other adverse effects: No additional information.

SECTION 13: Disposal considerations

Waste disposal recommendations:

Dispose of empty containers as unused product. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11).

SECTION 14: Transport information

US DOT

UN Number:
ADR, ADN, DOT, IMDG, IATA N/A

Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: Not Classified.
Hazard Class: None
Packing Group: Not Classified.
Marine Pollutant (if applicable): No additional information.
Comments: None

Non Bulk:
RQ (if applicable): None
Proper shipping Name: Not Classified.
Hazard Class: None
Packing Group: Not Classified.
Marine Pollutant (if applicable): No additional information.
Comments: None

SECTION 15: Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Chronic

SARA Section 313 (Specific toxic chemical listings):

7440-02-0 Nickel.

RCRA (hazardous waste code):

None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

7440-02-0 Nickel 100 lbs.

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

7440-02-0 Nickel.

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients are listed.

SECTION 16: Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases: None

Abbreviations and Acronyms: None

Effective date: 02.11.2015
Last updated: 06.24.2015

SAFETY DATA SHEET

Creation Date 26-Sep-2009 **Revision Date** 24-Jan-2018 **Revision Number** 4

1. Identification

Product Name **Propylbenzene**

Cat No. : **AC418430000; AC418430250; AC418431000; AC418435000**

CAS-No 103-65-1
Synonyms 1-Phenyl Propane.

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor
May be fatal if swallowed and enters airways
May cause respiratory irritation

Precautionary Statements
Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Propyl benzene	103-65-1	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention. Risk of serious damage to the lungs (by aspiration).

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects	Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray. Carbon dioxide (CO_2). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
Flash Point	47 °C / 116.6 °F
Method -	No information available
Autoignition Temperature	450 °C / 842 °F

Explosion Limits

Upper	6.00%
Lower	.80%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	2	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling	Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid contact with skin and eyes. Do not breathe mist/vapors/spray. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Wash hands before breaks and immediately after handling the product. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.
Storage	Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Light yellow
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-99 °C / -146.2 °F
Boiling Point/Range	158 °C / 316.4 °F @ 760 mmHg
Flash Point	47 °C / 116.6 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.00%
Lower	.80%
Vapor Pressure	No information available
Vapor Density	4.1
Specific Gravity	0.860
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	450 °C / 842 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C9 H12
Molecular Weight	120.19

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability No information available.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Propyl benzene	LD50 = 6040 mg/kg (Rat)	Not listed	LC50 = 65000 ppm (Rat) 2 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation May cause irritation of respiratory tract

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Propyl benzene	103-65-1	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard Category 1

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Propyl benzene	3.68

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2364
Proper Shipping Name	N-PROPYL BENZENE
Hazard Class	3
Packing Group	III

TDG

UN-No	UN2364
Proper Shipping Name	N-PROPYL BENZENE
Hazard Class	3
Packing Group	III

IATA

UN-No	UN2364
Proper Shipping Name	n-PROPYLBENZENE
Hazard Class	3
Packing Group	III

IMDG/IMO

UN-No	UN2364
Proper Shipping Name	PROPYLBENZENE
Hazard Class	3
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Propyl benzene	103-65-1	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Propyl benzene	103-65-1	X	-	203-132-9	X	X	X	X	KE-29781

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Propyl benzene	X	X	X	-	-

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 26-Sep-2009
Revision Date 24-Jan-2018
Print Date 24-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

1,2,4-trimethylbenzene

Version number: GHS 2.0
Replaces version of: 25.02.2016 (GHS 1)

Revision: 13.10.2017

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Identification of the substance	**1,2,4-trimethylbenzene**
Registration number (REACH)	01-2119472135-42-xxxx
EC number	202-436-9
Index No	-
CAS number	95-63-6
Additional relevant and available information	Pseudocumene

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	industrial use (SCC)

1.3 Details of the supplier of the safety data sheet

DHC Solvent Chemie GmbH
Timmerhellstraße 28
D-45478 Mülheim an der Ruhr
Germany

Telephone: +49 (208) 9940-0
Telefax: +49 (208) 9940-150

Competent person responsible for the safety data sheet	Vanessa Manz
e-mail (competent person)	productsafety@dhc-solvent.de

1.4 Emergency telephone number

Emergency information service

Poison centre	
Country	**Telephone**
United Kingdom	+44 1235 239670

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Hazard class	Category	Hazard class and category	Hazard statement
flammable liquid	Cat. 3	(Flam. Liq. 3)	H226
acute toxicity (inhal.)	Cat. 4	(Acute Tox. 4)	H332
skin corrosion/irritation	Cat. 2	(Skin Irrit. 2)	H315
serious eye damage/eye irritation	Cat. 2	(Eye Irrit. 2)	H319
specific target organ toxicity - single exposure (respiratory tract irritation)	Cat. 3	(STOT SE 3)	H335
aspiration hazard	Cat. 1	(Asp. Tox. 1)	H304
hazardous to the aquatic environment - chronic hazard	Cat. 2	(Aquatic Chronic 2)	H411

Remarks

For full text of H-phrases: see SECTION 16.
Substance with a community indicative occupational exposure limit value.

The most important adverse physicochemical, human health and environmental effects

May be fatal if swallowed and enters airways.
The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word **Danger**

Pictograms

GHS02, GHS07, GHS08, GHS09

Hazard statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.

Precautionary statements - storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.

Precautionary statements - disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

According to the results of its assessment, this substance is not a PBT or a vPvB.
Vapour heavier than air, may form an explosive mixture in air: it may be ignited at some distance away from the spill resulting in flashbacks. Flowing product can create electrostatic charge, resulting sparks may ignite or cause an explosion.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Name of substance	1,2,4-trimethylbenzene
Registration number (REACH)	01-2119472135-42-xxxx
EC number	202-436-9
CAS number	95-63-6
Index No	-
Molecular formula	C9H12

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Irrigate copiously with clean, fresh water, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

Do NOT induce vomiting. Rinse mouth with water (only if the person is conscious).

4.2 Most important symptoms and effects, both acute and delayed

Choking and suffocation risks. Deficits in perception and coordination, reaction time, or sleepiness.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

carbon dioxide (CO2), BC-powder, foam, alcohol resistant foam, water mist

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Solvent vapours are heavier than air and may spread along floors. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. May produce toxic fumes of carbon monoxide if burning.

Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance. Keep containers cool with water spray.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety. Avoid inhaling sprayed product. Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Remove/take off immediately all contaminated clothing and wash it before reuse.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage (sawdust. , kieselgur (diatomite), sand, universal binder).

Appropriate containment techniques

Use of adsorbent materials. - covering of drains

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Recommendations

• Measures to prevent fire as well as aerosol and dust generation

Use only in well-ventilated areas. Use local and general ventilation. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools.

• Warning

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

• Explosive atmospheres

Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.

• Flammability hazards

Keep away from sources of ignition - No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Protect from sunlight.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

• Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation. Ground/bond container and receiving equipment.

• Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.
Suitable materials and coatings for container/equipment: Carbon Steel, Stainless Steel, Polyester, Polytetrafluoroethylene (PTFE), Polyvinyl Alcohol (PVA)
Unsuitable Materials and Coatings for container/equipment: Butyl Rubber, Natural Rubber, Ethylene-propylene-diene monomer (EPDM), Polystyrene, Polyethylene, Polyacrylonetrile.

7.3 Specific end use(s)

See attached exposure scenarios

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
DE	1,2,4-trimethylbenzene	95-63-6	AGW	20	100	40	200	TRGS 900
EU	1,2,4-trimethylbenzene	95-63-6	IOELV	20	100			2017/164/EU
GB	aromatics	95-63-6	WEL		500			EH40/2005
IE	1,2,4-trimethylbenzene	95-63-6	OELV	20	100			S.I. No. 619 of 2001

Notation

STEL	Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified.
TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average.

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	100 mg/m³	human, inhalatory	worker (industry)	acute - local effects
DNEL	100 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	100 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	16,171 mg/kg	human, dermal	worker (industry)	chronic - systemic effects
DNEL	100 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	29.4 mg/m³	human, inhalatory	consumer (private households)	acute - systemic effects
DNEL	29.4 mg/m³	human, inhalatory	consumer (private households)	chronic - local effects
DNEL	15 mg/kg	human, oral	consumer (private households)	chronic - systemic effects
DNEL	9,512 mg/kg	human, dermal	consumer (private households)	chronic - systemic effects
DNEL	29.4 mg/m³	human, inhalatory	consumer (private households)	chronic - systemic effects

• environmental values

End-point	Threshold level	Organism	Environmental compart-ment	Exposure time
PNEC	0.12 mg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0.12 mg/l	aquatic organisms	marine water	short-term (single instance)
PNEC	2.41 mg/l	microorganisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	13.56 mg/kg	benthic organisms	sediments	short-term (single instance)
PNEC	13.56 mg/kg	pelagic organisms	sediments	short-term (single instance)
PNEC	2.34 mg/kg	terrestrial organisms	soil	short-term (single instance)
PNEC	0.12 mg/l	aquatic organisms	water	intermittent release

8.2 Exposure controls

Appropriate engineering controls

Technical measures and the appliance of appropriate working methods take priority over the use of personal protective equipment.
Safety and necessary control measures vary according to exposure conditions. Appropriate measures are:
Open windows, door, to allow sufficient ventilation. If this is not possible employ a fan to increase air exchange (see attached exposure scenarios).

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.
Short-term contact with the skin: Disposable gloves
Long-term contact with the skin: Gloves with long cuffs
Check leak-tightness/impermeability prior to use.

- **type of material**

NBR: acrylonitrile-butadiene rubber, FKM: fluoro-elastomer

- **material thickness**

0,40 mm.

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.
Body protection:
Suitable protective clothing: Flame resistant clothing
Suitable safety shoes: Anti static safety shoes according to EN 345 S3

Respiratory protection

For activities in enclosed areas at elevated temperatures of the substance, local extraction or explosion protected ventilation equipment is recommended. In case this is not sufficient for the intended use, then apply a suitable respiratory protection according to EN 140 type A or better (see exposure scenarios). .

Environmental exposure controls

Do not empty into drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	liquid
Colour	colourless
Odour	characteristic
Other physical and chemical parameters	
pH (value)	not determined
Melting point/freezing point	-43.77 °C
Initial boiling point and boiling range	169.4 °C at 101.3 kPa
Flash point	44 °C at 101.3 kPa
Explosive limits	
• lower explosion limit (LEL)	0.9 vol%
• upper explosion limit (UEL)	6.4 vol%
Vapour pressure	0.3 kPa at 25 °C
Density	0.88 $^{g}/_{cm^3}$ at 20 °C
Solubility(ies)	
Water solubility	57 $^{mg}/_{l}$ at 25 °C
Partition coefficient	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	500 °C
Viscosity	
• kinematic viscosity	0.843 $^{mm^2}/_{s}$ at 20 °C

Explosive properties

in use, may form flammable/explosive vapour-air mixture

Oxidising properties none

9.2 Other information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

risk of ignition

• if heated

risk of ignition

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure (see below "Conditions to avoid").

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints to prevent fire or explosion

Use only non-sparking tools.

10.5 Incompatible materials

oxidisers

10.6 Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Harmful if inhaled.

• Acute toxicity estimate (ATE)

inhalation: vapour 11 $^{mg}/_{l}$/4h

Exposure route	Endpoint	Value	Species
oral	LD50	6,000 $^{mg}/_{kg}$	rat

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

Specific target organ toxicity (STOT)

• Specific target organ toxicity - single exposure

May cause respiratory irritation.

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

May be fatal if swallowed and enters airways.

Information on likely routes of exposure

If on skin. If inhaled.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity (acute)

Endpoint	Value	Species	Exposure time
LC50	7.72 $^{mg}/_{l}$	fish	96 h
EC50	2.356 $^{mg}/_{l}$	algae	96 h

Aquatic toxicity (chronic)

May cause long-term adverse effects in the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

BCF 243

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Other adverse effects

Data are not available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste treatment-relevant information

Solvent reclamation/regeneration.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately re-conditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

List of wastes

Proposed waste code(s) for the used product:
07 01 04x Other organic solvents, washing liquids and mother liquors

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: TRANSPORT INFORMATION

14.1	UN number	**1993**
14.2	UN proper shipping name	**FLAMMABLE LIQUID, N.O.S.**
	Technical name	1,2,4-trimethylbenzene
14.3	Transport hazard class(es)	
	Class	3 (flammable liquids)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	hazardous to the aquatic environment

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

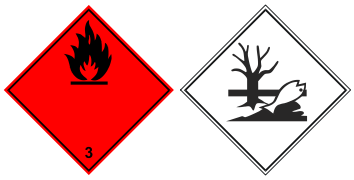
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Technical name (hazardous constituents)	1,2,4-trimethylbenzene
Class	3
Classification code	F1
Packing group	III
Danger label(s)	3 + "fish and tree"

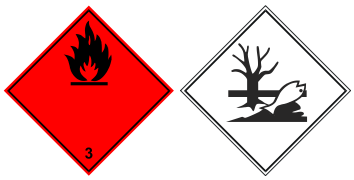


Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	274, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	D/E
Hazard identification No	30
Emergency Action Code	3YE

• International Maritime Dangerous Goods Code (IMDG)

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Particulars in the shipper's declaration	UN1993, FLAMMABLE LIQUID, N.O.S., (1,2,4-trimethylbenzene), 3, III, 44 °C c.c., MARINE POLLUTANT
Class	3

Marine pollutant	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	3 + "fish and tree"



Special provisions (SP)	223, 274, 955
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-E
Stowage category	A

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1993
Proper shipping name	Flammable liquid, n.o.s.
Class	3
Environmental hazards	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	3

Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

• Restrictions according to REACH, Annex XVII

Name of substance	CAS No	Wt%	Type of registration	No
1,2,4-trimethylbenzene		100	1907/2006/EC annex XVII	3
1,2,4-trimethylbenzene		100	1907/2006/EC annex XVII	40

• List of substances subject to authorisation (REACH, Annex XIV)

not listed

• 2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
E2	environmental hazards (hazardous to the aquatic environment, cat. 2)	200	500	57)

Notation

57) Hazardous to the Aquatic Environment in category Chronic 2.

• Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)

VOC content 100 %

• Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content 100 %

• Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

• Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

• Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

National inventories

Country	Inventory	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances.
CICR	Chemical Inventory and Control Regulation.
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS).
DSL	Domestic Substances List (DSL).
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP).
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China.
INSQ	National Inventory of Chemical Substances.
KECI	Korea Existing Chemicals Inventory.
NZIoC	New Zealand Inventory of Chemicals.
PICCS	Philippine Inventory of Chemicals and Chemical Substances.
REACH Reg.	REACH registered substances.
TCSI	Taiwan Chemical Substance Inventory.
TSCA	Toxic Substance Control Act.

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)
1.3	Competent person responsible for the safety data sheet: Christian Knappe	Competent person responsible for the safety data sheet: Vanessa Manz
1.4		Poison centre: change in the listing (table)
2.2		Precautionary statements - prevention: change in the listing (table)
2.2		Precautionary statements - disposal: change in the listing (table)
6.2	Environmental precautions: Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.	Environmental precautions: Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)
11.1		Information on likely routes of exposure: If on skin. If inhaled.
15.1		• Restrictions according to REACH, Annex XVII: change in the listing (table)
15.1		National inventories: change in the listing (table)
16		Abbreviations and acronyms: change in the listing (table)
16	Key literature references and sources for data: - Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU - Regulation (EC) No. 1272/2008 (CLP, EU GHS) - See attached exposure scenarios http://www.dhc-solvent.de/dhc_sdbreach.html http://www.dhc-solvent.de/en/dhc_sdbreach.html Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). International Air Transport Association (IATA).	Key literature references and sources for data: - Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU - Regulation (EC) No. 1272/2008 (CLP, EU GHS) - The exposure scenarios are available at www.dhc-solvent.de in the Service section. Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). International Air Transport Association (IATA).
16		Disclaimer: This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product. The information concerning legal regulations can lay no claim to completeness. In addition to this, other provisions may also apply to the product.

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/164/EU	Comission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AGW	Workplace exposure limit

Abbr.	Descriptions of used abbreviations
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
STEL	Short-term exposure limit
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- The exposure scenarios are available at www.dhc-solvent.de in the Service section.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).
International Maritime Dangerous Goods Code (IMDG).
International Air Transport Association (IATA).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product. The information concerning legal regulations can lay no claim to completeness. In addition to this, other provisions may also apply to the product.

SAFETY DATA SHEET

Revision Date 18-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Sodium Metal**

Cat No. : **S135-1LB; S206-1LB**

Synonyms Natrium.

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Substances/mixtures which, in contact with water, emit flammable gases	Category 1
Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
In contact with water releases flammable gases which may ignite spontaneously
Causes severe skin burns and eye damage

Precautionary Statements

Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from any possible contact with water, because of violent reaction and possible flash fire
Handle under inert gas. Protect from moisture
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a dry place. Store in a closed container
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Reacts violently with water

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Sodium	7440-23-5	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature 115 °C
Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	3	2	W

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions	See Section 12 for additional ecological information.
Methods for Containment and Clean Up	No information available.

7. Handling and storage

Handling	Ensure adequate ventilation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Light grey
Odor	Odorless
Odor Threshold	No information available

pH	
Melting Point/Range	98 °C
Boiling Point/Range	°C
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 440 °C
Vapor Density	No information available
Specific Gravity	0.9684 @ 20°C
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	115 °C
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Na
Molecular Weight	22.99

10. Stability and reactivity

Reactive Hazard Yes

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium	7440-23-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

TDG
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

IATA
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

IMDG/IMO
- **UN-No** UN1428
- **Proper Shipping Name** SODIUM
- **Hazard Class** 4.3
- **Packing Group** I

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Sodium	X	X	-	231-132-9	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Sodium	X	10 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium	10 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sodium	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 18-Jan-2018

Print Date	18-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 05-Oct-2010 **Revision Date** 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Thallium(I) nitrate**

Cat No. : **AC194240000; AC194240100**

CAS-No 10102-45-1
Synonyms Thallous Nitrate

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Oxidizing solids	Category 3
Acute oral toxicity	Category 2
Acute Inhalation Toxicity - Dusts and Mists	Category 2
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver.	

Label Elements

Signal Word
Danger

Hazard Statements
May intensify fire; oxidizer
Fatal if inhaled
Fatal if swallowed
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Keep/Store away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles
Wear protective gloves/protective clothing/eye protection/face protection
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Thallium(I) nitrate	10102-45-1	>95

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Immediate medical attention

	is required. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	None reasonably foreseeable.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Oxidizing Properties	Oxidizer
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

Hazardous Combustion Products
Nitrogen oxides (NOx).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	1	2	OX

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental Precautions	Should not be released into the environment.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance. Use only under a chemical fume hood.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Store under an inert atmosphere. Protect from moisture. Keep

container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Thallium(I) nitrate	TWA: 0.02 mg/m³ Skin	Skin	IDLH: 15 mg/m³ TWA: 0.1 mg/m³	TWA: 0.1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	206 °C / 402.8 °F
Boiling Point/Range	433 °C / 811.4 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	450 °C
Viscosity	Not applicable
Molecular Formula	N O3 Tl
Molecular Weight	266.38

10. Stability and reactivity

Reactive Hazard Yes

Stability Oxidizer: Contact with combustible/organic material may cause fire. Hygroscopic.

Conditions to Avoid Incompatible products. Excess heat. Combustible material. Avoid dust formation. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Reducing Agent, Strong acids, Strong reducing agents, Combustible material

Hazardous Decomposition Products Nitrogen oxides (NOx)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Thallium(I) nitrate	10102-45-1	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Thallium(I) nitrate - 10102-45-1	U217	-

14. Transport information

DOT

UN-No	UN2727
Proper Shipping Name	THALLIUM NITRATE
Hazard Class	6.1
Subsidiary Hazard Class	5.1
Packing Group	II

TDG

UN-No	UN2727
Proper Shipping Name	THALLIUM NITRATE
Hazard Class	6.1
Subsidiary Hazard Class	5.1
Packing Group	II

IATA

UN-No	UN2727
Proper Shipping Name	THALLIUM NITRATE
Hazard Class	6.1
Subsidiary Hazard Class	5.1
Packing Group	II

IMDG/IMO

UN-No	UN2727
Proper Shipping Name	THALLIUM NITRATE
Hazard Class	6.1
Subsidiary Hazard Class	5.1
Packing Group	II

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Thallium(I) nitrate	10102-45-1	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Thallium(I) nitrate	10102-45-1	-	X	233-273-1	X	X	X	X	X

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Thallium(I) nitrate	10102-45-1	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Thallium(I) nitrate	-	-	X	-

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Thallium(I) nitrate	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Thallium(I) nitrate	X	X	X	X	-

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 05-Oct-2010
Revision Date 19-Jan-2018
Print Date 19-Jan-2018
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End of SDS

Material Safety Data Sheet
Toluene

ACC# 23590

Section 1 - Chemical Product and Company Identification

MSDS Name: Toluene
Catalog Numbers: AC167900000, AC167900025, AC176850000, AC176850025, AC176850050, AC176850051, AC176850250, AC176855000, AC177160000, AC177160025, AC177160050, AC177160100, AC177160250, AC268370000, AC268370010, AC326980000, AC326980010, AC326981000, AC326982500, AC332070000, AC332070010, AC332070025, AC364410000, AC364410010, AC364410025, AC364411000, AC364415000, AC379140010, AC379140025, AC386760000, AC386760050, AC421160000, AC421160010, AC421160040, AC421170000, AC424550000, AC424550250, AC610590190, AC610590500, AC610591150, AC610592000, AC610790190, AC610790500, AC610791150, AC610792000, 16790-0010, 17685-0010, 17716-0010, 26837-0025, 42117-0040, 42117-5000, 42455-0010, 42455-5000, 61011-0040, 61046-0010, 61046-1000, 61095-1000, BP2625100, S80229HPLC, T288-1, T288RS-19, T290-1, T290-1LC, T290-4, T290N-219, T290RS-19, T290RS-200, T290RS-28, T290SK-1, T290SK-4, T290SS-115, T290SS-200, T290SS-28, T290SS-50, T291-4, T291-4LC, T291RS-200, T291SK-4, T291SK4, T291SS19, T313-4, T313SK-4, T323-20, T323-4, T324-1, T324-20, T324-200, T324-200LC, T324-20LC, T324-4, T324-500, T324CU1300, T324FB-115, T324FB-19, T324FB-200, T324FB-50, T324J-500, T324POP-200, T324POPB-200, T324RB-115, T324RB-19, T324RB-200, T324RS-115, T324RS-19, T324RS-200, T324RS-28, T324RS-50, T324S-4, T324SK-4, T324SS-115, T324SS-200, T324SS-28, T324SS-50, T326F-1GAL, T326P-4, T326S-20, T326S20LC, T330-4
Synonyms: Methylbenzene; Methylbenzol; Phenylmethane; Toluol.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-88-3	Toluene	>99	203-625-9

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 4 deg C.
Warning! **Flammable liquid and vapor.** Causes eye, skin, and respiratory tract irritation. Breathing vapors may cause drowsiness and dizziness. May be absorbed through intact skin. Aspiration hazard if swallowed. Can enter lungs and cause damage. Possible risk of harm to the unborn child. May cause central nervous system depression. May cause liver and kidney damage.
Target Organs: Kidneys, central nervous system, liver, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. Vapors may cause eye irritation.
Skin: Causes skin irritation. May be absorbed through the skin. Repeated or prolonged exposure may cause

drying and cracking of the skin. Not expected to cause an allergic skin reaction.
Ingestion: May cause effects similar to those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause central nervous system depression.
Inhalation: Causes respiratory tract irritation. Inhalation of high concentrations (>200 ppm) of toluene are clearly associated with CNS encephalopathy, headache, depression, lassitude (weakness, exhaustion), impaired coordination, transient memory loss, and impaired reaction time.
Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis. Repeated exposure in combination with constant, loud noise can produce hearing loss and dizziness. Chronic hydrocarbon abuse (for example, sniffing glue or light hydrocarbons such as contained in this material) has been associated with irregular heart rhythms and potential cardiac arrest. Toluene abuse has been linked with kidney disease, as evidenced by blood, protein, & pus in the urine, accompanied by elevated serum creatinine, decreased urinary output, & metabolic & renal tubular acidosis. Although kidney toxicity has not been common in cases of occupational toluene exposure, there has been at least one report of renal toxicity following a 40-year occupational toluene exposure. Toluene does not cause the severe injury to the bone marrow that is characteristic of benzene poisoning. Intentional abuse of toluene vapors has been linked to damage of the brain, liver, kidney and to death. Repeated inhalation exposure of toluene to animals causes histological changes in the brain, degeneration of the heart tissue, and possible immune

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.
Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
Ingestion: Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Causes cardiac sensitization to endogenous catelcholamines which may lead to cardiac arrhythmias. Do NOT use adrenergic agents such as epinephrine or pseudoepinephrine.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire. May accumulate static electricity.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam. Solid streams of water may be ineffective and spread material.
Flash Point: 4 deg C (39.20 deg F)
Autoignition Temperature: 480 deg C (896.00 deg F)
Explosion Limits, Lower:1.1 vol%
Upper: 7.1 vol%
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Provide ventilation. Use only non-sparking tools and equipment.

Control runoff and isolate discharged material for proper disposal. Use water spray to cool and disperse vapors and protect personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor or mist.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Separate from oxidizing materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Toluene	20 ppm TWA	100 ppm TWA; 375 mg/m3 TWA 500 ppm IDLH	200 ppm TWA; 300 ppm Ceiling

OSHA Vacated PELs: Toluene: 100 ppm TWA; 375 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless
Odor: sweetish odor - pleasant odor - benzene-like
pH: Not applicable.
Vapor Pressure: 28.4 mm Hg @ 25 deg C
Vapor Density: 3.1 (Air=1)
Evaporation Rate:2.4 (Butyl acetate=1)
Viscosity: 0.59 cps @ 20 deg C
Boiling Point: 110.6 deg C
Freezing/Melting Point:-95 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:0.86 (Water=1)
Molecular Formula:C6H5CH3
Molecular Weight:92.14

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, excess heat, confined spaces.
Incompatibilities with Other Materials: Strong oxidizing agents, nitric acid, sulfuric acid.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 108-88-3: XS5250000
LD50/LC50:
CAS# 108-88-3:
Draize test, rabbit, eye: 870 ug Mild;
Draize test, rabbit, eye: 2 mg/24H Severe;
Draize test, rabbit, skin: 435 mg Mild;
Draize test, rabbit, skin: 500 mg Moderate;
Draize test, rabbit, skin: 20 mg/24H Moderate;
Inhalation, mouse: LC50 = 400 ppm/24H;
Inhalation, mouse: LC50 = 30000 mg/m3/2H;
Inhalation, mouse: LC50 = 19900 mg/m3/7H;
Inhalation, mouse: LC50 = 10000 mg/m3;
Inhalation, rat: LC50 = 49 gm/m3/4H;
Oral, rat: LD50 = 636 mg/kg;
Skin, rabbit: LD50 = 14100
Carcinogenicity:
CAS# 108-88-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: In an epidemiologic study of toluene and pregnancy, occupational exposures to toluene were said to be associated with an increased incidence of renal, urinary, gastrointestinal, and cardiac anomalies.Fetotoxicity (reduced fetal weight), behavioural effects (effects on learning and memory) and hearing loss (in males) were observed in the offspring of rats exposed by inhalation to toluene, in the absence of maternal toxicity.
Reproductive Effects: Many reports of reproductive effects of toluene abuse or heavy occupational exposure are confounded by mixed solvent exposure or fetal alcohol syndrome. Women exposed to toluene in lab work had a 4.7-fold increased risk of spontaneous abortions.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Bluegill LC50=17 mg/L/24H Shrimp LC50=4.3 ppm/96HFathead minnow LC50=36.2 mg/L/96HSunfish (fresh water) TLm=1180 mg/L/96H
Environmental: From soil, substance evaporates and is microbially biodegraded. In water, substance volatilizes and biodegrades.
Physical: Photochemically produced hydroxyl radicals degrade substance.
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 108-88-3: waste number U220.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	TOLUENE	TOLUENE
Hazard Class:	3	3
UN Number:	UN1294	UN1294
Packing Group:	II	II
Additional Info:		FLASHPOINT 4 C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 108-88-3 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 108-88-3: Effective 10/4/82, Sunset 10/4/92
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 108-88-3: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 108-88-3: immediate, fire.
Section 313
This material contains Toluene (CAS# 108-88-3, >99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 108-88-3 is listed as a Hazardous Substance under the CWA. CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 108-88-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

WARNING: This product contains Toluene, a chemical known to the state of California to cause developmental reproductive toxicity.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN F

Risk Phrases:

R 11 Highly flammable.
R 38 Irritating to skin.
R 48/20 Harmful : danger of serious damage to health by prolonged exposure through inhalation.
R 63 Possible risk of harm to the unborn child.
R 65 Harmful: may cause lung damage if swallowed.
R 67 Vapours may cause drowsiness and dizziness.

Safety Phrases:

S 36/37 Wear suitable protective clothing and gloves.
S 46 If swallowed, seek medical advice immediately and show this con tainer or label.
S 62 If swallowed, do not induce vomiting: seek medical advice immed iately and show this container or label.

WGK (Water Danger/Protection)

CAS# 108-88-3: 2

Canada - DSL/NDSL

CAS# 108-88-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D2A, D2B.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 108-88-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/01/1999
Revision #10 Date: 2/13/2008

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SAFETY DATA SHEET

Creation Date 15-Jun-2010 **Revision Date** 31-Jul-2019 **Revision Number** 7

1. Identification

Product Name **o-Xylene**

Cat No. : **O5081-4; O5081-4LC; O5081-500; O5081FB-200; DO5081-500**

CAS-No 95-47-6
Synonyms 1,2-Dimethylbenzene (Certified)

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA:
800-424-9300
CHEMTREC®, Outside the USA:
001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor
May be fatal if swallowed and enters airways
Harmful in contact with skin
Causes skin irritation
Causes serious eye irritation
Harmful if inhaled
May cause respiratory irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
Call a POISON CENTER or doctor/physician if you feel unwell
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
o-Xylene	95-47-6	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire

Flash Point 31 °C / 87.8 °F

Method - No information available

Autoignition Temperature 465 °C / 869 °F

Explosion Limits

Upper 6.7 vol %

Lower 0.9 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
o-Xylene	TWA: 100 ppm STEL: 150 ppm		IDLH: 900 ppm TWA: 100 ppm TWA: 435 mg/m^3 STEL: 150 ppm STEL: 655 mg/m^3	TWA: 100 ppm STEL: 150 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available

pH	Not applicable
Melting Point/Range	-25 °C / -13 °F
Boiling Point/Range	143 - 145 °C / 289.4 - 293 °F
Flash Point	31 °C / 87.8 °F
Evaporation Rate	0.7
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.7 vol %
Lower	0.9 vol %
Vapor Pressure	882 Pa @ 25 °C
Vapor Density	3.7
Specific Gravity	0.884
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	465 °C / 869 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C8 H10
Molecular Weight	106.17

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Strong acids

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
o-Xylene	LD50 = 3608 mg/kg (Rat)	14100 mg/kg (Rabbit)	LC50 = 4330 ppm (Rat) 6 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
o-Xylene	95-47-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system Central nervous system (CNS)
STOT - repeated exposure Liver

Aspiration hazard Category 1

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
o-Xylene	EC50: = 4.2 mg/L, 192h (Pseudokirchneriella subcapitata) EC50: = 4.7 mg/L, 72h static (Pseudokirchneriella subcapitata)	LC50: 16.1 mg/L/96h (Lepomis macrochirus) LC50: 13 mg/L/24h (Carassius auratus)	EC50 = 0.0084 mg/L 24 h	EC50: 2.61 - 5.59 mg/L, 48h Flow through (Daphnia magna) EC50: 0.78 - 2.51 mg/L, 48h Static (Daphnia magna) EC50: = 3.2 mg/L, 48h (Daphnia magna)

Persistence and Degradability Insoluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
o-Xylene	3.12

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

TDG

UN-No UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

IATA

UN-No UN1307
Proper Shipping Name Xylenes
Hazard Class 3

Packing Group III

IMDG/IMO

UN-No UN1307
Proper Shipping Name Xylenes
Hazard Class 3
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
o-Xylene	95-47-6	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
o-Xylene	95-47-6	X	-	202-422-2	X	X	X	X	KE-35429

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
o-Xylene	95-47-6	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
o-Xylene	X	-	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
o-Xylene	X		-

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
o-Xylene	1000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island

o-Xylene	X	X	X	X	-

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 15-Jun-2010
Revision Date 31-Jul-2019
Print Date 31-Jul-2019
Revision Summary SDS sections updated. 11. 16.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 8.1
Revision Date 10/21/2020
Print Date 09/14/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 4,4'-DDD

Product Number : 49009
Brand : Supelco
CAS-No. : 72-54-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

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Hazard statement(s)

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethane
Formula	:	$C_{14}H_{10}Cl_4$
Molecular weight	:	320.04 g/mol
CAS-No.	:	72-54-8
EC-No.	:	200-783-0

Component	Classification	Concentration
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H400, H410 M-Factor - Aquatic Acute: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	94.0 - 96.0 °C (201.2 - 204.8 °F)
f)	Initial boiling point and boiling range	193.0 °C 379.4 °F at 1.3 hPa
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	< 0.000 hPa at 25.0 °C (77.0 °F)
l)	Vapor density	No data available
m)	Relative density	1.38 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 6.02
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Hamster - > 5,000 mg/kg
TDLo Oral - Human - 428.5 mg/kg
Remarks: Endocrine:Adrenal cortex hypoplasia.
TDLo Oral - Rat - 6,000 mg/kg
Remarks: Cardiac:Other changes. Gastrointestinal:Other changes. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.
TDLo Oral - Rat - 14 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Estrogenic. Musculoskeletal:Other changes.
TDLo Oral - Rat - 2,100 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).
Inhalation: No data available
LD50 Dermal - Rabbit - 1,200 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold.
Skin irritation
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available
No data available

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Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies

IARC:	2A - Group 2A: Probably carcinogenic to humans (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
ACGIH:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KI0700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 1.18 - 9 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 0.04 - 0.05 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.06 - 0.09 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 3.47 - 5.58 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.01 mg/l - 48 h

12.2 Persistence and degradability
No data available

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12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Marine pollutant : yes

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-02-16

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-02-16

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-02-16

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known in the State of California to cause cancer.2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	2007-09-28

SECTION 16: Other information

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 8.1 Revision Date: 10/21/2020 Print Date: 09/14/2021

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SAFETY DATA SHEET

Version 6.2
Revision Date 04/18/2021
Print Date 09/11/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 4,4'-DDE

Product Number : 35487
Brand : Sigma-Aldrich
CAS-No. : 72-55-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

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Hazard statement(s)

H301	Toxic if swallowed.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethene
Formula	:	$C_{14}H_8Cl_4$
Molecular weight	:	318.03 g/mol
CAS-No.	:	72-55-9
EC-No.	:	200-784-6

Component	Classification	Concentration
2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene		
	Acute Tox. 3; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H301, H351, H372, H400, H410 M-Factor - Aquatic Acute: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

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6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.**Advice on safe handling**
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Advice on protection against fire and explosion
Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 88.0 - 90.0 °C (190.4 - 194.0 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	< 0.000 hPa
l)	Vapor density	No data available
m)	Relative density	No data available

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n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 6.51
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 87.0 mg/kg
Remarks: The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

Inhalation: No data available

Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

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Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies

IARC:	2A - Group 2A: Probably carcinogenic to humans (2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene)
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Remarks:
No data available
The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information
Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.01 mg/l - 96 h Remarks: The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

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LC50 - Lepomis macrochirus (Bluegill sunfish) - 0.01 mg/l - 96 h
Remarks: The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

LC50 - Oncorhynchus mykiss (rainbow trout) - 0.003400 mg/l - 96 h
Remarks: The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

Toxicity to daphnia and other aquatic invertebrates: Immobilization EC50 - Daphnia magna (Water flea) - 0.00108 mg/l - 48 h
Remarks: The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Gambusia affinis (Mosquito fish) - 33 d
- 3.84 µg/l(2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene)

Bioconcentration factor (BCF): 12,037

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III

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Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene)
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene)
Marine pollutant : yes

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene)

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	CAS-No. 72-55-9	Revision Date 1993-02-16
2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	CAS-No. 72-55-9	Revision Date 1993-02-16

New Jersey Right To Know Components

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	CAS-No. 72-55-9	Revision Date 1993-02-16

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SECTION 16: Other information

Further information

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Version: 6.2 Revision Date: 04/18/2021 Print Date: 09/11/2021

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SAFETY DATA SHEET

Version 6.3
Revision Date 04/18/2021
Print Date 09/11/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 4,4′-DDT

Product Number : 386340
Brand : Aldrich
Index-No. : 602-045-00-7
CAS-No. : 50-29-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal word	Danger
Hazard statement(s)	
H301 + H311	Toxic if swallowed or in contact with skin.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane 1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane
Formula	:	$C_{14}H_9Cl_5$
Molecular weight	:	354.49 g/mol
CAS-No.	:	50-29-3
EC-No.	:	200-024-3
Index-No.	:	602-045-00-7

Component	Classification	Concentration
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane		
	Acute Tox. 3; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H301, H311, H351, H372, H400, H410 M-Factor - Aquatic Acute: 100 M-Factor - Aquatic	<= 100 %

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	Chronic: 100	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen chloride gas

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.**Advice on safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Advice on protection against fire and explosion

Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	TWA	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.5 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen		
		TWA	1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	1 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		PEL	1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

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data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 107 - 110 °C (225 - 230 °F) - lit.
f)	Initial boiling point and boiling range	260.0 °C 500.0 °F
g)	Flash point	72.0 - 77.0 °C (161.6 - 170.6 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	0.000 hPa at 20.0 °C (68.0 °F)
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient:	log Pow: 6.91

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n-octanol/water

p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Iron and iron salts.

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 87.0 mg/kg
Remarks: (RTECS)
Inhalation: No data available

LD50 Dermal - Rabbit - 300.0 mg/kg
Remarks: Behavioral:Tremor.
Behavioral:Muscle weakness.
Behavioral:Ataxia.
(RTECS)
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

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Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
Limited evidence of carcinogenicity in animal studies

IARC: 2A - Group 2A: Probably carcinogenic to humans (1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: KJ3325000

CNS stimulation., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Pancreas. -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.003400 mg/l - 96.0 h Remarks: (ECOTOX Database) (Regulation (EC) No 1272/2008, Annex VI)
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 0.00108 mg/l - 48 h Remarks: (ECOTOX Database) (Regulation (EC) No 1272/2008, Annex VI)

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12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 20 d
- 0.001 mg/l(1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane)

Bioconcentration factor (BCF): 46,670

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane)
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane)
Marine pollutant : yes

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane)

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1. Identification

Product identifier	**Aldrin (TM) (13C12, 99%) Solution**	
Other means of identification		
Item	S-FC89S	
Recommended use	For Laboratory Use Only	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	Chem Service, Inc.	
Address	660 Tower Lane West Chester, PA 19380 United States	
Telephone	Toll Free	800-452-9994
	Direct	610-692-3026
Website	www.chemservice.com	
E-mail	info@chemservice.com	
Emergency phone number	Chemtrec US	800-424-9300
	Chemtrec outside US	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Not classified.	

Label elements

Signal word Danger

Hazard statement Flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/eye protection/face protection.

Response	If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish. Collect spillage.
Storage	Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
n-Nonane		111-84-2	90 - 100
Aldrin (C1312)		Unknown	0.01

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Alcohol resistant foam.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.Avoid dust formation.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

7. Handling and storage

Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. ACGIH Threshold Limit Values

Components	Type	Value
n-Nonane (CAS 111-84-2)	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3 200 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point -63.4 °F (-53 °C) lit. / -64.3 °F (-53.5 °C) estimated

Initial boiling point and boiling range 303.8 °F (151 °C) lit.

Flash point 87.8 °F (31.0 °C) Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 5.93 hPa estimated

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature 401 °F (205 °C) Cambridge

Decomposition temperature Not available.

Viscosity Not available.

Other information

Explosive properties	Not explosive.
Flammability class	Flammable IC estimated
Molecular weight	128.3 g/mol
Oxidizing properties	Not oxidizing.
Specific gravity	0.72 estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Nitrates. Peroxides.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways.

Components	Species	Test Results
n-Nonane (CAS 111-84-2)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg, 24 Hours
Inhalation		
Vapor		
LC50	Rat	17 mg/l, 4 Hours

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

n-Nonane	5.46

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1920
UN proper shipping name	Nonanes
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1920
UN proper shipping name	Nonanes
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1920
UN proper shipping name	NONANES
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

n-Nonane (CAS 111-84-2)	1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

n-Nonane (CAS 111-84-2)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 07-11-2014

Revision date 06-05-2018

Version # 03

NFPA ratings Health: 2
Flammability: 3
Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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This product is furnished FOR LABORATORY USE ONLY.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	1993-02-16

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	1993-02-16

	CAS-No.	Revision Date
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	1993-02-16

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	1993-02-16

SECTION 16: Other information

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the

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information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.3 Revision Date: 04/18/2021 Print Date: 09/11/2021

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SAFETY DATA SHEET

Version 8.1
Revision Date 04/17/2021
Print Date 09/14/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : α-BHC

Product Number : 48493
Brand : Supelco
Index-No. : 602-042-00-0
CAS-No. : 319-84-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

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Hazard statement(s)

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	α-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.83 g/mol
CAS-No.	:	319-84-6
EC-No.	:	206-270-8
Index-No.	:	602-042-00-0

Component	Classification	Concentration
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H400, H410 M-Factor - Aquatic Acute: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.**Advice on safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Advice on protection against fire and explosion

Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	156.0 - 161.0 °C (312.8 - 321.8 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.80
p)	Autoignition temperature	No data available

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q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 177.0 mg/kg

Inhalation: No data available

Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

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This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IARC: 2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

ACGIH: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: RAHC - Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

NTP: RAHC - Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
RTECS: GV3500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 0.12 mg/l - 48.0 h
	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 48.0 h
	LC50 - other fish - 1.49 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.20 - 1.70 mg/l - 48 h

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Toxicity to algae EC50 - No information available. - > 100.00 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation other fish - 96 h
- 0.8 mg/l((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

Bioconcentration factor (BCF): 250

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 10 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

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SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

California Prop. 65 Components

, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	CAS-No. 319-84-6	Revision Date 2009-02-01
WARNING! This product contains a chemical known in the State of California to cause cancer.(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	CAS-No. 319-84-6	Revision Date 2009-02-01

SECTION 16: Other information

Further information
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Version: 8.1 Revision Date: 04/17/2021 Print Date: 09/14/2021

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SAFETY DATA SHEET

1. Identification

Product identifier	**cis-Chlordane**
Other means of identification	
Product code	N-11480
Synonym(s)	alpha Chlordane
Recommended use	For Laboratory Use Only
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Chem Service, Inc.	
Address	660 Tower Lane West Chester, PA 19380 United States	
Telephone	Toll Free	800-452-9994
	Direct	610-692-3026
Website	www.chemservice.com	
E-mail	info@chemservice.com	
Emergency phone number	Chemtrec US	800-424-9300
	Chemtrec outside US	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Toxic if swallowed. Toxic in contact with skin. Fatal if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.
Response	If swallowed: Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. Specific treatment is urgent (see this label). Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
cis-Chlordane	alpha Chlordane	5103-71-9	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a POISON CENTER or doctor/physician if you feel unwell. Get medical attention if irritation develops and persists.

Eye contact Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Collect spillage.

Large Spills: Wet down with water and dike for later disposal. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Do not breathe dust. Do not taste or swallow. Avoid contact with skin. Avoid contact with eyes. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Avoid contact with clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
cis-Chlordane (CAS 5103-71-9)	PEL	0.5 mg/m3

US. ACGIH Threshold Limit Values

Material	Type	Value
cis-Chlordane (CAS 5103-71-9)	TWA	0.5 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
cis-Chlordane (CAS 5103-71-9)	TWA	0.5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

cis-Chlordane (CAS 5103-71-9) Skin designation applies.

US - Tennesse OELs: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection Wear positive pressure self-contained breathing apparatus (SCBA).

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid. Crystalline Solid
Color	White
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	222.8 - 224.6 °F (106 - 107 °C)
Initial boiling point and boiling range	347 °F (175 °C) 0.133322 kPa
Flash point	225.0 °F (107.2 °C) Open Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0 kPa at 25 °C
Vapor density	14
Relative density	Not available.
Solubility(ies)	
Solubility (water)	0 g/l
Partition coefficient (n-octanol/water)	5.2
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.59 g/ml
Flammability class	Combustible IIIB estimated
Molecular formula	C10-H6-Cl8
Molecular weight	409.8 g/mol
Specific gravity	1.59 - 1.63 at 25 °C

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed.
Inhalation	Fatal if inhaled.
Skin contact	Toxic in contact with skin.
Eye contact	Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Toxic if swallowed. Toxic in contact with skin.

Product	Species	Test Results
cis-Chlordane (CAS 5103-71-9)		
Acute		
Dermal		
LD50	Rat	590 - 840 mg/kg
Inhalation		
LC50	Cat	0.1 mg/l, 4 Hours
Oral		
LD50	Mouse	430 mg/kg
	Rabbit	300 mg/kg
	Rat	590 mg/kg
TD	Rat	25 mg/kg
Other		
LD50	Rat	343 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

cis-Chlordane (CAS 5103-71-9) 2B Possibly carcinogenic to humans.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
cis-Chlordane (CAS 5103-71-9)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	0.0043 - 0.0118 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

5.16

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

cis-Chlordane (CAS 5103-71-9) U036

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN2811
UN proper shipping name	Toxic solids, organic, n.o.s. (cis-Chlordane), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN2811
UN proper shipping name	Toxic solid, organic, n.o.s. (cis-Chlordane)
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	6L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN2811
UN proper shipping name	TOXIC SOLID, ORGANIC, N.O.S. (cis-Chlordane), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-A
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SAFETY DATA SHEET

1. Identification

Product identifier	**cis-Chlordane**
Other means of identification	
Product code	N-11480
Synonym(s)	alpha Chlordane
Recommended use	For Laboratory Use Only
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Chem Service, Inc.	
Address	660 Tower Lane West Chester, PA 19380 United States	
Telephone	Toll Free	800-452-9994
	Direct	610-692-3026
Website	www.chemservice.com	
E-mail	info@chemservice.com	
Emergency phone number	Chemtrec US	800-424-9300
	Chemtrec outside US	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Toxic if swallowed. Toxic in contact with skin. Fatal if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.
Response	If swallowed: Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. Specific treatment is urgent (see this label). Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
cis-Chlordane	alpha Chlordane	5103-71-9	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a POISON CENTER or doctor/physician if you feel unwell. Get medical attention if irritation develops and persists.

Eye contact Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Collect spillage.

Large Spills: Wet down with water and dike for later disposal. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Do not breathe dust. Do not taste or swallow. Avoid contact with skin. Avoid contact with eyes. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Avoid contact with clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
cis-Chlordane (CAS 5103-71-9)	PEL	0.5 mg/m3

US. ACGIH Threshold Limit Values

Material	Type	Value
cis-Chlordane (CAS 5103-71-9)	TWA	0.5 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
cis-Chlordane (CAS 5103-71-9)	TWA	0.5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

cis-Chlordane (CAS 5103-71-9) Skin designation applies.

US - Tennesse OELs: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

cis-Chlordane (CAS 5103-71-9) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection Wear positive pressure self-contained breathing apparatus (SCBA).

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid. Crystalline Solid
Color	White
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	222.8 - 224.6 °F (106 - 107 °C)
Initial boiling point and boiling range	347 °F (175 °C) 0.133322 kPa
Flash point	225.0 °F (107.2 °C) Open Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0 kPa at 25 °C
Vapor density	14
Relative density	Not available.
Solubility(ies)	
Solubility (water)	0 g/l
Partition coefficient (n-octanol/water)	5.2
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.59 g/ml
Flammability class	Combustible IIIB estimated
Molecular formula	C10-H6-Cl8
Molecular weight	409.8 g/mol
Specific gravity	1.59 - 1.63 at 25 °C

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed.
Inhalation	Fatal if inhaled.
Skin contact	Toxic in contact with skin.
Eye contact	Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Toxic if swallowed. Toxic in contact with skin.

Product	Species	Test Results
cis-Chlordane (CAS 5103-71-9)		
Acute		
Dermal		
LD50	Rat	590 - 840 mg/kg
Inhalation		
LC50	Cat	0.1 mg/l, 4 Hours
Oral		
LD50	Mouse	430 mg/kg
	Rabbit	300 mg/kg
	Rat	590 mg/kg
TD	Rat	25 mg/kg
Other		
LD50	Rat	343 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

cis-Chlordane (CAS 5103-71-9) 2B Possibly carcinogenic to humans.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
cis-Chlordane (CAS 5103-71-9)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	0.0043 - 0.0118 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

5.16

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

cis-Chlordane (CAS 5103-71-9) U036

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN2811
UN proper shipping name	Toxic solids, organic, n.o.s. (cis-Chlordane), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN2811
UN proper shipping name	Toxic solid, organic, n.o.s. (cis-Chlordane)
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	6L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

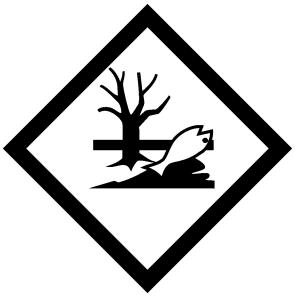
UN number	UN2811
UN proper shipping name	TOXIC SOLID, ORGANIC, N.O.S. (cis-Chlordane), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-A
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

DOT

IATA; IMDG

Marine pollutant



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
One or more components are not listed on TSCA.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

cis-Chlordane (CAS 5103-71-9) Listed.

SARA 304 Emergency release notification

cis-Chlordane (CAS 5103-71-9) 1 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
cis-Chlordane	5103-71-9	1	1000 lbs		

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
cis-Chlordane	5103-71-9	100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

cis-Chlordane (CAS 5103-71-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance
Safe Drinking Water Act (SDWA)	0 mg/l 0.002 mg/l

US state regulations

US. Massachusetts RTK - Substance List

cis-Chlordane (CAS 5103-71-9)

US. New Jersey Worker and Community Right-to-Know Act

cis-Chlordane (CAS 5103-71-9)	500 LBS

US. Pennsylvania RTK - Hazardous Substances

cis-Chlordane (CAS 5103-71-9)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

cis-Chlordane (CAS 5103-71-9)	Listed: July 1, 1988

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	06-12-2014
Version #	01
NFPA ratings	Health: 2 Flammability: 1 Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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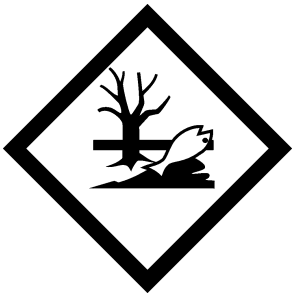
This product is furnished FOR LABORATORY USE ONLY.

DOT

IATA; IMDG

Marine pollutant



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
One or more components are not listed on TSCA.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

cis-Chlordane (CAS 5103-71-9) Listed.

SARA 304 Emergency release notification

cis-Chlordane (CAS 5103-71-9) 1 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
cis-Chlordane	5103-71-9	1	1000 lbs		

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
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Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

cis-Chlordane (CAS 5103-71-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance
Safe Drinking Water Act (SDWA)	0 mg/l 0.002 mg/l

US state regulations

US. Massachusetts RTK - Substance List

cis-Chlordane (CAS 5103-71-9)

US. New Jersey Worker and Community Right-to-Know Act

cis-Chlordane (CAS 5103-71-9)	500 LBS

US. Pennsylvania RTK - Hazardous Substances

cis-Chlordane (CAS 5103-71-9)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

cis-Chlordane (CAS 5103-71-9)	Listed: July 1, 1988

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	06-12-2014
Version #	01
NFPA ratings	Health: 2 Flammability: 1 Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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This product is furnished FOR LABORATORY USE ONLY.

SAFETY DATA SHEET

Version 6.3
Revision Date 04/17/2021
Print Date 09/11/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : δ-BHC

Product Number : 48495
Brand : Supelco
Index-No. : 602-042-00-0
CAS-No. : 319-86-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

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Hazard statement(s)

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	δ-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.8 g/mol
CAS-No.	:	319-86-8
EC-No.	:	206-272-9
Index-No.	:	602-042-00-0

Component	Classification	Concentration
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H400, H410 M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.**Advice on safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Advice on protection against fire and explosion

Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place.

Store at room temperature.
Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available

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g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,000 mg/kg
Remarks: (RTECS)
Inhalation: No data available

Acute toxicity estimate Dermal - Expert judgment - 1,100.1 mg/kg
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: 1,2,3,4,5,6-hexachlorcyclohexanes with the exception of gamma-HCH
Acute toxicity estimate Dermal - 1,100.1 mg/kg
(Expert judgment)
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
Suspected of causing cancer.

IARC:	2B - Group 2B: Possibly carcinogenic to humans (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
RTECS: GV4550000

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.02 mg/l - 96 h Remarks: (ECOTOX Database) (in analogy to similar products) The value is given in analogy to the following substances: 1,2,3,4,5,6-hexachlorcyclohexanes with the exception of gamma-HCH
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.68 mg/l - 48 h Remarks: (ECOTOX Database) (in analogy to similar products) The value is given in analogy to the following substances: 1,2,3,4,5,6-hexachlorcyclohexanes with the exception of gamma-HCH

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Bioaccumulation	other fish - 33 d - 0.955 mg/l(1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane) Bioconcentration factor (BCF): 326

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix

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the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Marine pollutant : yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	CAS-No. 319-86-8	Revision Date 1993-02-16

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SECTION 16: Other information

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.3 Revision Date: 04/17/2021 Print Date: 09/11/2021

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SAFETY DATA SHEET

Version 6.3
Revision Date 09/14/2021
Print Date 09/14/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Dieldrin

Product Number : 291218
Brand : Aldrich
Index-No. : 602-049-00-9
CAS-No. : 60-57-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 1), H310
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal word	Danger
Hazard statement(s)	
H300 + H310	Fatal if swallowed or in contact with skin.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P350 + P310	IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1,2,3,4,10,10-Hexachloro-1,4,4a,5,6,7,8,8a-octahydro-6,7-epoxy-1,4:5,8-dimethanonaphthalene
Formula	:	$C_{12}H_8Cl_6O$
Molecular weight	:	380.91 g/mol
CAS-No.	:	60-57-1
EC-No.	:	200-484-5
Index-No.	:	602-049-00-9

Component	Classification	Concentration
Dieldrin		
	Acute Tox. 2; Acute Tox. 1; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H310, H351, H372, H400, H410 M-Factor - Aquatic Acute: 100	<= 100 %

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	M-Factor - Aquatic Chronic: 100	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen chloride gas

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.**Advice on safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Advice on protection against fire and explosion

Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place.

Storage class

Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
Dieldrin	60-57-1	TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.25 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Potential for dermal absorption		
		TWA	0.25 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.25 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		PEL	0.25 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

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If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 143 - 144 °C (289 - 291 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available

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p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 38.3 mg/kg
Inhalation: No data available
Dermal: No data available
LD50 Dermal - 5 mg/kg
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

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This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.**Aspiration hazard**
No data available

11.2 Additional Information

RTECS: IO1750000
Discomfort, Headache, Nausea, Vomiting, Dizziness, Tremors, tonic convulsions, clonic spasms, Coma., respiratory failure, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Blood - Irregularities - Based on Human Evidence

Blood - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	mortality LC50 - Carassius auratus (goldfish) - 1.6 µg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 79.5 µg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

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12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Dieldrin)
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Dieldrin)
Marine pollutant : yes

IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Dieldrin)
IATA Passenger: Not permitted for transport

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

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Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-02-16

SECTION 16: Other information

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.3 Revision Date: 09/14/2021 Print Date: 09/14/2021

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SAFETY DATA SHEET

Version 6.5
Revision Date 04/18/2021
Print Date 09/11/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Endrin

Product Number : 32014
Brand : Sigma-Aldrich
Index-No. : 602-051-00-X
CAS-No. : 72-20-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 1), H300
Acute toxicity, Dermal (Category 1), H310
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

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Hazard statement(s)

H300 + H310	Fatal if swallowed or in contact with skin.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P350 + P310	IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_{12}H_8Cl_6O$
Molecular weight	:	380.91 g/mol
CAS-No.	:	72-20-8
EC-No.	:	200-775-7
Index-No.	:	602-051-00-X

Component	Classification	Concentration
Endrin		
	Acute Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H310, H400, H410 M-Factor - Aquatic Acute: 100 - Aquatic Chronic: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

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In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

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6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Endrin	72-20-8	TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.1 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		PEL	0.1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

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8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point	No data available

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	and boiling range	
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 5.20
p)	Autoignition temperature	No data available
q)	Decomposition temperature	226.0 °C (438.8 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 3.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rat - 12.0 mg/kg
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: IO1575000

Central nervous system -

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - < 0.001 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.02 mg/l - 48 h
	Immobilization EC50 - Daphnia magna (Water flea) - 0.0042 mg/l - 48 h

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 56 d - 0.63 mg/l(Endrin)
	Bioconcentration factor (BCF): 13,000

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Endrin)
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG

UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endrin)
Marine pollutant : yes

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IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Endrin)

SECTION 15: Regulatory information

SARA 302 Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Reportable Quantity : D012 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.5 Revision Date: 04/18/2021 Print Date: 09/11/2021

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SAFETY DATA SHEET

Version 8.0
Revision Date 09/13/2021
Print Date 09/14/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Heptachlor

Product Number : PS78
Brand : Supelco
Index-No. : 602-046-00-2
CAS-No. : 76-44-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure (Category 2), H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal word	Danger
Hazard statement(s)	
H301 + H311	Toxic if swallowed or in contact with skin.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene
Molecular weight	:	373.32 g/mol
CAS-No.	:	76-44-8
EC-No.	:	200-962-3
Index-No.	:	602-046-00-2

Component	Classification	Concentration
Heptachlor		
	Acute Tox. 3; Carc. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H311, H351, H373, H400, H410 M-Factor - Aquatic Acute: 100 M-Factor - Aquatic	<= 100 %

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	Chronic: 100	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
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Component	CAS-No.	Value	Control parameters	Basis
Heptachlor	76-44-8	TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	0.5 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Potential for dermal absorption		
		PEL	0.05 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
protective clothing

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point: 95 - 96 °C (203 - 205 °F)
f)	Initial boiling point and boiling range	145 °C 293 °F at 199.99 hPa
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.57 g/cm3 at 9 °C (48 °F)
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 68.0 mg/kg
Remarks: (RTECS)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Inhalation: No data available
LD50 Dermal - Rabbit - 500.0 mg/kg
Remarks: (RTECS)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Heptachlor)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is

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on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

RTECS: PC0700000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.007 mg/l - 96.0 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 0.078 mg/l - 48 h Remarks: (ECOTOX Database)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 276 d - 0.00043 mg/l(Heptachlor) Bioconcentration factor (BCF): 23,814

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Heptachlor)
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Heptachlor)
Marine pollutant : yes

IATA
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, organic, n.o.s. (Heptachlor)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D031 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

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SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 8.0 Revision Date: 09/13/2021 Print Date: 09/14/2021

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SAFETY DATA SHEET

Version 8.0
Revision Date 09/13/2021
Print Date 09/14/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Heptachlor

Product Number : PS78
Brand : Supelco
Index-No. : 602-046-00-2
CAS-No. : 76-44-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure (Category 2), H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal word	Danger
Hazard statement(s)	
H301 + H311	Toxic if swallowed or in contact with skin.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene
Molecular weight	:	373.32 g/mol
CAS-No.	:	76-44-8
EC-No.	:	200-962-3
Index-No.	:	602-046-00-2

Component	Classification	Concentration
Heptachlor		
	Acute Tox. 3; Carc. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H311, H351, H373, H400, H410 M-Factor - Aquatic Acute: 100 M-Factor - Aquatic	<= 100 %

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	Chronic: 100	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
Heptachlor	76-44-8	TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	0.5 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Potential for dermal absorption		
		PEL	0.05 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
protective clothing

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Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point: 95 - 96 °C (203 - 205 °F)
f)	Initial boiling point and boiling range	145 °C 293 °F at 199.99 hPa
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.57 g/cm3 at 9 °C (48 °F)
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 68.0 mg/kg
Remarks: (RTECS)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Inhalation: No data available
LD50 Dermal - Rabbit - 500.0 mg/kg
Remarks: (RTECS)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Heptachlor)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is

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on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

RTECS: PC0700000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.007 mg/l - 96.0 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 0.078 mg/l - 48 h Remarks: (ECOTOX Database)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 276 d - 0.00043 mg/l(Heptachlor) Bioconcentration factor (BCF): 23,814

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Heptachlor)
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Heptachlor)
Marine pollutant : yes

IATA
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, organic, n.o.s. (Heptachlor)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D031 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

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SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 8.0 Revision Date: 09/13/2021 Print Date: 09/14/2021

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SAFETY DATA SHEET

Version 6.4
Revision Date 09/09/2021
Print Date 09/11/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Lindane

Product Number : 233390
Brand : Aldrich
Index-No. : 602-043-00-6
CAS-No. : 58-89-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 1A), H350
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 2), H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

The life science business of Merck KGaA, Darmstadt, Germany
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Pictogram	
Signal word	Danger

Hazard statement(s)

H301	Toxic if swallowed.
H312 + H332	Harmful in contact with skin or if inhaled.
H350	May cause cancer.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	1α,2α,3β,4α,5α,6β-Hexachlorocyclohexane γ-BHC
Formula	:	$C_6H_6Cl_6$
Molecular weight	:	290.83 g/mol
CAS-No.	:	58-89-9
EC-No.	:	200-401-2
Index-No.	:	602-043-00-6

Component	Classification	Concentration

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Gammaxene		
	Acute Tox. 3; Acute Tox. 4; Carc. 1A; Lact. ; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H332, H312, H350, H362, H373, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Gammaxene	58-89-9	TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.5 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		PEL	0.5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min

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Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 113 - 115 °C (235 - 239 °F) - lit.
f)	Initial boiling point and boiling range	323.4 °C 614.1 °F at 1,013.25 hPa
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.85 g/cm3
	Relative density	No data available
n)	Water solubility	8.35 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	Pow: 3.5 at 22 °C (72 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

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9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 88.0 mg/kg
Remarks: (IUCLID)
LC50 Inhalation - Rat - 4 h - 1,560 mg/m3
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
Remarks: (IUCLID)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Gammaxene)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GV4900000
Neurotoxic effects., Cyanosis, Headache, Nausea, Incoordination., Tremors, Vomiting, Dizziness, Seizures., Unconsciousness
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Reproductive system. - Irregularities - Based on Human Evidence

Reproductive system. - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 96.0 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.80 - 6.50 mg/l - 48 h Remarks: (ECOTOX Database)
	LOEC - Daphnia - 0.021 mg/l - 7 d Remarks: (ECOTOX Database)
Toxicity to algae	EC50 - Algae - 4.00 mg/l - 72 h Remarks: (ECOTOX Database)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 304 d - 0.0091 mg/l(Gammaxene)
	Bioconcentration factor (BCF): 674

12.4 Mobility in soil
No data available

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12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Gammaxene)
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
1) Marine pollutant: yesPoison Inhalation Hazard: No

IMDG

UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Gammaxene)
Marine pollutant : yes

IATA

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Gammaxene)

SECTION 15: Regulatory information

SARA 302 Components

	CAS-No.	Revision Date
Gammaxene	58-89-9	2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Gammaxene	58-89-9	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard
:

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Reportable Quantity D013 lbs

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Gammaxene	58-89-9	2007-07-01

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Gammaxene	58-89-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Gammaxene	58-89-9	2007-07-01

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.4 Revision Date: 09/09/2021 Print Date: 09/11/2021

The life science business of Merck KGaA, Darmstadt, Germany
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SAFETY DATA SHEET: PERCHLOROETHYLENE

IN CASE OF TRANSPORTATION EMERGENCY CONTACT:
CHEMTREC:(800) 424-9300

ALL OTHER INQUIRIES:
(770) 904-7042 // www.ciscochem.com
266 Rue Cezzan Lavonia, GA 30553

1. IDENTIFICATION
SUBSTANCE: TETRACHLOROETHYLENE

TRADE NAMES/SYNONYMS:
PERCHLOROETHYLENE; 1,1,2,2-TETRACHLOROETHYLENE; ETHYLENE TETRACHLORIDE; PERC; TETRACHLORETHYLENE; PERCHLORETHYLENE; TETRACHLOROETHENE

CHEMICAL FAMILY: halogenated, aliphatic

2. HAZARDS IDENTIFICATION
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: faint odor, sweet odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, cancer hazard (in humans)

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, mood swings, loss of coordination, blurred vision, lung congestion, kidney damage, liver damage
LONG TERM EXPOSURE: irritation, nausea, stomach pain, loss of appetite, headache, drowsiness, dizziness, disorientation, sleep disturbances, pain in extremities, loss of coordination, blurred vision, hormonal disorders, internal bleeding, heart damage, liver damage, birth defects, brain damage, tumors, cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe)
LONG TERM EXPOSURE: irritation
EYE CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: irritation
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: same as effects reported in long term inhalation

3. COMPOSITION
COMPONENT: TETRACHLOROETHYLENE
CAS NUMBER: 127-18-4
PERCENTAGE: 100.0

Hazardous: YES

4. FIRST AID MEASURES

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
Aspiration hazard. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:
Wash skin with soap or mild detergent and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Do not administer adrenaline or epinephrine to a victim of chlorinated solvent poisoning.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical
Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

FLASH POINT: No data available.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode

6. ACCIDENTAL RELEASE MEASURES

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:
Absorb with activated carbon. Remove trapped material with suction hoses. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Small liquid spills: Absorb with sand or other non-combustible material. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

Store in a cool, dry, ventilated area away from sources of heat or ignition. Isolate from flammable materials. Protect from direct sunlight. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or

smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS AND PERSONAL PROECTION

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL): 100 ppm (TWA), 200 ppm (ceiling),
300 ppm/5min/3-hour (max)
-ACGIH Threshold Limit Value (TLV):
25 ppm (TWA), 100 ppm (STEL); listed as A3, animal carcinogen

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

CLOTHING: Wear appropriate chemical resistant clothing. GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

At any detectable concentration -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive- pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure- demand or other positive-pressure mode.

Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive- pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure- demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
APPEARANCE: clear
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: faint odor, sweet odor
MOLECULAR WEIGHT: 165.83
MOLECULAR FORMULA: Cl2-C-C-Cl2
BOILING POINT: 250 F (121 C)
FREEZING POINT: -2 F (-19 C)
VAPOR PRESSURE: 14 mmHg @ 20 C

VAPOR DENSITY (air=1): 5.83
SPECIFIC GRAVITY (water=1): 1.6227
WATER SOLUBILITY: 0.015%
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 50 ppm
EVAPORATION RATE: 2.8 (butyl acetate=1)
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, benzene, chloroform, oils

10. STABILITY AND REACTIVITY

Stability:
Stable under ordinary conditions of use and storage. Slowly decomposed by light. Deteriorates rapidly in warm, moist climates.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. Hydrogen chloride gas and phosgene gas may be formed upon heating. Decomposes with moisture to yield trichloroacetic acid and hydrochloric acid.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong acids, strong oxidizers, strong alkalis, especially NaOH, KOH; finely divided metals, especially zinc, barium, lithium. Slowly corrodes aluminum, iron and zinc.

Conditions to Avoid:
Moisture, light, heat and incompatibles.

11. TOXICOLOGICAL INFORMATION

TETRACHLOROETHYLENE:
IRRITATION DATA: 810 mg/24 hour(s) skin-rabbit severe; 500 mg/24 hour(s) skin-rabbit mild; 162 mg eyes-rabbit mild; 500 mg/24 hour(s) eyes-rabbit mild

TOXICITY DATA: 4100 ppm/6 hour(s) inhalation-rat LC50; >10000 mg/kg skin-rabbit LD50 (Dow); 2629 mg/kg oral-rat LD50

CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Limited Evidence, Animal Sufficient Evidence, Group 2A; ACGIH: A3 -Confirmed Animal Carcinogen; EC: Category 2

LOCAL EFFECTS:
Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation

TARGET ORGANS: central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: eye disorders, heart or cardiovascular disorders, kidney disorders, liver disorders, nervous system disorders, skin disorders and allergies

TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

ADDITIONAL DATA: May be excreted in breast milk. Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 8430 ug/L 96 hour(s) LC50 (Mortality) Flagfish (Jordanella floridae)

INVERTEBRATE TOXICITY: 7500 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)

ALGAL TOXICITY: 509000 ug/L 96 hour(s) EC50 (Photosynthesis) Diatom (Skeletonema costatum)

FATE AND TRANSPORT:

BIOCONCENTRATION: 49 ug/L 1-21 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 3.43 ug/L

Environmental Fate:
When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into water, this material is not expected to biodegrade. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.

Environmental Toxicity:
The LC50/96-hour values for fish are between 1 and 10 mg/l. The LC50/96-hour values for fish are between 10 and 100 mg/l. This material is expected to be toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Domestic (Land, D.O.T.)

Proper Shipping Name: TETRACHLOROETHYLENE Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L
International (Water, I.M.O.)

Proper Shipping Name: TETRACHLOROETHYLENE Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L

Proper shipping paperwork:

UN 1897, Tetrachoroethylene, 6.1, PG III

Marine Pollutant

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): TETRACHLOROETHYLENE (PERCHLOROETHYLENE): 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES

(40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES
(40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): TETRACHLOROETHYLENE (PERCHLOROETHYLENE)

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.
STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following: TETRACHLOROETHYLENE (PERCHLOROETHYLENE) Cancer (Apr 01, 1988)

CANADIAN REGULATIONS: WHMIS CLASSIFICATION: D2

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed. CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 0

Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends
on level and duration of exposure.

Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician.

Product Use:
Laboratory Reagent.

CISCO provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.
Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. CISCO MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

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Date Created: 5/18/2015
Date Updated: 6/11/2015

SAFETY DATA SHEET

Creation Date 02-Jun-2010 **Revision Date** 18-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Zinc Metal Powder**

Cat No. : **Z5-500; Z46-3**

CAS-No 7440-66-6
Synonyms Zinc Dust (Certified/Technical)

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Substances/mixtures which, in contact with water, emit flammable gases	Category 1
Pyrophoric solids	Category 1
Combustible dust	Yes

Label Elements

Signal Word
Danger

Hazard Statements
May form combustible dust concentrations in air
In contact with water releases flammable gases which may ignite spontaneously
Catches fire spontaneously if exposed to air

Precautionary Statements
Prevention
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Do not allow contact with air
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from any possible contact with water, because of violent reaction and possible flash fire
Handle under inert gas. Protect from moisture
Skin
Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store under an inert atmosphere
Store in a dry place. Store in a closed container
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Zinc powder - zinc dust (pyrophoric)	7440-66-6	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Dry sand, clay, approved class D extinguishers.

Unsuitable Extinguishing Media DO NOT USE WATER, Carbon dioxide (CO2), Dry chemical, Foam

Flash Point No information available

Method - No information available

Autoignition Temperature 460 °C / 860 °F

Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Fine dust dispersed in air may ignite. Pyrophoric: Spontaneously flammable in air. Water reactive. Contact with water liberates extremely flammable gases. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Hydrogen
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	4	3	W

6. Accidental release measures

Personal Precautions Use personal protective equipment. Remove all sources of ignition. Avoid dust formation. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Remove all sources of ignition. Do not expose spill to water. Sweep up or vacuum up spillage and collect in suitable container for disposal. Use spark-proof tools and explosion-proof equipment. Avoid dust formation.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Handle under an inert atmosphere. Do not allow contact with air. Do not allow contact with water. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Keep away from heat and sources of ignition. Keep away from water.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Light blue
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	419 °C / 786.2 °F
Boiling Point/Range	908 °C / 1666.4 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 487 °C
Vapor Density	No information available
Specific Gravity	7.14
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	460 °C / 860 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Zn
Molecular Weight	65.37

10. Stability and reactivity

Reactive Hazard	Yes
Stability	Water reactive. Moisture sensitive. Air sensitive. Pyrophoric: Spontaneously flammable in air.
Conditions to Avoid	Avoid dust formation. Incompatible products. Exposure to air. Exposure to moist air or water. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents, Strong acids, Strong bases, Amines
Hazardous Decomposition Products	Hydrogen
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	Contact with water liberates extremely flammable gases. Pyrophoric: Spontaneously flammable in air.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Zinc powder - zinc dust (pyrophoric)	LD50 = 630 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Zinc powder - zinc dust (pyrophoric)	7440-66-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Zinc powder - zinc dust (pyrophoric)	EC50: 0.09 - 0.125 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: 0.11 - 0.271 mg/L, 96h static (Pseudokirchneriella subcapitata)	LC50: 0.211 - 0.269 mg/L, 96h semi-static (Pimephales promelas) LC50: = 2.66 mg/L, 96h static (Pimephales promelas) LC50: = 30 mg/L, 96h (Cyprinus carpio) LC50: = 0.45 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 7.8 mg/L, 96h static (Cyprinus carpio) LC50: = 3.5 mg/L, 96h static (Lepomis macrochirus) LC50: = 0.24 mg/L, 96h flow-through (Oncorhynchus mykiss)	Not listed	EC50: 0.139 - 0.908 mg/L, 48h Static (Daphnia magna)

		LC50: = 0.59 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: 2.16 - 3.05 mg/L, 96h flow-through (Pimephales promelas) LC50: = 0.41 mg/L, 96h static (Oncorhynchus mykiss)		

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1436
Proper Shipping Name	ZINC POWDER
Hazard Class	4.3
Subsidiary Hazard Class	4.2
Packing Group	II

TDG

UN-No	UN1436
Proper Shipping Name	ZINC POWDER
Hazard Class	4.3
Subsidiary Hazard Class	4.2
Packing Group	II

IATA

UN-No	UN1436
Proper Shipping Name	ZINC POWDER
Hazard Class	4.3
Subsidiary Hazard Class	4.2
Packing Group	II

IMDG/IMO

UN-No	UN1436
Proper Shipping Name	ZINC POWDER
Hazard Class	4.3
Subsidiary Hazard Class	4.2
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Zinc powder - zinc dust (pyrophoric)	X	X	-	231-175-3	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Zinc powder - zinc dust (pyrophoric)	7440-66-6	100	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Zinc powder - zinc dust (pyrophoric)	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Zinc powder - zinc dust (pyrophoric)	1000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Zinc powder - zinc dust (pyrophoric)	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific

Email: EMSDS.RA@thermofisher.com

Creation Date	02-Jun-2010
Revision Date	18-Jan-2018
Print Date	18-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Appendix E:
Accident Report Form

Employee Accident Report

EMPLOYEE

Name_____ SS#_____ Emp ID#_____

Home Address_____
Street city zip code phone

Sex: M F Birth Date_____ Age:_____ Employment Status: Full time _____ Part time _____%_____

Job Title _____ Time in Present Position _____ Yrs _____Months

Department _____ Work Address_____
building/room # phone

Supervisor_____
name building/room # phone

Accident Date_____ Time _____am/pm Location_____

What were you doing and using (tools, chemicals, equipment, etc.) when the accident occurred? Describe what happened.

_____

_____

_____

Was this part of your normal job duty? _____ Yes _____No

Parts of body affected or injured_____

Witnesses:_____/_____

name phone name phone

Report prepared by (if different from the injured employee)_____
name phone

I understand that it is my right to apply for Workers' Compensation benefits and that I have two years from the date of this accident to do so. For more information regarding workers' compensation, call the New York State Department of Labor. I also authorize release of medical information regarding this accident to the Prime Contractors claim administrators.

EMPLOYEE SIGNATURE:_____ DATE:_____

SUPERVISOR/CHARGE PERSON

This accident was reported to me on _____at_____ Cost Center/Dept # _____
(date) (time)

IS FURTHER INVESTIGATION REQUIRED? ___Yes ___No _____
Supervisor/Charge Person Signature Date

HEALTH CARE PROVIDER

Treated by:_____
print name signature

Address_____
name of facility street city state zip code phone

Hospitalized overnight as inpatient? _____yes _____no (if emergency room only mark no)

Diagnosis/Assessment_____

Parts of body affected_____

Reaggravation of previous work injury? _____yes _____no Date of initial injury_____

Appendix H

Quality Assurance Project Plan

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

QUALITY ASSURANCE PROJECT PLAN

December 8, 2025

Submitted for:

251 Douglass Street
Brooklyn, New York
County Tax Map Designation: *Block 412; Lot 50*

Submitted to:

New York State Department of Envrionmental Remediation, Region 2
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7016

Report user:

Gowanus Douglass Street LLC
19 West 24th Street, 12th Floor
New York, NY, 10010

Project Number:
13928

IMPACT ENVIRONMENTAL | 170 Keyland Court | Bohemia | New York | 11716 | 631.269.8800

TABLE OF CONTENTS

Section Topic Page

1 INTRODUCTION 1

1.1 Scope and Goals 1

1.2 Cleanup Criteria and Laboratory Reporting Limits 2

2 QAPP ORGANIZATION AND RESPONSIBILITY 3

2.1 NYSDEC and NYSDOH 3

2.2 Applicant 3

2.3 Environmental Consultant 3

2.4 Quality Assurance (QA) Responsibilities 5

2.5 Field Responsibilities 5

3 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA 6

3.1 Level of QC Effort for Sample Parameters 6

4 SAMPLING AND ANALYSIS PLAN 8

4.1 Custody Procedures 8

4.2 Sample Storage 8

4.3 Sample Custody 8

4.4 Sample Tracking 9

4.5 Field Instrument Calibration 10

4.5.1 Instrument Calibration and Tuning 10

4.5.2 Field Instrument Calibration 10

4.6 Analytical Procedures 10

4.7 Data Usability Evaluation 11

4.7.1 Procedures Used to Evaluate Data Usability 11

4.7.2 Data Usability Summary Report (DUSR) 11

TABLES

Table 1: Summary of the Proposed Samples and Analyses

Table 2: Summary of Sample Parameters, Holding Times and Sample Container Requirements

APPENDICES

Appendix A: Key Project Personnel Resumes

Appendix B: Project QA Officer Resume

Appendix C: Field Operating Procedures

Appendix D: Analytical Parameter Summary Table

Appendix E: Third Party Data Validator

1 INTRODUCTION

Impact Environmental Engineering and Geology, PPLC (IEEG) was retained by Gowanus Douglass Street LLC to conduct post remediation Site Management as part of the Brownfield Cleanup Program (BCP), located at 251 Douglass Street Brooklyn, New York in accordance with the provisions of the New York State Department of Environmental Conservation's (NYSDEC) Subpart 375-3.

This Quality Assurance Project Plan (QAPP) provides an outline of the field and laboratory procedures that will be used following the remedial action during the Site Management activities proposed for the Site. The QAPP is used to ensure the data it collects and analyzes meets project requirements.

The QAPP will assure the accuracy and precision of data collection during the Site characterization and data interpretation periods. The QAPP identifies procedures for sample collection to mitigate the potential for cross-contamination, as well as analytical requirements necessary to allow for independent data validation. A Sampling and Analysis Plan (SAP) identifying methods for sample collection, decontamination, handling and shipping, is provided in the following sections.

This QAPP has been prepared in accordance with USEPA's Requirements for Quality Assurance Project Plans for Environmental Data Operations; the EPA Region II CERCLA Quality Assurance Manual, and NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation (May 2010).

1.1 Scope and Goals

This QAPP has been prepared to support the post remedial action activities conducted at the Site. This QAPP was prepared to provide quality assurance (QA) guidelines to be implemented following the completed remedial actions, during Site Management. The QAPP provides:

- A means to communicate to the individuals executing the various activities exactly what is to be done, by whom, and when.
- A culmination to the planning process that ensures that the program includes provisions for obtaining quality data (e.g., suitable methods of field operations).
- A historical record that documents the investigation in terms of the methods used, calibration standards and frequencies planned, and auditing planned.
- A document that can be used by the Project Manager's and QA Officer to assess if the activities planned are being implemented and their importance for accomplishing the goal of quality data.
- A plan to document and track project data and results.

- Detailed descriptions of the data documentation materials and procedures, project files, and tabular and graphical reports.

The QAPP is primarily concerned with the quality assurance (QA) and quality control (QC) aspects of the procedures involved in the collection, preservation, packaging, and transportation of samples; field testing; record keeping; data management; chain-of-custody procedures; laboratory analyses; and other necessary matters to assure that the investigation activities, once completed, will yield data whose integrity can be defended.

QA refers to the conduct of all planned and systematic actions necessary to perform satisfactorily all task-specific activities and to provide information and data confidence as a result of such activities. The QA for task-specific activities includes the development of procedures, auditing, monitoring and surveillance of the performance.

QC refers to the activity performed to determine if the work activities conform to the requirements. This includes activities such as inspections of the work activities in the field (e.g., verification that the items and materials installed conform to applicable codes and design specifications). QA is an overview monitoring of the performance of QC activities through audits rather than first time inspections.

1.2 Cleanup Criteria and Laboratory Reporting Limits

The following cleanup criteria for groundwater will be used for evaluation of the full TAL/TCL sampling analytical data collected as part of the Site Management is as follows:

Groundwater:	6 NYCRR Part 703 Groundwater Quality Standards and the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values.

The following criteria will be used for evaluation of the indoor air sample analytical data collected as part of the Site Management is as follows:

Indoor Air:	NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York and Subsequent Final Guidance Updates Air Guidance Values and Matrices.

2 QAPP ORGANIZATION AND RESPONSIBILITY

The principal organizations involved in verifying achievement of data collection goals for the Site include: the NYSDEC, NYSDOH, Applicant, Consultant, drilling subcontractor(s), independent environmental laboratory and the independent third-party data validator. Roles, responsibilities, and required qualifications of these organizations are discussed in the following subsections.

2.1 NYSDEC and NYSDOH

It is the responsibility of the NYSDEC, in conjunction with NYSDOH, to review the Final Engineering Report (FER) and supporting documents, for completeness and conformance with the site-specific cleanup objectives and to make a decision to accept or reject these documents based on this review. The NYSDEC also has the responsibility and authority to review and approve all QA documentation collected during brownfield cleanup construction and to confirm that the QA Plan was followed.

2.2 Applicant

Gowanus Douglass Street LLC ("Applicant") will be responsible for complying with the QA requirements as specified herein and for monitoring and controlling the quality of the Brownfield cleanup either directly or through their designated environmental consultant and/or legal counsel. The Applicant will also have the authority to a select Remedial Action Contractor(s) to assist them in fulfilling these responsibilities. The designated Project Manager is responsible for implementing the project and has the authority to commit the resources necessary to meet project objectives and requirements.

2.3 Environmental Consultant

IEEG is the prime consultant on this project and is responsible for the performance of the services required to implement post remediation Site Management, including, but not limited to, field operations, laboratory testing, data management, data analysis and reporting. Any one member of IEEG's staff may fill more than one of the identified project positions (e.g., field team leader and site safety and health officer). The various quality assurance, field, laboratory and management responsibilities of key project personnel are defined below and the resumes are provided in **Appendix A**.

IEEG Project Manager (PM): Kevin Kleaka

The IEEG PM has the responsibility for ensuring that the project meets the Work Plan objectives. The PM will report directly to the Gowanus Douglass Street LLC's Project Coordinator and the NYSDEC/NYSDOH Project Coordinators and is responsible for technical and project oversight. The PM will:

- Define project objectives and develop a detailed work plan schedule.

- Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task.
- Acquire and apply technical and corporate resources as needed to assure performance within budget and schedule constraints.
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- Review the work performed on each task to assure its quality, responsiveness, and timeliness.
- Review and analyze overall task performance with respect to planned requirements and authorizations.
- Review and approve all deliverables before their submission to NYSDEC.
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- Ultimately be responsible for the preparation and quality of interim and final reports.
- Represent the project team at meetings.

IEEG Field Team Leader (FTL): Ryan Just

The Field Team Leader (FTL) has the responsibility for implementation of specific project tasks identified at the Site, and is responsible for the supervision of project field personnel, subconsultants, and subcontractors. The FTL reports directly to the Project Manager. The FTL will:

- Define daily work activities.
- Orient field staff concerning the project's special considerations.
- Monitor and direct subcontractor personnel.
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness.
- Assure that field activities, including sample collection and handling, are carried out in accordance with this QAPP.

For this project the FTL will also serve as the Site Safety and Health Officer (SSHO). As such, he is responsible for implementing the procedures and required components of the Site Health and Safety Plan (HASP), determining levels of protection needed during field tasks, controlling site entry/exit, briefing the field team and subcontractors on site-specific health and safety issues, and all other responsibilities as identified in the HASP.

IEEG Field Personnel (FS):

The field personnel hold a minimum of a bachelor's degree in a relevant natural or physical science or engineering.

The field personnel will complete the collection of environmental samples from the Site in accordance with the requirements of the remedial investigation work plan and the QAPP, and oversee subcontractor work. The field personnel will:

- Implement sample collection protocols in accordance with applicable procedures for soil, soil vapor and groundwater sample collection.
- Ensure quality control procedures are being implemented.
- Ensure adherence to and successful completion of RIWP tasks.
- Oversee subcontractors to ensure field work is completed in accordance with the RAWP and QAPP.
- Record field notes and provide daily updates on work progress.

2.4 Quality Assurance (QA) Responsibilities

The QA Officer will have direct access to corporate executive staff as necessary, to resolve any QA dispute, and is responsible for auditing the implementation of the QA program in conformance with the demands of specific investigations and IEEG policies, and NYSDEC requirements. The QA Officer has sufficient authority to stop work on the investigation as deemed necessary in the event of serious QA issues. The resume for the QA Officer is provided in **Appendix B**.

IEEG Project QA Officer: Diana Posten

Specific function and duties include:

- Performing QA audits on various phases of the field operations
- Reviewing and approving QA plans and procedures
- Providing QA technical assistance to project staff
- Reporting on the adequacy, status, and effectiveness of the QA program on a regular basis to the Project Manager for technical operations
- Responsible for assuring third party data review of all sample results from the analytical laboratory

2.5 Field Responsibilities

IEEG field staff for this project is drawn from a pool of qualified resources. The Project Manager will use staff to gather and analyze data, and to prepare various task reports and support materials. The designated technical team members are experienced professionals who possess the degree of specialization and technical competence required to effectively and efficiently perform the required work.

3 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall objectives and criteria for assuring quality for this effort are discussed below. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented. The objectives of this QAPP are to address the following:

- The procedures to be used to collect, preserve, package, and transport groundwater samples.
- Field data collection.
- Record keeping.
- Data management
- Chain-of-custody procedures.
- Precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort conformance for sample analysis and data management by Alpha Analytical under EPA analytical methods.

3.1 Level of QC Effort for Sample Parameters

Field blank, method blank, trip blank, field duplicate, laboratory duplicate, laboratory control, standard reference materials (SRM) and matrix spike samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. QC samples are discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents at the facility that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.
- Method blank samples are generated within the laboratory and used to assess contamination resulting from laboratory procedures.
- Duplicate samples are analyzed to check for sampling and analytical reproducibility.
- MS/MSD and MS/Duplicate samples provide information about the effect of the sample matrix on the digestion and measurement methodology. Depending on site-specific circumstances, one MS/MSD or MS/Duplicate should be collected for every 20 or fewer investigative samples to be analyzed for organic and inorganic chemicals of a given matrix.

The general level of QC effort will be one field (blind) duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow site-specific MS/MSD or MS/Duplicate for every 20 or fewer investigative

samples of a given matrix. One trip blank consisting of distilled, deionized water will be included along with each sample delivery group of aqueous VOC samples.

4 SAMPLING AND ANALYSIS PLAN

The selection and rationale for the Site Management sampling program is discussed in the Site Management Plan (SMP) and FER. Methods and protocol to be used to collect environmental samples (i.e., indoor air and groundwater) for Site Management are described in the IEEG Field Operating Procedures (FOPs) presented in **Appendix C**.

The number and types of environmental samples to be collected are summarized in **Table 1.** Sample parameter lists, holding times and sample container requirements are summarized in **Table 2.** The sampling program and related site activities are discussed below. To the extent allowed by existing physical conditions at the facility, sample collection efforts will adhere to the specific methods presented herein. If alternative sampling locations or procedures are implemented in response to facility specific constraints, each will be selected on the basis of meeting data objectives. Such alternatives will be approved by NYSDEC before implementation and subsequently documented for inclusion in the project file.

4.1 Custody Procedures

Sample custody is controlled and maintained through the chain-of-custody procedures. Chain of custody is the means by which the possession and handling of samples will be tracked from the source (field) to their final disposition, the laboratory. A sample is considered to be in a person's custody if it is in the person's possession or it is in the person's view after being in his or her possession or it was in that person's possession and that person has locked it in a vehicle or room. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following section and FOPs for Sampling, Labeling, Storage, and Shipment, located in Appendix B, describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

4.2 Sample Storage

Samples are stored in secure limited-access areas. Walk-in coolers or refrigerators are maintained at 4°C, 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location if necessary.

4.3 Sample Custody

Sample custody is defined by this document as when any of the following occur:

- It is in someone's actual possession.
- It is in someone's view after being in his or her physical possession.

- It was in someone's possession and then locked, sealed or secured in a manner that prevents unsuspected tampering.
- It is placed in a designated and secured area.

Samples are removed from storage areas by the sample custodian or analysts and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure. If required by the applicable regulatory program, internal chain-of-custody is documented in a log by the person moving the samples between laboratory and storage areas.

Laboratory documentation used to establish COC and sample identification may include the following:

- Field COC forms or other paperwork that arrives with the sample.
- The laboratory COC.
- Sample labels or tags are attached to each sample container.
- Sample custody seals.
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist.
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist.
- Sample storage log (same as the laboratory COC).
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

4.4 Sample Tracking

All samples are maintained in the appropriate coolers prior to and after analysis. The analysts remove and return their samples as needed. Samples that require internal COC are relinquished to the analysts by the sample custodians. The analyst and sample custodian must sign the original COC relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original COC returning sample custody to the sample custodian. Sample extracts are relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department tracks internal COC through their logbooks/spreadsheets. Any change in the sample during the time of custody will be noted on the COC (e.g., sample breakage or depletion).

4.5 Field Instrument Calibration

This section describes the calibration procedures and the frequency at which these procedures will be performed for instruments.

4.5.1 Instrument Calibration and Tuning

Calibration of instrumentation is required to ensure that the analytical system is operating correctly and functioning at the proper sensitivity to meet established reporting limits. Each instrument is calibrated with standard solutions appropriate to the type of instrument and the linear range established for the analytical method. The frequency of calibration and the concentration of calibration standards is determined by the manufacturer's guidelines, the analytical method, and/or laboratory's internal Quality Assurance Plan.

4.5.2 Field Instrument Calibration

Calibration of the field instruments will be completed prior to each day's use in accordance with the manufacturer's instructions. The field equipment will be maintained, calibrated and operated in a manner consistent with the manufacturer's guidelines and standard use methods. Quantitative field measurements will be limited to organic vapor readings (Photoionization Detector); pH, conductivity, turbidity, specific conductance, temperature, dissolved oxygen (Horiba); and depth to water (interface probe). The calibration procedures will be conducted at a minimum frequency of once per day with the exception of the interface probe which does not require calibration. Records of calibration, repair or replacement will be filed and maintained by the Field Team Leader.

4.6 Analytical Procedures

A single laboratory will be utilized for analysis of the indoor air and groundwater samples collected during the Site Management field sampling activities. The selected analytical laboratory for this project is Pace Analytical (previously Alpha Analytical) of Melville, New York. Pace is certified by the NYSDOH Environmental Laboratory Approval Program (ELAP) Number 11148. The laboratory analyses will be in accordance with the most recent version of the NYSDEC Analytical Services Protocol (ASP) and the laboratory's internal Quality Assurance Plan. The lab will provide a Category B data deliverable.

The analytical methods Pace will use for samples collected to delineate contaminants during the Site Management include:

Analytical Methods for Indoor Air Samples	
TO-15	VOCs

Analytical Methods for Groundwater/Aqueous Samples	
USEPA Method 8260C	TCL/TAL VOCs
USEPA Method 8270D	TCL/TAL SVOCs

Pace has provided a series of tables that contain the analytical parameters for indoor air and ground water, with the applicable reporting limits, method detection limits, containers and hold times. The Pace tables are provided in **Appendix D**.

4.7 Data Usability Evaluation

The analytical laboratory data package will be validated by Stella Cuenco with Laboratory Data Consultants, Inc. of Carlsbad, CA (LDC, Inc.), an independent/third-party data validator subcontractor, in accordance with the NYSDEC Division of Environmental Remediation DER-10, Appendix 2B(b) DEC Analytical Services Protocol Category B Data Deliverable. Refer to **Appendix E** for resume of the third-party data validator.

4.7.1 Procedures Used to Evaluate Data Usability

The sample analytical data for each sample matrix shall be evaluated and include, but are not limited to:

- Lab Report Narrative Review
- Data Package Completeness and COC records
- Sample Preservation and Holding Times
- Initial and Continuing Calibration
- QC Blanks
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Surrogate Spikes
- Internal Standard Response and Retention Times
- Laboratory Duplicates
- Field Duplicates
- Raw Data (chromatograms), Calculation Checks and Transcription Verifications
- Reporting Limits

4.7.2 Data Usability Summary Report (DUSR)

The DUSR will provide an evaluation of the analytical data to determine whether the data meets the criteria of a NYSDEC ASP Category B data deliverable and meets the data quality objectives for the project.

Table 1: Summary of the Proposed Samples and Analyses

Table 1. Site Management Analytical Program Summary
251 Douglass Street, Brooklyn, New York

Sample Media	Number of Samples and QA/QC Blanks					Analyses
	Estimated Field Samples	Duplicates	MS/MSD Samples	Field Blanks	Trip Blanks	
Indoor Air	7	1	0	0	0	VOCs USEPA Method TO-15
Shallow Groundwater Samples Permanent Wells	3	1/20 samples	1/20 samples	1/day minimum, 1/20 samples	1/Cooler Containing Volatiles	TCL/TAL VOCs and TCL/TAL SVOCs
Deep Groundwater Samples Permanent Wells	3	1/20 samples	1/20 samples	1/day minimum, 1/20 samples	1/Cooler Containing Volatiles	TCL/TAL VOCs and TCL/TAL SVOCs

NOTES:

MS = Matrix Spike
MSD = Matrix Spike Duplicate
TAL = Target Analyte List
TCL = Target Compound List
VOCs = Volatile Organic Compounds
SVOCs = Semi Volatile Organic Compounds
TICs - Tentatively Identified Compounds
PCBs - Polychlorinated Biphenyls
PFAS - Per and Polyfluoroalkyl Substances

Table 2: Summary of Sample Parameters, Holding Times and Sample Container Requirements

Table 2. Summary of Sample Parameters, Holding Times and Sample Container Requirements
251 Douglass Street, Brooklyn, New York

Sample Matrix	Test Method	Parameters	Containers	Preservation	Holding Times
Soil - Gas (air) Analysis	USEPA Compendium TO-15	VOCs	6-Liter Summa Canister	Summa - NA	15 Days
Groundwater	USEPA SW846 Method 8260C	TCL VOC+TICs	3 - 40ml VOA Vials	HCL, pH<2, 4 °C	14 days
	USEPA SW846 Method 8270D	TCL SVOCs+TICs	2 - 1000 ml glass	4 °C	7 Days (extraction)

Appendix A:
Key Project Personnel Resumes

KEVIN KLEAKA, P.G.

Executive Vice President/Senior Environmental Scientist

23 years EXPERIENCE

EDUCATION

State University of New York at Plattsburg,
Bachelor of Science in Environmental Science, 1995 Applied Environmental Science Program

EXPERIENCE

(1997-Present) **– IMPACT ENVIRONMENTAL CLOSURES Inc.,**
Executive Vice President, Senior Environmental Scientist

- Principally responsible for managing environmental assessment, investigation, construction and remediation projects in commercial and industrial markets for lenders, real estate investment/development firms, construction firms and government agencies.
- Manage Phase I and II Environmental Site Assessments, State Spill Investigation and Remediation, County and Federal Underground Injection Control Programs, State & City Voluntary/Brownfield Cleanup Programs, State & Federal Superfund Sites, Brownfield Environmental Restoration Programs, Federal RCRA Closure, City E-Designation Projects.
- Responsible for environmental compliance of construction projects for waste management.
- Quality control of work products and deliverables.
- Supervise staff of geologists, hydrogeologists, engineers, environmental scientists, and environmental technicians to develop and implement sampling and analysis plans, quality assurance programs, remedial action plans.
- Provide expert witness testimony/fact statements and support in litigation cases involving soil, air and/or groundwater pollution.

(1995-1997) – **WYETH AYERST LABORATORIES**, Chemist worked in chromatographic separations division performing quality assurance analysis.

- Performed laboratory procedures and analyses in accordance with USFDA analytical test methods by liquid, gas, and thin layer chromatography.

KEY PROJECTS

- East Side Access MTA LIRR
- Melody Cleaners
- ExxonMobil Spill- Valley Stream, NY
- Spartan Petroleum
- JFK 1020, Runway 13R-31L
- Rheingold Brewery Redevelopment Project
- WTC Greenwich Street Corridor Reconstruction
- Yankee Stadium Macomb's Park

ORGANIZATIONS

- New York City Brownfield Partnership
- New Partners for Community Revitalization
- ASTM Committee
- National Groundwater Association
- Environmental Bankers Association
- Vapor Intrusion Network
- Long Island Geologist Association
- Environmental Consulting Professionals
- Environmental Insurance Professionals

CERTIFICATIONS/ ACHIEVEMENTS

- Licensed Profession Geologist (NYS# 000735)
- Gold Certified Brownfield Professional 2012
- Advanced Tools for In-Situ Remediation Workshop
- ASTM Technical & Professional Training for Assessment of Vapor Intrusion into Structures of Property & New York State Department of Health, Vapor Intrusion Training
- New York Precision Equipment Global Survey Positioning Training
- MTBE & TBA Comprehensive Site Assessment and Successful Groundwater Remediation
- Environmental Data Resources, Due Diligence Workshop
- Advanced Technologies for Accelerated Natural Attenuation
- Eophysical Survey Systems, Theory and Practice of Applying Subsurface Interface Radar in Engineering and Geophysical Investigation.
- 40-Hour Occupational Safety & Health Administration

Diana Posten

Project Manager 2

17 years EXPERIENCE

EDUCATION

Bachelor of Science, Environmental Science and Management - University of Rhode Island, England (2008)

EXPERIENCE

Impact Environmental Closures | Bohemia, NY
Project Manager (2017-Present)

- Mrs. Posten has seventeen years of experience in various aspects of environmental investigations, including services related to soil, groundwater and soil vapor characterization, soil, groundwater and soil vapor remediation and underground storage tank (UST) closures. Mrs. Posten also has experience in construction phase related projects and has overseen and received Certificate of Completion's (COCs) for numerous State and City Voluntary and Brownfields Cleanup Program Sites.
- In her capacity as a Project Manager, Mrs. Posten performs Phase I and Phase II environmental site assessments, State and City Remedial Action Plans, remedial investigations and remediation activities. Mrs. Posten has overseen numerous types of drilling techniques, including air rotary, direct-push, and hollow-stem augers. Mrs. Posten has supervised and/or conducted various sampling and remediation activities, including soil/groundwater sampling, subsurface vapor sampling, ambient air sampling, UST Closure activities, remedial excavation activities, and remediation system installations. Additional experience includes the implementation of In-Situ Solidification/Stabilization to address the mobilization of coal tar.

ELM Group | Princeton, NJ
Junior Project Manager/Environmental Specialist (2014-2017)

- Completed state permit forms to ensure that land use/redevelopment/site remediation project designs complied with all applicable regulations (various sites throughout NJ).
- Executed a variety of field sampling programs in accordance with NJDEP QA/QC protocols (Field Sampling Procedures Manual), and project-specific Quality Assurance Project Plans (QAPP)s which covered Remedial Action projects and Remedial Investigation projects.
- Authored technical reports; ASTM Phase I, Preliminary Assessment Reports, Remedial Investigation Reports and Remedial Action Reports.

Clough Harbor & Associates LLP | Rocky Hill, CT
Environmental Consultant (2009-2014)

- Support Utility-based clients with power system and circuit design. Work included circuit voltage conversions, MAOP calculations, configuration and design of new feeders from substations, distribution improvement projects, feeder hardening, and storm restoration work during hurricane Sandy.

KEY PROJECTS

- 585 Union Street, Brooklyn, NY.
  - NYSDEC Brownfields Cleanup Program (BCP) Remediation: Oversight, Reporting, Agency, client and developer coordination and COC.
- RCRA Closure projects, activities and reports.
- Phase I Environmental Site Assessments (NY and NJ) on various types of properties including vacant land, agricultural, multi-family residential, commercial, and industrial uses.
- Numerous NYSDEC Spill Case Sites, remedial actions, quarterly sampling and coordination, and Spill Closures.
- Numerous NYSDEC Spill Case Sites, remedial actions, quarterly sampling and coordination, and Spill Closures.
- 72-01 Queens Boulevard, Woodside, NY.
  - OER E-Designation Site; excavation, oversight of engineering controls, reporting, agency and client communications and COC.

CERTIFICATIONS/ ACHIEVEMENTS

- NSCS National honor society chapter at URI
- Certification of Completion for Scientific and Technical Writing
- Rutgers' Office of Continued Professional Education courses in; Hydrology, Geology and Chemistry, Regulatory Training on Underground Storage Tanks, Effective Environmental Field Sampling and Data Collection, and Practical Applications in Hydrology.
- OSHA 40-hour HAZWOPER Training
- OSHA 8-hour Refresher (2007-to-present)
- OSHA 10-hour Construction Training (2016)
- BIG Apple Brownfields Award Recipient for Green Property Development (Bright n' Green Condominium Project)

Appendix B:
Project QA Officer Resume

RYAN JUST

Environmental Scientist 2

2 years EXPERIENCE

EDUCATION

Bachelor of Science, Environmental Science & Chemistry, The State University of New York at Binghamton (2022)

EXPERIENCE

Impact Environmental | Bohemia, NY

Environmental Scientist (Aug 2023 - Present)

- Conducted visual inspections and reporting of Phase I & II Environmental Site Assessments.
- Performed various methods of soil, air and groundwater sampling, groundwater monitoring, well purging & sampling, and soil vapor sampling.
- Conducted environmental investigative work such as soil borings, groundwater well installations and decommissioning, with sampling and data analysis.
- Performed Underground Storage Tank removal oversight and soil screening.
- Conducted oversight of in-situ stabilization (ISS) operations.
- Community Air Monitoring Programs and subsequent reporting and documentation of construction projects
- General Environmental Supervision and Reporting of Brownfield and other Environmental Cleanup sites.

KEY PROJECTS

- Gowanus Wharf Development Project
- Environmental Cleanup Dzus Fastener Company – West Islip, NY

CERTIFICATIONS/ ACHIEVEMENTS

- OSHA 40-hour HAZWOPER Training
- OSHA 30-hour Construction Training

SKILLS

- Proficient with Microsoft Word, Power Point, Excel.
- Knowledge of EQuIS Software.
- Knowledge of ArcGIS.
- Analytical data interpretation.

Appendix C:
Field Operating Procedures

FIELD OPERATING PROCEDURES

B.1 FIELD SAMPLING PROCEDURES

B.1.1 Sampling Personnel

The activities associated with the remedial investigation will be performed by or under the auspices of a Quality Assurance Officer. The sample staff (samplers) will possess a minimum of a BA Degree in the Earth, Space or Biological Sciences or a BS Degree in Engineering. Samplers will have a minimum of one (1) year experience in environmental/geological fieldwork. Additionally, all samplers will have received mandatory forty-hour Occupational Safety and Health Administration (OSHA) training on working with potentially hazardous materials and appropriate Hazard Communication Program and "Right-To-Know" training.

B.1.8 Permanent Well Installation

Permanent monitoring wells are installed to provide repeated access to groundwater for collecting samples, as well as for obtaining water-level and other field data. Because monitoring wells are used to collect samples, it is important that construction materials not interfere with sample quality either by contributing contaminants or by sorbing contaminants already present. Further, construction materials must be compatible with (i.e., not degraded by) contaminants present in soils or groundwater.

Monitoring wells are potential contaminant migration routes between aquifers or from the surface to the subsurface. Construction procedures and standards must ensure that neither passive nor active introduction of contaminants can occur. Properly installed hydraulic seals and locking well covers reduce the potential for cross-contamination of monitoring wells.

Equipment needed:

- Drilling or auguring equipment appropriate to site conditions, drilling depth, and other project requirements.
- Drill bits appropriate for the expected soil and rock type(s) to be encountered.
- Sufficient threaded flush-joint riser pipe of an approved material [stainless steel, polyvinyl chloride (PVC)] in convenient lengths. *(NOTE: No glues are permitted.)*
- Sufficient threaded flush-joint slotted screen of an approved material (stainless steel, PVC) to meet design criteria. *(NOTE: No glues are permitted.)*
- Properly sized and washed filter pack material (quartz sand) in sufficient volume to meet well design criteria.
- Powdered bentonite.
- Photoionization detector.
- Steel surface casing (if required).
- Steel protective casing with locking cap.
- Tremie pump and pipe.
- Protective clothing, as required.
- Weighted measuring tape.

The following steps will be followed when installing monitor wells:

1. Advance the borehole to the required depth using a bit or auger flight of a diameter sufficient to allow for insertion of the tremie pipe when the casing is centered. It is preferred that the borehole be at least 2 inches in diameter larger than the casing diameter. The borehole should be drilled slightly deeper than required for the combined length of casing and screen. The final completion depth should be sounded with a decontaminated, weighted tape before continuance of well placement.

2. Make up the screen for installation. The casing and screen must be decontaminated. Tighten joints.
3. Withdraw the drill rods and bit through the auger flights. Check the borehole depth with a weighted surveyor's tape.
4. Lower the casing string into the drill casing.
5. Install the filter pack. Six inches or more of filter pack material should be spotted at the bottom of the hole, under the screen. Filter pack will be installed to 2 - 3 feet above the top of the screen.
6. Check the depth to the top of the filter pack with a weighted tape.
7. Tremie, or for shallow wells (<35 feet), gravity feed bentonite onto the top of the filter pack.
8. Pure bentonite grout (or equivalent) will be used as the annular seal, grout will be mechanically mixed with the appropriate amount of water. For shallow wells (<35 feet) granular bentonite may be substituted for grout.
9. Tremie the grout into the annulus using a tremie. Slowly withdraw the tremie pipe as the annulus fills. Grout the well to within 1 foot of the surface. Compare actual volume of grout placed with calculated volume. Both should be annotated in the field logbook.
10. After installing grout, dismantle and clean tremie equipment.
11. Finish the concrete pad so that it slopes away from the wellhead in all directions with a minimum thickness of 4 inches. If weather conditions warrant, cover the concrete until cured. Lock the well cover.
12. If the well design specified guard posts, dig the holes and set the guard posts in concrete separate from the concrete pad. Posts and concrete must extend to a depth of 2 feet.
13. Record the appropriate construction/completion information in the field logbook and on the appropriate monitoring well installation.
14. If a form was used for the concrete pad, return to the well site after the concrete has cured for at least 24 hours and remove the form. Backfill around the pad with native soil. Drill a weep hole for protective casing and just above the concrete pad.
15. The well identification should be marked on the protective casing and PVC cap. Paint the well cover and posts, if required.

B.1.9 Well Development

Monitor wells are developed to remove fines from the filter pack. Wells should not be developed for 24 hours after completion when a bentonite grout is used to seal the annular space. However, wells may be developed before grouting if conditions warrant. Wells are purged immediately before groundwater sampling to remove stagnant water and a sample representative of groundwater conditions. Wells should be sampled within 3 hours of purging (optimum) to 24 hours after purging (maximum, for low recharge conditions).

Equipment needed:

- Pump, pump tubing, or bailer and rope or wire line
- Water-level meter
- Temperature, conductivity and pH meters
- Personnel protective equipment as specified in the site-specific HASP
- Decontamination supplies
- Disposal drums, if required
- Photoionization Detector

Procedures.

The following steps will be followed when developing wells:

1. Put on personnel protective clothing and equipment as specified in the site-specific HASP.
2. Open and check the condition of the wellhead, including the condition of the surveyed reference mark, if any. Use photoionization detector at wellhead to determine the presence of VOCs (if applicable).
3. Determine the depth to static water level and depth to bottom of the casing.
4. Prepare the necessary equipment for developing the well. There are a number of techniques that can be used to develop a well. Some of the more common methods are bailing, surging and purge, and over pumping.
5. Continue well development until produced water is clear and free of suspended solids.
6. Remove the pump assembly or bailers from the well, decontaminate, and cleanup the site.
7. Lock the well cover before leaving. Dispose of produced water as required by the project work plan.

B.1.10 Monitoring Well Sampling

Monitoring well sampling is conducted with the goal of collecting data representative of groundwater conditions in the subsurface. The data obtained from a sampling event is typically very important for decision making, as it may be used to identify the presence of constituents of concern in groundwater, monitor the performance of a remedial measure, or evaluate the risks to potential receptors.

A written site specific monitoring or sampling plan is typically available that identifies the frequency of sampling, the wells to be monitored, equipment to be used, required laboratory analytical methods and parameters, sampling procedures, equipment decontamination procedures, sample quality

assurance/quality control (QA/QC) measures and data reporting requirements. Each monitoring or sampling plan will vary from one site to the next and should be reviewed when planning for a monitoring well sampling event.

Equipment:

The following is a list of standard equipment needed to conduct monitoring well sampling. Additional equipment may be required based on the sampling techniques and site conditions.

- Health and Safety Plan (HASP)
- Field Book
- Personal Protective Equipment
- Decontamination Equipment
- Traffic Control Devices
- Polyethylene Sheeting
- Bailers
- String
- Pumps
- Power Source to Operate Pumps
- Water Level Meter
- Tubing
- Buckets
- Sample Bottles
- Cooler
- Ice
- Bubble Wrap
- Calculator
- Disposable gloves

Procedures

Monitoring Well Gauging

Monitoring wells are typically gauged before sampling. Gauging includes measuring the depth to water (and/or non-aqueous phase liquids) and depth to bottom in the monitoring well with an electronic water level meter (WLM) or electronic interface probe (EIP). An EIP is used to gauge a well that contains non-aqueous phase liquids (NAPL-floating product). If wells do not contain NAPL, then a WLM is sufficient. The list of monitoring wells to be gauged should be provided in the monitoring or sampling plan and listed on the PTA. The entire network of monitoring wells should be gauged before sampling begins.

Sample Bottles

Groundwater samples are collected into laboratory supplied bottles. Bottles are typically ordered from the laboratory in advance of the sampling event. The size, bottle material (glass, plastic), and number of

bottles required for each sample will depend on the constituents being analyzed for and the analytical methods. Bottles delivered from the laboratory may contain a small amount of preservative. The preservative is to remain in the bottle. Overfilling the bottle may result in dilution of the preservative and should be avoided. When sampling for volatile compounds, no air (bubbles) may be present in the sample bottle.

Sampling Techniques

Many different techniques exist for sampling monitoring wells. The techniques vary depending on the constituents of concern, depth to groundwater, diameter of monitoring well and regulatory requirements. The technique appropriate for a specific site should be identified in the monitoring and sampling plan

Purging

Many of the sampling techniques include purging the monitoring well prior to sample collection. Purging is indented to remove stagnant water from the monitoring well after which a representative sample of the groundwater from the subsurface can be collected. During purging, three to five volumes of standing water in the well are removed. The volume of water in a monitoring can be calculated using the following equation:

Feet of standing water in well * Conversion factor = 1 well volume

Example:
10' * 0.65 = 6.5 gallons (1 well volume)

Well Diameter (in inches)	Conversion Factor
½	0.01
1	0.04
2	0.16
3	0.37
4	0.65
6	1.50

Purge water must be managed in accordance with the monitoring or sampling plan and local regulations.

Field Monitoring

Monitor indicator parameters (main indicator parameter for VOCs is DO) during purging, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh and DO) at three to five-minute intervals. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows:

1. 50 NTUs for turbidity

+/-0.1 for pH

2. +/-3% for conductance
3. +/-10 mv for redox potential
4. +/-10% for DO and turbidity

Sample Chain of Custody

The chain of custody (COC) form is used to record the inventory of samples to be delivered to the laboratory and document the transfer of custody from the sampler to the laboratory. All samples, including QA/QC samples, to be delivered to the laboratory must be listed on the COC along with requested analytical methods and parameters. The COC is to remain with the samples from the time of collection until receipt at the laboratory.

Sample Handling, Storage and Shipment Samples should be stored in laboratory-supplied coolers immediately after sampling. The cooler must contain ice in order to bring the temperature of the sample to 4 degrees Celsius. Samples must remain on ice until received by the laboratory. Care must be exercised to ensure that bottles do not break during handling of the cooler. Glass-on-glass contact often leads to breakage and should be avoided by wrapping each bottle in bubble wrap material.

Samples are to be delivered to the laboratory in coolers as soon as possible after collection. Each laboratory analytical method has a unique holding time, which is defined as the maximum time between sample collection and analysis by the laboratory. Samples analyzed after the hold time are usually considered invalid. Hold times may vary from one day to 6 months depending on the laboratory analytical methods. Holding time information can be obtained from the laboratory. It is the responsibility of the sampler to confirm that the delivery method will ensure receipt of the samples by the laboratory within the allotted holding time.

Sample delivery options include: shipment by common courier, personal delivery to the laboratory and delivery by the laboratory's courier service. Each laboratory may have a preferred sample delivery process. Coolers must be packed with sufficient amounts of ice and bubble wrap material to ensure the samples will be received by the laboratory intact and at an acceptable temperature. A custody seal, provided by the laboratory, should be placed over the opening between the lid and the base of the cooler, and the seal ID number recorded on the chain of custody form. The custody seal provides a means of alerting the laboratory if the cooler has been opened, and potentially tampered with, between the time it was sealed by the sampler and received by the laboratory. Guidance on cooler packing may be obtained from the laboratory.

Decontamination

Decontamination is necessary to avoid cross-contaminating samples. Sampling equipment that is not dedicated to a specific well must be decontaminated before sampling and after each sample is collected. Decontamination procedures may be specific to the site's monitoring or sampling plan. Typical equipment decontamination procedures may include rinses in the following sequence:

1) Tap water rinse
2) Alconox rinse
3) Tap Water Rinse
4) Deionized water rinse

When possible, samples should be collected from the least contaminated wells first and progress onto the more contaminated wells in order to reduce chances of sample cross-contamination.

Documenting a Monitoring Well Sampling Event

Information from the monitoring well sampling event must be documented on a field data form or recorded in the site-specific field book. Information to be recorded includes weather conditions, well integrity issues, well gauging information, purge volumes, sampling equipment and supplies used, sample identifications, sample collection times and the presence of any conditions that may compromise the integrity of the samples.

B.1.11 Low Flow Well Purging and Sampling

Purpose

The purpose of the low flow (low formation stress) purging and sampling procedure is to collect groundwater samples from monitoring wells that are representative of ground water conditions in a particular geological formation. This is accomplished by setting the intake velocity of the sampling pump to a flow rate, which limits drawdown inside the well casing. The placement of the intake of the sampling pump should be midway within the most permeable zone of the formation.

Equipment

- Pump system (adjustable rate, positive displacement groundwater sampling pump e.g., bladder or centrifugal pump)
- Control box (with or without a built-in compressor)
- Compressed Nitrogen tank (if necessary)
- Indicator parameter monitoring device(s)

- Flow measurement device (Flow cell)
- Personal Protection Equipment (PPE)
- Field Book
- Health and Safety Plan (HASP)
- Tools to access monitoring wells
- Disposable gloves
- Kevlar gloves
- Safety cones
- Sample containers (provided by laboratory)
- Chains of Custody (provided by laboratory)
- Blank or Pre-printed labels
- Glassware with appropriate preservative (provided by the laboratory)
- Ice
- Calculator
- Adsorbent pads
- Electronic interface probe
- Decontamination equipment
- String
- Appropriate size bailers
- Tubing (preferably Teflon for organics)

Procedure

Remove the gripper cap at all well locations and allow the water table to equilibrate, take care to secure all wells by closing the flush mount covers. Start sampling at the well-known or believed to have the least contamination and systematically to the most contaminated well, remembering to conduct proper decon procedure. During gauging and sampling activities equipment should not come into direct contact with the ground surface, plastic sheeting may be utilized as a clean and disposable working surface.

Slowly lower the pump to the depth specified for that well, the pump intake should never be set within two feet of the bottom of any well. This prevents disturbance and resuspension of any sediment. Record the depth of the pump intake. Re-measure the water level and begin purging, keeping the purge rate within 200-500 millimeters per minute (ml/min). Water level should be measured and recorded at three to five-minute intervals. Ideally, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 ft or less is desired). Monitor indicator parameters (main indicator parameter for VOCs is DO) during purging, monitor and record the field indicator parameters (turbidity, temperature,

specific conductance, pH, Eh and DO) at three to five-minute intervals. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows:

1. 50 NTUs for turbidity
2. +/-0.1 for pH
3. +/-3% for conductance
4. +/-10 mv for redox potential
5. +/-10% for DO

Collect sample from dedicated or disposable tubing. Remove any non-dedicated equipment from the well. Secure all wells. Fill out the chain of custody. At the end of the sampling day, coolers will be taped shut with the custodian's initials placed on custody seals at points of entry. Samples will be shipped via lab courier to the contract laboratory for morning delivery, picked up by courier or delivered directly to the laboratory by the field personnel at the end of the sampling day.

Contact with the laboratory will be made within 24 hours after each sampling event to ensure that samples arrived safely and with proper integrity preserved.

B.2 QA/QC FIELD PROCEDURES

B.2.1 Decontamination Procedures

Prior to arrival on the Site and between sample locations, the probes will be decontaminated by steam cleaning, Alconox wash, and rinsing with distilled water. This will be followed by air drying as per project requirements. All sampling apparatus will be dedicated or disposable. A clean, new liner will be used for each sample. Parts will be inspected for wear and damage before each use.

B.2.2 Field Blanks

A field blank is a sample of analyte-free water transferred, at the project site, into an appropriate container for the purpose of distinguishing ambient air contamination from in-situ sample contamination. Field blanks are used to indicate potential cross contamination from sampling equipment as quality control of decontamination procedures. With regards to field sampling, one field blank will be collected for every work day. The procedures for obtaining a field blank sample are as follows:

- Collect two sets of sample vessels. One vessel shall contain analyte free water and the other is empty.
- Run the analyte free water through the decontaminated sampling equipment into the empty vessel. Analye the water of this collecting vessel for target analytes.

B.2.3 Trip Blanks

A trip blank is used to identify the presence of volatile compound contamination attributable to transfer across a sample container septum during shipping and storage of samples. A trip blank is a sample of analyte-free matrix that is transported from the laboratory to the sampling site with the sample containers. The trip blank is stored on-site with the sample containers and field samples and then transported back to the laboratory with the samples for analysis. The trip blank is received and processed as a sample by the laboratory. One trip blank shall be submitted per pickup from laboratory personnel.

B.2.4 Duplicate Samples

Duplicate sample collection will apply to groundwater, soil, soil vapor and ambient air samples collected at this Site. A duplicate (replicate) sample is collected to control the general sampling methodology that is being employed. This sample ensures that a representative sample is being collected. Duplicate samples may also be submitted to verify the accuracy of analytical results.

B.2.5 Matrix Spike/Matrix Spike Duplicate Samples

Matrix Spike/Matrix Spike Duplicate sample collection will apply to groundwater samples collected at this Site. A Matrix Spike and Spike Duplicate (MS/MSD) sample(s) are representative but randomly chosen client samples that have known concentrations of analytes of interest added to the samples prior to sample preparation and analysis. They are processed along with the same un-spiked sample. The purpose of the MS/MSD is to document the accuracy and precision of the method for that specific sample.

B.3 Record Keeping and Documentation Procedures

B.3.1 Sampling Documentation

The sample team or individual performing an activity shall be required to keep a weatherproof Site field notebook. The Site field notebook will be used on-site to record notes pertaining to the field sampling plan. Field notebooks are intended to provide sufficient data and observations to enable participants to reconstruct events that occurred during projects and to refresh the memory of the field personnel if called upon to give testimony during legal proceedings. In a legal proceeding, notes, if referred to, are subject to cross-examination and are admissible as evidence. The field notebook entries should be factual, detailed, and objective. All entries are to be signed and dated. All members of the field investigation team are to use this notebook, which shall be kept as a permanent record. The field notebook shall be filled out at the location of sample collection immediately after sampling. It shall contain sample descriptions including: sample number, sample collection time, sample location, sample description, sampling method used, daily weather conditions, field measurements, name of sampler, and other site-specific observations. The field notebook shall contain any deviations from the protocol contained herein, visitor's names, and community contacts made during sampling, and geologic and other site-specific information that may be noteworthy.

B.3.2 Sample Containers and Analytical Requirements

All sample vessels will be "level A" certified decontaminated containers supplied by a New York State Certified Commercial Laboratory. Samples analyzed for hydrocarbons will be placed in containers with Teflon lined caps. All samples will be preserved by cooling them to a temperature of approximately four degrees Celsius. If glass bottles are used, extra glass bottles will be obtained from the laboratory to allow for accidental breakage that may occur. Necessary preservatives will be placed in the sample bottles by the laboratory. The sample bottles will be handled carefully so that preservatives and glassware are not inadvertently spilled. All liquid samples will be put into 40-ml glass vials with Teflon liners.

B.3.3 Sample Tracking System

In order to provide for proper identification in the field, and proper tracking in the laboratory, all samples must be labeled clear and in a consistent fashion using the procedures and protocols described below and with the following subsections.

Sample labels will be waterproof and have a pre-assigned, unique number that is indelible.

Field personnel must maintain a field notebook. This notebook must be water resistant with sequentially numbered pages. Field activities shall be sequentially recorded at a later time. The notebook, along with the chain of custody form, must contain sufficient information to allow reconstruction of the sample collection and handling procedure at a later time. Each sample shall have a corresponding notebook entry that includes:

- Sample ID number
- Well location and number
- Date and time
- Analysis for which sample was collected
- Additional comments as necessary
- Sampler's name

Each sample must have a corresponding notebook entry on a chain-of-custody form. The manifest entry for sampling at any one location is to be completed before sampling is initiated by the same sampling team at any other location. In cases where the samples leave the immediate control of the sampling team, the samples must be sealed.

B.3.4 Sample Identification System

Each sample collected shall be designated by an alphanumeric code that shall identify the type of sampling location, the specific location, the matrix sampled, and a specific sample designation. Site specific procedures are described below.

Sample identifications shall contain a sequential code consisting of three segments. The first segment shall designate the project number. The second segment shall identify the location type. Location types shall be identified by a two-letter code. For example, MW will be used for monitoring well and GP for geoprobe. The third segment shall identify the specific sample location. The specific sampling location shall be identified using a three-digit number.

The fourth segment shall identify the matrix type and sample designation or identifier that identifies the sample depth, the sample event number, or other designation depending on the sample type. The matrix type shall be designated by a two-letter code. For example: GW will be used for groundwater. The sample identifier shall be represented by a two digit numeric code. Sampling events or rounds, such as for groundwater sampling shall be numbered in sequence beginning with "01" that corresponds to the round of sampling.

The following shall be a general guide for sample identification:

First Segment	Second Segment	Third Segment	Fourth Segment
NNN	AA	NNN	AANN
Project #	Location Type	Specific Type	Matrix Sample Identifier
455	GP	1	GW01

Symbol Definitions:	Location Type:	Matrix Type:
A = Alphabetic	MW = Monitoring Well	S = Soil
N = Numeric	GP = Geoprobe	GW = Groundwater

B.3.5 Sample Transfer

Samples shall be containerized and immediately transferred within a cooler to the mobile laboratory with minimal disturbance. Chain-of-custody forms will be completed at the time of sample collection and will accompany the samples inside a cooler for transfer from sample team to mobile laboratory representatives.

B.3.6 Chain-of-Custody Protocol

The primary objective of the sample custody procedures is to create an accurate written record that can be used to trace the possession and handling of all samples from the moment of their collection, through analysis, until their final disposition. Sample custody for samples collected during the investigation will be maintained by the field personnel collecting the samples. Field personnel are responsible for documenting each sample transfer and maintaining custody of all samples until they are transferred to the mobile laboratory.

Appendix D:

Analytical Parameter Summary Tables

Table 1. Site Management Analytical Program Summary
251 Douglass Street, Brooklyn, New York

Sample Media	Number of Samples and QA/QC Blanks					Analyses
	Estimated Field Samples	Duplicates	MS/MSD Samples	Field Blanks	Trip Blanks	
Indoor Air	7	1	0	0	0	VOCs USEPA Method TO-15
Shallow Groundwater Samples Permanent Wells	3	1/20 samples	1/20 samples	1/day minimum, 1/20 samples	1/Cooler Containing Volatiles	TCL/TAL VOCs and TCL/TAL SVOCs
Deep Groundwater Samples Permanent Wells	3	1/20 samples	1/20 samples	1/day minimum, 1/20 samples	1/Cooler Containing Volatiles	TCL/TAL VOCs and TCL/TAL SVOCs

NOTES:

MS = Matrix Spike
MSD = Matrix Spike Duplicate
TAL = Target Analyte List
TCL = Target Compound List
VOCs = Volatile Organic Compounds
SVOCs = Semi Volatile Organic Compounds
TICs - Tentatively Identified Compounds
PCBs - Polychlorinated Biphenyls
PFAS - Per and Polyfluoroalkyl Substances

Appendix E:
Third Party Data Validator

LABORATORY DATA CONSULTANTS, INC.
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RESUME
STELLA S. CUENCO

EDUCATION

B.S. Chemistry, 1991
University of the Philippines (UP)

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Senior Chemist
1996 to present

Ceimic Corporation
GC/MS Chemist
1996

Analytical Technologies, Inc.
GC/MS VOA Group Leader
1992 to 1996

Analytical Technologies, Inc.
GC/MS Chemist
1991 to 1992

Natural Products Research, UP
Research Assistant
1990 to 1991

REPRESENTATIVE EXPERIENCE

Ms. Cuenco has over 27 years combined environmental laboratory and data validation experience. Her experience includes performance of data validation in the GC and GC/MS areas for major Federal projects. She has performed large validation projects under Boeing, Navy Southwest, Northwest and Pacific Division, EPA Region IX ESAT, USACE and AFCEE/AFCEC programs. Her laboratory experience includes hands-on CLP and EPA analysis of GC and GC/MS volatile organic compounds.

Specifically, Ms. Cuenco has over 22 years organic data validation experience using USEPA (including Region III) functional guidelines and other applicable documents.

- As senior chemist with LDC, Ms. Cuenco specializes in the data validation and contract compliance screening of gas chromatography-mass spectrometry analyses as well as gas chromatography analyses. She has a thorough knowledge and understanding of gas chromatography and gas chromatography-mass spectrometry (GCMS) and high resolution GCMS methods referenced in EPA CLP, SW-846, EPA 500, 600 and 1600 series documents. She has performed large data validation under Boeing, Navy Southwest and Pacific Divisions and EPA Region IX ESAT, USACE and AFCEE/AFCEC projects.

Ms. Cuenco has over 5 years experience in an environmental laboratory performing the analysis of organic parameters.

- As GC/MS chemist at Ceimic Corporation, a full service environmental analytical chemistry facility, Ms. Cuenco performed GC and GC/MS volatile analyses. She was responsible for the final reporting of analytical data for this section.

- As GC/MS VOA Group Leader at Analytical Technologies Inc., a full service environmental analytical chemistry facility, Ms. Cuenco was responsible for all GC/MS functions which included overseeing daily operations, training staff, final reporting of analytical data, and compliance with method requirements.

- As research assistant at Natural Products Research, UP, Ms. Cuenco researched chemical literature for plants with known medicinal properties as well as performed microbiological and pharmacological tests on plant extracts.

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RESUME
PEI GENG

EDUCATION

M.S. Organic Chemistry, 1989
Sam Houston State University

B.S. Environmental Chemistry, 1983
Nankai University

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Senior Chemist
1997 to present

Ceimic Corporation
GC/MS and GC Chemist
1996 to 1997

PACE Analytical Service Inc.
GC/MS and GC Chemist
1990 to 1996

REPRESENTATIVE EXPERIENCE

Ms. Geng has over 28 years combined environmental laboratory and data validation experience. Her experience includes performance of data validation in the GC and GC/MS areas for major Federal projects. She has performed large validation projects under Boeing, Navy Southwest, Northwest and Pacific Division, EPA Region IX ESAT, USACE and AFCEE/AFCEC programs. Her laboratory experience includes hands-on CLP and EPA analysis of GC and GC/MS volatile organic compounds.

Specifically, Ms. Geng has over 21 years organic data validation experience using USEPA CLP (including Region III) functional guidelines and other applicable documents.

- As chemist with LDC, Ms. Geng specializes in the data validation and contract compliance screening of gas chromatography-mass spectrometry analyses as well as gas chromatography analyses. She has a thorough knowledge and understanding of gas chromatography and gas chromatography-mass spectrometry (GCMS) and high resolution GCMS methods referenced in EPA CLP, SW-846, EPA 500, 600 and 1600 series documents. She has performed large data validation under Boeing, Navy Southwest and Pacific Divisions and EPA Region IX ESAT, USACE and AFCEE/AFCEC projects.

Ms. Geng has over 7 years of experience in an environmental laboratory performing the analysis of organic parameters.

- As both a GC and GC/MS chemist at Ceimic Corporation, a full service environmental analytical chemistry facility, Ms. Geng performed GC and GC/MS volatile and semivolatile analyses.

- As both a GC and GC/MS chemist at PACE Analytical Service Inc., a full service environmental analytical chemistry facility, Ms. Geng performed GC and GC/MS volatile and semivolatile analyses as well as overseeing the final reporting of analytical data, and compliance with method requirements.

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RESUME
RICHARD M. AMANO

EDUCATION

B.S. Biochemistry
University of California, Los Angeles, 1979

A.A. Chemistry
El Camino College, 1977

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Program Manager/Principal Scientist
2011-present
President/Principal Chemist,
1991 to 2011

Analytical Technologies, Inc
Laboratory Director
1986 to 1991

Brown & Caldwell
Laboratory Supervisor
1983 to 1986

West Coast Technical Service
Senior Chemist
1980 to 1983

University of California, Los Angeles
Laboratory Technician
1979 to 1980

REPRESENTATIVE EXPERIENCE

Mr. Amano has over 38 years of combined environmental laboratory, QA/QC, laboratory auditing, data management, environmental software development, and data validation experience. Prior to founding LDC in 1991, he directed to two major laboratories, Analytical Technologies, Inc. (San Diego) and Brown and Caldwell. His experience includes oversight and direction of major QA/QC and data validation efforts for confidential petroleum spill projects, Boeing sites, Superfund sites, DoE sites, Navy RI/FS projects, Army Corps of Engineers investigations, and AFCEE/AFCEC projects. He has also overseen several laboratory audits for major analytical testing programs and large scale environmental software development for the US Army Corps of Engineers (USACE).

Specifically, Mr. Amano has over 26 years of experience with validation of organic, inorganic, and radiochemical analyses using USEPA, Navy, USACE, DoD, AFCEE/AFCEC, and other applicable guidance documents.

- As program manager/principal scientist with LDC, Mr. Amano provides management and technical support to the data validation, data quality, and software group. He oversees and directs all environmental software projects developed for the USACE. Additionally, he acts as the primary LDC/USACE contract manager for software development projects. He is the primary author of the nationally distributed Automated Data Review (ADR) software used by the USACE, Navy, DTSC, and commercial clients.

- As President/principal chemist with LDC, Mr. Amano provided management and technical support to the data validation, data quality, and software group. He provided technical support in the organic, inorganic, and radiochemical areas. Under several major QA/QC and data validation programs, he provided, as needed, a final review of data validation and assessment reports. Mr. Amano specializes in the evaluation, validation, and interpretation of environmental testing data. Additional responsibilities include laboratory QA/QC and NELAC audits, implementation and support of QA/QC programs and data management support for engineering firms, environmental lab training, consultation on LIMS data base designs for environmental laboratories, and expert witness litigation support. Mr. Amano has managed and directed several major data validation and QA/QC projects for Army Corps, Navy, Air Force, and commercial contracts. Industrial projects include major petroleum oil spill related data validation and assessment of hydrocarbon analyses. The DoD projects include Southwest Division CLEAN 1 (Jacobs Engineering/IT Corporation/CH2M Hill), Southwest Division CLEAN 2 (Bechtel National), Pacific Northwest Division CLEAN (URS Greiner), Southern Division CLEAN (ABB Environmental), Atlantic Division CLEAN (EA Engineering), Southwest Division RAC (OHM Remediation), Pacific Division CLEAN (Earth Tech), AFCEE/AFCEC Mather AFB (Montgomery Watson), AFCEE/AFCEC Pease AFB (Bechtel Environmental), AFCEE/AFCEC England AFB (Law Environmental), Army Corps Travis AFB (CH2M Hill), Army Corps Hawthorne Army Depot (Tetra Tech), Nevada Test Site (IT Corp), and Army Corps Fort Ord (Harding Lawson). He provided oversight and direction for major USACE environmental software development including Automated Data Review (ADR), FUDSFORUM, MRSPP, and FUDSCHEM. He has a thorough knowledge and understanding of EPA CLP, SW-846, EPA 500, EPA 900, and EPA 600 series methods. He additionally has supported attorneys as an expert witness and has taught data integrity and lab ethics courses for several organizations.

Mr. Amano has over 12 years environmental laboratory experience in commercial laboratories supervising or performing the analyses of organic, inorganic, and radiochemical parameters.

- As laboratory director and technical director of Analytical Technologies, Inc, a full service environmental analytical chemistry facility, Mr. Amano was responsible for all facets of operations. These responsibilities include direct technical input for GC, GC/MS, and inorganic operations, personnel selection, assisting in method development, and selection of non-routine analysis. In addition, Mr. Amano was responsible for supervision of the 80 scientists employed at ATI's San Diego laboratory with all group supervisors, quality assurance and safety coordinators reporting directly to him. Mr. Amano has managed numerous analytical testing programs including the North Island Navy Confirmation Study, Miramar Air Force Base Confirmation Study, and investigations at several of the EPA Superfund sites. His environmental expertise focuses on the chemical testing related to hazardous waste investigations, site remediation, and groundwater monitoring programs.

- While at Brown & Caldwell, Mr. Amano's responsibilities encompassed supervision of daily operations of the laboratory, personnel staffing, technical advisor for operation of the gas chromatograph/mass spectrometer (GC/MS) section, maintenance of QA/QC programs, and coordination between engineers, clients, and laboratory analysts. Additionally, he supervised the daily operation of all radiochemistry activities which included alpha, beta, and radium analyses.

- At West Coast Technical Service, Mr. Amano was responsible for daily operation and quality control of the GC/MS group. Mr. Amano was highly involved with the USEPA hazardous waste contracts. Some special projects included dioxin selected ion monitoring analysis, EPA method 624 and 625 validation studies, and low level drinking water evaluations.

TECHNICAL PRESENTATIONS

"Understanding the Workings of an Environmental Laboratory"
Southern California Department of Health Services, 1984
Hargis & Associates, Inc, La Jolla, CA, 1987
Hargis & Associates, Inc, Tucson, AZ, 1987
Westec Services, San Diego, CA, 1987
Applied Hydrogeologic, Inc, San Diego, CA 1989

"Data Validation, QA/QC, and Environmental Analysis"
Van, Waters, and Rogers, Seattle, WA, 1990
ERC Environmental, Honolulu, HI, 1991
Harding Lawson Associates, Honolulu, HI, 1991
Pacific Division Naval Engineering Group, Honolulu, HI, 1991
OHM, Irvine, CA, 1996
Southwest Division Naval Engineering Group, San Diego, CA, 1996
Navy Public Works Center, San Diego, CA 1996

"GC versus GC/MS"
J.H. Kleinfelder & Associates, Artesia, CA 1986
Hargis & Associates, Inc, La Jolla, CA 1987

"Analytical Methods and QA/QC Procedures for Environmental Analysis"
County of San Diego Department of Health Services, San Diego, CA 1989
Regional Water Quality Control Board, San Diego, CA 1990
ERC Environmental, San Diego, CA 1990
Mittlehauser Corporation, Laguna Hills, CA 1991

"Hydrocarbon Testing Related to Underground Storage Tanks (UST)"
San Diego County DOHS, San Diego, CA, 1986
J.H. Kleinfelder & Associates, Artesia, CA 1986
Woodward Clyde Consultants, San Diego, CA 1987

Engineering Enterprises, Long Beach, CA 1987

"Quality Control/Quality Assurance in Laboratories"
Assoc of Hazardous Materials Professionals, Anaheim, CA 1986
R.L. Stollar & Associates, Santa Ana, CA 1989

"The Influence of Sample Matrix on Environmental Analysis"
Assoc of Hazardous Materials Professionals, San Diego, CA 1990

"Comparison of Air Sampling Media"
Assoc of Hazardous Materials Professionals, Anaheim, CA 1991

"Building a Second Generation LIMS for Commercial Laboratory Operations"
Pittsburgh Conference, New York, NY, 1990 (Invited Speaker)

"Employment Outlook in Environmental Laboratories"
Southern California American Chemical Society, 1985

"Opportunities in the Environmental Lab in the 1990's"
American Chemical Society, 1990

"Data Validation of Radiochemical Analyses"
Hargis + Associates, La Jolla, CA 1991

"Detection Limits - MDL, PQL, RDL, LOD ?"
Analytical Technologies, Inc., 1991

"Poor QA/QC or Laboratory Fraud: Have labs crossed the fine line?"
Environmental Professionals Organization, Newport Beach, CA 1996

"Electronic Data Deliverables and Automated Data Review/Validation"
Army Corps of Engineers, Sacramento District, Sacramento, CA 1996

"Navy Environmental Data Transfer Standards"
Kleinfelder, San Diego, CA 1997

"Laboratory QA/QC Update for DoD Programs"
ACTLabs, Long Beach, CA 1997

LECTURING AND TEACHING

"Instrumental Analysis of Hazardous Materials"
University of California, San Diego 1988 - 1995

"Field Monitoring & Laboratory Analysis of Hazardous Materials"

University of California, San Diego 1995 - 1998

California State Fullerton, Guest Lecturer, 1985 & 1990

San Diego State University, Hydrology Department, Guest Lecturer, 1988

"EPA Level 4 Data Validation" Workshop
Applied Geotechnology, Inc., Bellevue, WA, 1993

"Environmental Analyses in the 90's"

National University, Guest Lecturer, 1993

"Data Quality Objectives for Federal Environmental Programs"
University of California, San Diego 1993

"Data Integrity and Data Management for Federal Environmental Programs"
University of California, San Diego 1994

"Laboratory QA/QC and Electronic Data Requirements for DoD Programs"
University of California, San Diego 1995

"Application and Utilization of Department of Defense (DoD) Guidance Documents"
University of California, San Diego 1996

"Laboratory Quality Assurance for Department of Defense Programs"
University of California, San Diego 1997

PUBLICATIONS

"Managing an Environmental Chemistry Laboratory for Profit",
John H. Taylor, Jr and Richard M. Amano,
Journal of Chromatographic Science, 1987

MEMBERSHIPS AND AFFILIATIONS

American Chemical Society
Association of Hazardous Materials Professionals, (Steering Committee 1988-1994)
Association of California Testing Laboratories, (Board Member 1989-1991)
County of San Diego, Site Assessment and Mitigation Technical Forum (Steering Committee 1990-2000)
American Society Quality Control (1992-2005)

FOUNDATIONS

Golf for Autistic Children in America (GACA), Founder/President (2011)

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RESUME
ERLINDA T. RAUTO

EDUCATION

B.S. Chemical Engineering 1967
Feati University - Manila, Philippines

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Senior Chemist/Validation Group Manager
1993 to present

Appropriate Technologies, Inc.
Chemist II
1992 to 1993

AECOS Inc.
Laboratory Supervisor
1989 to 1992

PWCSA #4 County Complex
Laboratory Analyst
1986 to 1989

Kalama Specialty Chemical
Chemist
1980 to 1982

REPRESENTATIVE EXPERIENCE

Ms. Rauto has over 38 years combined environmental laboratory, QA/QC, and data validation experience. Her experience includes performance of data validation in the GC, trace metals, and wet chemistry areas for major Federal projects. Her laboratory experience includes hands-on CLP and EPA ICP/GFAA analysis, pesticide/PCBs and wet chemistry analysis.

Specifically, Ms. Rauto has over 25 years of experience with organic data validation and assessment using USEPA (including Region III) functional guidelines and other applicable documents.

- As a Principal chemist with LDC, Ms. Rauto provides management and technical support to the data validation group. She specializes in the data validation and compliance screening of gas chromatography organic analyses. This validation includes EPA CLP, SW-846, and EPA Water and Wastewater methods. Over the past 16 years, Ms. Rauto has performed USEPA Level 3 and Level 4 (including NFESC Level C and D) validation for projects including Boeing SSFL, Southwest Division CLEAN 1 (Jacobs Engineering/IT Corporation/CH2M Hill), Southwest Division CLEAN 2 (Bechtel National), Pacific Northwest Division CLEAN (URS Greiner), Southern Division CLEAN (ABB Environmental), Atlantic Division CLEAN (EA Engineering), Southwest Division RAC (OHM Remediation), Pacific Division CLEAN (Earth Tech), DoE Atomic City (Jacobs

Engineering Group), Army Corps of Engineers, Travis AFB (CH2M Hill), Army Corps of Engineers, Camp Navajo (Tetra Tech), AFCEE/AFCEC Mather AFB (Montgomery Watson), AFCEE/AFCEC Pease AFB (Bechtel Environmental), AFCEE/AFCEC England AFB (Law Environmental), Army Corps of Engineers, Hawthorne Army Depot (Tetra Tech), Army Corps of Engineers, Fort Ord (Harding Lawson), Nevada Test Site (IT Corp), and AFCEE/AFCEC Beale AFB (Law/Crandall, Inc.).

Ms. Rauto has organic laboratory experience with over 13 years of experience in an environmental laboratory supervising or performing the analyses of organic parameters.

- As a chemist II at Appropriate Technologies, Inc., a hazardous waste disposal facility, Ms. Rauto was responsible for the operation of the gas chromatographs. Organochlorine pesticides and PCBs analysis was the primary method performed. In addition, Ms. Rauto performed ICP analyses for trace metals, as well as, supported engineers in developing waste treatment processes.

- As the laboratory supervisor at AECOS Inc., Ms. Rauto supervised and directed operation of gas chromatography, atomic absorption, and wet chemistry instrumentation. She interfaced with state and federal agencies to maintain certification and developed a written QA/QC plan for the laboratory.

- As chemist at Kalama Specialty Chemical, Ms. Rauto performed gas chromatography analysis on raw materials and finished products. She worked on the research and development of new chemicals.

Additionally, Ms. Rauto has 2 years inorganic/conventional analytical experience.

- While employed at the Prince William County laboratory, Ms. Rauto was involved in the analysis of water and wastewater for metals and wet chemistry parameters. This included BOD, COD, nitrate, nitrite, sulfate, chloride, fluoride, TDS, conductivity, pH, cyanide, and phenols analyses. She maintained the QA/QC program to assure compliance with EPA guidelines.

AFFILIATIONS
American Society for Quality Control

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RESUME
CHRISTINA RINK-ASHDOWN

EDUCATION

BS Biology, 2006
University of California, San Diego

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Inorganic Chemist
2009 to present

Enviromatrix Analytical, Inc.
Metals Chemist
2007 to 2009

REPRESENTATIVE EXPERIENCE

Ms. Rink-Ashdown has over 11 years combined environmental laboratory and data validation experience. Her experience includes performance of data validation in the trace metals, radiochemistry, and wet chemistry areas for major Federal and commercial projects. Her laboratory experience includes hands-on CLP and SW-846 ICP/CVAA analysis and overall technical review of data deliverables. Specifically, Ms. Rink-Ashdown has over 6 years inorganic and radiochemistry data validation experience using USEPA (including Region III) functional guidelines and other applicable documents.

As chemist with LDC, Ms. Rink-Ashdown specializes in the data validation of trace metals, wet chemistry, methyl mercury and radiochemistry analyses using USEPA functional guidelines or equivalent protocol. She has worked under various CERCLA and EPA data validation guidelines for the various CERCLA, Navy, Army Corps, AFCEE/AFCEC and commercial projects. She is certified as a “Radiometric Data Validation Specialist” through course work and testing by the Radiochemistry Society. **Ms. Rink-Ashdown has validated over 2,000 samples for various isotopes in the last two years.**

Ms. Rink-Ashdown has over 2 years of environmental laboratory experience in a laboratory performing the analyses of inorganic parameters.

As lead inorganic chemist at Enviromatrix Analytical, Inc., Ms. Rink-Ashdown managed the inorganic chemistry section which performed techniques such as atomic absorption and inductively coupled argon plasma spectrometry. These analyses were performed from methods referenced in EPA CLP, SW-846, and Standard Methods documents.

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RESUME
SHAUNA McKELLAR

EDUCATION

B.S. Environmental Toxicology, 2006
University of California at Davis

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Project Manager / Chemist
May 2010 to present

D-Max Engineering, Inc.
Assistant Project Scientist
January 2007 to May 2010

University of California at Davis
Undergraduate Researcher
March 2005 to June 2006

REPRESENTATIVE EXPERIENCE

Ms. McKellar has over 14 years combined consulting, field sampling, database management, data validation, and automated data review experience. Her experience includes performance of automated data validation for major Navy Southwest Division, US Army Corps of Engineers, and Alaska DEC projects as well as data management for commercial and litigation projects. Her field sampling experience includes surface water sampling in both wet and dry weather conditions, and her laboratory experience includes preparation and analysis of samples utilizing HPLC and UV-vis spectrometry, instrument maintenance, and data evaluation.

Specifically, Ms. McKellar has over 6 years of inorganic and organic data validation experience using USEPA functional guidelines, Navy procedures, QAPP, ADEC checklists, and other applicable documents, in addition to more than 3 years of experience working in the environmental compliance field, and over one year working in a research laboratory.

- As chemist with LDC, Ms. McKellar specializes in the data validation and contract compliance screening using LDC's Automated Data Review (ADR) software, and is familiar with a variety of different Electronic Data Deliverable formats, including SEDD and NEDD. She has supervised large data validation projects under the USACE and Navy Southwest Division RAC contracts.

- As an assistant project scientist with D-Max Engineering, Ms. McKellar performed wet and dry weather surface water sampling related to compliance with Regional Water Quality Control Board NPDES Permits. She also maintained large project databases related to stormwater inspection and monitoring programs for various municipalities.

- As an undergraduate researcher at the University of California at Davis, Ms. McKellar conducted an independent atmospheric chemistry research project utilizing HPLC and UV-Vis spectroscopy. She was responsible for the instrument calibration, verifying sample analyses, and routine instrument maintenance.

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RESUME
LINDA TA

EDUCATION

B.S. Geology, 2012
California State University Long Beach

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Chemist and Project Manager
July 2018 to present

Eurofins Calscience
Project Manager Assistant
02/2014-07/2018

Eurofins Calscience
Chemist
10/2013-02/2014

REPRESENTATIVE EXPERIENCE

Although Ms. Ta has less than one year of experience at LDC, she is proficient in data validation for GC and GCMS methods for Level II and III.

- As a project manager with LDC, Ms. Ta assists the other project managers through project set-up, validation, report review, and writing project data quality assessment reports. Ms. Ta is also in training to perform ADR validation and ERPIMS database tasks. She is also the administrative support specialist for LDC Advantage secure data sharing portal where she assists with project and client set-up.

Ms. Ta has 5 years of experience in an environmental laboratory performing the analysis of organic parameters.

- As a GC/MS chemist at Eurofins Calscience, a full service environmental analytical chemistry facility, Ms. Ta performed GC/MS volatile analyses using various EPA Methods in accordance with standard operating procedures. Ms. Ta utilized Agilent Chemstation and Laboratory Information Management Systems (LIMS) to analyze and report data.

- As a Project Manager Assistant at Eurofins Calscience, Ms. Ta assisted multiple Project Managers to oversee all laboratory functions for various projects. In addition, she managed several minor projects for various Environmental consultants. She served as the secondary point of contact for clients, ensured that Chain of Custodies are accurate and analyses are logged in correctly, directed preparation of bottle orders, scheduled pickups and deliveries, coordinated subcontracted analyses, provided quality control review of project-related documents and compliance to project criteria, worked closely with lab group supervisors and executive managers in planning new projects and managed ongoing analytical work. Ms. Ta evaluated analytical data, prepared project

case narratives and summaries, compiled laboratory reports for external validation, and worked closely with chemists and lab group supervisors in resolving quality assurance and quality control issues. She prepared detailed project billing and generated multiple Electronic Data Deliverables. She was also responsible for training new Project Manager Assistants on various PM tasks, data review and compilation of laboratory Level III/IV QC Data Deliverables.

Below is a partial listing of clients and projects which Ms. Ta has assisted:

-Department of Defense Sites
- Edwards AFB
- George AFB
- Vandenberg AFB

-SSFL NASA
-BP/ARCO
-Aerospace Company

Below is a listing of various database management software which Ms. Ta has extensive training on:

-ERPIMS
-EQUIS
-Envirodata
-NEDD
-ADR
-Geotracker

Relevant Project Experience

LDC has performed data validation and Quality Assurance services for contaminated sites overseen by AFCEE/AFCEC, Navy Southwest Division, DoE, DoD, EPA Superfund projects overseen by EPA Regions II, III, IV, IX, X, USACE projects reviewed by the Alaska, Baltimore, Louisville, Albuquerque, Seattle, Philadelphia, and Sacramento Districts, and Navy projects reviewed by NFESC.

LDC is the software developer and expert in the use of the Automated Data Review (ADR) software. LDC has been using the ADR.NET version for over 2 years and has the current Version in full implementation. LDC has performed over 1000 ADR projects in the past 10 years' worth over $2,000,000 in revenue. ADR clients include, but are not limited to: Tetra Tech EC, Sealaska, AMEC, EPA, California DTSC, MWH, Trevet, Brown & Caldwell, AECOM, Shaw, ITSI, CDM, Weston Solutions and the San Gabriel Watermaster.

LDC has validated over 1,000,000 samples for analyses such as volatile organics (CLP, EPA Method 8240/8260), semivolatile organics (CLP, EPA Method 8270), organochlorine pesticides/PCBs (CLP, EPA Method 8081/8082), chlorinated herbicides (EPA Method 8151), purgeable halocarbons and aromatics (EPA Method 8021), trace metals (CLP, EPA Method 6010/6020/7000), PAHs by EPA 8310 and 8270,TOC analyses, hexavalent chromium, total petroleum hydrocarbons (EPA Method 8015/CDOHS LUFT), radiochemical constituents including gross alpha/beta, alpha spec, gamma spec, tritium, and uranium, and general minerals.

LDC has met their contractual turnaround time and quality requirements on over 99% of the projects completed.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760/827-1100 Fax: 760/827-1099

Project References/Experience

Name and Address, Contact Person, Telephone	Work Description and Location	Requested Deliverables	Number of samples/ Matrix	Value ($)	Start/Stop
Washington State Department of Transportation Environmental Services Office P.O. Box 47332 Olympia, WA 98504 ATTN: Mr. Brad Archbold ArchboB@wsdot.wa.gov 360-570-6636	WSDOT NPDES Stormwater Monitoring LDC performed Stage2A, 2B and 4 data validation for a full suite of analyses including GCMS, GC, Metals, and Wet Chemistry analyses.	Stage 2A, 2B, and 4 data validation reports. Work conducted under Washington State Department of Transportation Stormwater Monitoring	>3,800 Soil and Water	$48,332	04/2013-07/2016
Leighton Consulting, Inc. 17781 Cowan Irvine, CA 92614 ATTN: Mr. Mark Withrow mwithrow@leightongroup.com cell: 949-394-2194 office: 949-681-4211	San Onofre Nuclear Generating Station (SONGS) Mesa Facility LDC performed EPA Level III and IV equivalent data validation for a full suite of analyses. Analyses included GCMS, GC, Metals, and Wet Chemistry analyses.	EPA Level III and IV data validation reports. Work conducted under USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG).	>3,600 Soil, Water, and Air	$66,225	09/2015-present
Leighton Consulting, Inc. 17781 Cowan Irvine, CA 92614 ATTN: Ms. Julie Harriman jharriman@leightongroup.com Direct : (949) 681-4264 Cell: (949) 572-8129	Aliso Canyon LDC performed EPA Level II equivalent data validation. Analyses included VOA, SVOA, Total Hydrocarbons, Isopropyl Alcohol, Total Dust, and Sulfur Compounds.	EPA Level II data validation reports and PARCC summary report. Work conducted under USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG).	>1,200 Air, Wipe, and Disk	$15,749	07/2016-08/2016
Tetra Tech, EM Inc. 1999 Harrison Street, Suite 500 Oakland, CA 94612 ATTN: Ms. Sara Woolley Sara.Woolley@tetratech.com Direct: 510.302.6311 Main: 510.302.6300	Subcontract 161408 For Various project sites including: EAGLE NEST INVESTIGATION FORT IRWIN GOLD BEACH MILL HPNS MARE ISLAND MOTCO LITIGATION NAF EL CENTRO NWS CONCORD LDC performed Cursory and Full data validation for a full suite of analyses using specified EPA Guidelines, DoD QSM Version 4.2, and Tetra Tech EMI, Inc. validation documents.	TTEMI Format data validation reports and EDD using Tetra Tech's validate program.	>3000 Soil and Water	$39,785	10/2011 – 10/2013

Name and Address, Contact Person, Telephone	Work Description and Location	Requested Deliverables	Number of samples/ Matrix	Value ($)	Start/Stop
GEI Consultants, Inc. 455 Winding Brook Drive Glastonbury, CT 06033 (860) 368-5342 direct (860) 368-5300 main Jaimie Wargo JWargo@geiconsultants.com	Various NYSDEC sites LDC performed Category B equivalent data validation Analyses included: VOC, SVOC, Pesticide, PCB, Herbicide, Steroids, Metals, Wet Chemistry	Category B data validation and NYSDEC DUSR reports	>1,700 Soil and Water	$72,000	2010-present
TetraTech EC 17885 Von Karman Ave, Suite 500 Irvine, CA 92614 Attn: Lisa Bienkowski (949) 809-5028 Lisa.Bienkowski@tetratech.com	Tetra Tech Hunter's Point CA LDC performed EPA Level III and IV equivalent data validation for a full suite of analyses on more than 50,000 soil and water samples. Analyses included tritium, isotopic thorium, uranium and plutonium, and gross alpha/beta. Expedited turnaround times were included (5 day TAT)	EPA Level III and IV data validation reports. Work conducted under US Navy RAC program, Southwest Div.	>50,000 Soil and Water	$645,733	02/2001-present
AECOM (Earth Tech) 700 Bishop Street Honolulu, HI 96813 Contact: Scott Lewis (808) 523-8874 Scott.Lewis@aecom.com	Data validation per EPA level "3/C" and "4/D" guidelines for volatile organic, semivolatile organic, pesticides/PCBs, herbicides, phenols, phosphorus pesticides, dioxin, radiochemical, and trace metal analyses in soil, water, and tissue matrices. (Navy PACDIV CLEAN, Honolulu, HI)	LDC worksheets and validation reports	>10,000 samples Water/Soil/Air	$750,000	4/98-present
CBI (formerly Shaw E&I) 3347 Michelson Drive, Ste 200 Irvine, CA 92612 Contact: Mr. Dwayne Ishida Phone: (949) 660-7561 Dwayne.Ishida@CBIFederalServices.com	Data validation per EPA level "3" and "4" and AFCEE/AFCEC guidelines for volatile organic, semivolatile organic, pesticides/PCBs, herbicides, phenols, phosphorus pesticides, dioxin, radiochemical, and trace metal analyses in soil, water, and tissue matrices. (Navy Southwest Division RAC, San Diego, CA and various AFCEE/AFCEC projects)	LDC worksheets and validation reports	>5000 samples Water/Soil/Air	$350,000	6/06-present

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760/827-1100 Fax: 760/827-1099

Name and Address, Contact Person, Telephone	Work Description and Location	Requested Deliverables	Number of samples/ Matrix	Value ($)	Start/Stop
Santa Clara Pueblo Office of Environmental Affairs 578 Kee Street Espanola, New Mexico, 87532 Ms. Ernestine Naranjo 505-692-6270 phone 505-747-2728 fax enaranjo@santaclarapueblo.org	Data validation per EPA level "III" SCP-OEA-DEPO, Data Validation using ADR For full suite of Organic, Inorganic, and Radiochemical analyses. Radiochemical analyses including Gross alpha & beta, Gamma Spectroscopy, Iodine, Radium-226/228, Strontium-90, Isotopic Pu, Th, and U, Tritium, and Americium by various EPA and GA methods.	Level III validation using ADR	>750 Soil, Water, and Air	$11,987.05	12/2015 - present
Anchor Environmental, LLC 720 Olive Way, Suite 1900 Seattle, WA 98101 Ms. Joy Dunay 206.287.9130, jdunay@anchorqea.com	Data validation per Level “C” Newtown Creek Phase 2: Third Party Data Validation of laboratory results, EDD population, and Data Quality Assessment Reports (DQAR) for various methods Subcontractor	LDC worksheets and validation reports	>63,000 Soil and Water	$743,793.88	6/14-1/16
Tradebe Environmental Services, LLC. 628 South Saratoga Street Cohoes, NY 12047 Attn: Accounts Payable Mr. Tom VanVranken (518) 235-0401 tom.vanvranken@tradebe.com	Norlite MACT Project LDC performed Category B equivalent data validation Analyses included: Metals, Mercury, Heat Content, Ash Content, Chlorine, Density, and Dioxins	Category B data validation and NYSDEC DUSR reports	11 Soil, Air and Water	$2,000.00	9/2013
P.W.Grosser Consulting2015 630 Johnson Ave, Suite 7 Bohemia, NY 11716 Attn: Mr. Derek Ersbak w. 631.589.6353 f. 631.589.8705 dereke@pwgrosser.com	Former Arkansas Chemical Co.Site and Former Ronkonkoma Wallpaper Site 203 Jay St. LDC performed Category B equivalent data validation Analyses included: VOC, SVOC, Pesticide, PCB, Metals, Wet Chemistry	Category B data validation and NYSDEC DUSR reports	>200 Soil and Water	$3,024.00	11/2014-present

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760/827-1100 Fax: 760/827-1099

Name and Address, Contact Person, Telephone	Work Description and Location	Requested Deliverables	Number of samples/ Matrix	Value ($)	Start/Stop
Amec Foster Wheeler Environment and Infrastructure, Inc. 9210 Sky Park Court, Suite 200 San Diego, CA 92123 Attn: Mr. Rolf Schottle rolf.schottle@amecfw.com Tel +1 (858) 300 4300, Fax +1 (858) 300 4301, Direct +1 (858) 300 4323	Regional Harbor Monitoring Program (RHMP), San Diego, California Third party validation of LDC performed EPA Level III and IV equivalent data validation for a full suite of analyses.	LDC worksheets and validation reports	>200 Water	$9,011.40	3/15–6/16

Note: All above projects were 100% self-performed by LDC

Appendix I

Site Management Forms

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

ENGINEERING CONTROLS ANNUAL INSPECTION REPORT - 2023

Prepared By: _____

WEATHER	Snow		Rain		Overcast		Partly Cloudy		Bright Sun	
TEMP.	< 32		32-50		50-70		70-85		>85	

NYSDEC #	CC224367			**Date**:	
Project Name:	251 Douglass Street, Brooklyn, NY				

Environmental Consultant:	**Property Manager:**
Impact Environmental Engineering and Geology PLLC (IEEG) Brad Summerville , P.E. New York Professional Engineer License No. # 091879	

Inspection Narrative:

Pursuant to the Site Management Plan (SMP) Environmental Engineering and Geology, PLLC (IEEG) conducted an inspection of the employed Engineering Control (EC) installed to ensure permanent protection of public health from residual materials remaining on site on _____. This site has one (1) Engineering Control System:

- Composite Cover System:
  - The composite cover system is comprised of six (6) inches of gravel subbase overlain by 16-inches of concrete slab. The mat slab consists of a minimum of 38 inches to a maximum of 50 inches and is also underlain by six (6) inches of gravel subbase which extends laterally into the mat slab foundation system. The slab is underlain by, Stego Wrap® 20-mil vapor barrier and Grace PrePrufe® waterproofing membrane within the elevator pit as well as two (2) sump pits in the western portion of the Site , adjacent to Nevins and Douglass Street.

An Inspection Photo Log has been attached illustrating the condition of the Engineering Control deployed at 251 Douglass Street.

Photo Log

Photo 1 –	
Photo 2 –	

Photo 3 –	
Photo 4 –	

Photo 5 –	
Photo 6 –	

Photo 7 –	
Photo 8 –	

Photo 9 –	
Photo 10 –	

Appendix J

As Built Drawings

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

251 DOUGLASS STREET

BROOKLYN, 11217

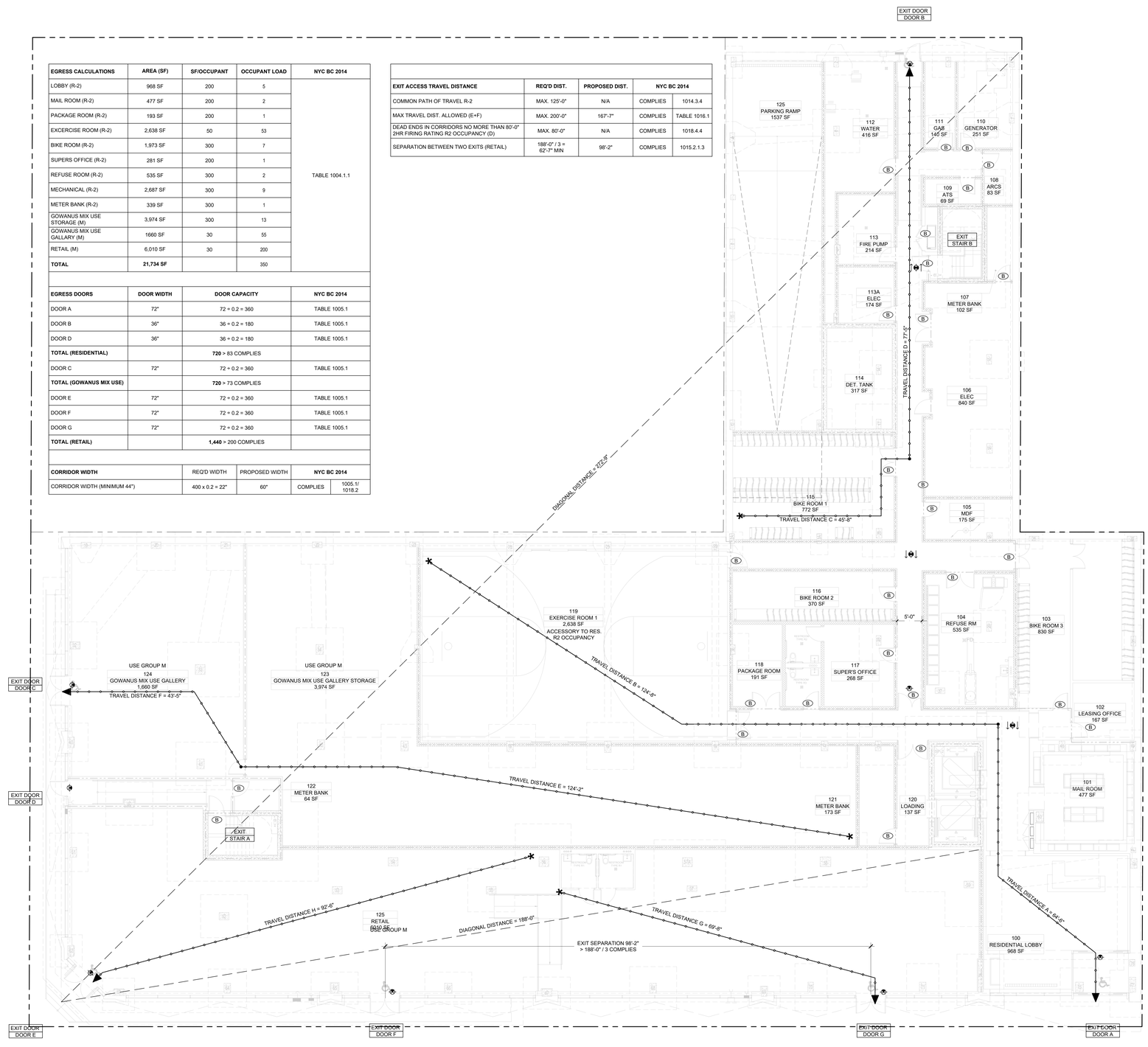
ULE REDESIGN - INTERIOR CD ISSUANCE
DECEMBER 13, 2024

EGRESS CALCULATIONS	AREA (SF)	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
LOBBY (R-2)	968 SF	200	5	TABLE 1004.1.1
MAIL ROOM (R-2)	477 SF	200	2	
PACKAGE ROOM (R-2)	193 SF	200	1	
EXCERCISE ROOM (R-2)	2,638 SF	50	53	
BIKE ROOM (R-2)	1,973 SF	300	7	
SUPERS OFFICE (R-2)	281 SF	200	1	
REFUSE ROOM (R-2)	535 SF	300	2	
MECHANICAL (R-2)	2,687 SF	300	9	
METER BANK (R-2)	339 SF	300	1	
GOWANUS MIX USE STORAGE (M)	3,974 SF	300	13	
GOWANUS MIX USE GALLARY (M)	1660 SF	30	55	
RETAIL (M)	6,010 SF	30	200	
TOTAL	**21,734 SF**		350	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	72"	72 ÷ 0.2 = 360	TABLE 1005.1
DOOR B	36"	36 ÷ 0.2 = 180	TABLE 1005.1
DOOR D	36"	36 ÷ 0.2 = 180	TABLE 1005.1
TOTAL (RESIDENTIAL)		**720** > 83 COMPLIES	
DOOR C	72"	72 ÷ 0.2 = 360	TABLE 1005.1
TOTAL (GOWANUS MIX USE)		**720** > 73 COMPLIES	
DOOR E	72"	72 ÷ 0.2 = 360	TABLE 1005.1
DOOR F	72"	72 ÷ 0.2 = 360	TABLE 1005.1
DOOR G	72"	72 ÷ 0.2 = 360	TABLE 1005.1
TOTAL (RETAIL)		**1,440** > 200 COMPLIES	

CORRIDOR WIDTH	REQ'D WIDTH	PROPOSED WIDTH	NYC BC 2014	
CORRIDOR WIDTH (MINIMUM 44")	400 x 0.2 = 22"	60"	COMPLIES	1005.1/ 1018.2

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL R-2	MAX. 125'-0"	N/A	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (E+F)	MAX. 200'-0"	167'-7"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (D)	MAX. 80'-0"	N/A	COMPLIES	1018.4.4
SEPARATION BETWEEN TWO EXITS (RETAIL)	188'-0" / 3 = 62'-7" MIN	98'-2"	COMPLIES	1015.2.1.3



1 1ST FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- (A) 3/4 HR FIRE PROOF SELF CLOSING
- (B) 1 1/2 HR FIRE PROOF SELF CLOSING
- (C) 3 HR FIRE PROOF SELF CLOSING
- (SD) SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
   - BTW RESIDENTIAL UNITS: 1HR
   - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
   - COMPACTOR ROOM: 3HR
3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR
4. SEE ENLARGED PLANS FOR WINDOW TYPES
5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B. ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC		
		DOORS	STAIRS		
R2	200'	180	120	44"	80'
M	200'				

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M. CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101
TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

ARCHITECT
FOGARTY | FINGER architecture | interiors
69 Walker Street New York, NY 10013
t 212 966 7450 f 212 966 7444

STRUCTURAL ENGINEER
TITAN ENGINEERS
1331 STUYVESANT AVE
UNION, NJ 07083

MEP ENGINEER
ETTINGER ENGINEERING ASSOCIATES
505 EIGHTH AVE 24TH FLOOR
NEW YORK, NY 10018

FACADE
HATFIELD GROUP
285 WEST BROADWAY #410
NEW YORK, NY 10013

ELEVATOR
JENKINS HUNTINGTON
5 CLIMAX ROAD
AVON, CT 06001

LIGHTING
BOLD
227 WEST 29TH STREET, 8TH FLOOR
NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
102 MADISON AVE #11
NEW YORK, NY 0016

LANDSCAPE
GRAIN COLLECTIVE
339 DOUGLASS STR, SUITE 1
BROOKLYN, NY 11217

GEOTECH
GEOTECHNICAL ENGINEERING SERVICES
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN

No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 1ST FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-011.00

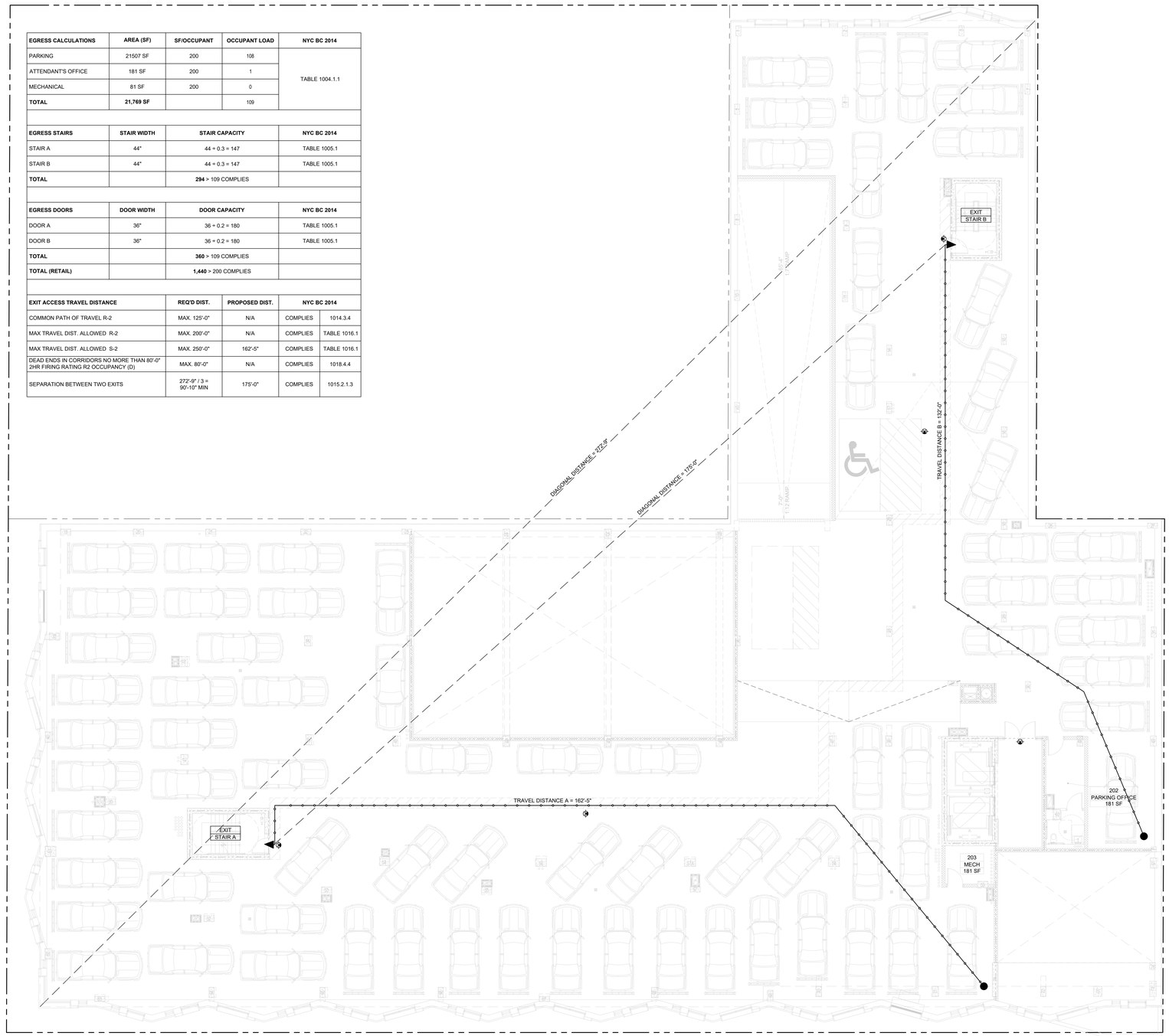
CADD FILE No.:
OF###

EGRESS CALCULATIONS	AREA (SF)	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
PARKING	21507 SF	200	108	TABLE 1004.1.1
ATTENDANT'S OFFICE	181 SF	200	1	
MECHANICAL	81 SF	200	0	
TOTAL	**21,769 SF**		109	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 ÷ 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 ÷ 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 109 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 ÷ 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 ÷ 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 109 COMPLIES	
TOTAL (RETAIL)		**1,440** > 200 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL R-2	MAX. 125'-0"	N/A	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED R-2	MAX. 200'-0"	N/A	COMPLIES	TABLE 1016.1
MAX TRAVEL DIST. ALLOWED S-2	MAX. 250'-0"	162'-5"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (D)	MAX. 80'-0"	N/A	COMPLIES	1018.4.4
SEPARATION BETWEEN TWO EXITS	272'-9" / 3 = 90'-10" MIN	175'-0"	COMPLIES	1015.2.1.3



1 2ND FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- (A) 3/4 HR FIRE PROOF SELF CLOSING
- (B) 1 1/2 HR FIRE PROOF SELF CLOSING
- (C) 3 HR FIRE PROOF SELF CLOSING
- (SD) SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13

2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
- COMPACTOR ROOM: 3HR

3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR

4. SEE ENLARGED PLANS FOR WINDOW TYPES

5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B. ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS BC 803 TABLE 803.5	VERTICAL EXITS AND EXIT PASSAGE WAYS EXIT ACCESS CORRIDORS ROOMS AND ENCLOSED SPACES	CLASS B CLASS B CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY			CORRIDORS
		NO. OF OCCUPANTS		MIN	DEAD
		0.2" PER OCC	0.3" PER OCC	WIDTH	END
		DOORS	STAIRS		
R2	200'	180	120	44"	80'
M	200'				

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M. CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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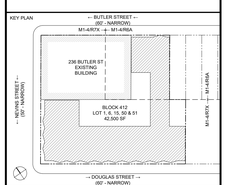

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06	10.07.2022	100% CD ISSUANCE
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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 2ND FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-012.00

CADD FILE No.: ## OF###

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	14,388 SF	200	72	TABLE 1004.1.1
EXERCISE ROOM 1 (R2)	2,172 SF	50	43	TABLE 1004.1.1
EXERCISE ROOM 1 (R1)	510 SF	50	10	TABLE 1004.1.1
TOTAL (R-2)	**17,070 SF**		126	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 ÷ 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 ÷ 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 126 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 ÷ 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 ÷ 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 126 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-4"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (B+C+E)	MAX. 200'-0"	190'-1"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A)	MAX. 80'-0"	64'-6"	COMPLIES	1018.4.4
LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+C+F+H)	MIN. 15'-0"	269'-10 29/32"	COMPLIES	1015.2.1.3

NATURAL VENTILATION	NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION	COMPLIES	1203.4.1.4.1

NATURAL LIGHT	NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	129 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	181 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	177 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	68 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	48 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	13 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	171 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	116 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	160 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	70 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	28 SF

HABITABLE FLOOR AREA	108 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	70 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	28 SF

HABITABLE FLOOR AREA	138 SF
LIGHT REQ'D 10%	14 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	172 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	70 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	28 SF

HABITABLE FLOOR AREA	110 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	28 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	186 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	38 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	08 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	61 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	32 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	53 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	08 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	117 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	18 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	23 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	18 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	70 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	28 SF

HABITABLE FLOOR AREA	173 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	121 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	52 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	165 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	120 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	124 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	148 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	188 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	97 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	38 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	152 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	27 SF

HABITABLE FLOOR AREA	117 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	174 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	11 SF

TRAVEL DISTANCE J = 58'-7"
DEAD END CORRIDOR = 58'-7"

TRAVEL DISTANCE = 0'-44"-10"

TRAVEL DISTANCE A = 64'-6"
DEAD END CORRIDOR = 64'-6"

DIAGONAL DISTANCE = 272'-9"

DIAGONAL DISTANCE = 107'-3"

TRAVEL DISTANCE H = 92'-2"

TRAVEL DISTANCE G = 87'-2"

TRAVEL DISTANCE F = 29'-10"

TRAVEL DISTANCE E = 45'-2"

TRAVEL DISTANCE E = 35'-10"

EXIT SEPARATION 77'-2"
> 107'-3" / 3 COMPLIES

TRAVEL DISTANCE B = 80'-0"

TRAVEL DISTANCE C = 67'-10"

COURTYARD
0 OCCUPANCY
ACCESSORY TO RES.
R2 OCCUPANCY

302
EXERCISE ROOM 2
510 SF
ACCESSORY TO RES.
R2 OCCUPANCY

301
EXERCISE ROOM 1
2,172 SF
ACCESSORY TO RES.
R2 OCCUPANCY

EXIT
STAIR A

EXIT
STAIR B

5'-0"

5'-10"

5'-0"

5'-10"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- (A) 3/4 HR FIRE PROOF SELF CLOSING
- (B) 1 1/2 HR FIRE PROOF SELF CLOSING
- (C) 3 HR FIRE PROOF SELF CLOSING
- (SD) SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
   - BTW RESIDENTIAL UNITS: 1HR
   - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
   - COMPACTOR ROOM: 3HR
3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR
4. SEE ENLARGED PLANS FOR WINDOW TYPES
5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B. ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC		
		DOORS	STAIRS		
R2	200'			44"	80'
M	200'	180	120		

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M. CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN.) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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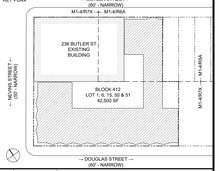
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 3RD FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-013.00

CADD FILE No.:
OF###

1 3RD FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	17,060 SF	200	85	TABLE 1004.1.1
TOTAL (R-2)	**17,060 SF**		85	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 85 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 85 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-3"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (C+B)	MAX. 200'-0"	190'-2"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A) LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+E)	MAX. 80'-0"	64'-5"	COMPLIES	1018.4.4
	MIN. 15'-0"	269'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION	NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION	COMPLIES	1203.4.1.4.1

NATURAL LIGHT	NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	129 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	181 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25

HABITABLE FLOOR AREA	177 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	171 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	150 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	114 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	115 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	150 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	113 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	195 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	186 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	86 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	33 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	38 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	120 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	15 SF

HABITABLE FLOOR AREA	166 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	126 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	152 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	115 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	120 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	124 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	188 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	84 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	33 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
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HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	152 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
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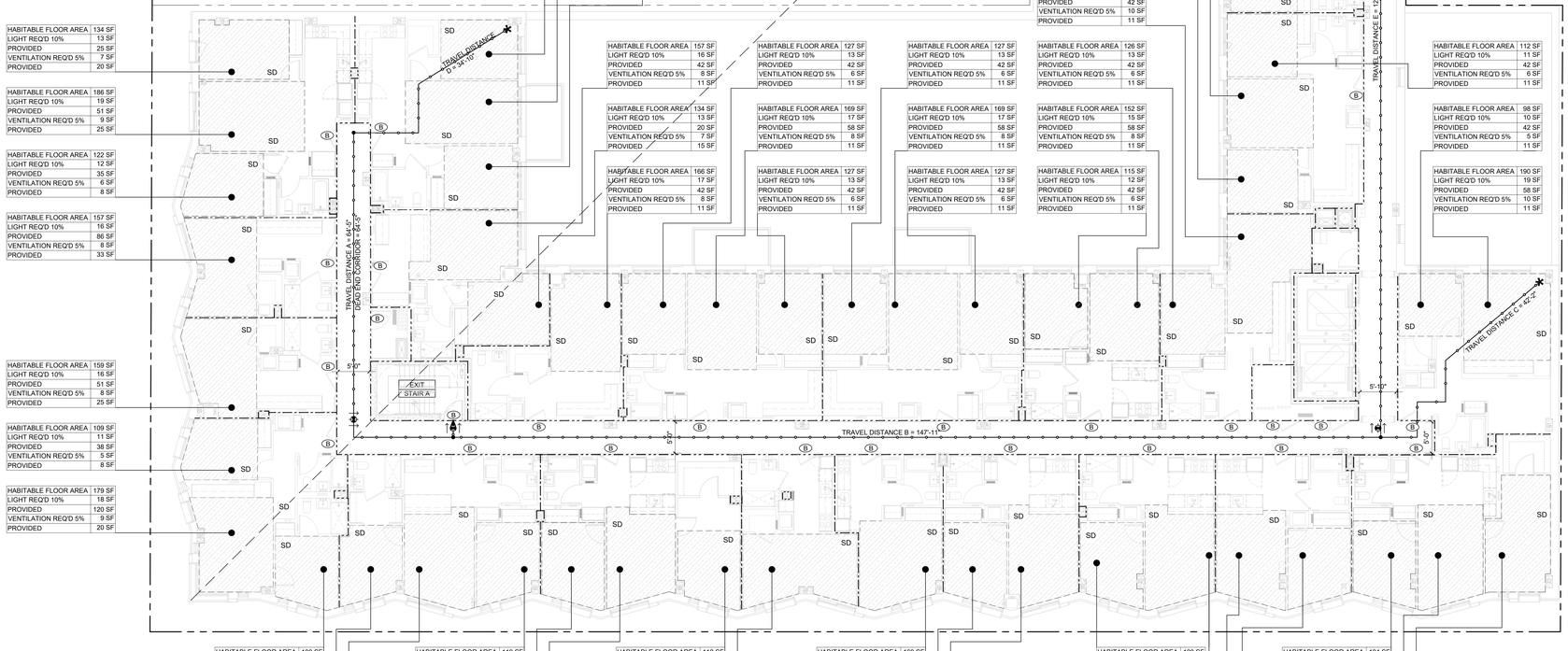
HABITABLE FLOOR AREA	117 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	174 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF



LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- (A) 3/4 HR FIRE PROOF SELF CLOSING
- (B) 1 1/2 HR FIRE PROOF SELF CLOSING
- (C) 3 HR FIRE PROOF SELF CLOSING
- (SD) SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
   - BTW RESIDENTIAL UNITS: 1HR
   - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
   - COMPACTOR ROOM: 3HR
3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR
4. SEE ENLARGED PLANS FOR WINDOW TYPES
5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B, ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS EXIT ACCESS CORRIDORS	CLASS B CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY: NO. OF OCCUPANTS 0.2" PER OCC	CAPACITY: NO. OF OCCUPANTS 0.3" PER OCC	CORRIDORS: MIN WIDTH	CORRIDORS: DEAD END
R2	200'	DOORS	STAIRS		
M	200'	180	120	44"	80'

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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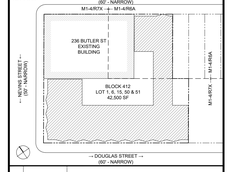
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 4TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-014.00

CADD FILE No.:
OF###

1 4TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	17,060 SF	200	85	TABLE 1004.1.1
TOTAL (R-2)	**17,060 SF**		85	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 85 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 85 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-3"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (C+B)	MAX. 200'-0"	190'-2"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A) LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+E)	MAX. 80'-0"	64'-5"	COMPLIES	1018.4.4
	MIN. 15'-0"	269'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION		NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION		COMPLIES	1203.4.1.4.1

NATURAL LIGHT		NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED		COMPLIES	1205.2.1

HABITABLE SPACE		NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM		COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.		COMPLIES	1208.3.2

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
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PROVIDED	8 SF

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LIGHT REQ'D 10%	13 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

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LIGHT REQ'D 10%	18 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	21

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LIGHT REQ'D 10%	18 SF
PROVIDED	53 SF
VENTILATION REQ'D 5%	9 SF
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PROVIDED	40 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	171 SF
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PROVIDED	10 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	114 SF
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PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	21 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	162 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	121 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	29 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	117 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	19 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	13 SF

HABITABLE FLOOR AREA	167 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	152 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	118 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	188 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	75 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	29 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	162 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	136 SF
LIGHT REQ'D 10%	14 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	161 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	117 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

TRAVEL DISTANCE A = 84'-5"
DEAD END CORRIDOR = 84'-3"

TRAVEL DISTANCE B = 147'-11"

TRAVEL DISTANCE C = 42'-2"

DIAGONAL DISTANCE = 272'-9"

DIAGONAL DISTANCE D = 54'-10"

TRAVEL DISTANCE E = 112'-5"

TRAVEL DISTANCE F = 58'-7"
DEAD END CORRIDOR = 58'-7"

EXIT
STAIR A

EXIT
STAIR B

5'-0"

5'-10"

5'-10"

5'-10

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	16,681 SF	200	83	TABLE 1004.1.1
TOTAL (R-2)	**16,681 SF**		83	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 83 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 83 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-7"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (C+B)	MAX. 200'-0"	190'-2"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A) LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+E)	MIN. 15'-0"	269'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION	NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION	COMPLIES	1203.4.1.4.1

NATURAL LIGHT	NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2

HABITABLE FLOOR AREA	104 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	62 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	32 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	106 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	129 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	181 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	177 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	114 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	20 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	15 SF

HABITABLE FLOOR AREA	166 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	149 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	113 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	193 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	126 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	152 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	110 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	117 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	91 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	87 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	4 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	95 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	192 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	146 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	108 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	170 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	150 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

TRAVEL DISTANCE A = 64'-5"
DEAD END CORRIDOR = 64'-5"
TRAVEL DISTANCE B = 147'-11"
TRAVEL DISTANCE C = 42'-2"
TRAVEL DISTANCE D = 112'-5"
TRAVEL DISTANCE E = 58'-7"
TRAVEL DISTANCE F = 58'-7"
DEAD END CORRIDOR = 58'-7"
DIAGONAL DISTANCE = 272'-9"
EXIT STAIR A
EXIT STAIR B
5'-10"
5'-5"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- A — 3/4 HR FIRE PROOF SELF CLOSING
- B — 1 1/2 HR FIRE PROOF SELF CLOSING
- C — 3 HR FIRE PROOF SELF CLOSING
- SD — SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
   - BTW RESIDENTIAL UNITS: 1HR
   - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
   - COMPACTOR ROOM: 3HR
3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR
4. SEE ENLARGED PLANS FOR WINDOW TYPES
5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B, ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC		
		DOORS	STAIRS		
R2	200'				
M	200'	180	120	44"	80'

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE. NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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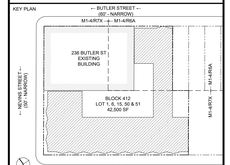
KEY PLAN



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PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

LIFE SAFETY PLAN - 6TH-7TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-016.00

CADD FILE No.:
OF

1 6TH - 7TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	16,145 SF	200	81	TABLE 1004.1.1
TOTAL (R-2)	**16,145 SF**		81	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 81 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 81 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-7"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (C+B)	MAX. 200'-0"	190'-2"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A) LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+E)	MAX. 80'-0"	64'-5"	COMPLIES	1018.4.4
	MIN. 15'-0"	269'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION			NYC BC 2014
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION		COMPLIES	1203.4.1.4.1

NATURAL LIGHT			NYC BC 2014
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED		COMPLIES	1205.2.1

HABITABLE SPACE			NYC BC 2014
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM		COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.		COMPLIES	1208.3.2

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	36 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	187 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	133 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	177 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	47 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	13 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	47 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	13 SF

HABITABLE FLOOR AREA	114 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	166 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	100 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	193 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	80 SF
LIGHT REQ'D 10%	8 SF
PROVIDED	36 SF
VENTILATION REQ'D 5%	4 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	99 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	36 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	104 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	21 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	29 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	117 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	126 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	13 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	170 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	55 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	152 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	167 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	123 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	40 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	54 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	10 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	91 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	21 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	95 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	110 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	75 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	29 SF

HABITABLE FLOOR AREA	117 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	87 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	4 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	192 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	21 SF

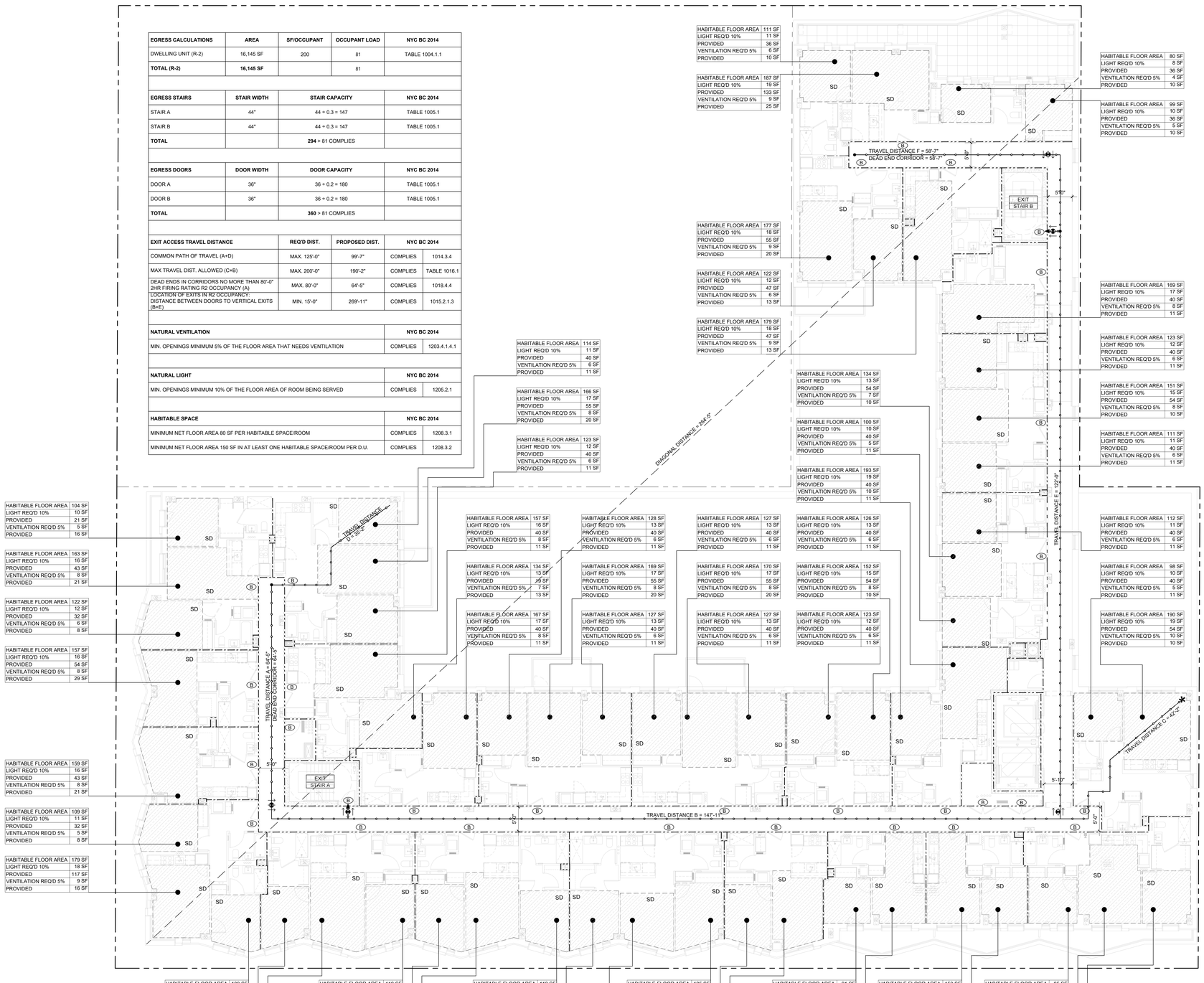
HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	118 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	75 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	29 SF

HABITABLE FLOOR AREA	147 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	43 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	108 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	32 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF



1 8TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- A — 3/4 HR FIRE PROOF SELF CLOSING
- B — 1 1/2 HR FIRE PROOF SELF CLOSING
- C — 3 HR FIRE PROOF SELF CLOSING
- SD — SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
   - BTW RESIDENTIAL UNITS: 1HR
   - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
   - COMPACTOR ROOM: 3HR
3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR
4. SEE ENLARGED PLANS FOR WINDOW TYPES
5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B, ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC		
		DOORS	STAIRS		
R2	200'	180	120	44"	80'
M	200'				

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER.
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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ACOUSTIC

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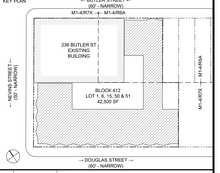

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BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 8TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-018.00

CADD FILE No.: ## OF###

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	11,842 SF	200	59	TABLE 1004.1.1
ROOF TERRACE (R-2)	2699 SF	200	13	TABLE 1004.1.1
AMENITY 1	592 SF	50	12	TABLE 1004.1.1
TOTAL (R-2)	**15,133 SF**		85	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 85 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 85 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-7"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (G+B)	MAX. 200'-0"	104'-11"	COMPLIES	TABLE 1016.1
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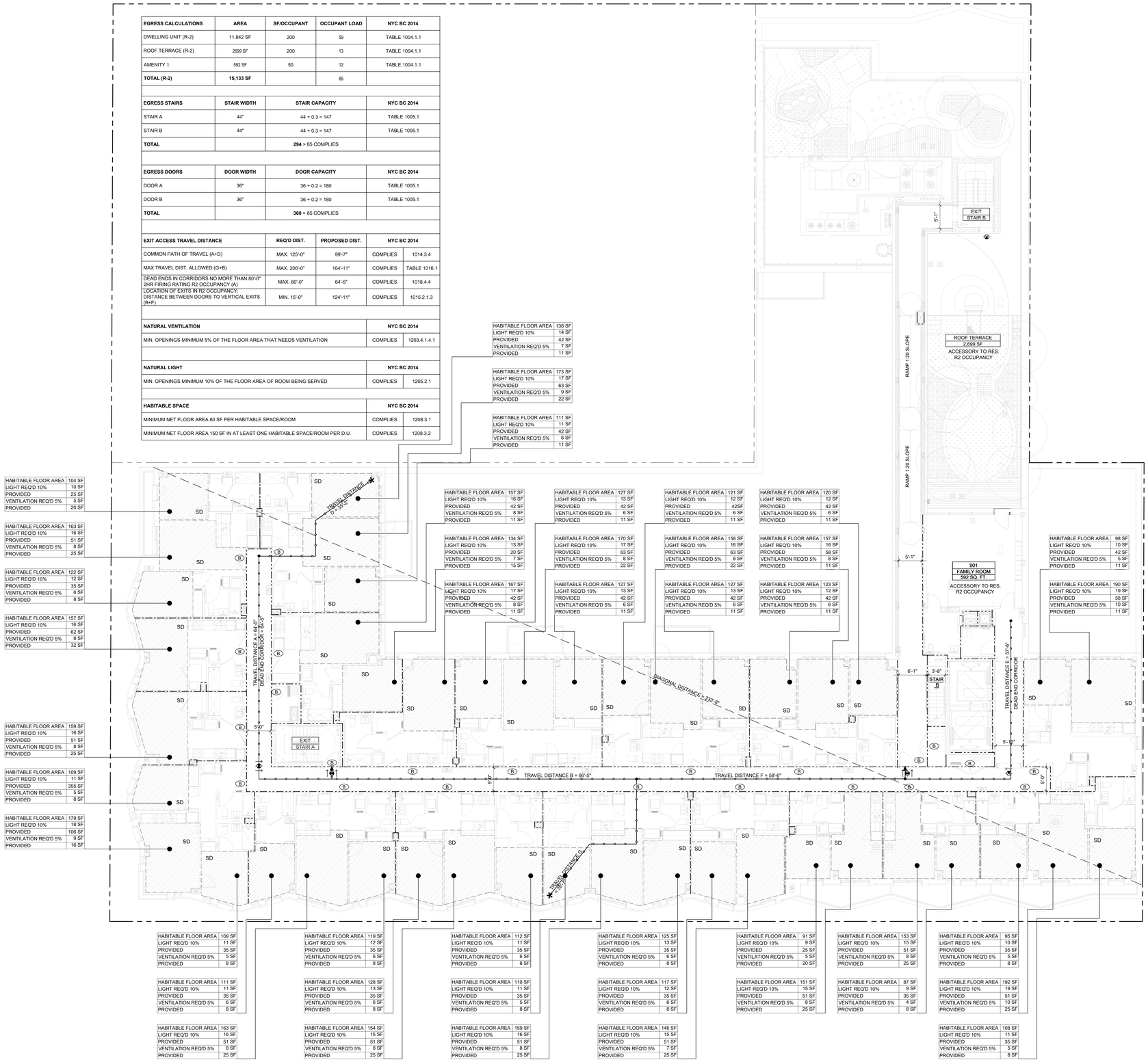
LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+F)	MIN. 15'-0"	124'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION	NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION	COMPLIES	1203.4.1.4.1

NATURAL LIGHT	NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2



1 9TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- A — 3/4 HR FIRE PROOF SELF CLOSING
- B — 1 1/2 HR FIRE PROOF SELF CLOSING
- C — 3 HR FIRE PROOF SELF CLOSING
- SD — SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13

2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
- COMPACTOR ROOM: 3HR

3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR

4. SEE ENLARGED PLANS FOR WINDOW TYPES

5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B. ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS EXIT ACCESS CORRIDORS	CLASS B CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY			CORRIDORS	
		NO. OF OCCUPANTS			MIN. WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC			
		DOORS	STAIRS			
R2	200'	180	120		44"	80'
M	200'					

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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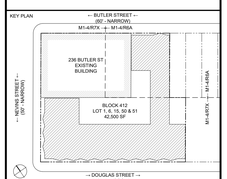
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 9TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-019.00

CADD FILE No.: ## OF###

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	12,140 SF	200	61	TABLE 1004.1.1
TOTAL (R-2)	**12,140 SF**		61	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 61 COMPLIES	

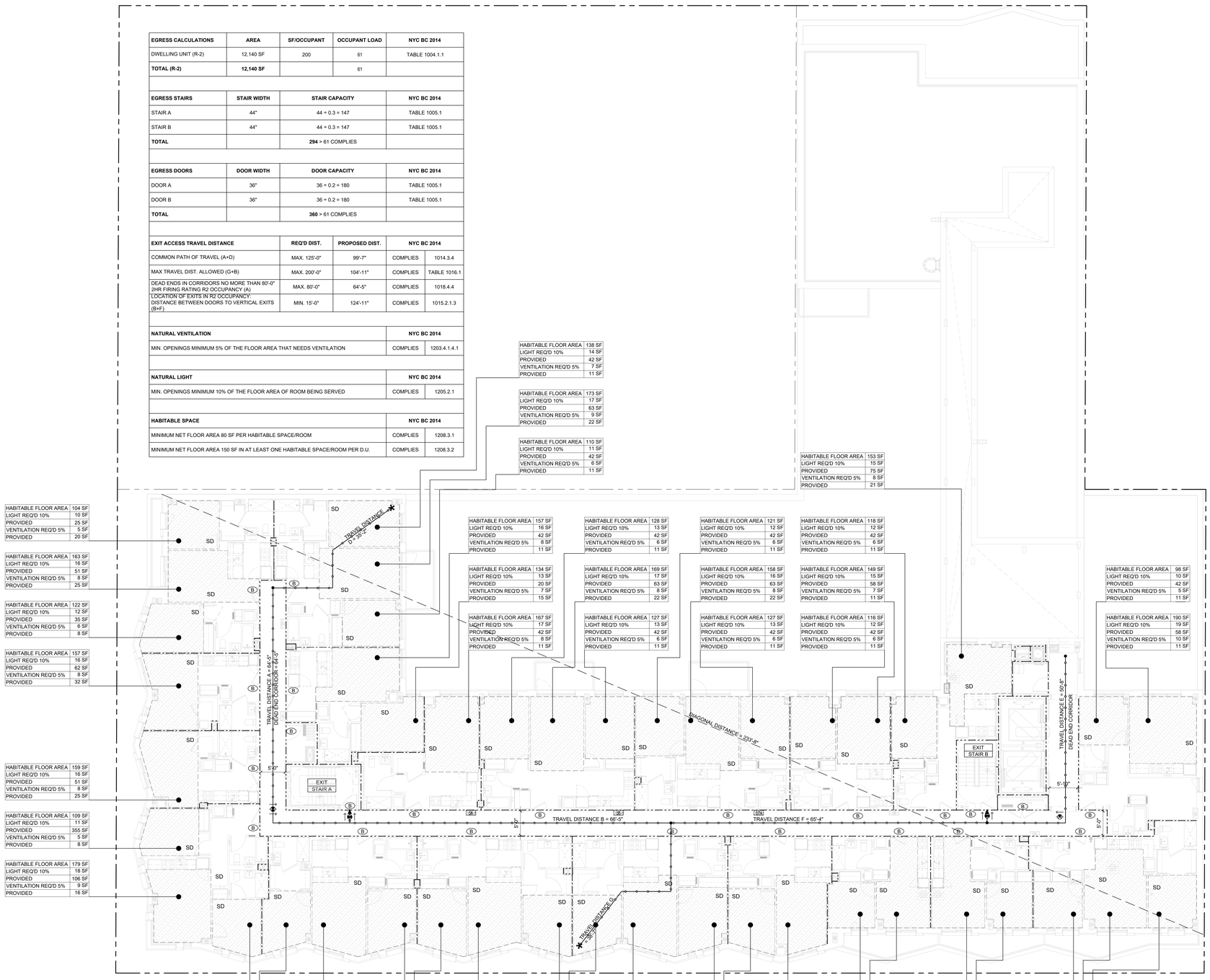
EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 61 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-7"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (G+B)	MAX. 200'-0"	104'-11"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A)	MAX. 80'-0"	64'-5"	COMPLIES	1018.4.4
LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+F)	MIN. 15'-0"	124'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION	NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION	COMPLIES	1203.4.1.4.1

NATURAL LIGHT	NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2



HABITABLE FLOOR AREA	104 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	62 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	32 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	355 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	106 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	16 SF

HABITABLE FLOOR AREA	138 SF
LIGHT REQ'D 10%	14 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	173 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	110 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	75 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	121 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	118 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	20 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	15 SF

HABITABLE FLOOR AREA	169 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	158 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	63 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	149 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	167 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	116 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	126 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	91 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	20 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	95 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
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HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	110 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	118 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	87 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	4 SF
PROVIDED	8 SF

HABITABLE FLOOR AREA	192 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	163 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	146 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	108 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	35 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	8 SF

1 10TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

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GENERAL NOTES:

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2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
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3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR

4. SEE ENLARGED PLANS FOR WINDOW TYPES

5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
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CONSTRUCTION ELEMENT	RATING IN HOURS
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(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC		
		DOORS	STAIRS		
R2	200'				
M	200'	180	120	44"	80'

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
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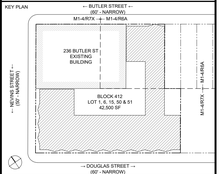
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 10TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-020.00

CADD FILE No.:
OF

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
DWELLING UNIT (R-2)	12,140 SF	200	61	TABLE 1004.1.1
TOTAL (R-2)	**12,140 SF**		61	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 61 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 61 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (A+D)	MAX. 125'-0"	99'-7"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (G+B)	MAX. 200'-0"	104'-11"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY (A)	MAX. 80'-0"	64'-5"	COMPLIES	1018.4.4
LOCATION OF EXITS IN R2 OCCUPANCY: DISTANCE BETWEEN DOORS TO VERTICAL EXITS (B+F)	MIN. 15'-0"	124'-11"	COMPLIES	1015.2.1.3

NATURAL VENTILATION	NYC BC 2014	
MIN. OPENINGS MINIMUM 5% OF THE FLOOR AREA THAT NEEDS VENTILATION	COMPLIES	1203.4.1.4.1

NATURAL LIGHT	NYC BC 2014	
MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2

HABITABLE FLOOR AREA	138 SF
LIGHT REQ'D 10%	14 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	173 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	65 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	115 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	104 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	25 SF

HABITABLE FLOOR AREA	104 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	164 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	122 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	37SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	157 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	179 SF
LIGHT REQ'D 10%	18 SF
PROVIDED	132 SF
VENTILATION REQ'D 5%	9 SF
PROVIDED	45 SF

HABITABLE FLOOR AREA	158 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	121 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	118 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	134 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	21 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	15 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	65 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	65 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	21 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	167 SF
LIGHT REQ'D 10%	17 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	121 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	127 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	116 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	98 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	42 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	190 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	58 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	109 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	119 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	112 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	125 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	91 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	25 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	22 SF

HABITABLE FLOOR AREA	153 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	95 SF
LIGHT REQ'D 10%	10 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	111 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	128 SF
LIGHT REQ'D 10%	13 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	110 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	117 SF
LIGHT REQ'D 10%	12 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	6 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	151 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	87 SF
LIGHT REQ'D 10%	9 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	4 SF
PROVIDED	11 SF

HABITABLE FLOOR AREA	192 SF
LIGHT REQ'D 10%	19 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	10 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	164 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	154 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	159 SF
LIGHT REQ'D 10%	16 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	8 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	146 SF
LIGHT REQ'D 10%	15 SF
PROVIDED	51 SF
VENTILATION REQ'D 5%	7 SF
PROVIDED	26 SF

HABITABLE FLOOR AREA	108 SF
LIGHT REQ'D 10%	11 SF
PROVIDED	37 SF
VENTILATION REQ'D 5%	5 SF
PROVIDED	11 SF

TRAVEL DISTANCE = 0'-10"

TRAVEL DISTANCE A = 64'-5" DEAD END CORRIDOR = 64'-5"

DIAGONAL DISTANCE = 233'-3"

TRAVEL DISTANCE B = 66'-5"

TRAVEL DISTANCE F = 65'-4"

TRAVEL DISTANCE E = 64'-5" DEAD END CORRIDOR

TRAVEL DISTANCE D = 38'-0"

EXIT STAIR A

EXIT STAIR B

5'-0"

1 11TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- A — 3/4 HR FIRE PROOF SELF CLOSING
- B — 1 1/2 HR FIRE PROOF SELF CLOSING
- C — 3 HR FIRE PROOF SELF CLOSING
- SD — SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13

2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
- COMPACTOR ROOM: 3HR

3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR

4. SEE ENLARGED PLANS FOR WINDOW TYPES

5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS		
CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58-87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B, ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS EXIT ACCESS CORRIDORS	CLASS B CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
		0.2" PER OCC	0.3" PER OCC		
		DOORS	STAIRS		
R2	200'	180	120	44"	80'
M	200'				

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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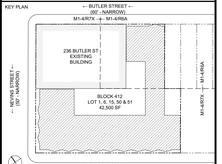
ACOUSTIC

KEY PLAN



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CADD FILE No.: ## OF###

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MIN. OPENINGS MINIMUM 10% OF THE FLOOR AREA OF ROOM BEING SERVED	COMPLIES	1205.2.1

HABITABLE SPACE	NYC BC 2014	
MINIMUM NET FLOOR AREA 80 SF PER HABITABLE SPACE/ROOM	COMPLIES	1208.3.1
MINIMUM NET FLOOR AREA 150 SF IN AT LEAST ONE HABITABLE SPACE/ROOM PER D.U.	COMPLIES	1208.3.2

	FL12	FL13	FL14
HABITABLE FLOOR AREA	138 SF	138 SF	138 SF
LIGHT REQ'D 10%	14 SF	14 SF	14 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	7 SF	7 SF	7 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	173 SF	173 SF	173 SF
LIGHT REQ'D 10%	17 SF	17 SF	17 SF
PROVIDED	63 SF	65 SF	72 SF
VENTILATION REQ'D 5%	9 SF	9 SF	9 SF
PROVIDED	22 SF	22 SF	29 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	157 SF	157 SF	157 SF
LIGHT REQ'D 10%	16 SF	16 SF	16 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	8 SF	8 SF	8 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	134 SF	134 SF	134 SF
LIGHT REQ'D 10%	13 SF	13 SF	13 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	7 SF	7 SF	7 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	134 SF	134 SF	134 SF
LIGHT REQ'D 10%	13 SF	13 SF	13 SF
PROVIDED	21 SF	21 SF	23 SF
VENTILATION REQ'D 5%	7 SF	7 SF	7 SF
PROVIDED	15 SF	15 SF	18 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	167 SF	167 SF	167 SF
LIGHT REQ'D 10%	17 SF	17 SF	17 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	8 SF	8 SF	8 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	127 SF	127 SF	127 SF
LIGHT REQ'D 10%	13 SF	13 SF	13 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	6 SF	6 SF	6 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	153 SF	153 SF	153 SF
LIGHT REQ'D 10%	15 SF	15 SF	15 SF
PROVIDED	63 SF	65 SF	72 SF
VENTILATION REQ'D 5%	8 SF	8 SF	8 SF
PROVIDED	22 SF	21 SF	29 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	121 SF	121 SF	121 SF
LIGHT REQ'D 10%	12 SF	12 SF	12 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	6 SF	6 SF	6 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	121 SF	121 SF	121 SF
LIGHT REQ'D 10%	12 SF	12 SF	12 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	6 SF	6 SF	6 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	153 SF	153 SF	153 SF
LIGHT REQ'D 10%	15 SF	15 SF	15 SF
PROVIDED	63 SF	65 SF	72 SF
VENTILATION REQ'D 5%	8 SF	8 SF	8 SF
PROVIDED	22 SF	21 SF	29 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	127 SF	127 SF	127 SF
LIGHT REQ'D 10%	12 SF	12 SF	12 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	6 SF	6 SF	6 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	116 SF	116 SF	116 SF
LIGHT REQ'D 10%	12 SF	12 SF	12 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	6 SF	6 SF	6 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	149 SF	149 SF	149 SF
LIGHT REQ'D 10%	15 SF	15 SF	15 SF
PROVIDED	58 SF	58 SF	65 SF
VENTILATION REQ'D 5%	7 SF	7 SF	7 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	118 SF	118 SF	118 SF
LIGHT REQ'D 10%	12 SF	12 SF	12 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	6 SF	6 SF	6 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	153 SF	153 SF	153 SF
LIGHT REQ'D 10%	15 SF	15 SF	15 SF
PROVIDED	100 SF	100 SF	110 SF
VENTILATION REQ'D 5%	8 SF	8 SF	8 SF
PROVIDED	24 SF	24 SF	26 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	98 SF	98 SF	98 SF
LIGHT REQ'D 10%	10 SF	10 SF	10 SF
PROVIDED	42 SF	42 SF	48 SF
VENTILATION REQ'D 5%	5 SF	5 SF	5 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	190 SF	190 SF	190 SF
LIGHT REQ'D 10%	19 SF	19 SF	19 SF
PROVIDED	58 SF	58 SF	65 SF
VENTILATION REQ'D 5%	10 SF	10 SF	10 SF
PROVIDED	11 SF	11 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	104 SF	104 SF
LIGHT REQ'D 10%	10 SF	10 SF
PROVIDED	25 SF	28 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	20 SF	24 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	154 SF	154 SF
LIGHT REQ'D 10%	15 SF	15 SF
PROVIDED	51 SF	57 SF
VENTILATION REQ'D 5%	8 SF	8 SF
PROVIDED	25 SF	28 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	98 SF	98 SF
LIGHT REQ'D 10%	10 SF	10 SF
PROVIDED	38 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	11 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	103 SF	103 SF
LIGHT REQ'D 10%	10 SF	10 SF
PROVIDED	38 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	11 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	93 SF	93 SF
LIGHT REQ'D 10%	9 SF	9 SF
PROVIDED	38 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	11 SF	13 SF

	FL12	FL13	FL14
HABITABLE FLOOR AREA	205 SF	205 SF	205 SF
LIGHT REQ'D 10%	21 SF	21 SF	21 SF
PROVIDED	113 SF	111 SF	142 SF
VENTILATION REQ'D 5%	10 SF	10 SF	10 SF
PROVIDED	56 SF	40 SF	50 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	119 SF	119 SF
LIGHT REQ'D 10%	12 SF	12 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	6 SF	6 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	119 SF	119 SF
LIGHT REQ'D 10%	12 SF	12 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	6 SF	6 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	183 SF	183 SF
LIGHT REQ'D 10%	18 SF	18 SF
PROVIDED	51 SF	57 SF
VENTILATION REQ'D 5%	9 SF	9 SF
PROVIDED	25 SF	28 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	94 SF	94 SF
LIGHT REQ'D 10%	9 SF	9 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	175 SF	175 SF
LIGHT REQ'D 10%	18 SF	18 SF
PROVIDED	75 SF	85 SF
VENTILATION REQ'D 5%	9 SF	9 SF
PROVIDED	45 SF	52 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	99 SF	99 SF
LIGHT REQ'D 10%	10 SF	10 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	91 SF	91 SF
LIGHT REQ'D 10%	9 SF	9 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	151 SF	151 SF
LIGHT REQ'D 10%	15 SF	15 SF
PROVIDED	51 SF	57 SF
VENTILATION REQ'D 5%	8 SF	8 SF
PROVIDED	25 SF	28 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	153 SF	153 SF
LIGHT REQ'D 10%	15 SF	15 SF
PROVIDED	51 SF	57 SF
VENTILATION REQ'D 5%	8 SF	8 SF
PROVIDED	25 SF	28 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	87 SF	87 SF
LIGHT REQ'D 10%	9 SF	9 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	4 SF	4 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	95 SF	95 SF
LIGHT REQ'D 10%	10 SF	10 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	8 SF	13 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	193 SF	193 SF
LIGHT REQ'D 10%	19 SF	19 SF
PROVIDED	51 SF	57 SF
VENTILATION REQ'D 5%	10 SF	10 SF
PROVIDED	25 SF	28 SF

	FL12-13	FL14
HABITABLE FLOOR AREA	108 SF	108 SF
LIGHT REQ'D 10%	11 SF	11 SF
PROVIDED	35 SF	43 SF
VENTILATION REQ'D 5%	5 SF	5 SF
PROVIDED	8 SF	13 SF

TRAVEL DISTANCE C = 39'-2"

TRAVEL DISTANCE A = 64'-5" DEAD END CORRIDOR = 64'-5"

TRAVEL DISTANCE B = 84'-5"

TRAVEL DISTANCE F = 47'-4"

DIAGONAL DISTANCE = 233'-9"

TRAVEL DISTANCE E = 49'-8" DEAD END CORRIDOR

TRAVEL DISTANCE G = 26'-5"

EXIT STAIR A

EXIT STAIR B

5'-0"

5'-10"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- A — 3/4 HR FIRE PROOF SELF CLOSING
- B — 1 1/2 HR FIRE PROOF SELF CLOSING
- C — 3 HR FIRE PROOF SELF CLOSING
- SD — SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13

2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
- COMPACTOR ROOM: 3HR

3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR

4. SEE ENLARGED PLANS FOR WINDOW TYPES

5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B. ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS: GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY		CORRIDORS	
		NO. OF OCCUPANTS		MIN WIDTH	DEAD END
R2	200'	0.2" PER OCC	0.3" PER OCC		
M	200'	DOORS	STAIRS	44"	80'
		180	120		

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER.
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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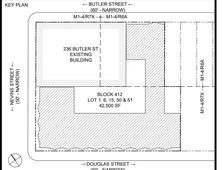
KEY PLAN



No.	DATE	ISSUE
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05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 12TH-14TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-022.00

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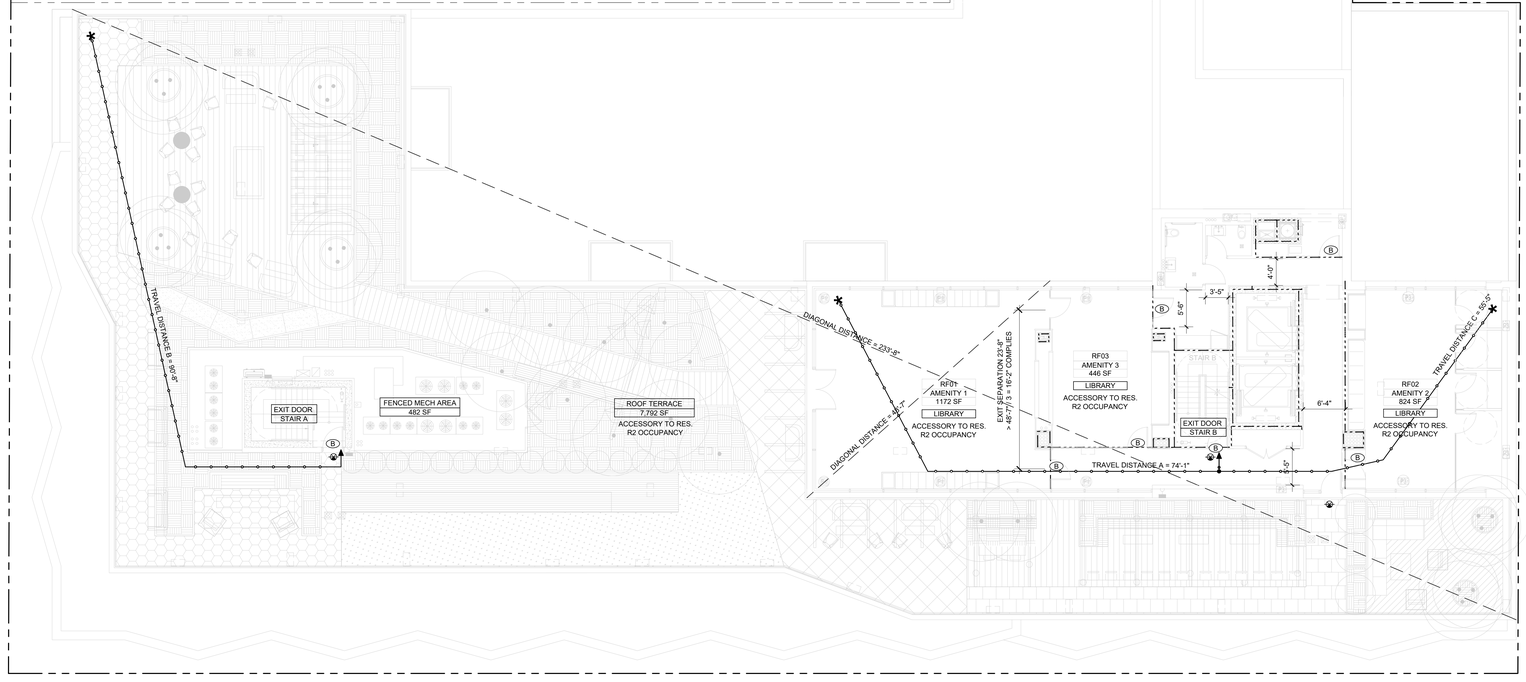
1 12TH - 14TH FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

EGRESS CALCULATIONS	AREA	SF/OCCUPANT	OCCUPANT LOAD	NYC BC 2014
ROOF TERRACE (R-2)	7,792 SF	200	39	TABLE 1004.1.1
AMENITY 1 (R-2)	1,172 SF	50	23	TABLE 1004.1.1
AMENITY 2 (R-2)	825 SF	50	16	TABLE 1004.1.1
AMENITY 2 (R-2)	446	50	9	TABLE 1004.1.1
MECHANCIAL	482 SF	300	2	TABLE 1004.1.1
TOTAL (R-2)	**10,716 SF**		89	

EGRESS STAIRS	STAIR WIDTH	STAIR CAPACITY	NYC BC 2014
STAIR A	44"	44 = 0.3 = 147	TABLE 1005.1
STAIR B	44"	44 = 0.3 = 147	TABLE 1005.1
TOTAL		**294** > 89 COMPLIES	

EGRESS DOORS	DOOR WIDTH	DOOR CAPACITY	NYC BC 2014
DOOR A	36"	36 = 0.2 = 180	TABLE 1005.1
DOOR B	36"	36 = 0.2 = 180	TABLE 1005.1
TOTAL		**360** > 89 COMPLIES	

EXIT ACCESS TRAVEL DISTANCE	REQ'D DIST.	PROPOSED DIST.	NYC BC 2014	
COMMON PATH OF TRAVEL (B)	MAX. 125'-0"	90'-8"	COMPLIES	1014.3.4
MAX TRAVEL DIST. ALLOWED (B)	MAX. 200'-0"	90'-8"	COMPLIES	TABLE 1016.1
DEAD ENDS IN CORRIDORS NO MORE THAN 80'-0" 2HR FIRING RATING R2 OCCUPANCY	MAX. 80'-0"	N/A	COMPLIES	1018.4.4
SEPARATION BETWEEN TWO EXITS	16'-2 25/64"	23'-8"	COMPLIES	1015.2.1.3



1 ROOF LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

- 1 HR RATED SEPARATION
- 2 HR RATED SEPARATION
- 3HR RATED SEPARATION
- NON RATED PARTITION
- HABITABLE SPACE
- GENERAL TRAVEL DISTANCE
- TRAVEL DISTANCE WITHIN DWELLING UNIT
- A — 3/4 HR FIRE PROOF SELF CLOSING
- B — 1 1/2 HR FIRE PROOF SELF CLOSING
- C — 3 HR FIRE PROOF SELF CLOSING
- SD — SMOKE AND CO DETECTOR
- DIRECTIONAL EXIT SIGNS

GENERAL NOTES:

1. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13

2. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
- COMPACTOR ROOM: 3HR

3. SEE WINDOW SCHEDULE FOR LIGHT AND AIR

4. SEE ENLARGED PLANS FOR WINDOW TYPES

5. ALL SHAFT WALLS TO BE 2-HR RATED U.O.N.

GENERAL BUILDING DATA:

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		TITLE 28 OF THE ADMINISTRATIVE CODE THE NEW YORK CITY CONSTRUCTION CODES (2008) LL 58.87 HANDICAPPED ACCESSIBILITY: ANSI 117.1, ALL DWELLING UNITS - TYPE B. ALL TOILET AND BATHING FACILITIES TO COMPLY WITH APPENDIX-P
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2: APARTMENT GROUP M: RETAIL
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE 1B
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE I-B	BC 503 TABLE 503	UNLIMITED STORIES
5. NATURAL LIGHT	BC 1205	LIGHTING
6. NATURAL VENTILATION	BC 1203	VENTILATION

7. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	2
BEARING WALLS _ EXTERIOR BEARING WALLS _ INTERIOR	2 2
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(a) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1[b,c]
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
	EXIT ACCESS CORRIDORS	CLASS B
BC 803 TABLE 803.5	ROOMS AND ENCLOSED SPACES	CLASS C (R2) CLASS B (M)

10. EGRESS REQUIREMENTS (FULLY SPRINKLERED)

OCC. CLASS	TRAVEL DIST.	CAPACITY			CORRIDORS
		NO. OF OCCUPANTS		MIN	DEAD
		0.2" PER OCC	0.3" PER OCC	WIDTH	END
		DOORS	STAIRS		
R2	200'	180	120	44"	80'
M	200'				

11. EXIT ACCESS TRAVEL DISTANCE TABLE 1016.1	200' FOR R2 & M. CONSTRUCTION TYPE I-B.
12. LOCATION OF EXITS 1015.2.1.3	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN.) DIST. FROM EACH OTHER
13. EXIT DOORS 1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)
14. STAIRS 1009.1	STAIRWAY WIDTH SHALL NOT BE LESS THAN 44"
15. FIRE WALL RESISTANCE RATING PER TABLE 706.4	NO LESS THAN 3 HR-RATED PER R-2 GROUP* * WALLS SHALL NOT BE LESS THAN 2 HR RATED IN TYPE 2 CONSTRUCTIONS
16. HORIZONTAL CONTINUITY PER 706.5	FIRE WALLS SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL AND SHALL EXTEND AT LEAST 18 INCHES (457 MM) BEYOND THE EXTERIOR SURFACE OF EXTERIOR WALLS.
17. VERTICAL CONTINUITY PER 706.6	FIRE WALLS SHALL EXTEND FROM THE FOUNDATION THROUGH THE ROOF, TO FORM A PARAPET AT LEAST 30 INCHES (762 MM) IN HEIGHT.
18. OPENINGS PROTECTION PER TABLE 715.4	APPROVED FIRE DOOR AND FIRE SHUTTER ASSEMBLIES SHALL BE CONSTRUCTED OF ANY MATERIAL OR ASSEMBLY OF COMPONENT MATERIALS THAT CONFORMS TO THE TEST REQUIREMENTS OF SECTION 715.4.1, 715.4.2 OR 715.4.3 AND THE FIRE PROTECTION RATING INDICATED IN TABLE 715.4.
19. POSTING OF OCCUPANT LOAD PER 1004.3	EVERY SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE DESIGN AND SHALL BE MAINTAINED BY OWNER OR AUTHORIZED AGENT.

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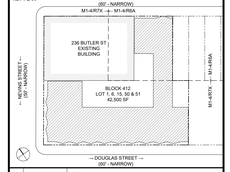
ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIFE SAFETY PLAN - 15TH FLOOR

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
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CHK BY: FFA

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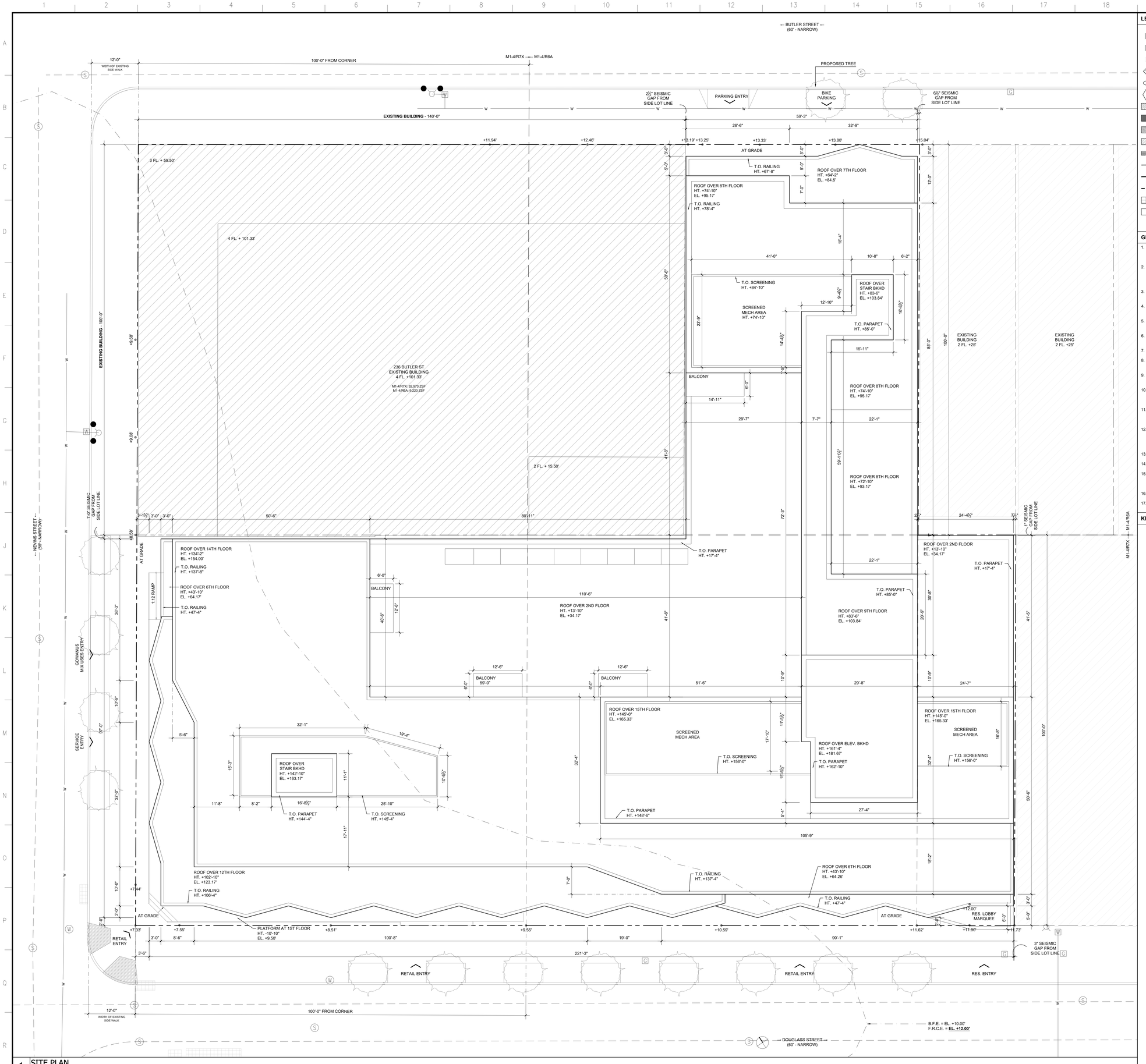

1 SITE PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101
TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

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FOGARTY | FINGER architecture | interiors
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UNION, NJ 07083

MEP ENGINEER
ETTINGER ENGINEERING ASSOCIATES
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FACADE
HATFIELD GROUP
285 WEST BROADWAY #410
NEW YORK, NY 10013

ELEVATOR
JENKINS HUNTINGTON
5 CLIMAX ROAD
AVON, CT 06001

LIGHTING
BOLD
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NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
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NEW YORK, NY 0016

LANDSCAPE
GRAIN COLLECTIVE
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GEOTECHNICAL ENGINEERING SERVICES
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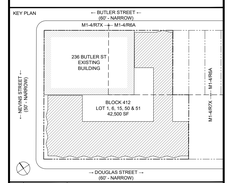
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

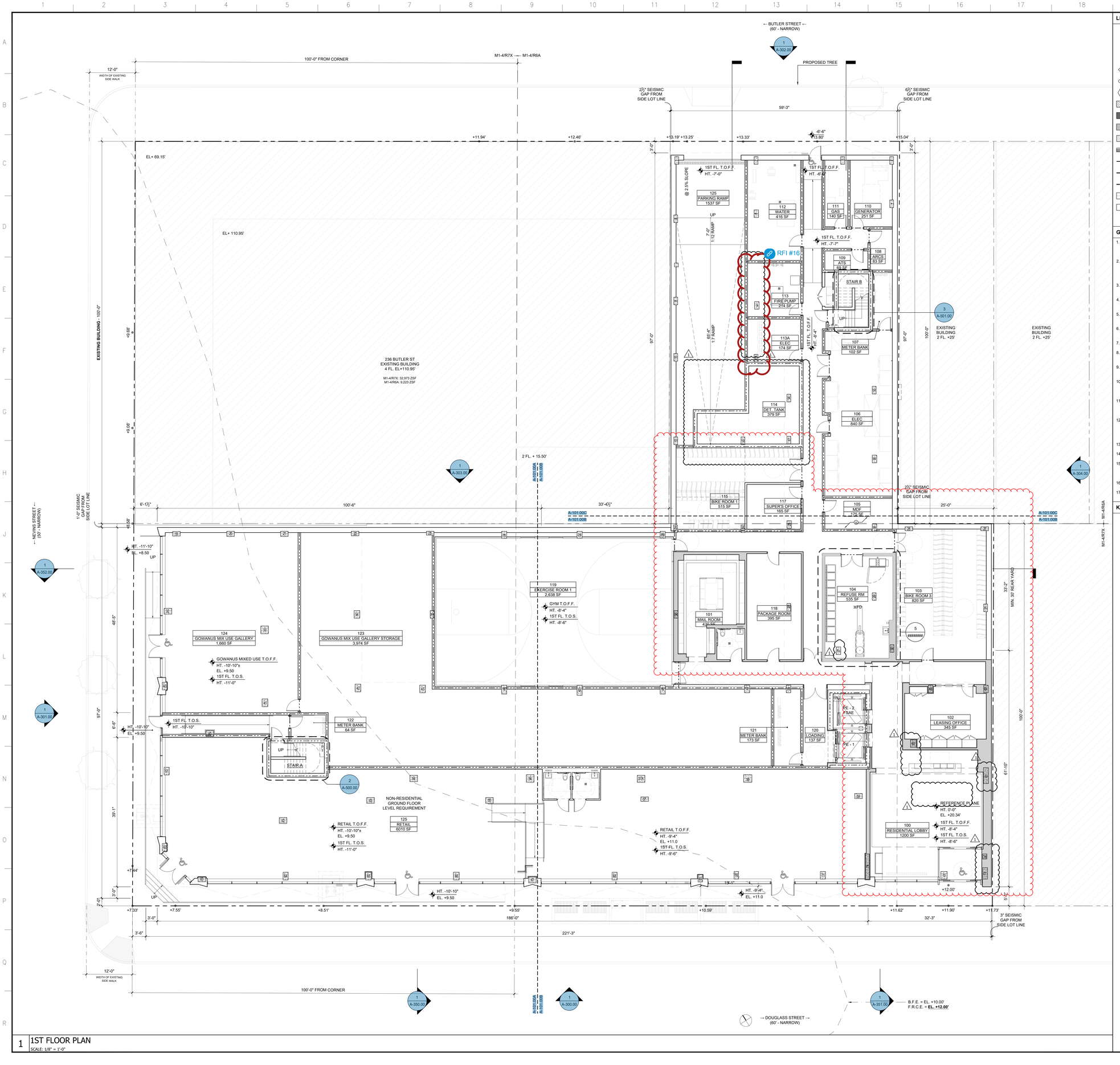
DRAWING TITLE
SITE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-090.00

CADD FILE No.:
OF###



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

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ1 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
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17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

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299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC:

FFA 04/16/2025
ASK - 009.00

LOBBY AND GROUND FLOOR AMENITY REDESIGN

07	12.13.2024	PAA ISSUANCE
06	10.07.2022	100% CD ISSUANCE
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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE
No.	DATE	ISSUE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
1ST FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2025-04-17
PROJECT No.: B00621061-11
DRAWING BY: FFA
CHK BY: FFA

A-101.00

CADD FILE No.:
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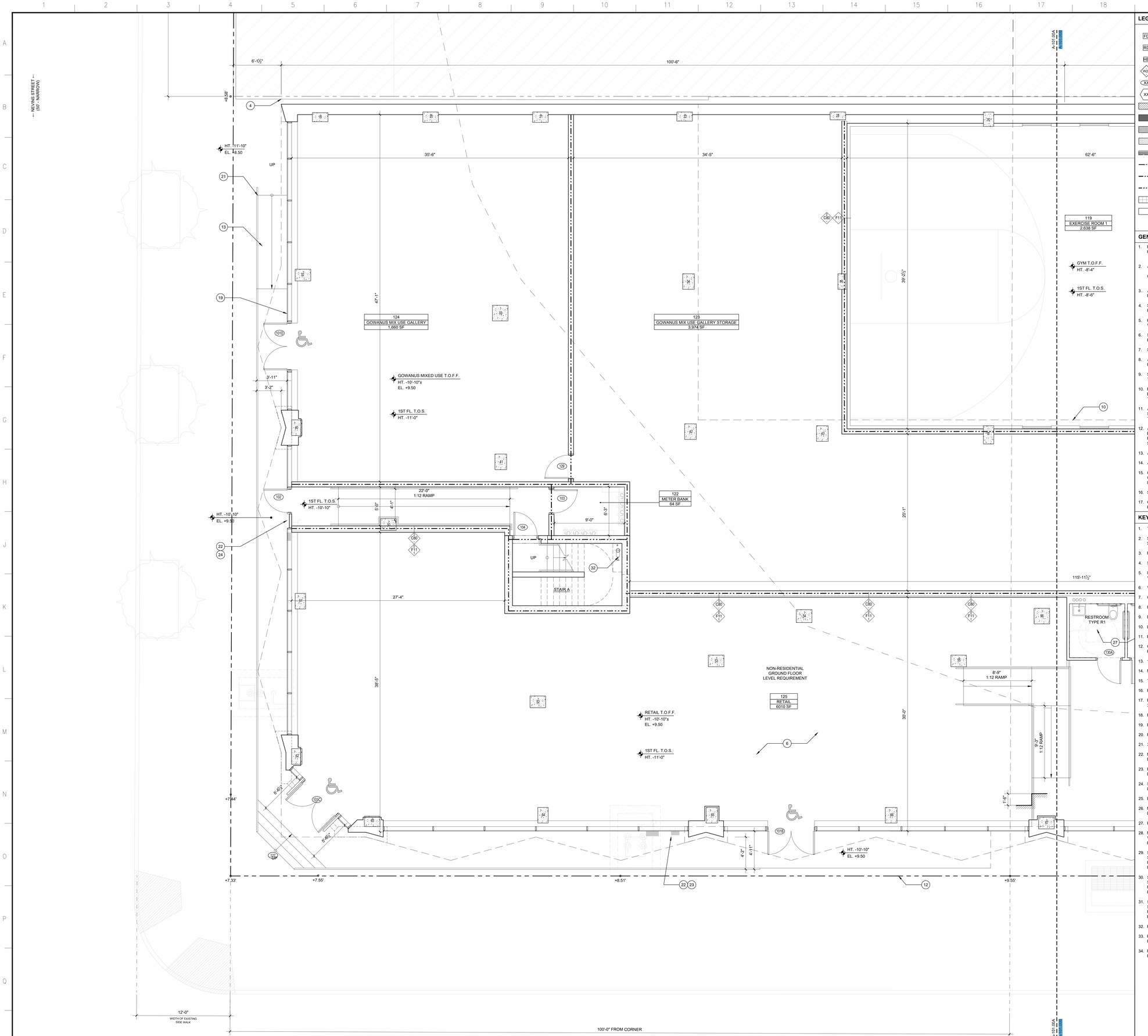

1 ENLARGED 1ST FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. TRASH COMPACTOR.
2. SEE MEP & CIVIL DRAWINGS FOR INCOMING SERVICES.
3. RECYCLING BALER.
4. SEISMIC JOINT.
5. INTERNALLY DRAINED CANOPY OVERHEAD AT VESTIBULE.
6. WHITE-BOX RETAIL SPACE BY OTHERS.
7. GLASS VESTIBULE.
8. RECEPTION DESK.
9. DETENTION TANK- SEE MEP DRAWINGS.
10. LINE OF SLAB ABOVE. TYP.
11. BIKE ROOM WITH 130 BIKES TOTAL.
12. CONCRETE PLATFORM FOR ACCESSIBLE ACCESS TO RETAIL.
13. 1:12 RAMP & PLATFORM.
14. MAIL ROOM WITH 261 MAILBOXES.
15. TRENCH DRAIN - SEE MEP DWGS.
16. ROLL UP GARAGE DOOR.
17. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
18. FIRE COMMAND STATION. SEE MEP DWGS.
19. PROVIDE ADA AUTOMATIC DOOR OPENER.
20. RECESSED VIDEO INTERCOM SYSTEM.
21. 3'-6" RAILING WITH EDGE PROTECTION
22. NFWH, SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
23. FAI. SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
24. SIAMESE CONNECTION, SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
25. ELEVATOR SUMP PIT. SEE PLUMBING DWGS.
26. MECHANICAL EQUIPMENT. COORDINATE WITH MEP DWGS.
27. FLOOR DRAIN. SEE PLUMBING DRAWINGS.
28. MAILBOXES TO BE ACCESSIBLE AND IN COMPLIANCE WITH THE FAIR HOUSING ACT AND 2014 NYC BUILDING CODE SECTION 1107.3.1
29. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 75 SPACES X 5% = 3.75 PROVIDED: 4 SPACES
30. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 20 SPACES X 5% = 1 PROVIDED: 1 SPACES
31. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 35 SPACES X 5% = 1.75 PROVIDED: 2 SPACES
32. PROVIDE CANE DETECTION AT STANDPIPE
33. PROVIDE SLOP SINK AND HOSE BIB IN COMPACTOR ROOMS, AS REQUIRED PER 2014 BC 1213.2
34. RECESSED ARCHITECTURAL WALL HEATER. WHITE FINISH. SEE MEP DRAWINGS FOR SPEC.

CLIENT
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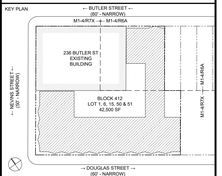
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
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07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 1ST FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-101.00A

CADD FILE No.:
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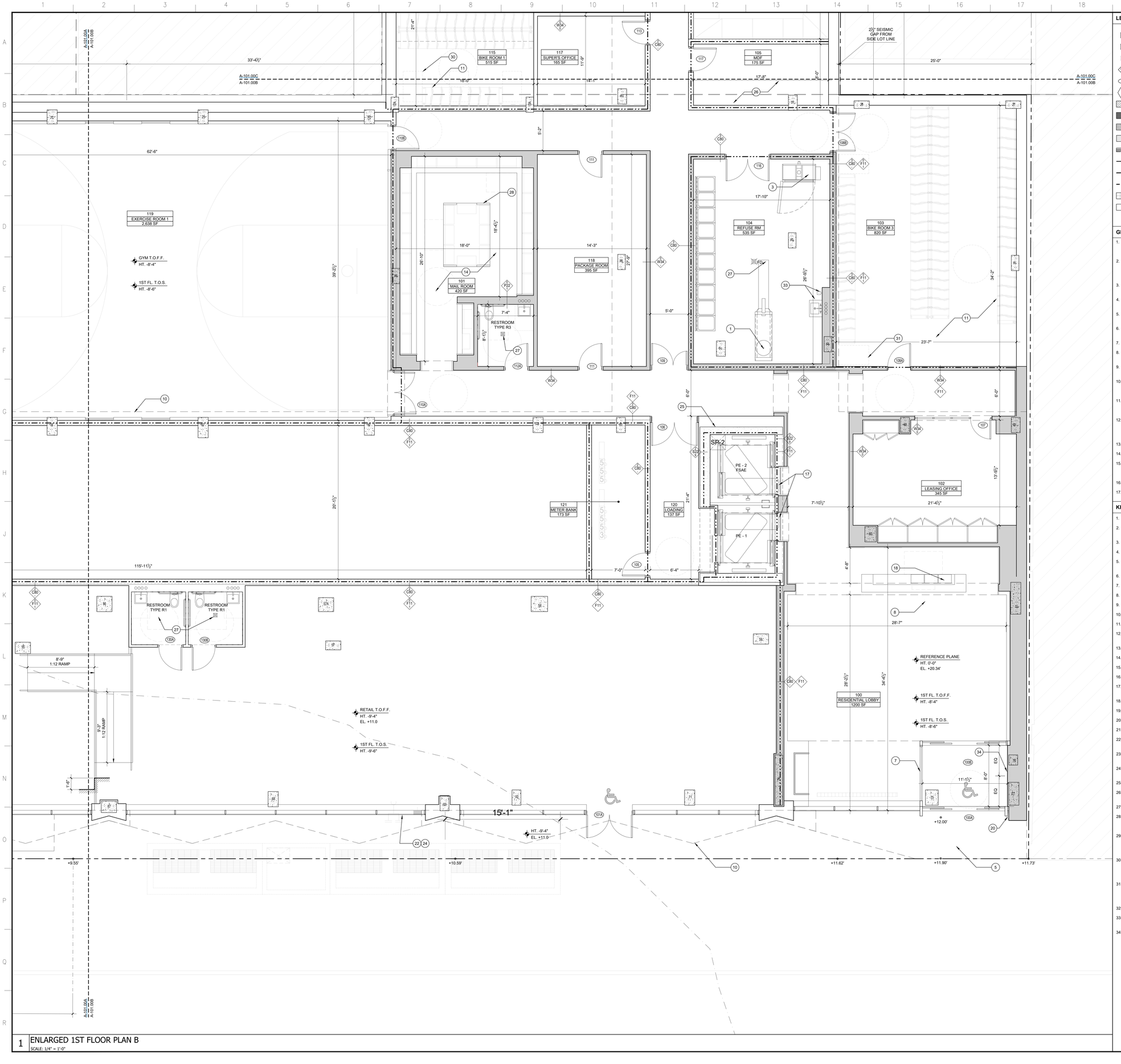

1 ENLARGED 1ST FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. TRASH COMPACTOR.
2. SEE MEP & CIVIL DRAWINGS FOR INCOMING SERVICES.
3. RECYCLING BALER.
4. SEISMIC JOINT.
5. INTERNALLY DRAINED CANOPY OVERHEAD AT VESTIBULE.
6. WHITE-BOX RETAIL SPACE BY OTHERS.
7. GLASS VESTIBULE.
8. RECEPTION DESK.
9. DETENTION TANK- SEE MEP DRAWINGS.
10. LINE OF SLAB ABOVE. TYP.
11. BIKE ROOM WITH 138 BIKES TOTAL.
12. CONCRETE PLATFORM FOR ACCESSIBLE ACCESS TO RETAIL.
13. 1:12 RAMP & PLATFORM.
14. MAIL ROOM WITH 261 MAILBOXES.
15. TRENCH DRAIN - SEE MEP DWGS.
16. ROLL UP GARAGE DOOR.
17. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
18. FIRE COMMAND STATION. SEE MEP DWGS.
19. PROVIDE ADA AUTOMATIC DOOR OPENER.
20. RECESSED VIDEO INTERCOM SYSTEM.
21. 3'-6" RAILING WITH EDGE PROTECTION
22. NFWH, SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
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29. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 75 SPACES X 5% = 3.75 PROVIDED: 4 SPACES
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34. RECESSED ARCHITECTURAL WALL HEATER. WHITE FINISH. SEE MEP DRAWINGS FOR SPEC.

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ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
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NEW YORK, NY 10007

ACOUSTIC

FFA 04/16/2025
ASK - 009.00

LOBBY AND GROUND FLOOR AMENITY REDESIGN

No.	DATE	ISSUE
07	12.13.2024	PAA ISSUANCE
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04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 1ST FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2025-04-03
PROJECT No.: B00621061-11
DRAWING BY: FFA
CHK BY: FFA

A-101.00B

CADD FILE No.:
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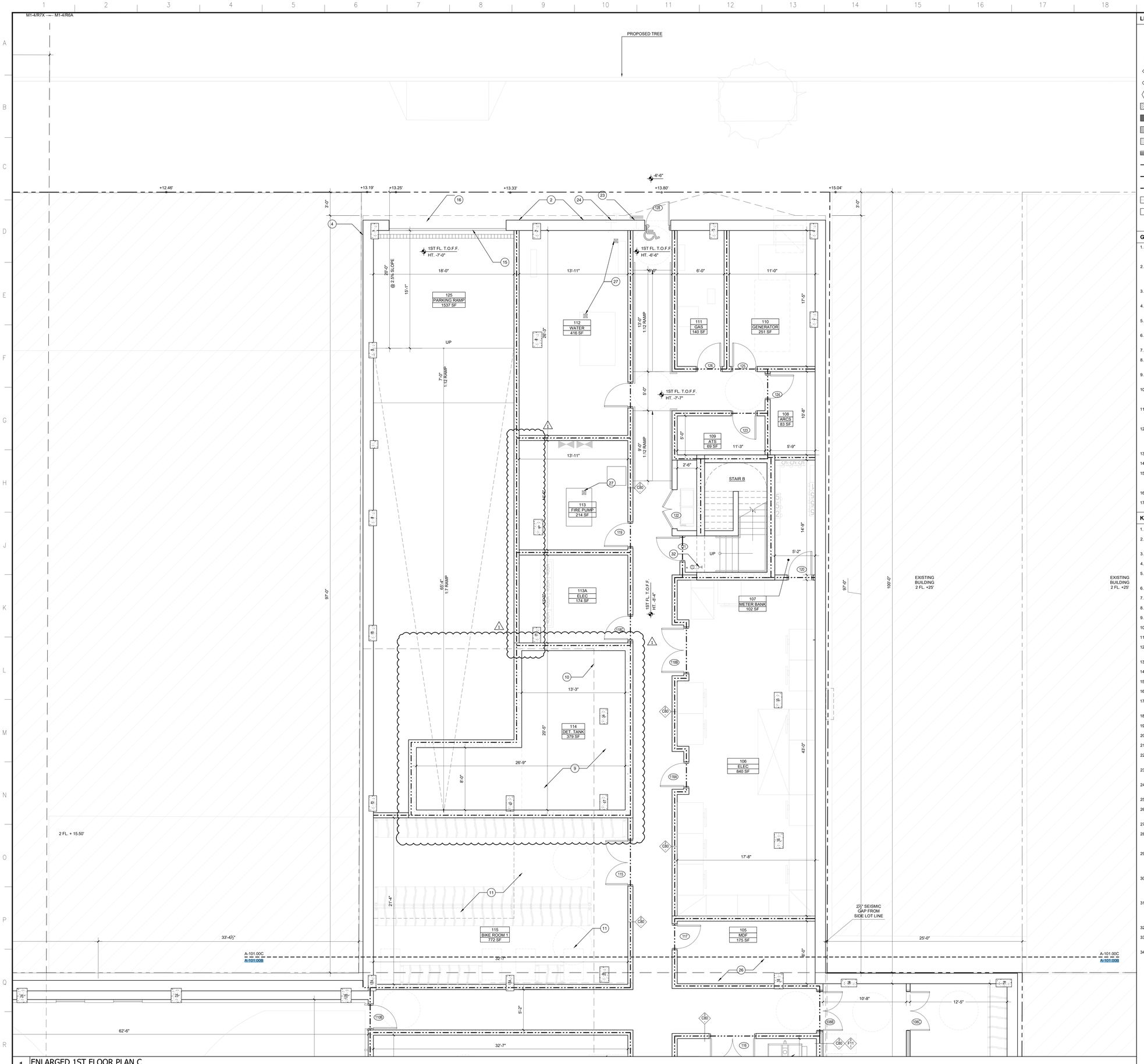

1 ENLARGED 1ST FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
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- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. TRASH COMPACTOR.
2. SEE MEP & CIVIL DRAWINGS FOR INCOMING SERVICES.
3. RECYCLING BALER.
4. SEISMIC JOINT.
5. INTERNALLY DRAINED CANOPY OVERHEAD AT VESTIBULE.
6. WHITE-BOX RETAIL SPACE BY OTHERS.
7. GLASS VESTIBULE.
8. RECEPTION DESK.
9. DETENTION TANK- SEE MEP DRAWINGS.
10. LINE OF SLAB ABOVE. TYP.
11. BIKE ROOM WITH 130 BIKES TOTAL.
12. CONCRETE PLATFORM FOR ACCESSIBLE ACCESS TO RETAIL.
13. 1:12 RAMP & PLATFORM.
14. MAIL ROOM WITH 261 MAILBOXES.
15. TRENCH DRAIN - SEE MEP DWGS.
16. ROLL UP GARAGE DOOR.
17. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3A-620 FOR DETAIL.
18. FIRE COMMAND STATION. SEE MEP DWGS.
19. PROVIDE ADA AUTOMATIC DOOR OPENER.
20. RECESSED VIDEO INTERCOM SYSTEM.
21. 3'-6" RAILING WITH EDGE PROTECTION
22. NFWH, SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
23. FAI, SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
24. SIAMESE CONNECTION, SEE ELEVATIONS FOR LOCATION. SEE MEP DRAWINGS FOR DETAILS.
25. ELEVATOR SUMP PIT. SEE PLUMBING DWGS.
26. MECHANICAL EQUIPMENT. COORDINATE WITH MEP DWGS.
27. FLOOR DRAIN. SEE PLUMBING DRAWINGS.
28. MAILBOXES TO BE ACCESSIBLE AND IN COMPLIANCE WITH THE FAIR HOUSING ACT AND 2014 NYC BUILDING CODE SECTION 1107.3.1
29. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 75 SPACES X 5% = 3.75 PROVIDED: 4 SPACES
30. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 20 SPACES X 5% = 1 PROVIDED: 1 SPACES
31. 5% OF TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE SPACES. REQUIRED: 35 SPACES X 5% = 1.75 PROVIDED: 2 SPACES
32. PROVIDE CANE DETECTION AT STANDPIPE
33. PROVIDE SLOP SINK AND HOSE BIB IN COMPACTOR ROOMS, AS REQUIRED PER 2014 BC 1213.2
34. RECESSED ARCHITECTURAL WALL HEATER. WHITE FINISH. SEE MEP DRAWINGS FOR SPEC.

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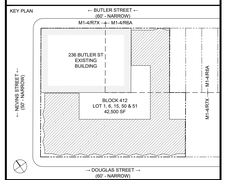

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 1ST FLOOR PLAN C

SEAL & SIGNATURE

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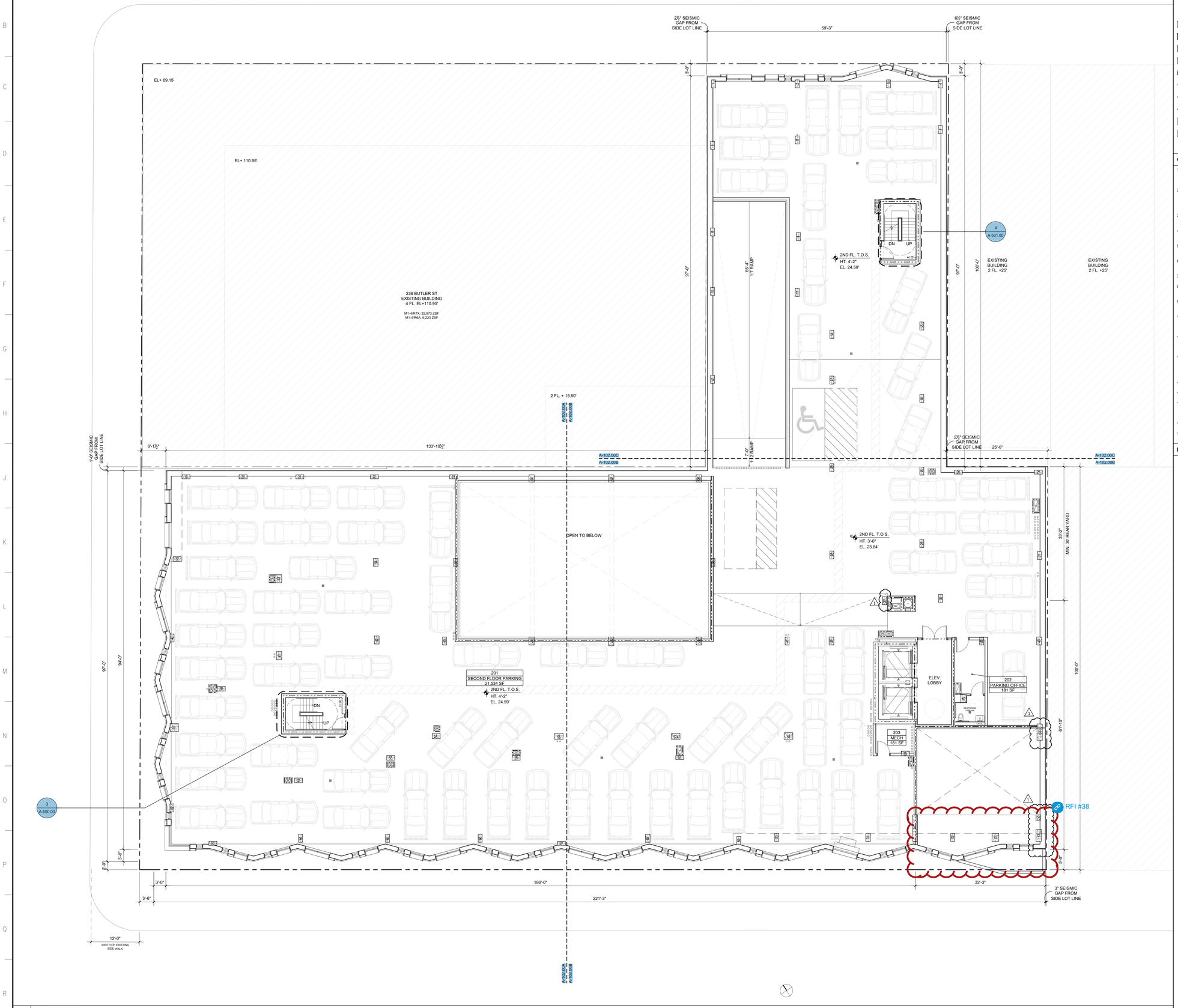
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-101.00C

CADD FILE No.:



1 2ND FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
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7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
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16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

CLIENT
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LONG ISLAND CITY, NY 11101
TAVROS HOLDINGS
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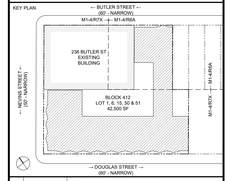

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
2ND FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-102.00

CADD FILE No.:
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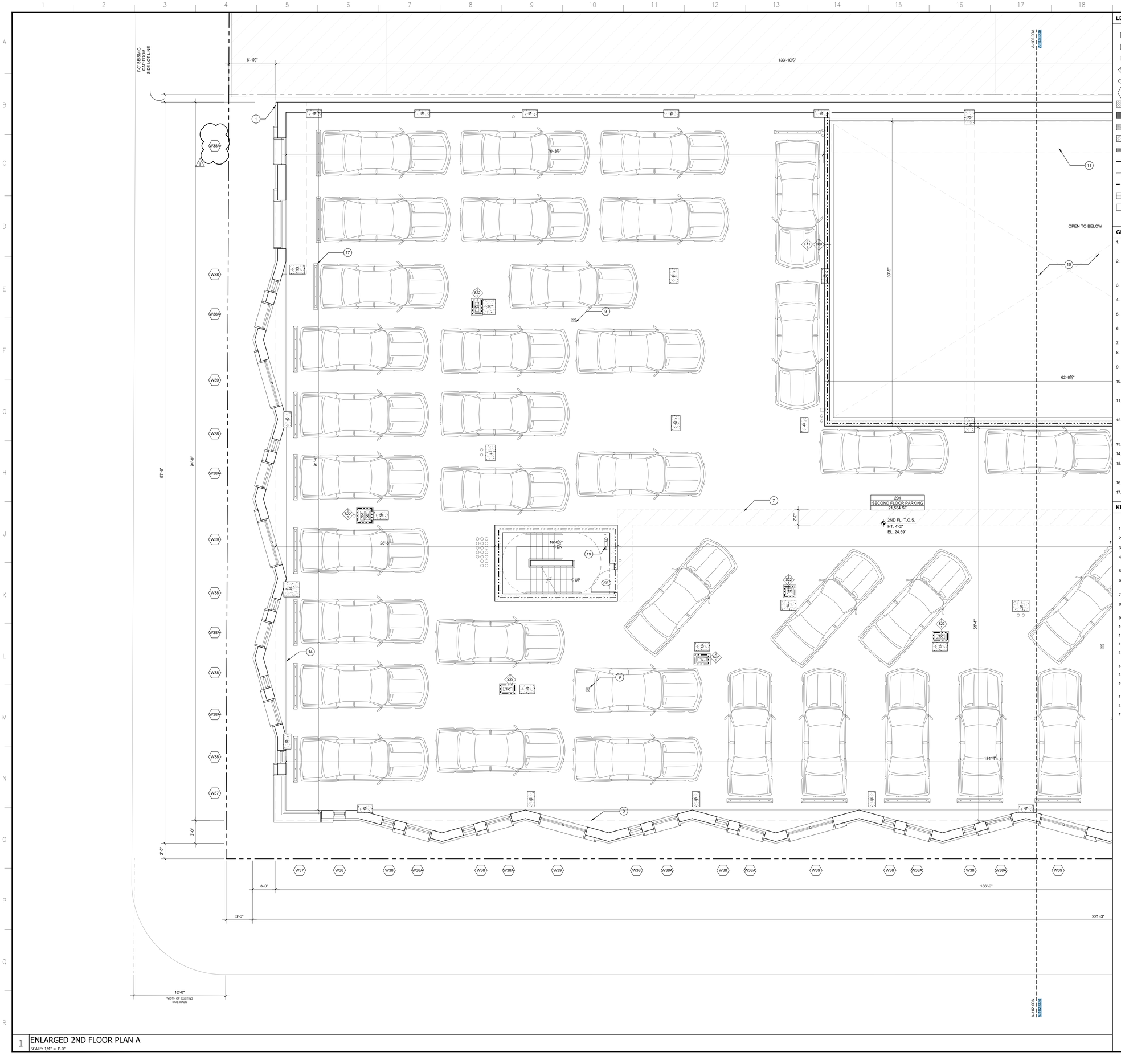

1 ENLARGED 2ND FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
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GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N.
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3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
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13. ALL CLOSETS 2'-2" DEEP U.O.N.
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16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. SEISMIC JOINT.
2. ACCESSIBLE PARKING SPACE.
3. LINE OF FLOOR BELOW TYP.
4. 1:7 RAMP UP TO STREET. TRENCH DRAIN AT BOTTOM OF RAMP
5. 1:7 PARKING RAMP
6. FULLY ATTENDED CAR PARKING (77) PARKING SPACES PROVIDED
7. 24" WIDE FIREFIGHTER ACCESS AISLE.
8. 8' X 20' VAN PASSENGER LOADING ZONE WITH 5' ACCESS AISLE.
9. FLOOR DRAIN
10. OPEN TO BELOW
11. SKYLIGHT ABOVE
12. INTERNALLY DRAINED CANOPY
13. CONCRETE BEAM TO SUPPORT CANOPY, SEE STRUCTURAL DRAWINGS.
14. CONCRETE BEAM
15. TRENCH DRAIN - SEE MEP DWGS.
16. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC3007.3. REFER TO 3/A-520 FOR DETAIL.
17. WHEEL STOPPERS
18. MECH. UNIT + LOUVERS. SEE MECH. DWGS.
19. PROVIDE CANE DETECTION AT STANDPIPE

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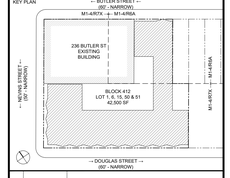

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 2ND FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-102.00A

CADD FILE No.:
15 OF 175

1 ENLARGED 2ND FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
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GENERAL NOTES

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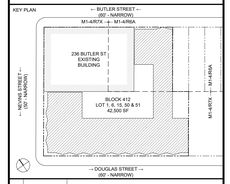

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BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 2ND FLOOR PLAN B

SEAL & SIGNATURE

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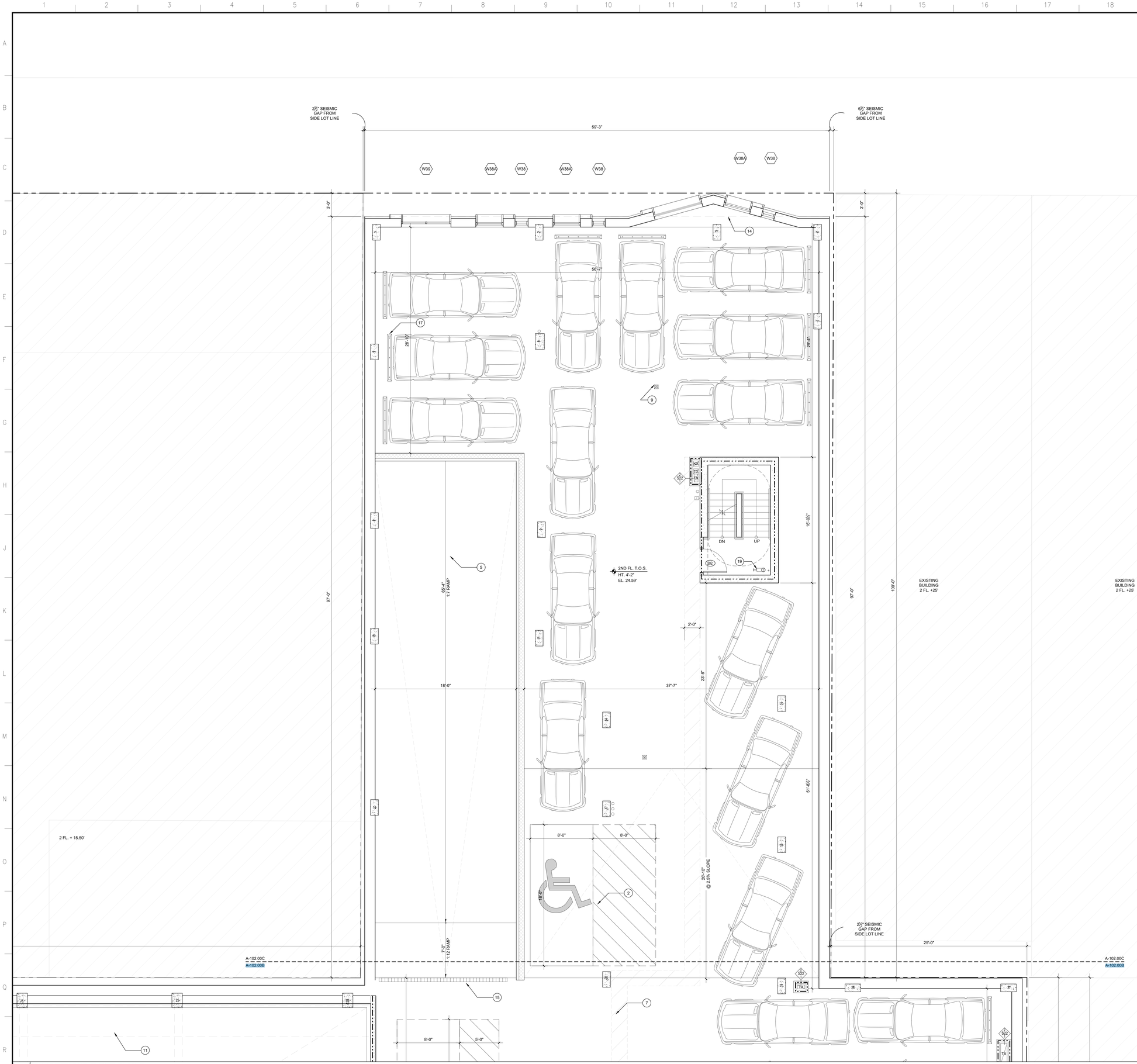

1 ENLARGED 2ND FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

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- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. SEISMIC JOINT.
2. ACCESSIBLE PARKING SPACE.
3. LINE OF FLOOR BELOW TYP.
4. 1:7 RAMP UP TO STREET. TRENCH DRAIN AT BOTTOM OF RAMP
5. 1:7 PARKING RAMP
6. FULLY ATTENDED CAR PARKING (77) PARKING SPACES PROVIDED
7. 24" WIDE FIREFIGHTER ACCESS AISLE.
8. 8' X 20' VAN PASSENGER LOADING ZONE WITH 5' ACCESS AISLE.
9. FLOOR DRAIN
10. OPEN TO BELOW
11. SKYLIGHT ABOVE
12. INTERNALLY DRAINED CANOPY
13. CONCRETE BEAM TO SUPPORT CANOPY, SEE STRUCTURAL DRAWINGS.
14. CONCRETE BEAM
15. TRENCH DRAIN - SEE MEP DWGS.
16. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC3007.3. REFER TO 3/A-520 FOR DETAIL.
17. WHEEL STOPPERS
18. MECH. UNIT + LOUVERS. SEE MECH. DWGS.
19. PROVIDE CANE DETECTION AT STANDPIPE

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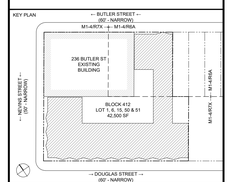
ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 2ND FLOOR PLAN C

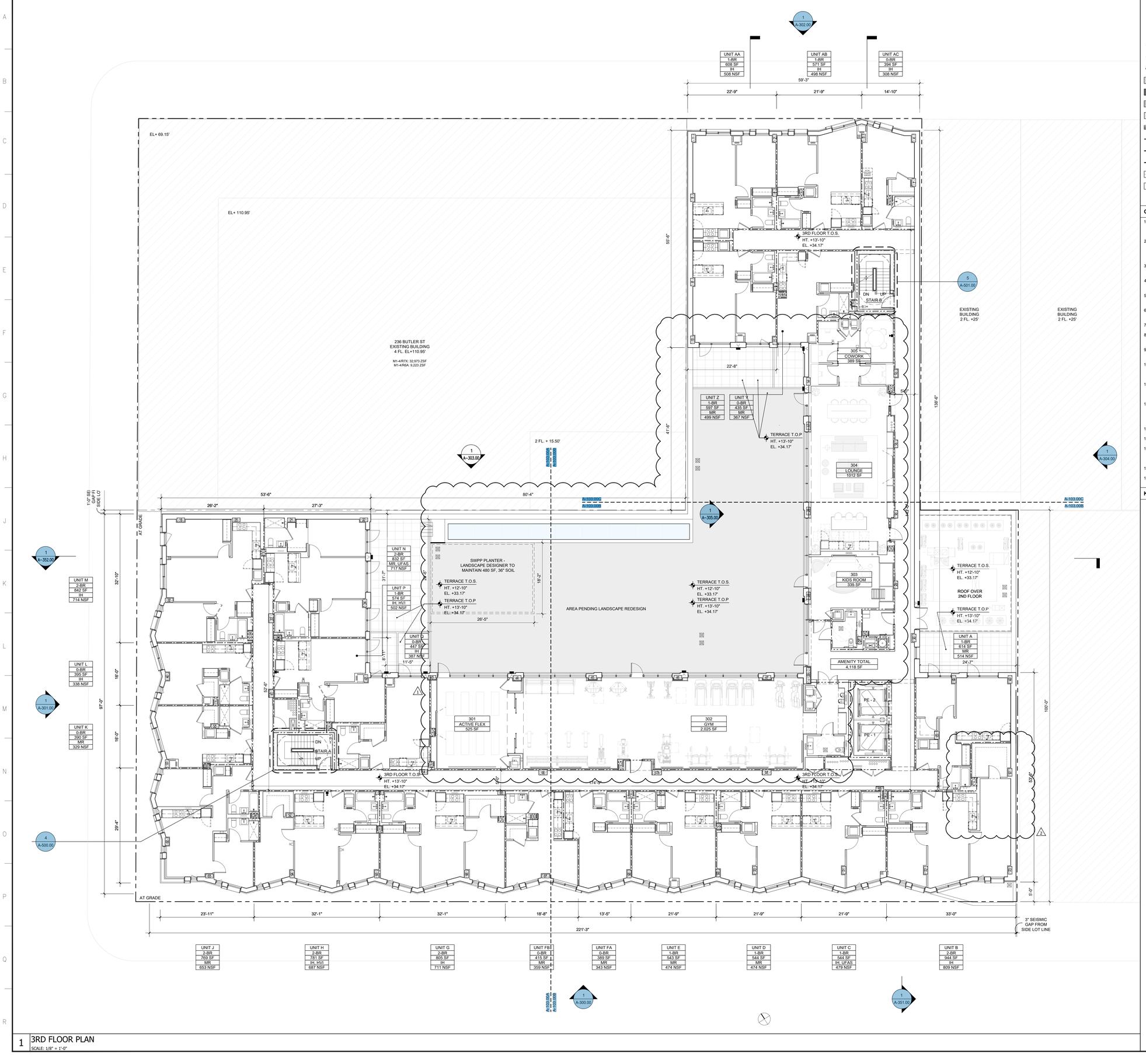
SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-102.00C

CADD FILE No.:

17 OF 175



1 3RD FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

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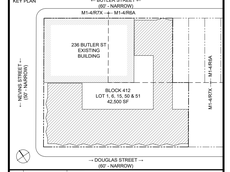

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01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

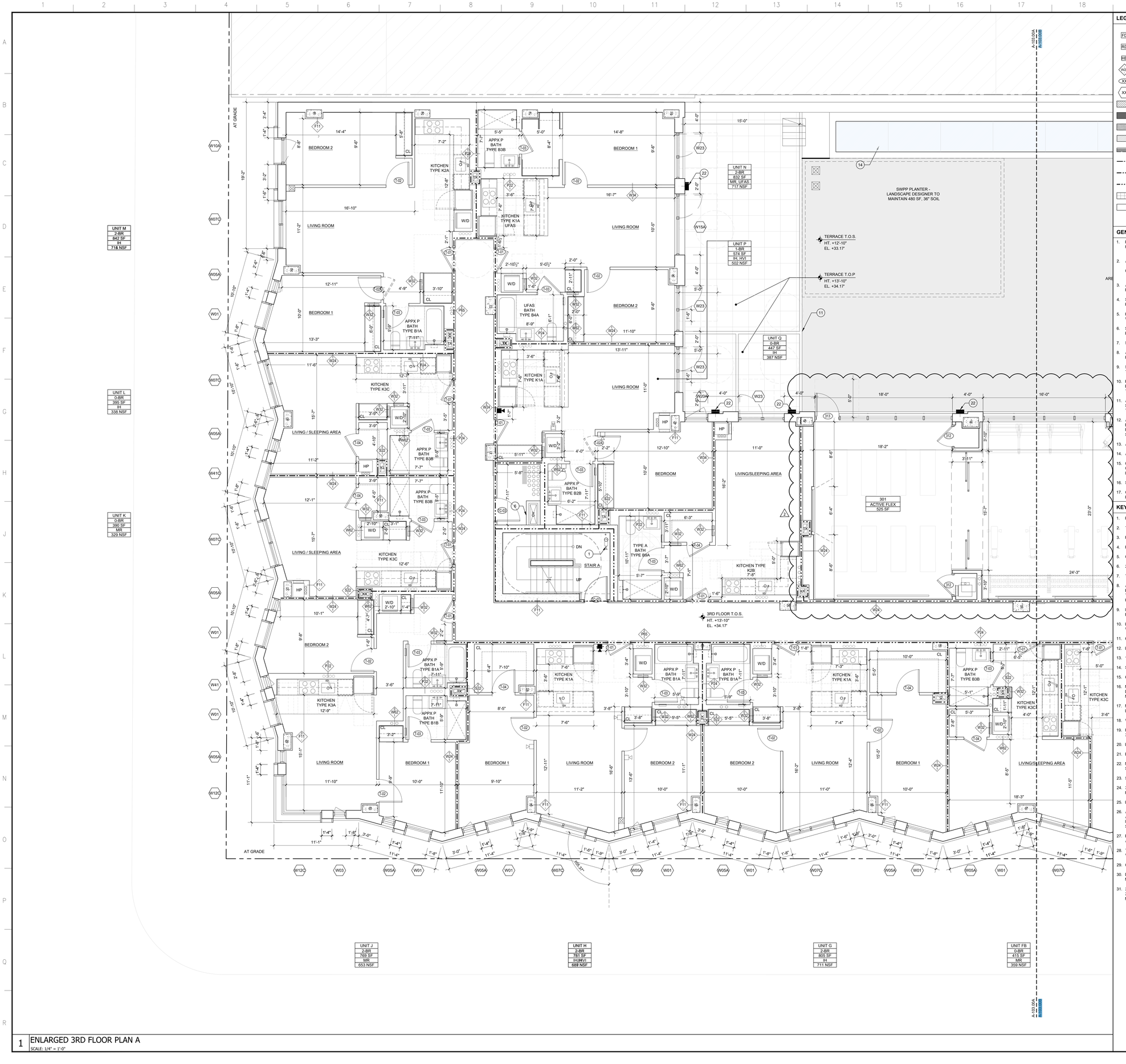
3RD FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY):	2024-12-11
PROJECT No.:	TAV_251 DOUGLASS ST
DRAWING BY:	FFA
CHK BY:	FFA

A-103.00

CADD FILE No.:



1 ENLARGED 3RD FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-651.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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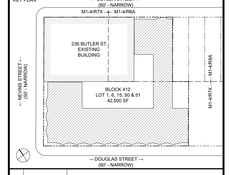

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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 3RD FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-103.00A

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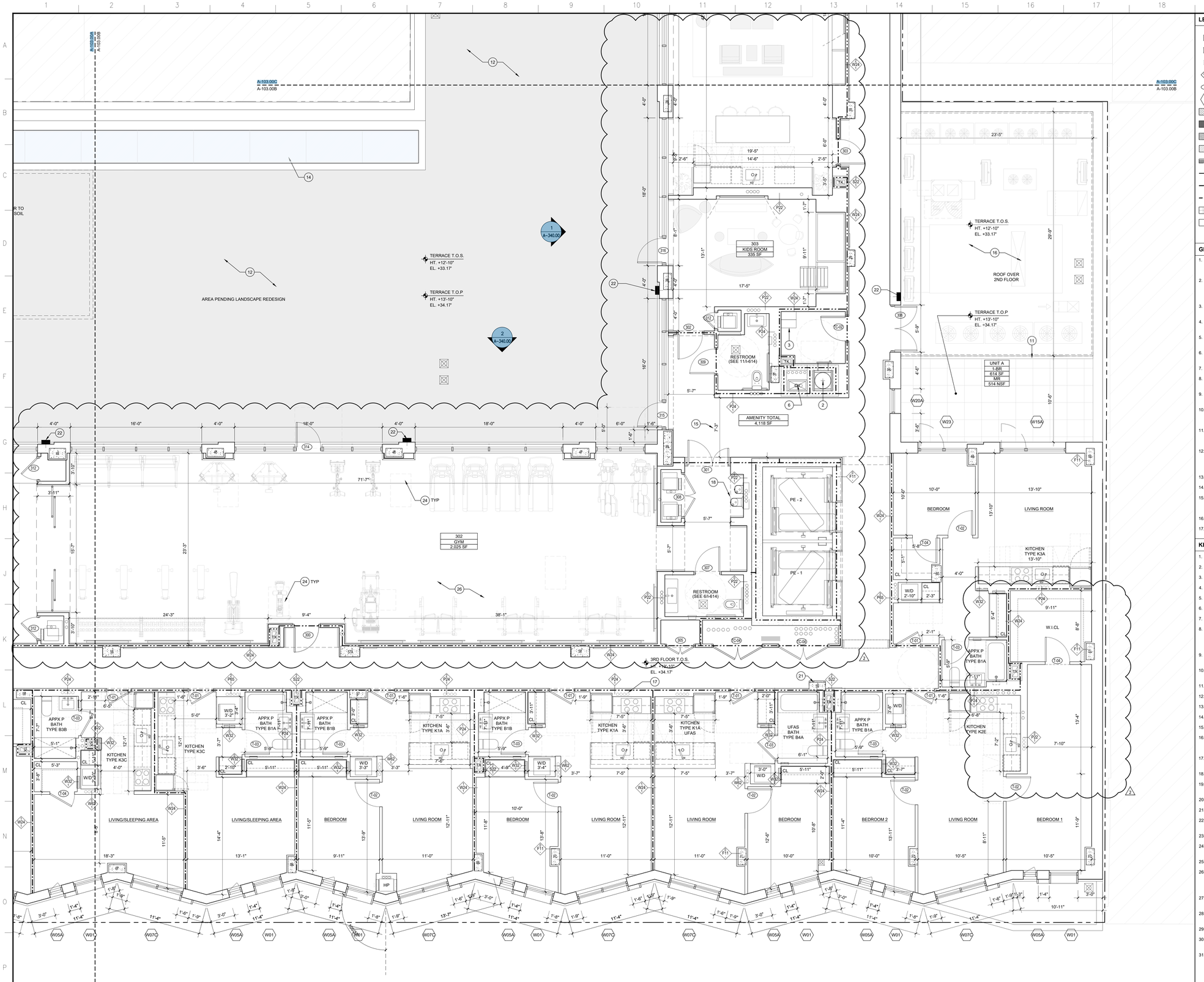

1 ENLARGED 3RD FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-451.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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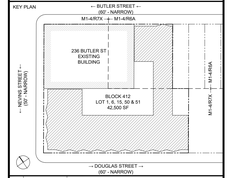
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
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05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

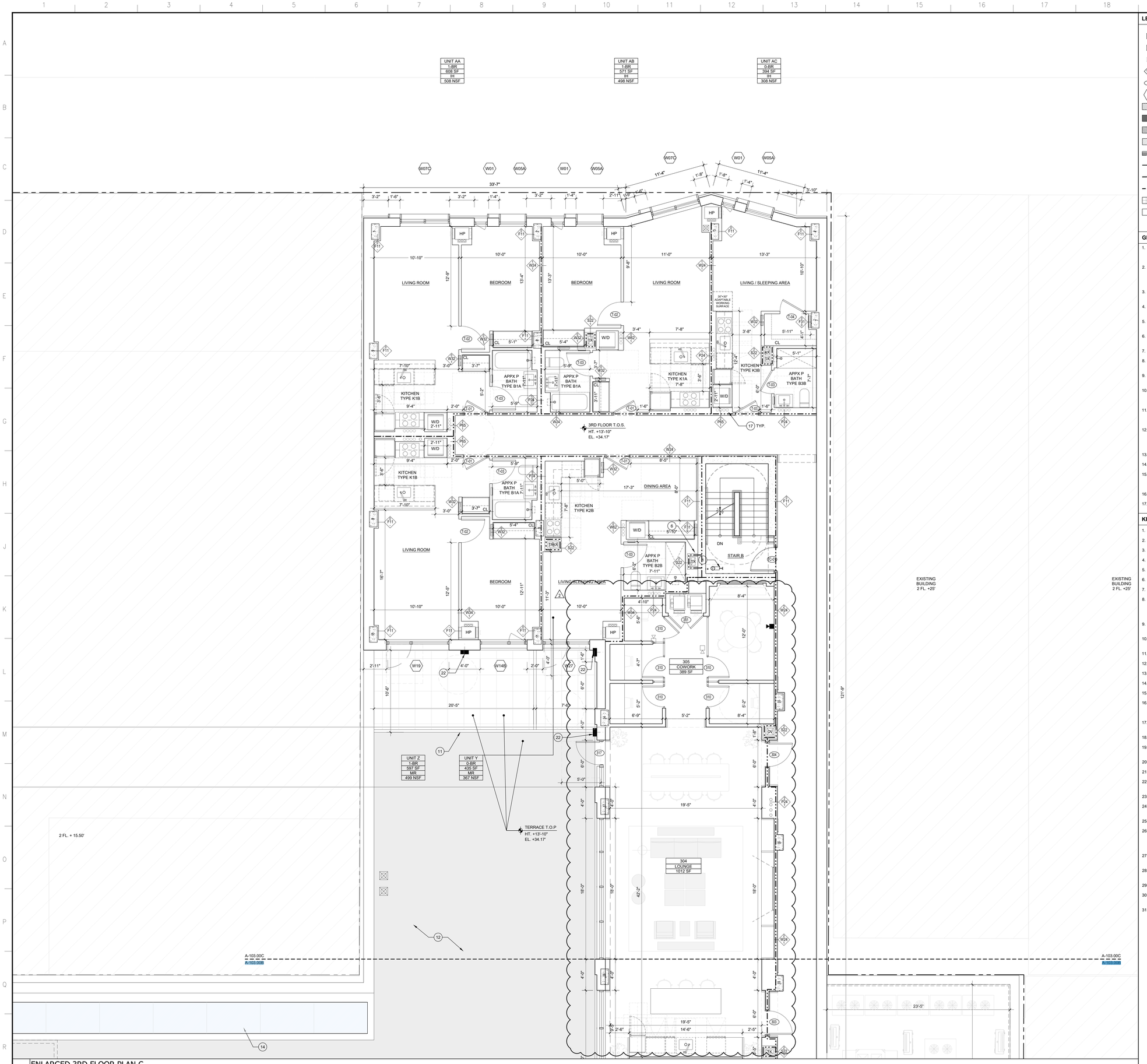
DRAWING TITLE
ENLARGED 3RD FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-103.00B

CADD FILE No.:
20 OF 235



1 ENLARGED 3RD FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A+451.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
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17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM, SEE ELEVATOR DRAWINGS A+521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

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TITAN ENGINEERS
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UNION, NJ 07083

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FACADE
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ELEVATOR
JENKINS HUNTINGTON
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BOLD
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GRAIN COLLECTIVE
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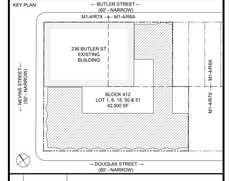
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

ENLARGED 3RD FLOOR PLAN C

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-103.00C

CADD FILE No.:
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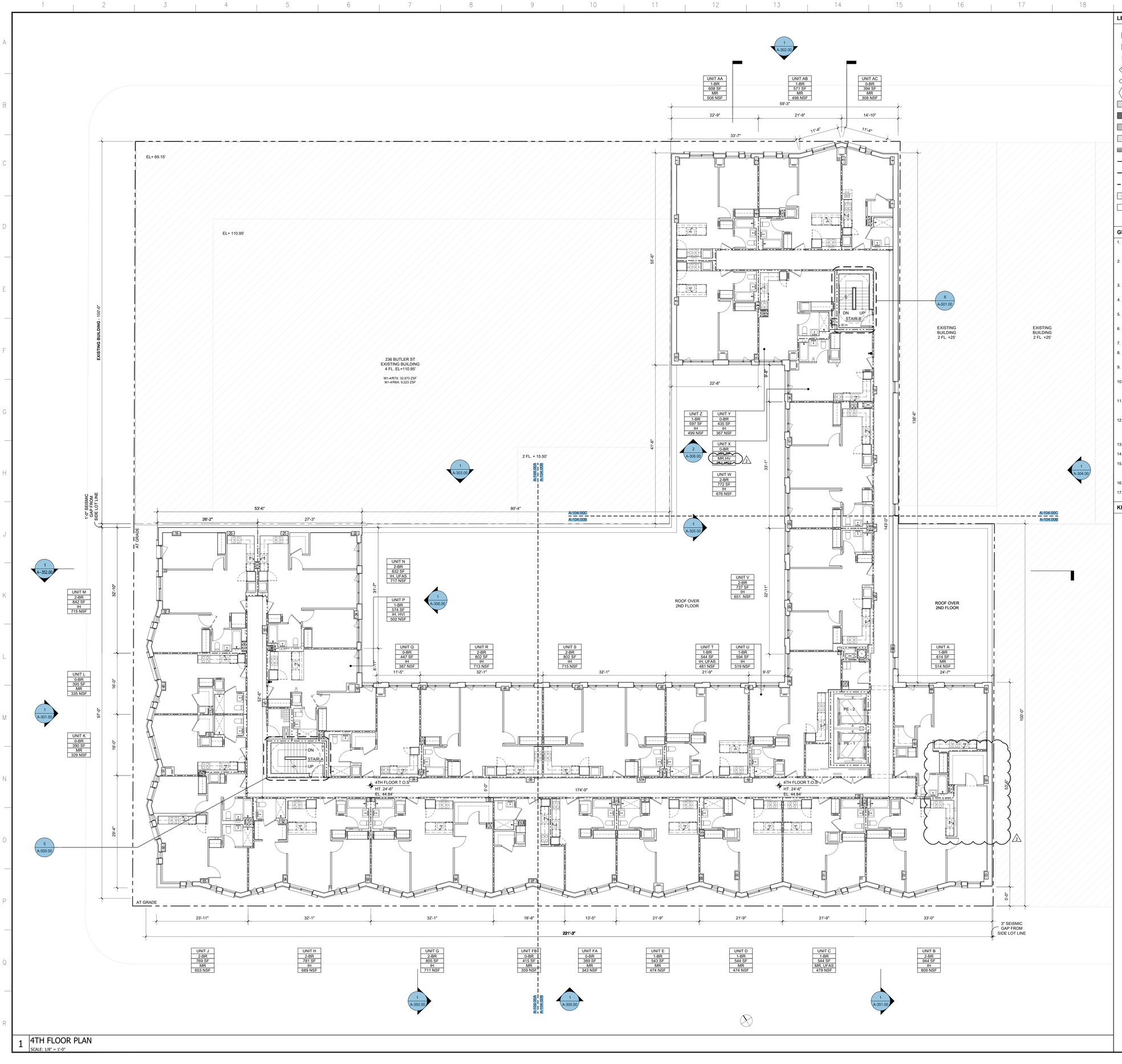

1 4TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
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- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
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15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101
TAVROS HOLDINGS
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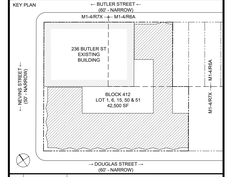

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

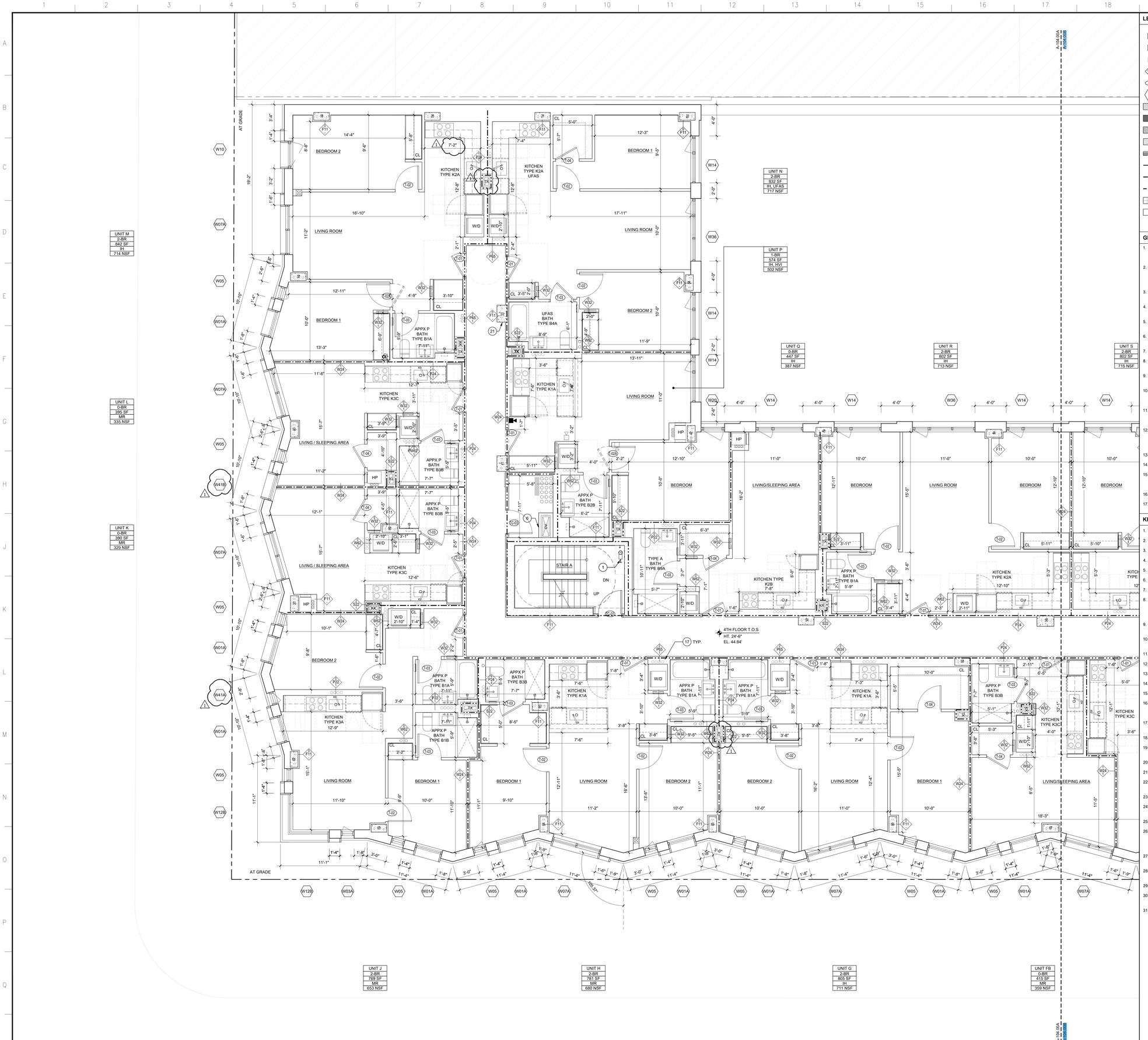
DRAWING TITLE
4TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-104.00

CADD FILE No.:
22 OF 235



1 ENLARGED 4TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
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- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
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- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-451.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-0" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
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27. EMR ROOM. SEE ELEVATOR DRAWINGS A-621.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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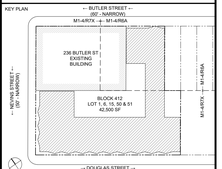

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 4TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-104.00A

CADD FILE No.:
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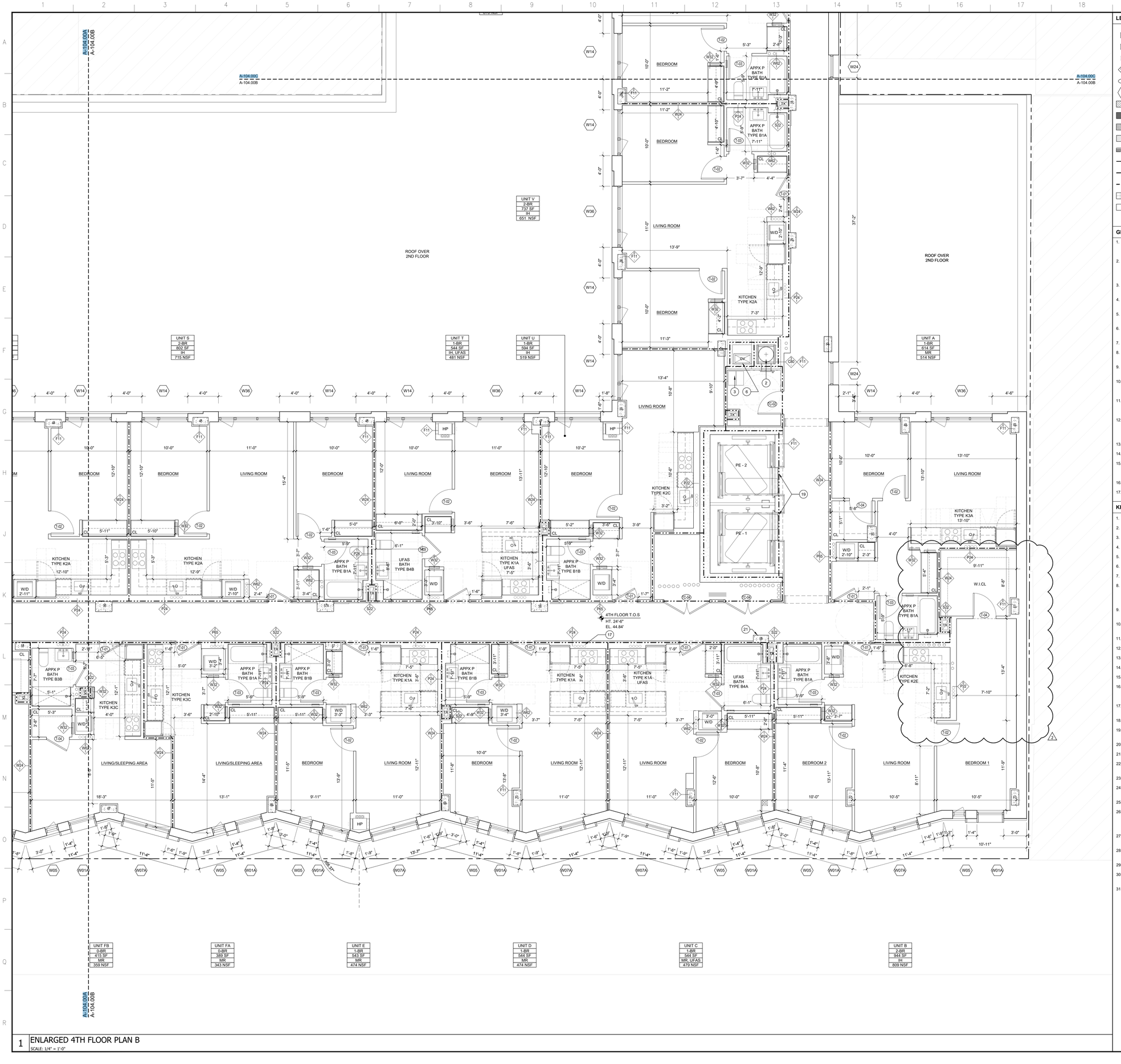

1 ENLARGED 4TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
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- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
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- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
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5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
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16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
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5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-461.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

CLIENT
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ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
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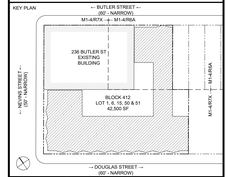
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	03.01.2023	100% INTERIOR CD ISSUANCE
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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

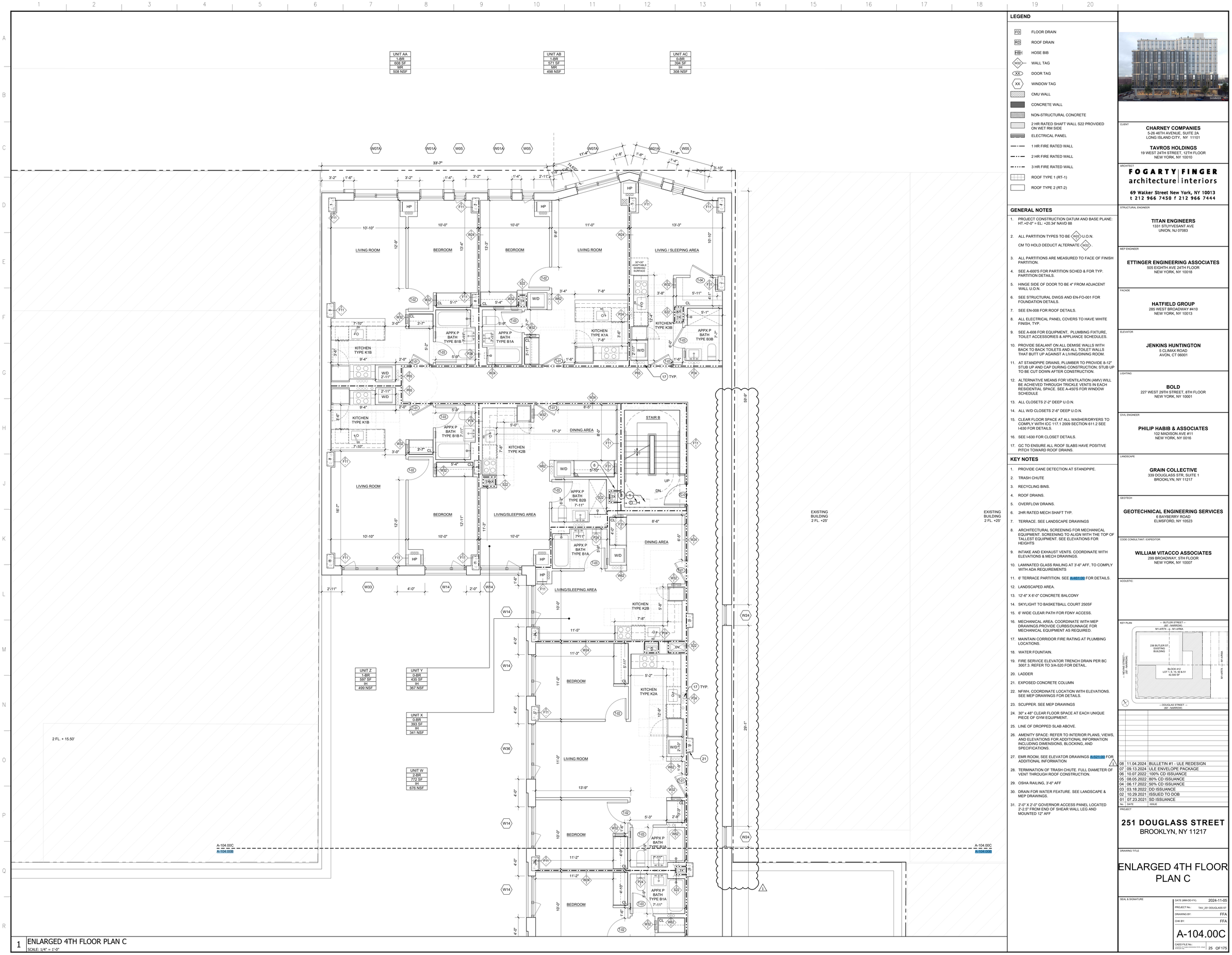
DRAWING TITLE
ENLARGED 4TH FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-12
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-104.00B

CADD FILE No.:



1 ENLARGED 4TH FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
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11. 6' TERRACE PARTITION. SEE A+651.00 FOR DETAILS.
12. LANDSCAPED AREA.
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KEY PLAN

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

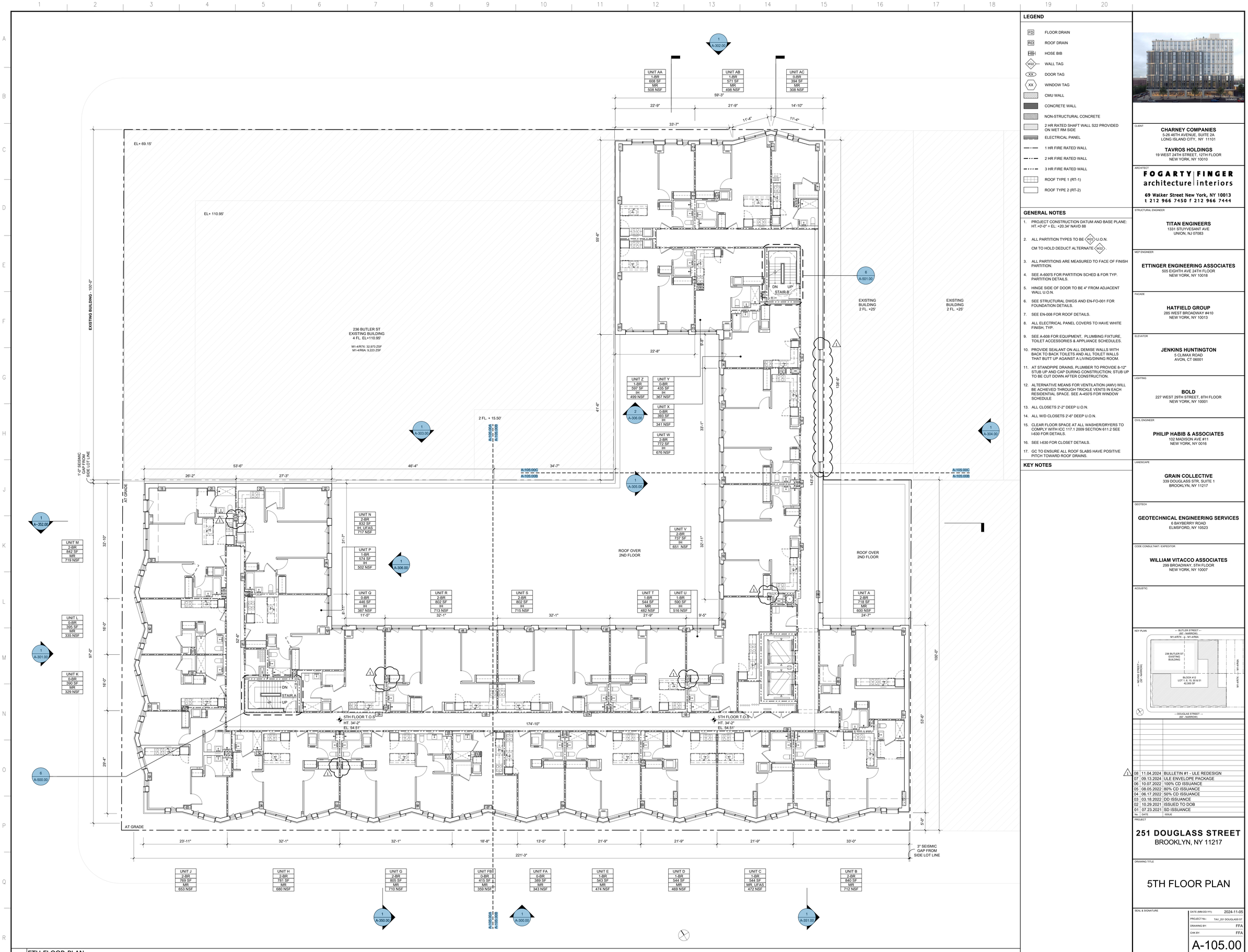
DRAWING TITLE
ENLARGED 4TH FLOOR PLAN C

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-104.00C

CADD FILE No.:



1 5TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
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- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
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16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

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KEY PLAN

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

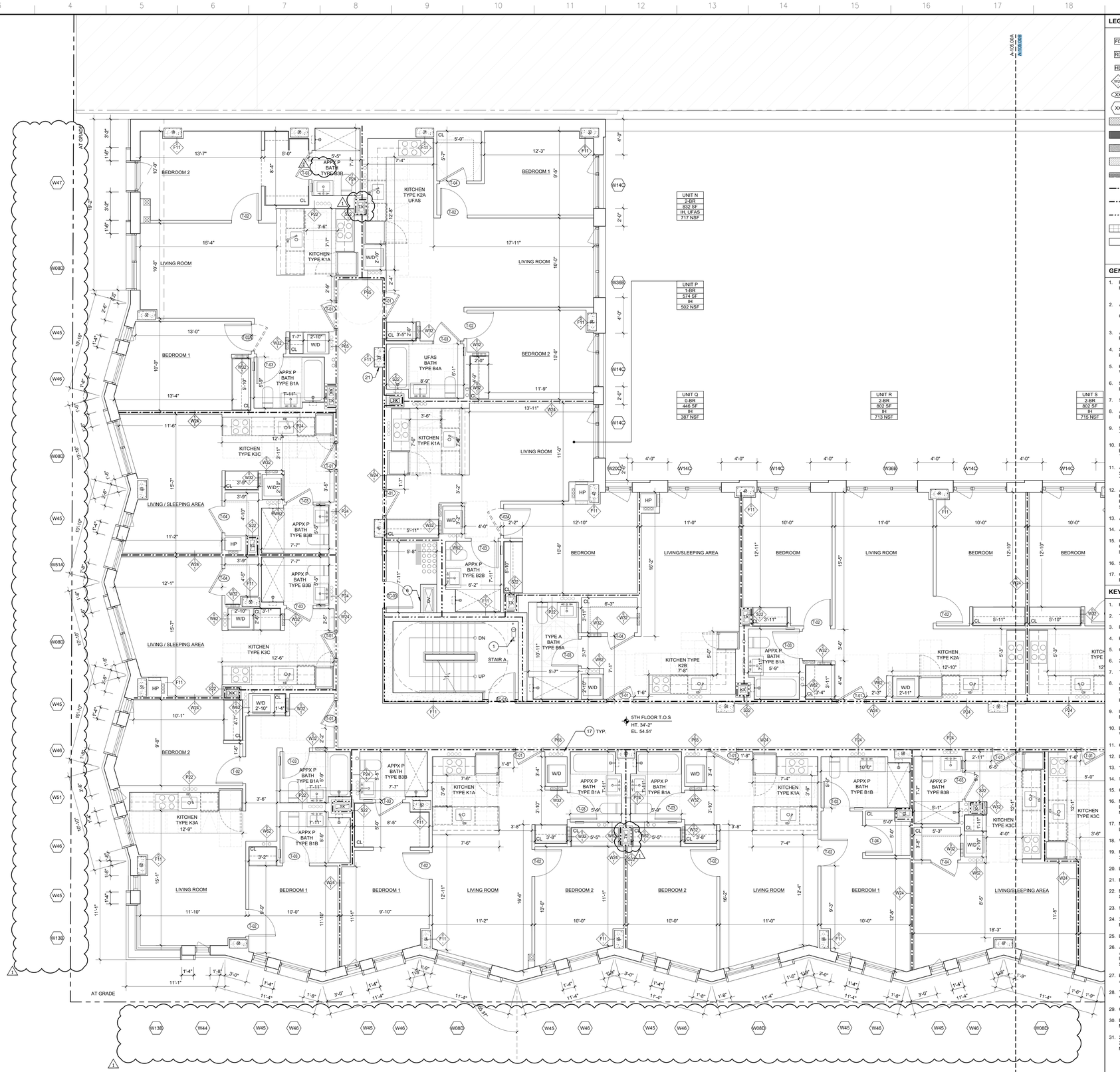
DRAWING TITLE
5TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-105.00

CADD FILE No.:



1 ENLARGED 5TH FLOOR PLAN A

SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
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- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
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12. LANDSCAPED AREA.
13. 12'-0" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
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27. EMR ROOM. SEE ELEVATOR DRAWINGS A-621.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
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31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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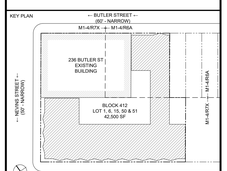
KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 5TH FLOOR PLAN A

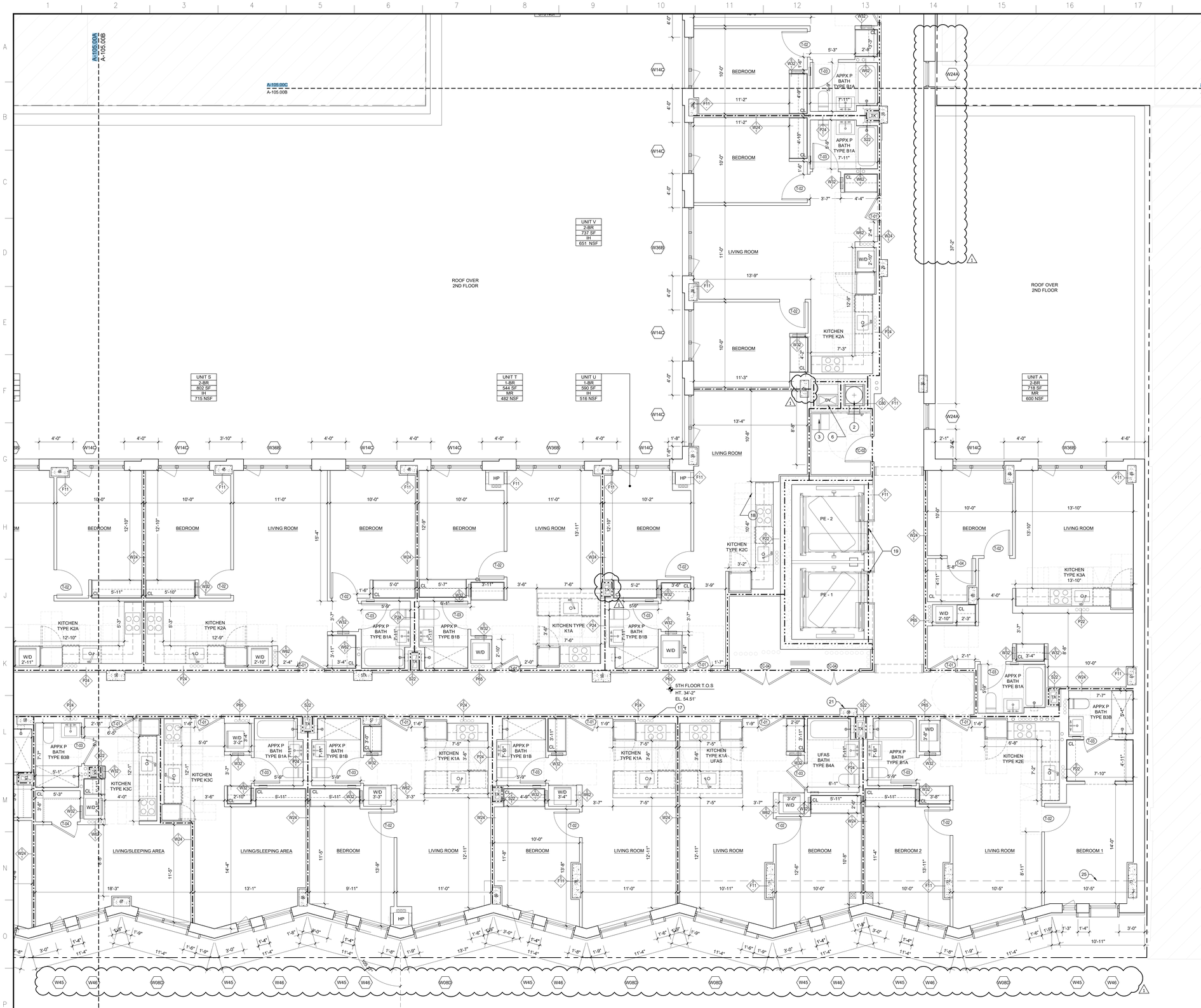
SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-105.00A

CADD FILE No.:

27 OF 175



1 ENLARGED 5TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

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- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-601.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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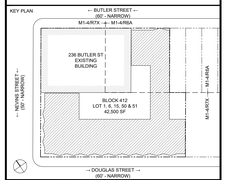
ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 5TH FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-105.00B

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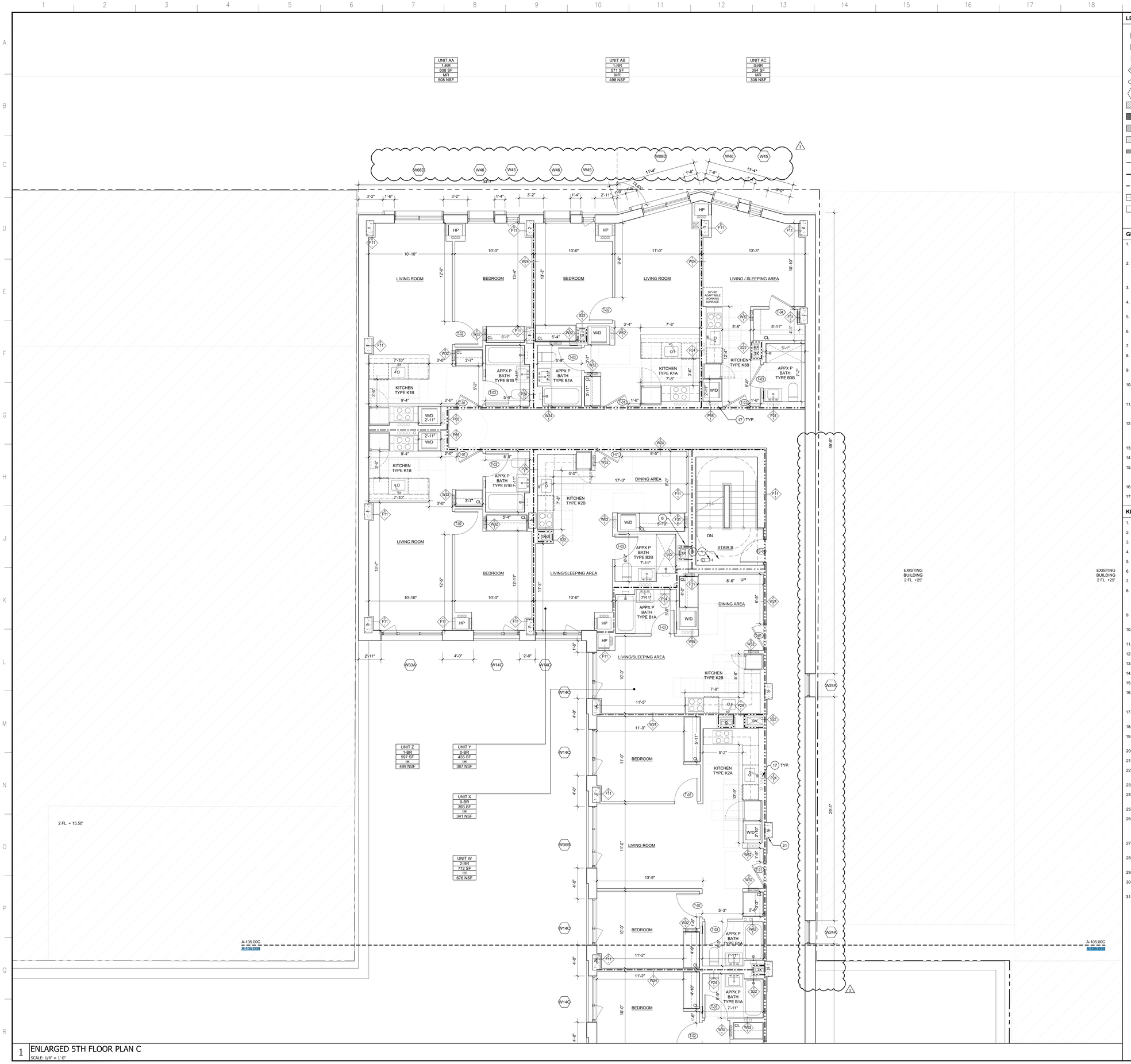

1 ENLARGED 5TH FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
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- 2 HR FIRE RATED WALL
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- ROOF TYPE 1 (RT-1)
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GENERAL NOTES

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7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
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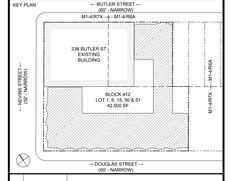

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

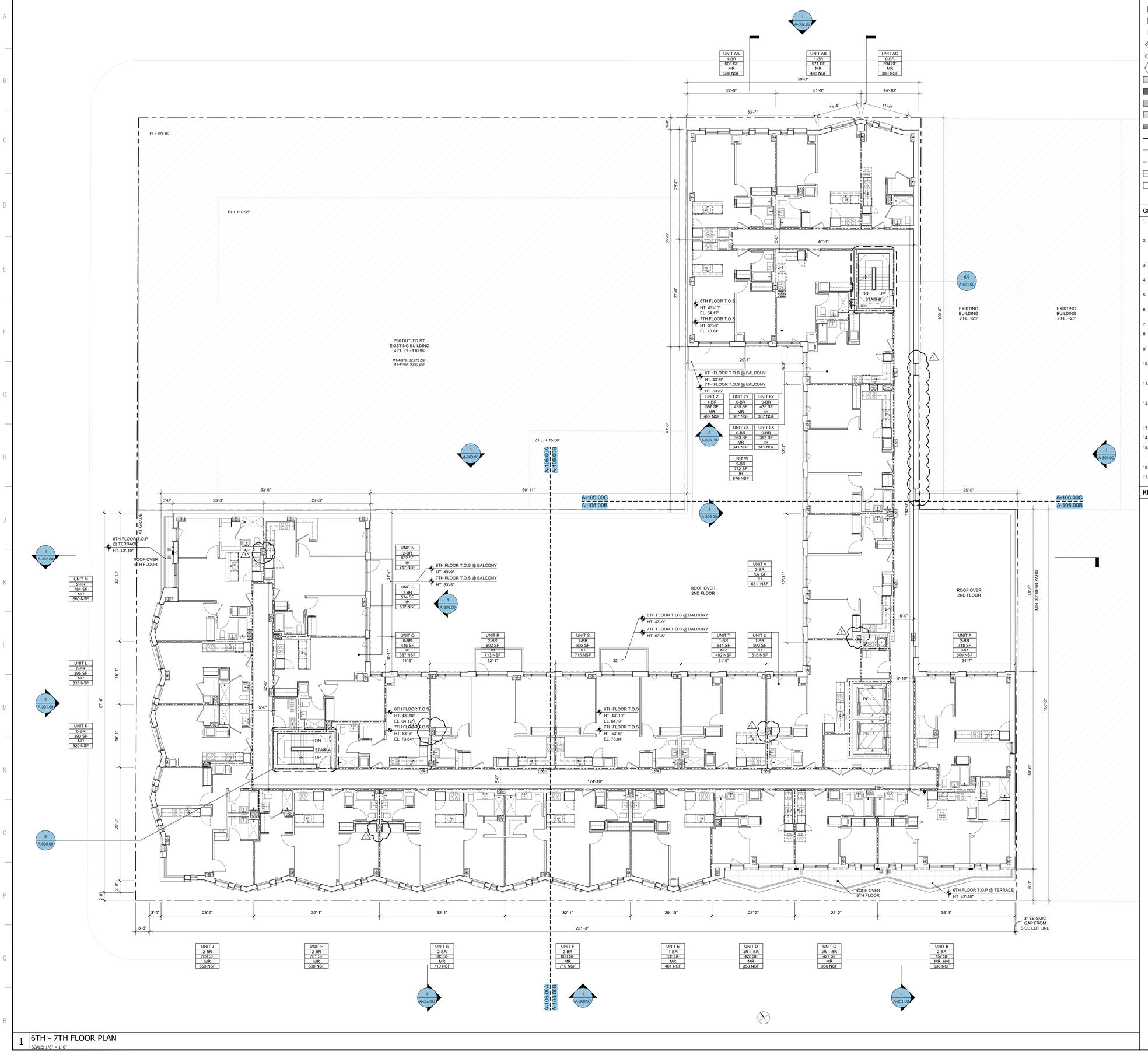
DRAWING TITLE
ENLARGED 5TH FLOOR PLAN C

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-105.00C

CADD FILE No.:



1 6TH - 7TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
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- ELECTRICAL PANEL
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- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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KEY NOTES

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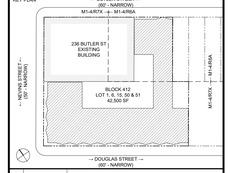

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PROJECT
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BROOKLYN, NY 11217

DRAWING TITLE
6TH - 7TH FLOOR PLAN

SEAL & SIGNATURE

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PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-106.00

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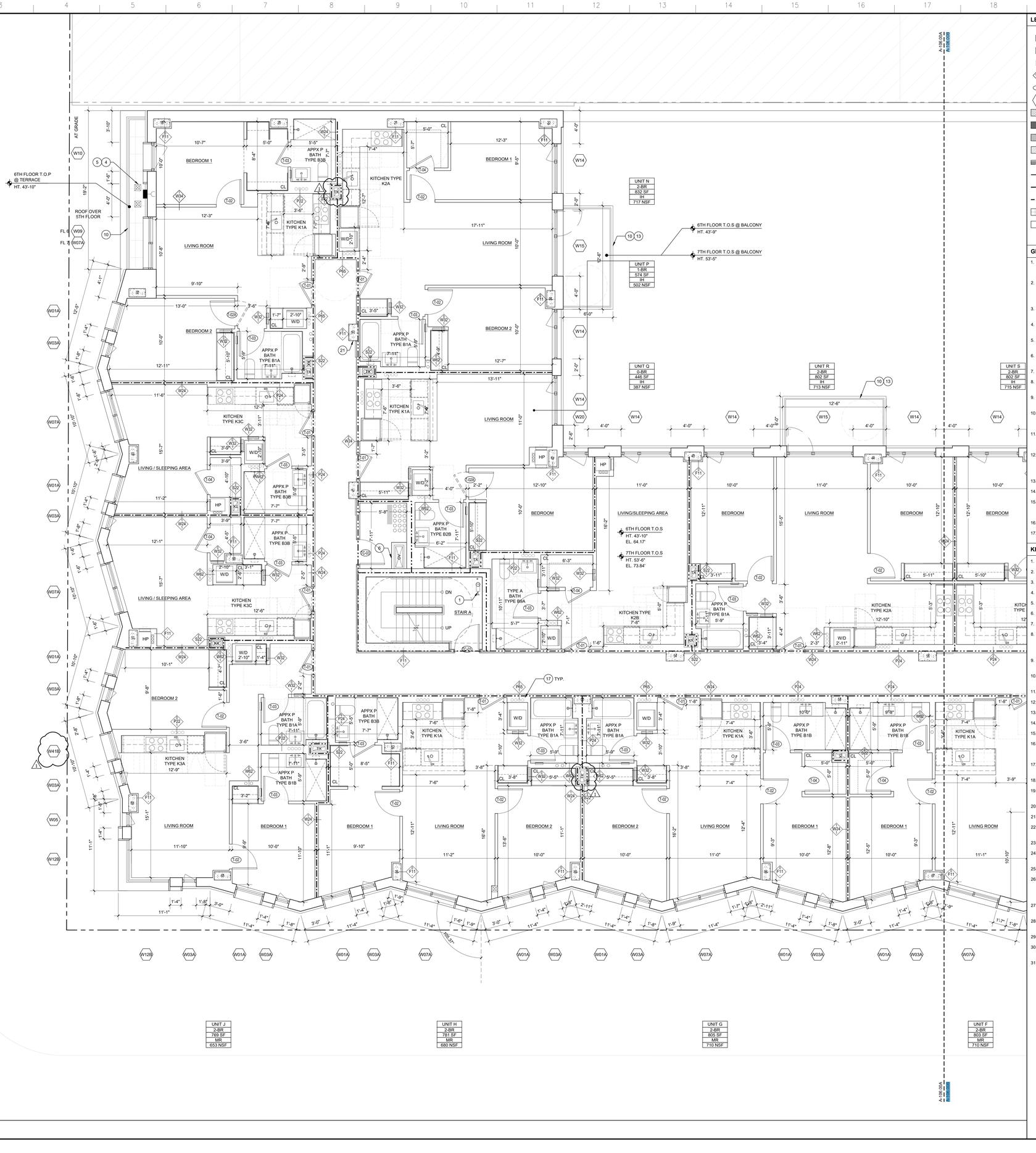

1 ENLARGED 6TH - 7TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
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ETTINGER ENGINEERING ASSOCIATES
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FACADE
HATFIELD GROUP
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NEW YORK, NY 10013

ELEVATOR
JENKINS HUNTINGTON
5 CLIMAX ROAD
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LIGHTING
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CIVIL ENGINEER
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102 MADISON AVE #11
NEW YORK, NY 0016

LANDSCAPE
GRAIN COLLECTIVE
339 DOUGLASS STR, SUITE 1
BROOKLYN, NY 11217

GEOTECH
GEOTECHNICAL ENGINEERING SERVICES
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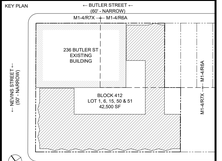
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 6TH - 7TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-106.00A

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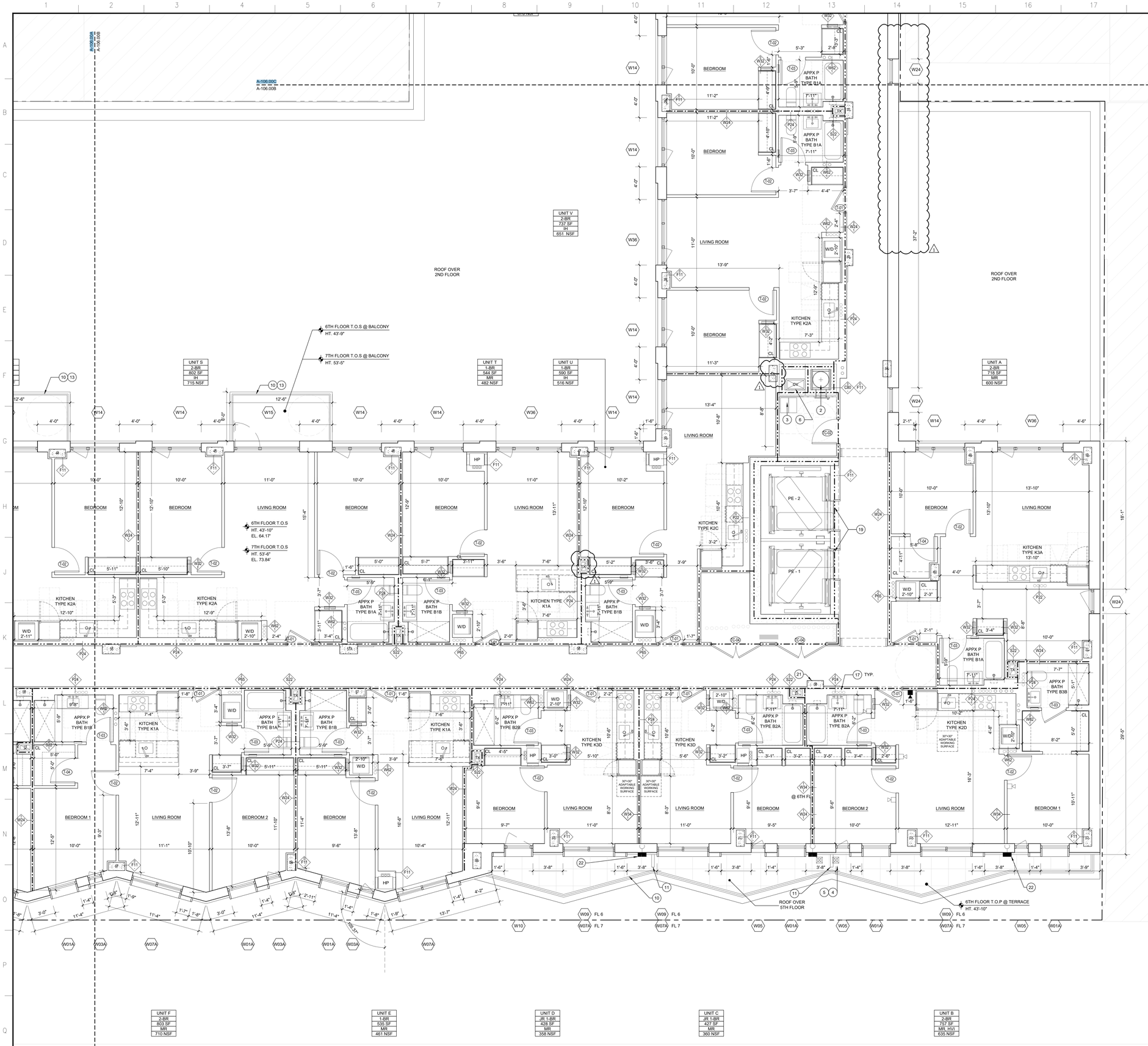

1 ENLARGED 6TH - 7TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-461.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH. COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM, SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF.
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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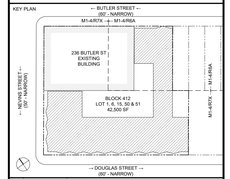

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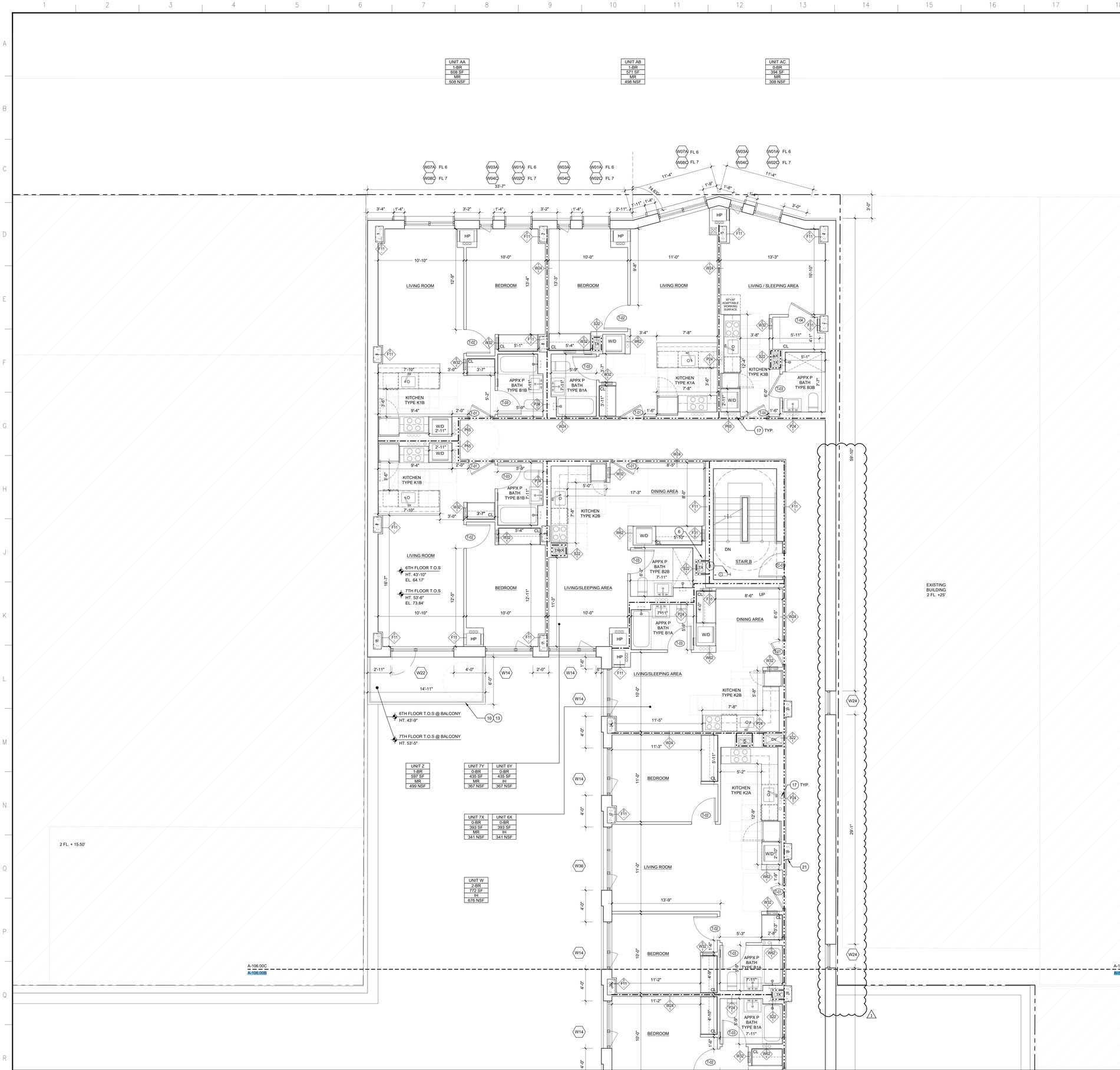

1 ENLARGED 6TH - 7TH FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

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- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
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GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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KEY NOTES

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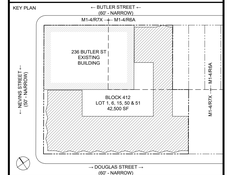

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BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 6TH - 7TH FLOOR PLAN C

SEAL & SIGNATURE

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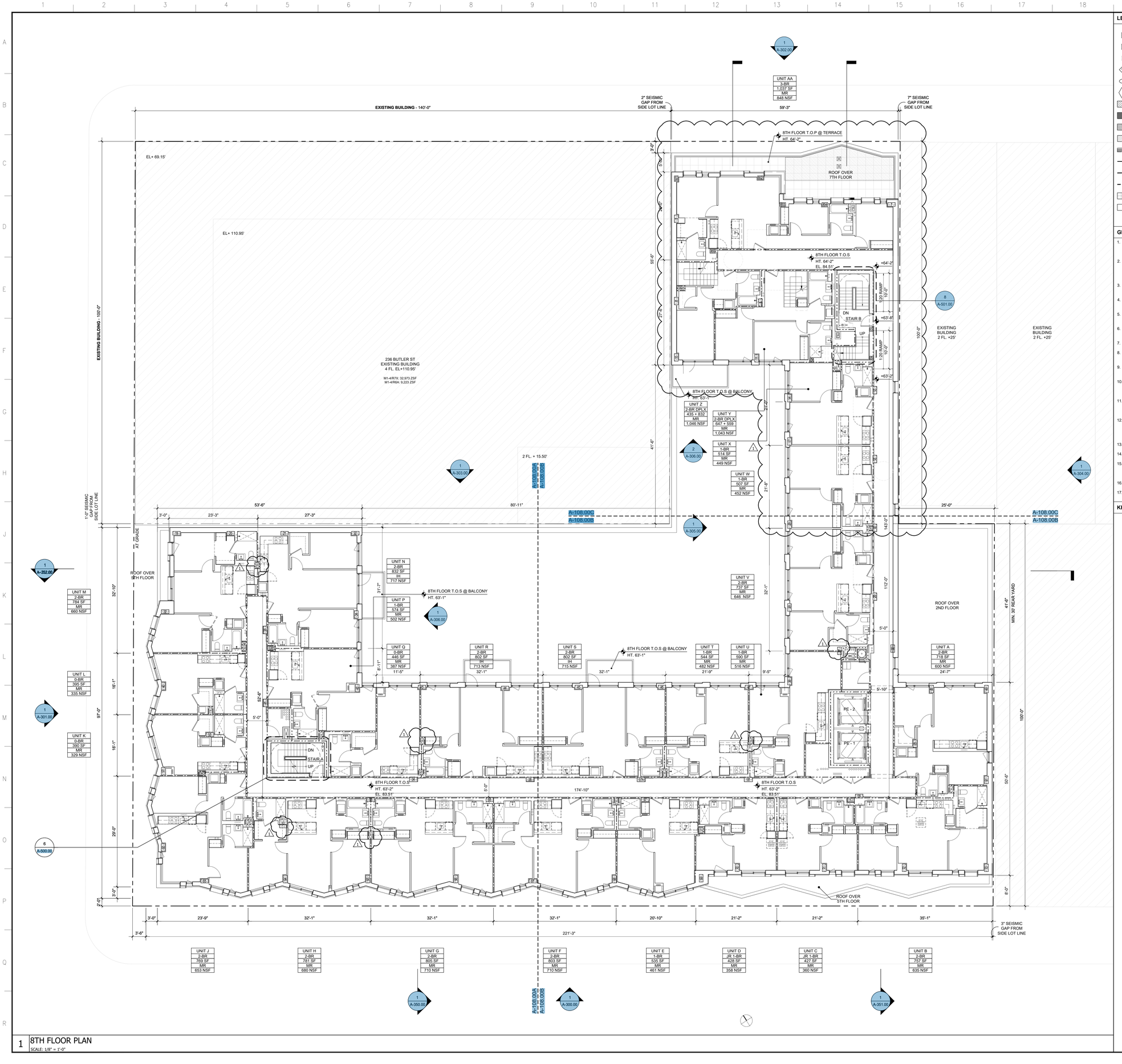

1 8TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

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- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

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2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
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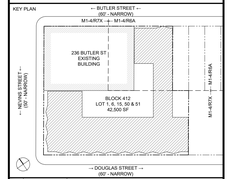

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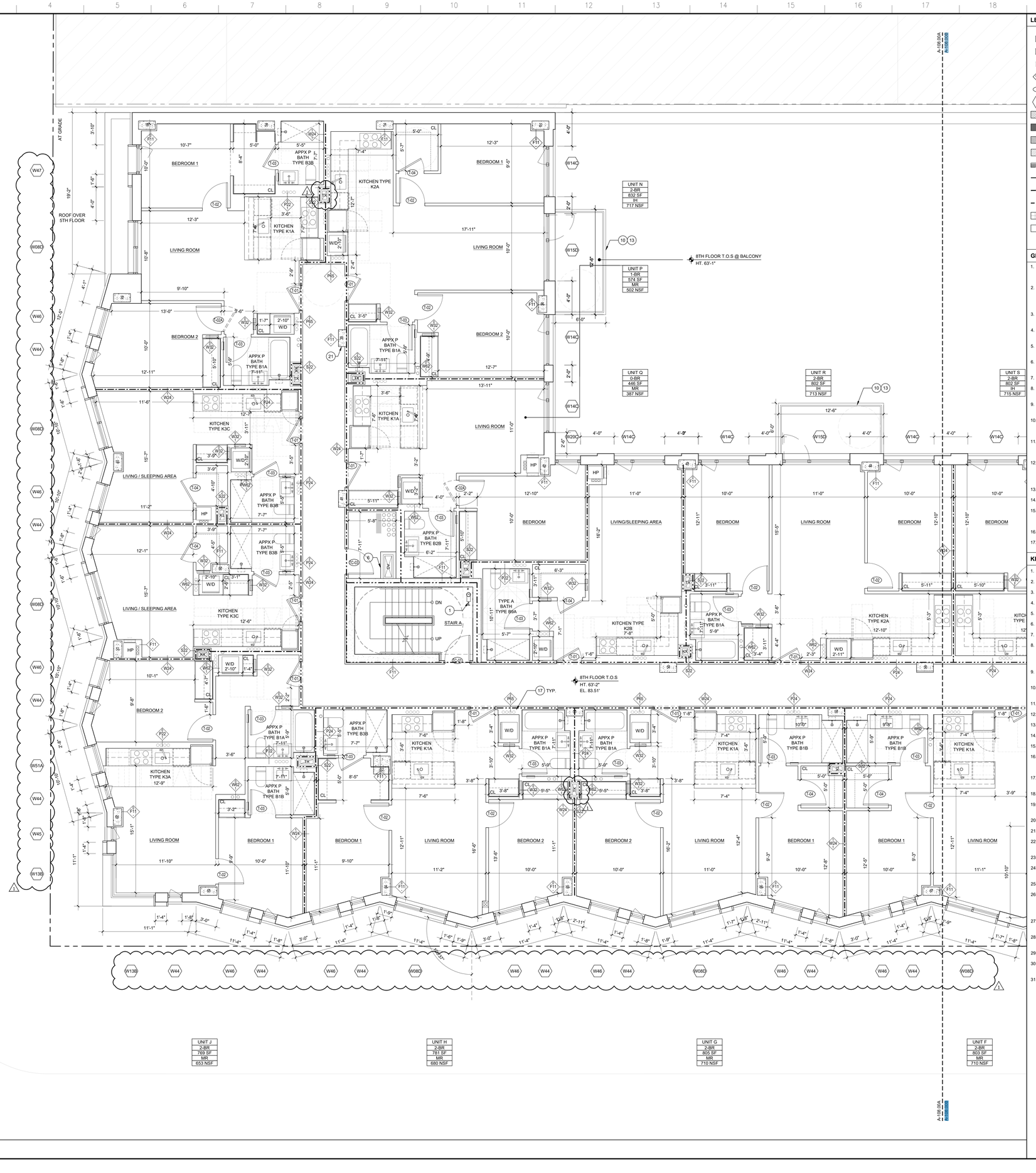

1 ENLARGED 8TH FLOOR PLAN A

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12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-451.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-621.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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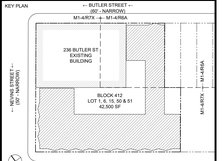
KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

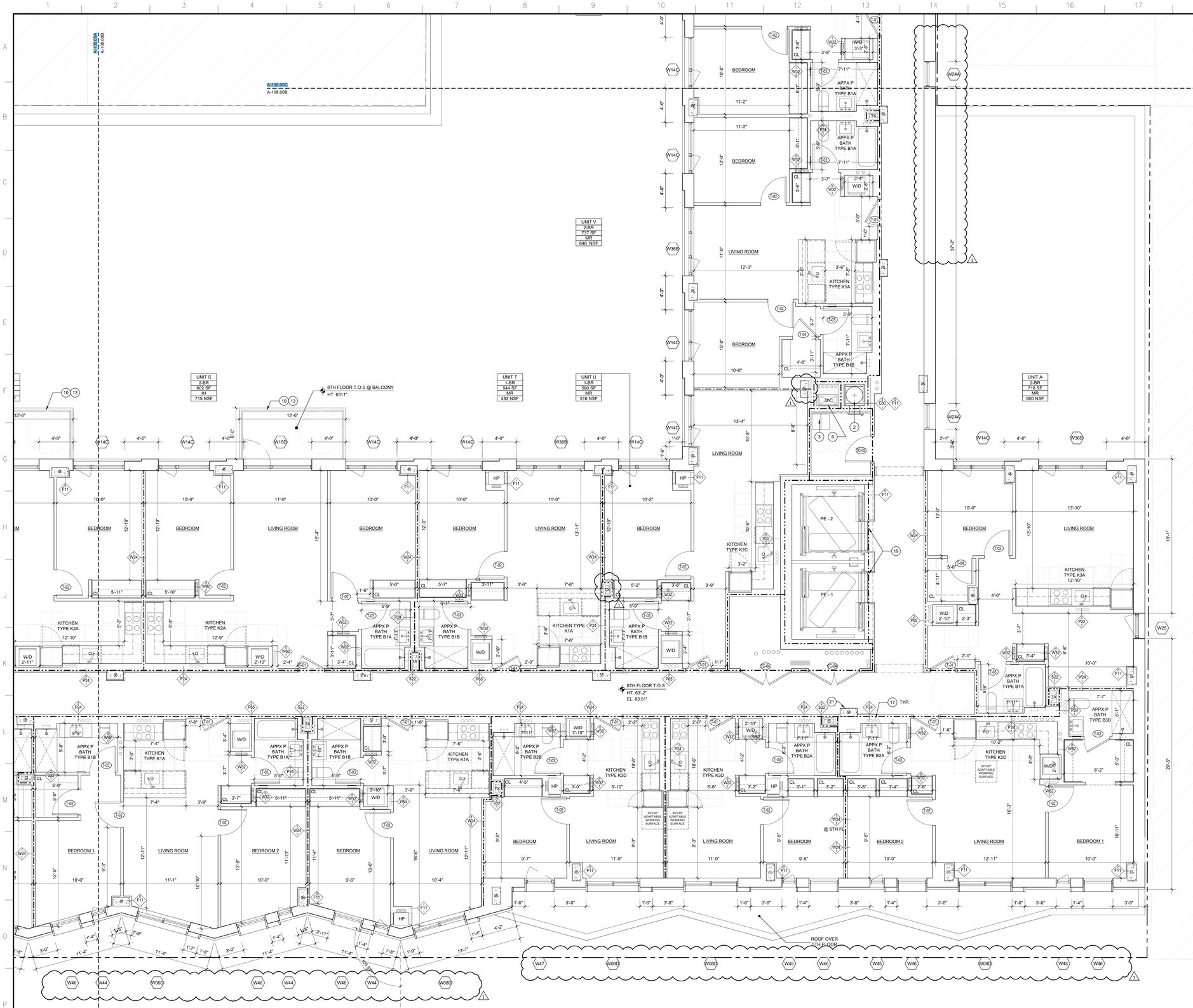
ENLARGED 8TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-108.00A

CADD FILE No.:



1 ENLARGED 8TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-461.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
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26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
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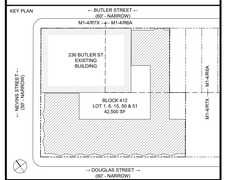

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251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 8TH FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

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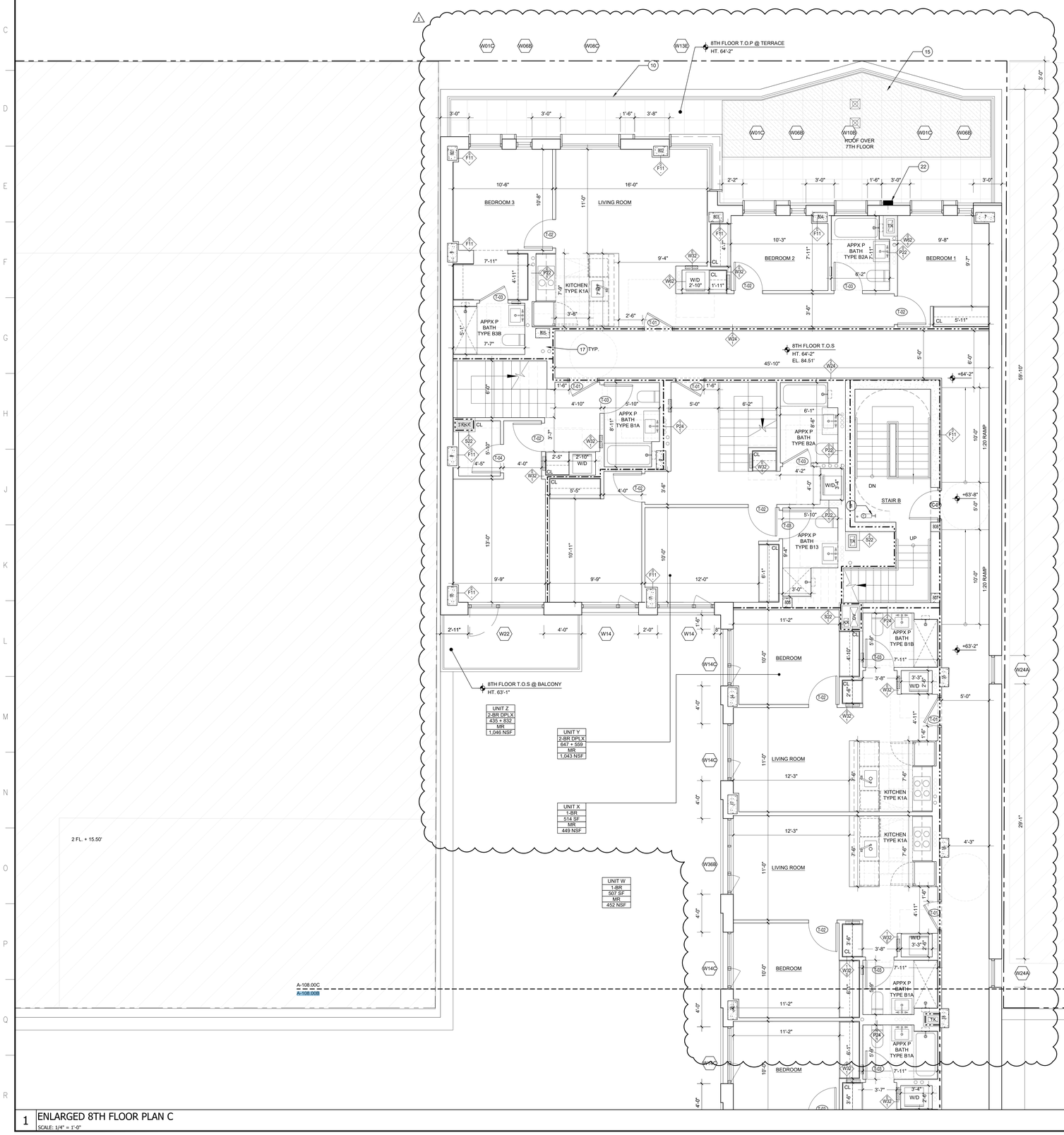

1 ENLARGED 8TH FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
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- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
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5. OVERFLOW DRAINS.
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10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-601.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
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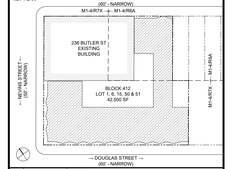

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PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

ENLARGED 8TH FLOOR PLAN C

SEAL & SIGNATURE

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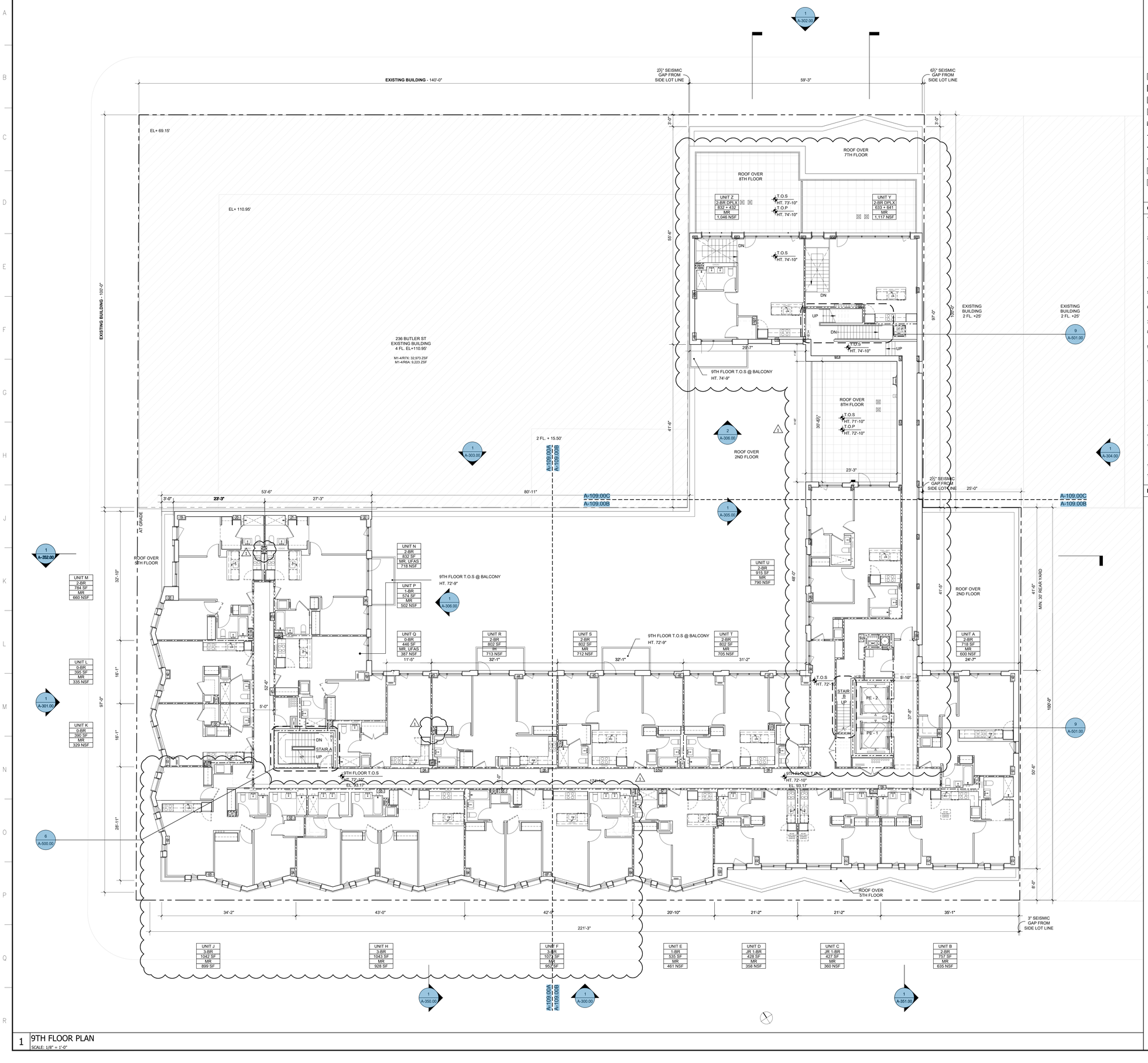

1 9TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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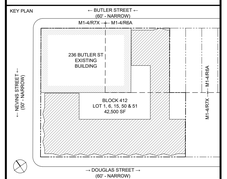
KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

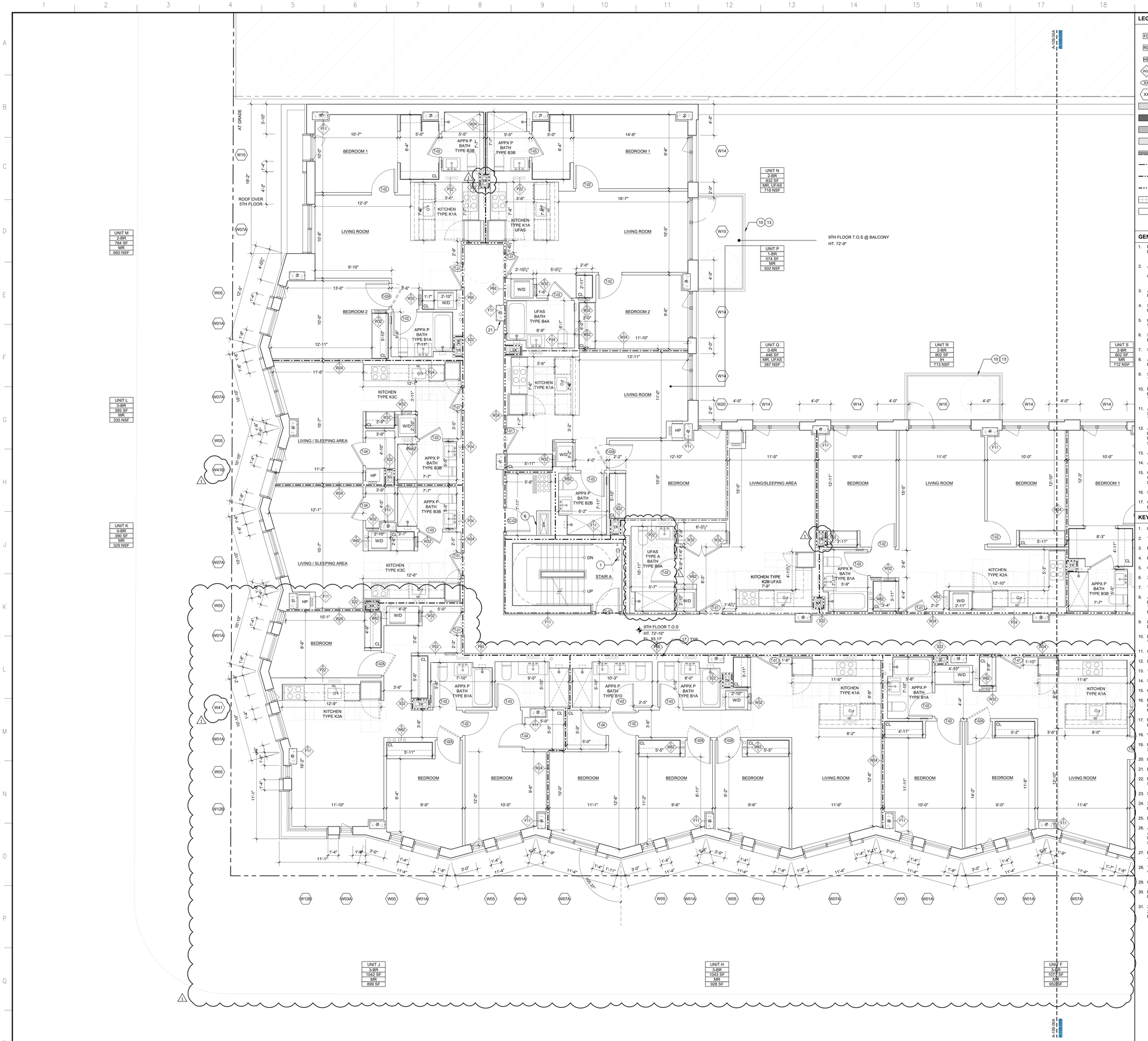
DRAWING TITLE
9TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-109.00

CADD FILE No.:
38 OF 175



1 ENLARGED 9TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A+651.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A+521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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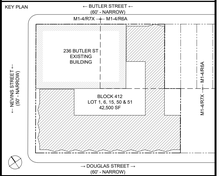

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ENLARGED 9TH FLOOR PLAN A

SEAL & SIGNATURE

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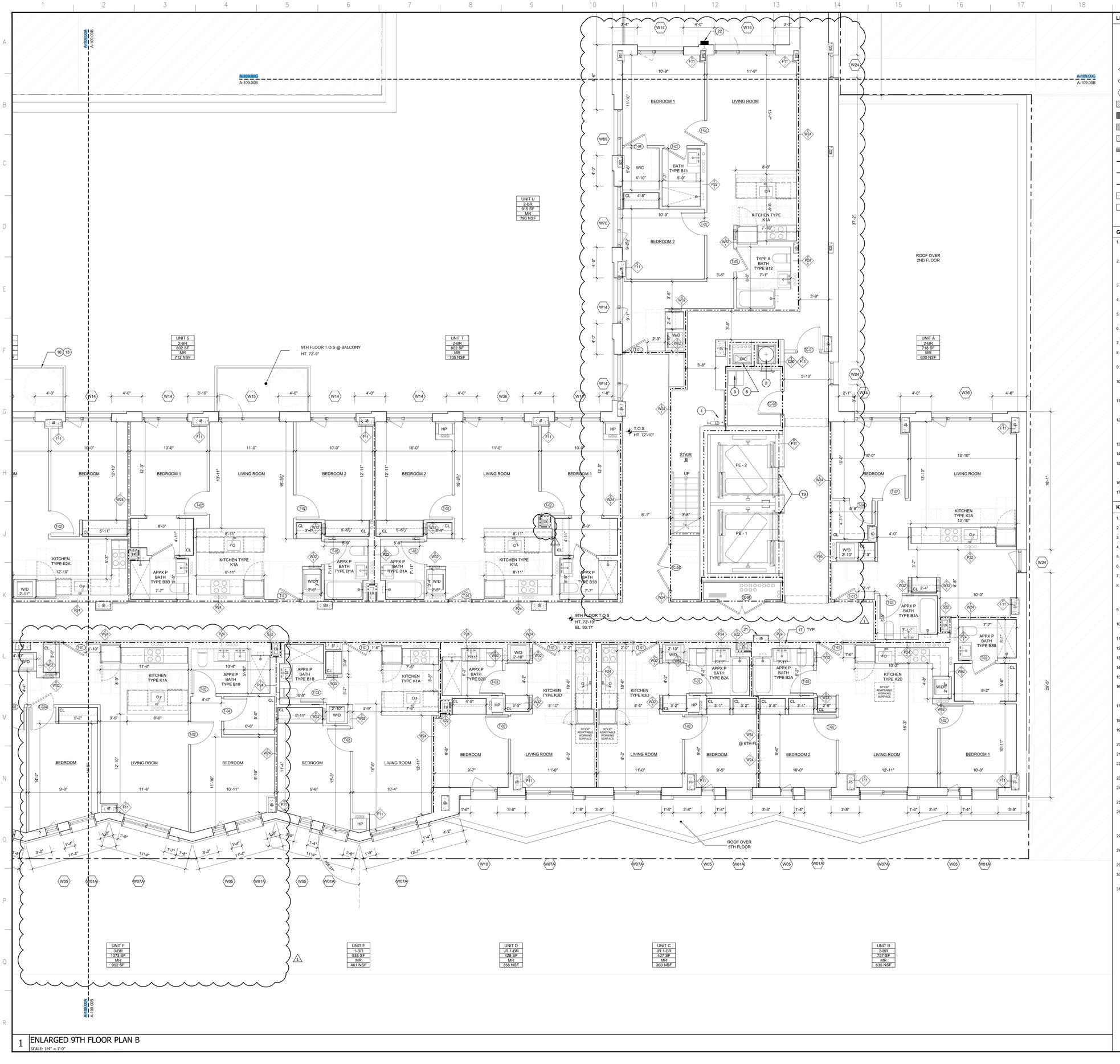

1 ENLARGED 9TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
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- ROOF TYPE 1 (RT-1)
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GENERAL NOTES

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4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
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13. ALL CLOSETS 2'-2" DEEP U.O.N.
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17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

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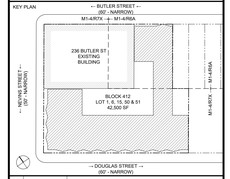

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DRAWING TITLE
ENLARGED 9TH FLOOR PLAN B

SEAL & SIGNATURE

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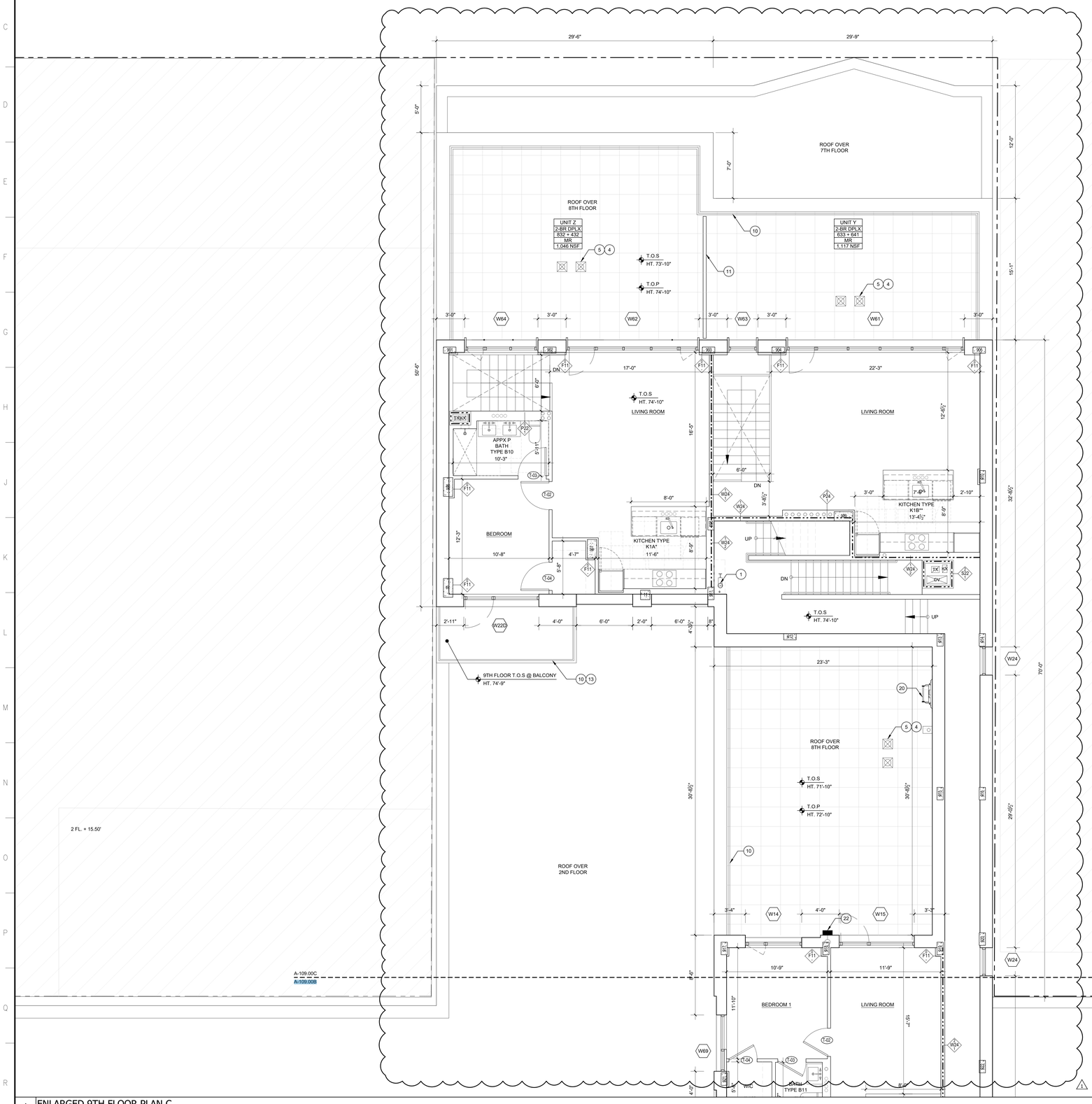

1 ENLARGED 9TH FLOOR PLAN C
SCALE: 1/4" = 1'-0"

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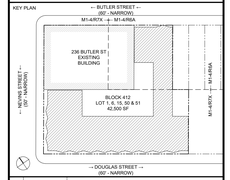

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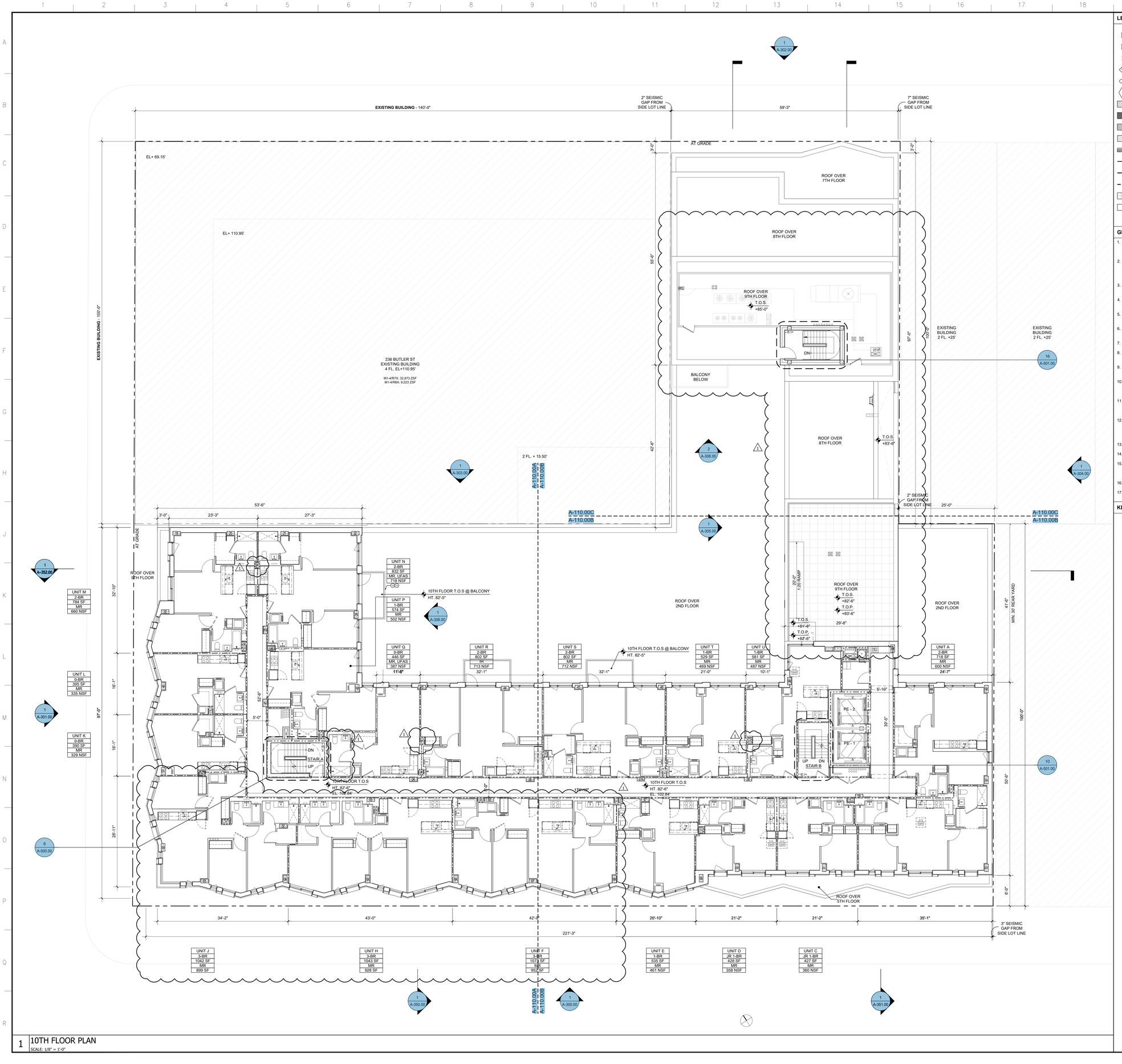

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SCALE: 1/8" = 1'-0"

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- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

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GRAIN COLLECTIVE
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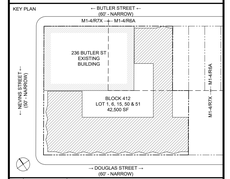
KEY PLAN



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01	07.23.2021	SD ISSUANCE

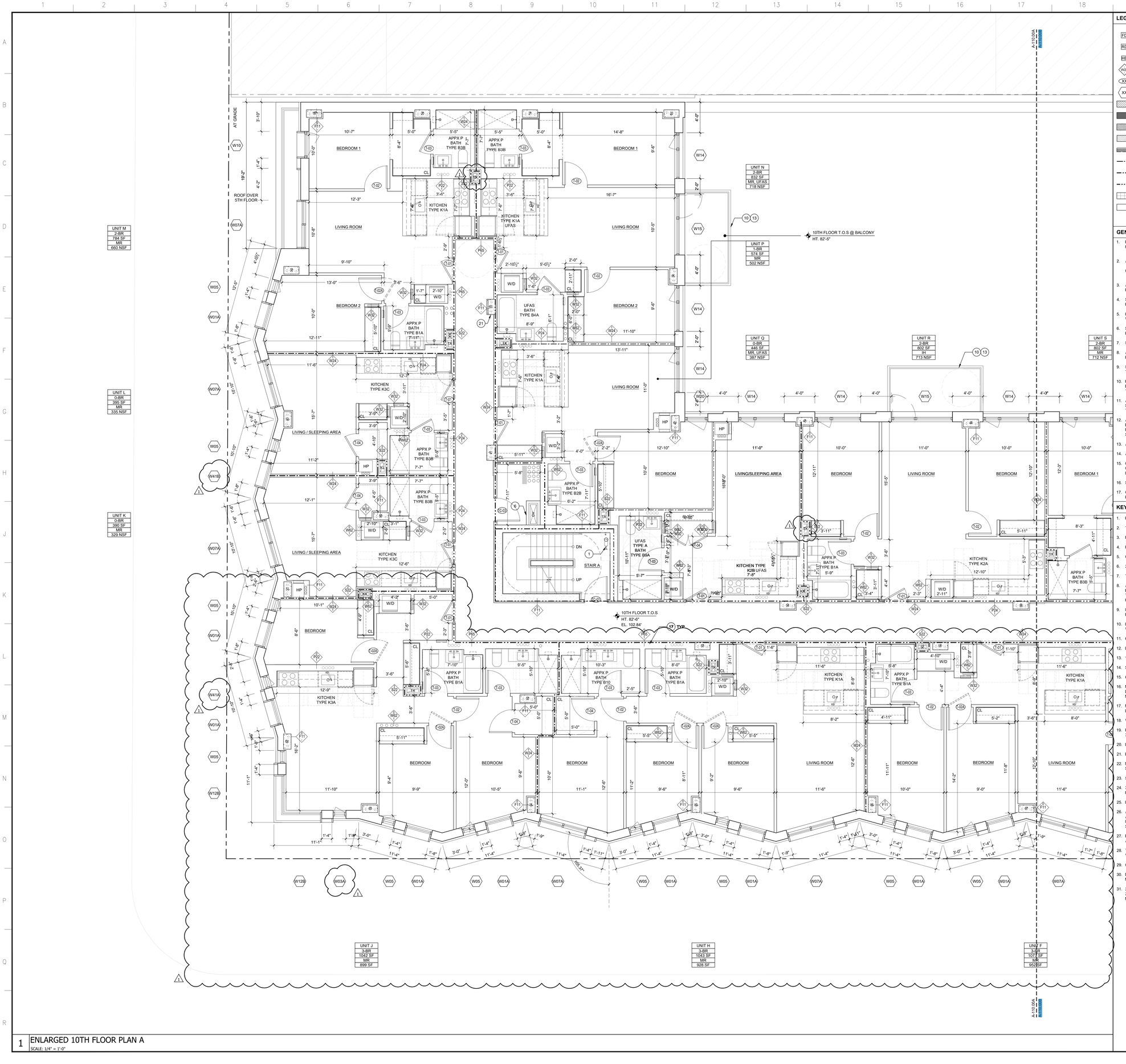
PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
10TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-110.00
CADD FILE No.:



1 ENLARGED 10TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A+601.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM, SEE ELEVATOR DRAWINGS A+521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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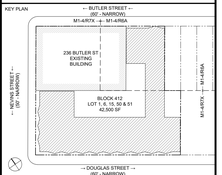

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BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 10TH FLOOR PLAN A

SEAL & SIGNATURE

DATE:(MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

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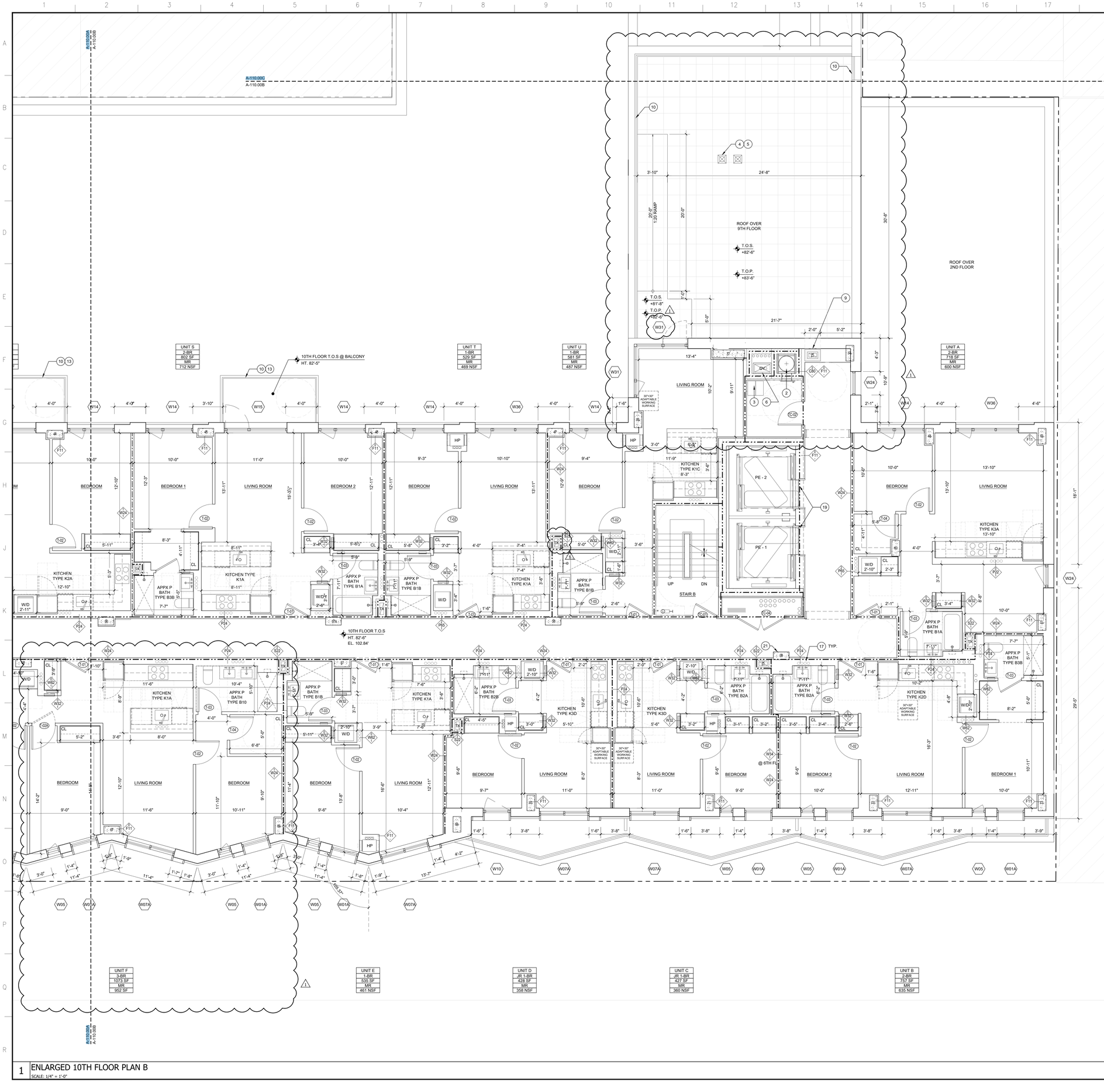

1 ENLARGED 10TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
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15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-461.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
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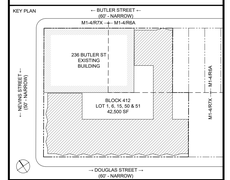

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PROJECT

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BROOKLYN, NY 11217

DRAWING TITLE

ENLARGED 10TH FLOOR PLAN B

SEAL & SIGNATURE

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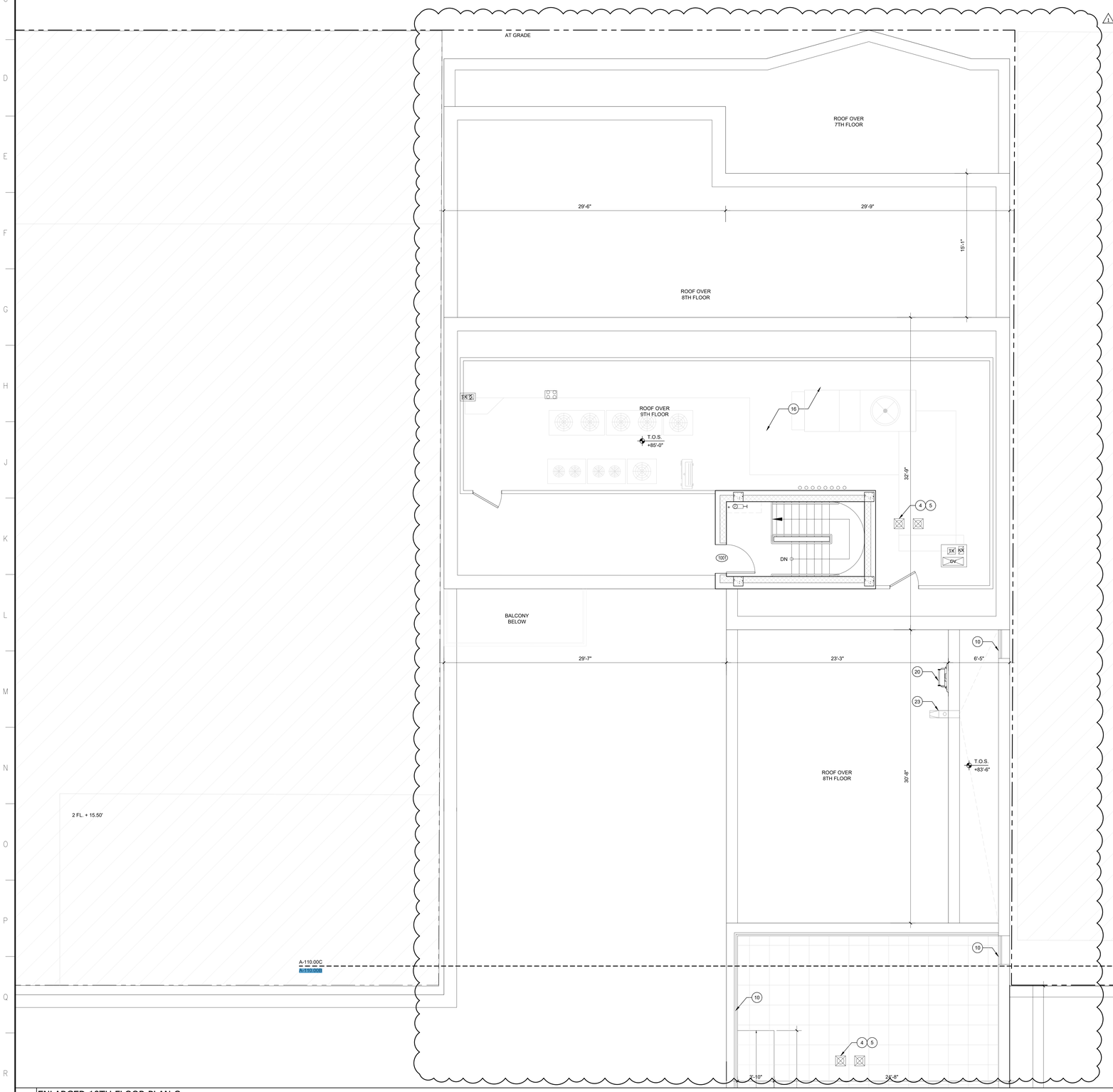

1 ENLARGED 10TH FLOOR PLAN C
SCALE: 1/4" = 1'-0"

LEGEND

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- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
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- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
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JENKINS HUNTINGTON
5 CLIMAX ROAD
AVON, CT 06001

LIGHTING
BOLD
227 WEST 29TH STREET, 8TH FLOOR
NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
102 MADISON AVE #11
NEW YORK, NY 0016

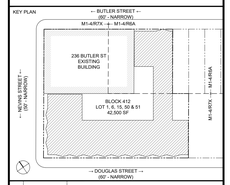
LANDSCAPE
GRAIN COLLECTIVE
339 DOUGLASS STR, SUITE 1
BROOKLYN, NY 11217

GEOTECH
GEOTECHNICAL ENGINEERING SERVICES
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

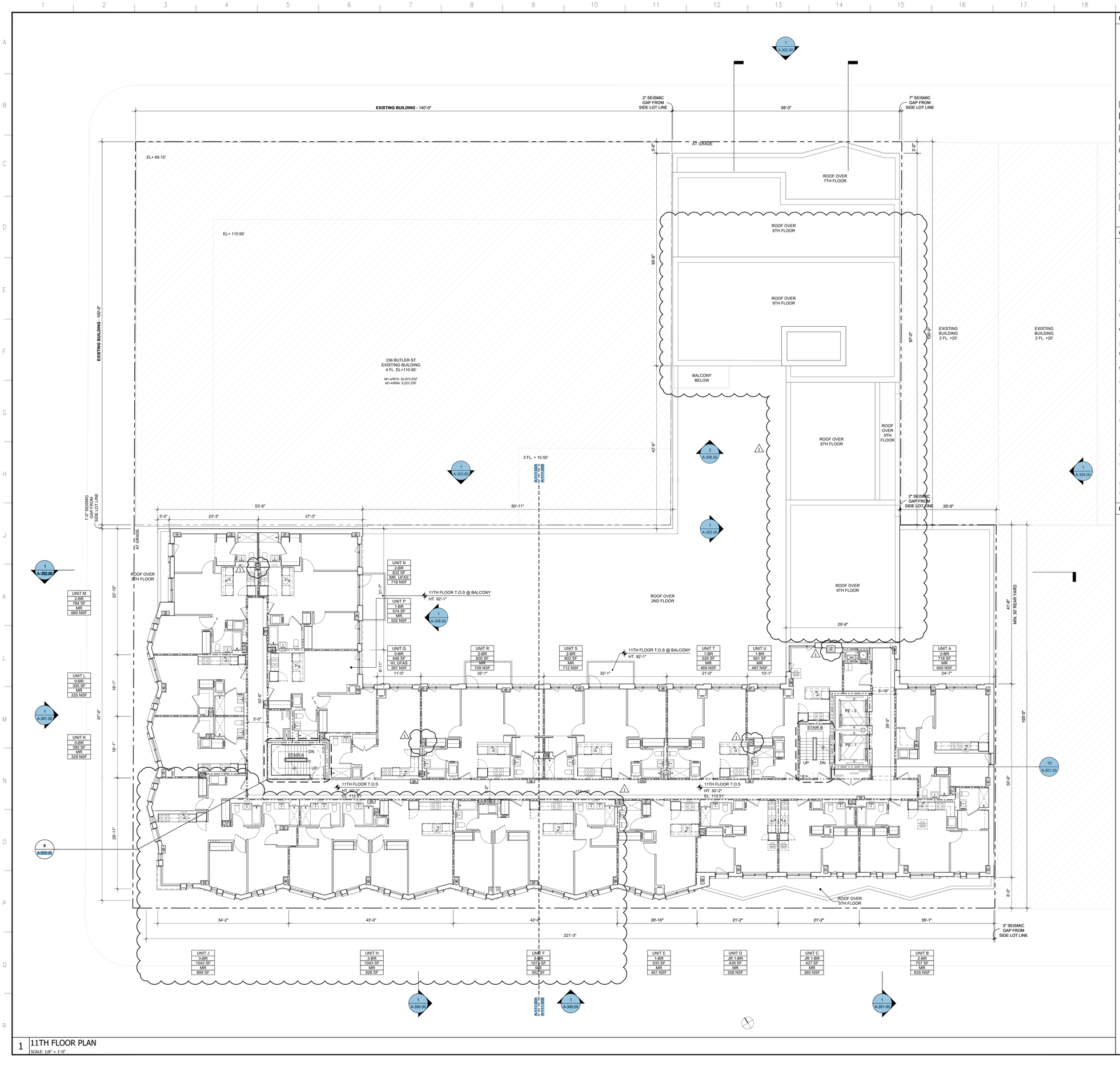
DRAWING TITLE
ENLARGED 10TH FLOOR PLAN C

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-110.00C

CADD FILE No.:



1 11TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101
TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

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UNION, NJ 07083

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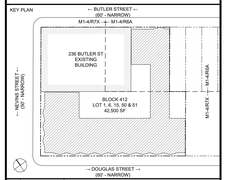

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
11TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-111.00

CADD FILE No.:

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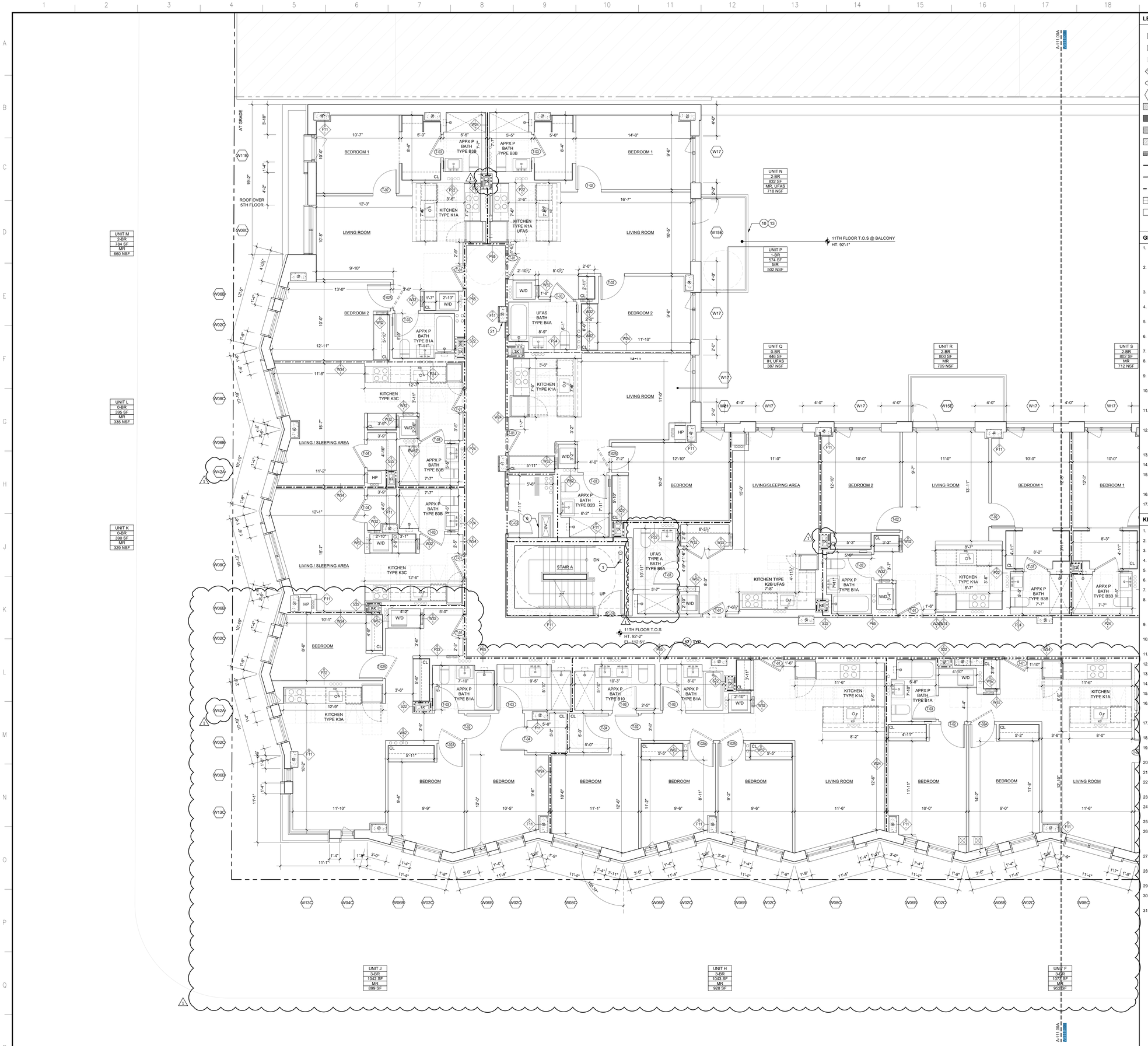

1 ENLARGED 11TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
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- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A+651.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A+521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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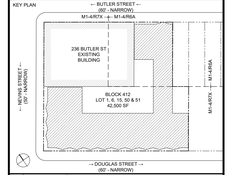

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 11TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

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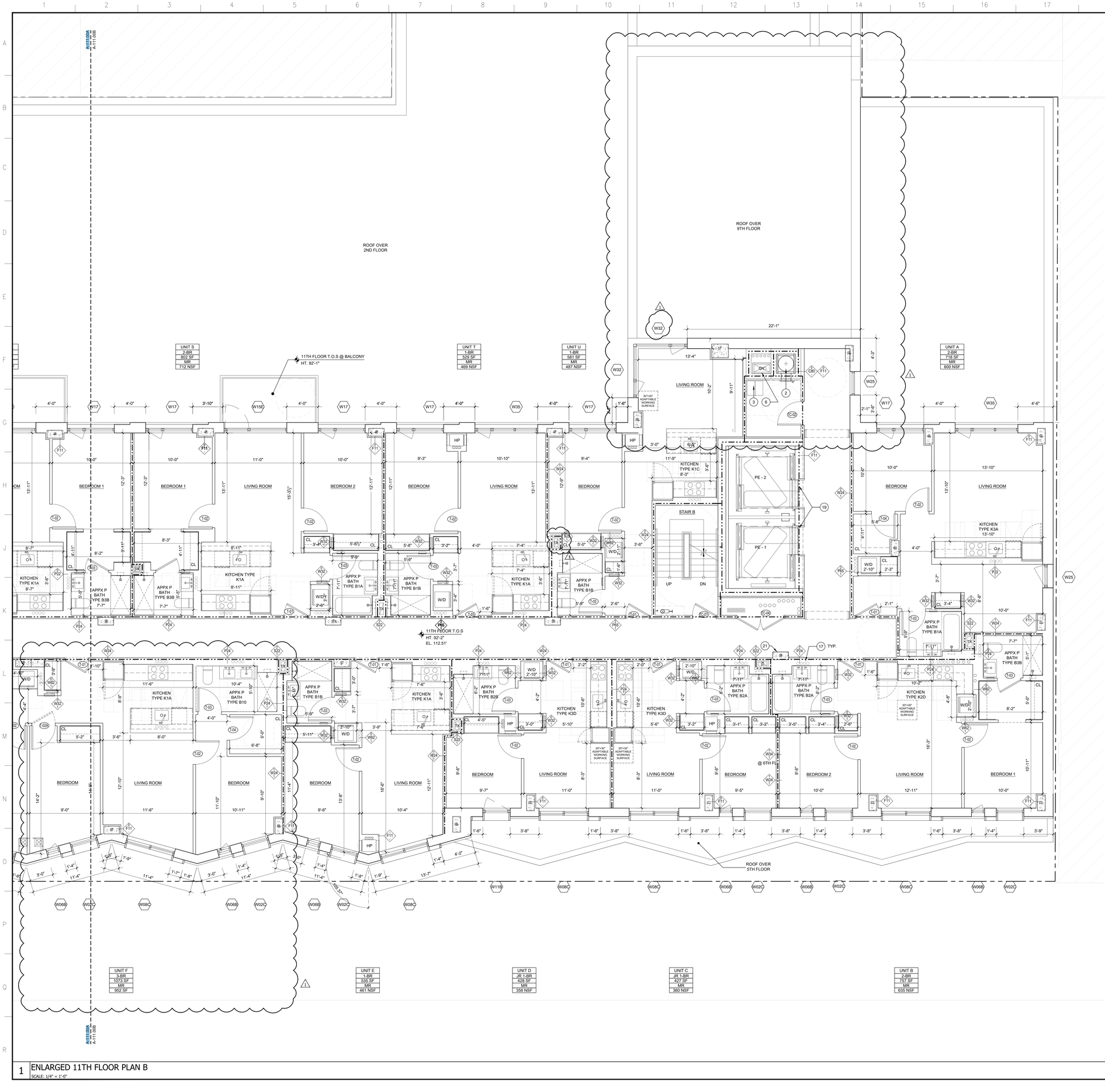

1 ENLARGED 11TH FLOOR PLAN B

SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N. CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
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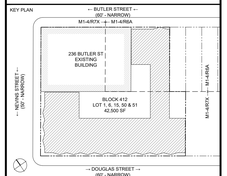

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PROJECT

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DRAWING TITLE

ENLARGED 11TH FLOOR PLAN B

SEAL & SIGNATURE

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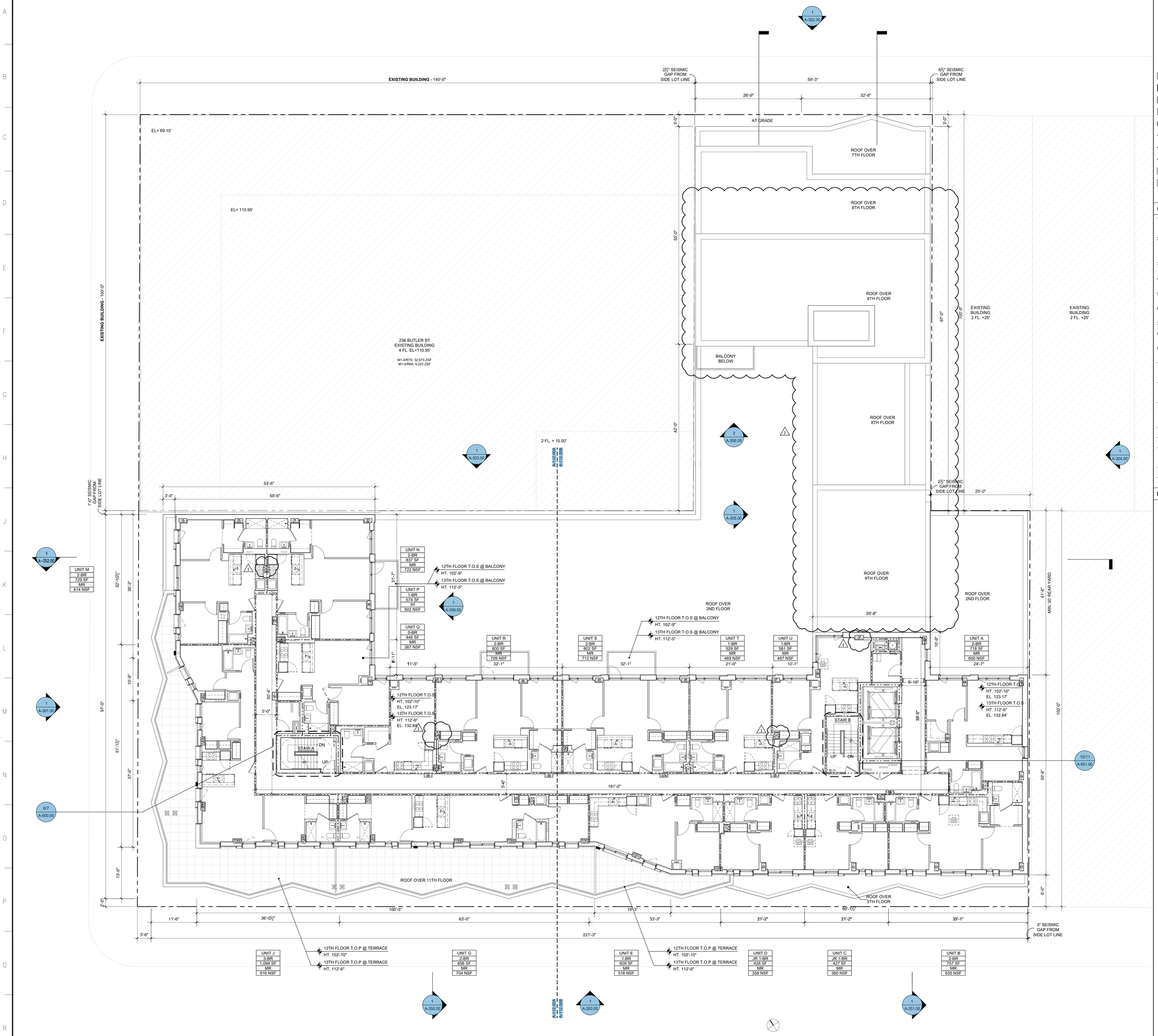

1 12TH - 13TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
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- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
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13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

CLIENT
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5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101
TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

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FACADE
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JENKINS HUNTINGTON
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ACOUSTIC

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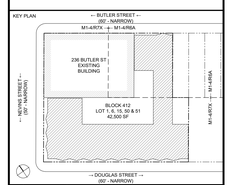

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
12TH - 13TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-112.00

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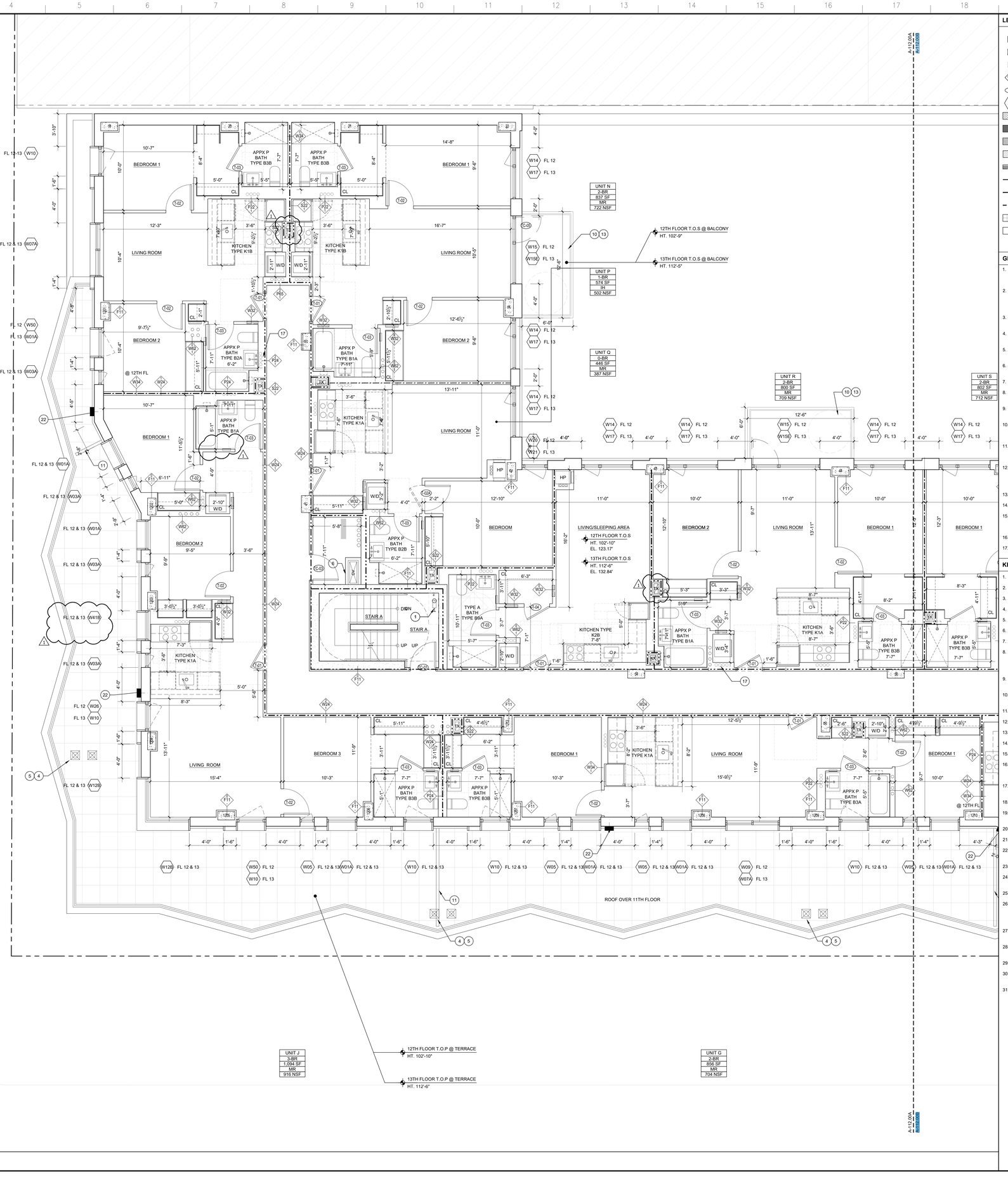
49 OF 175



1 ENLARGED 12TH - 13TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
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KEY NOTES

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3. RECYCLING BINS.
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5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-401.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 12TH - 13TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
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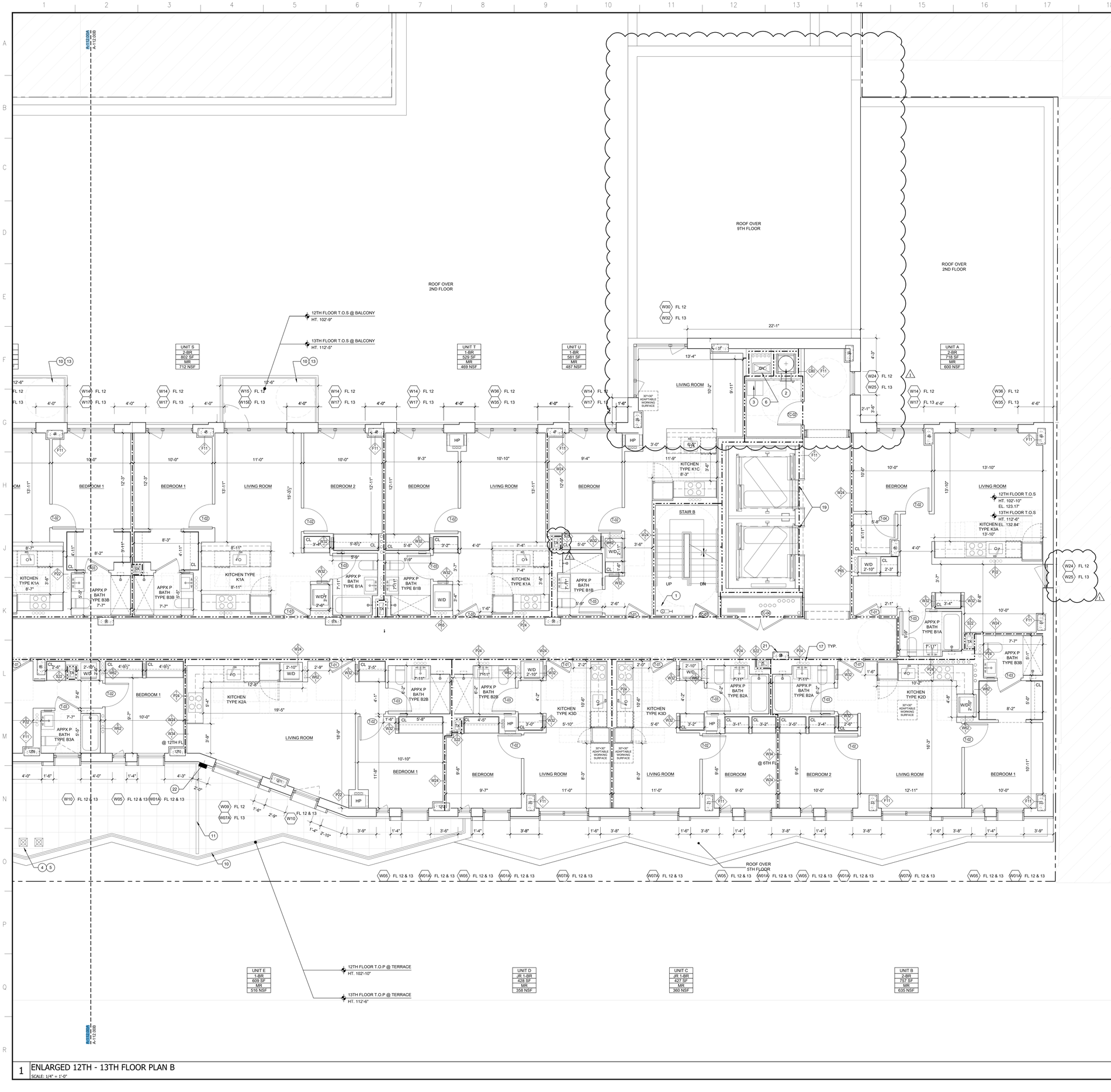

1 ENLARGED 12TH - 13TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
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4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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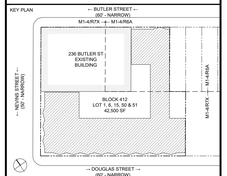

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PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

ENLARGED 12TH - 13TH FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
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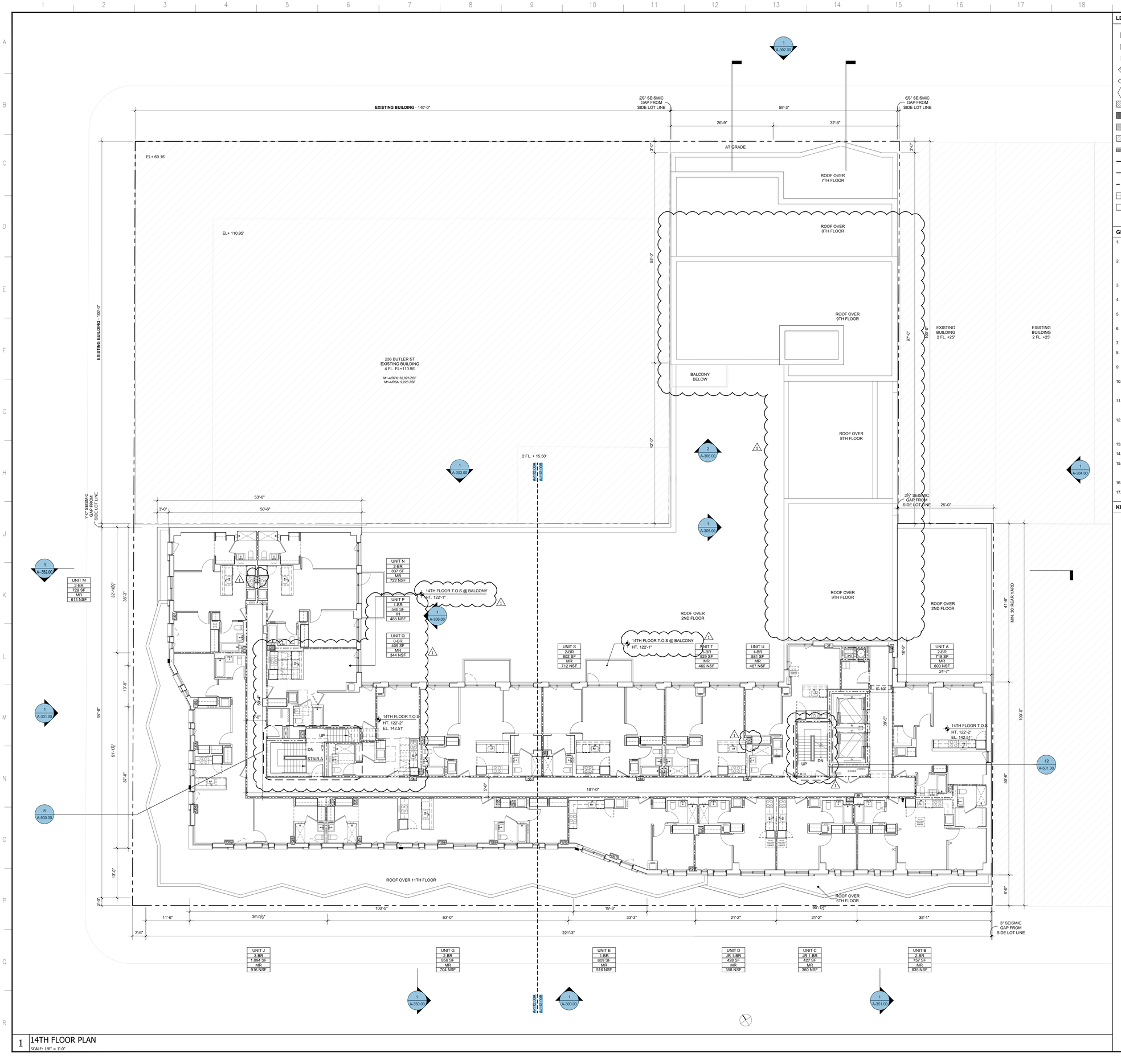

1 14TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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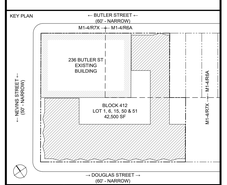

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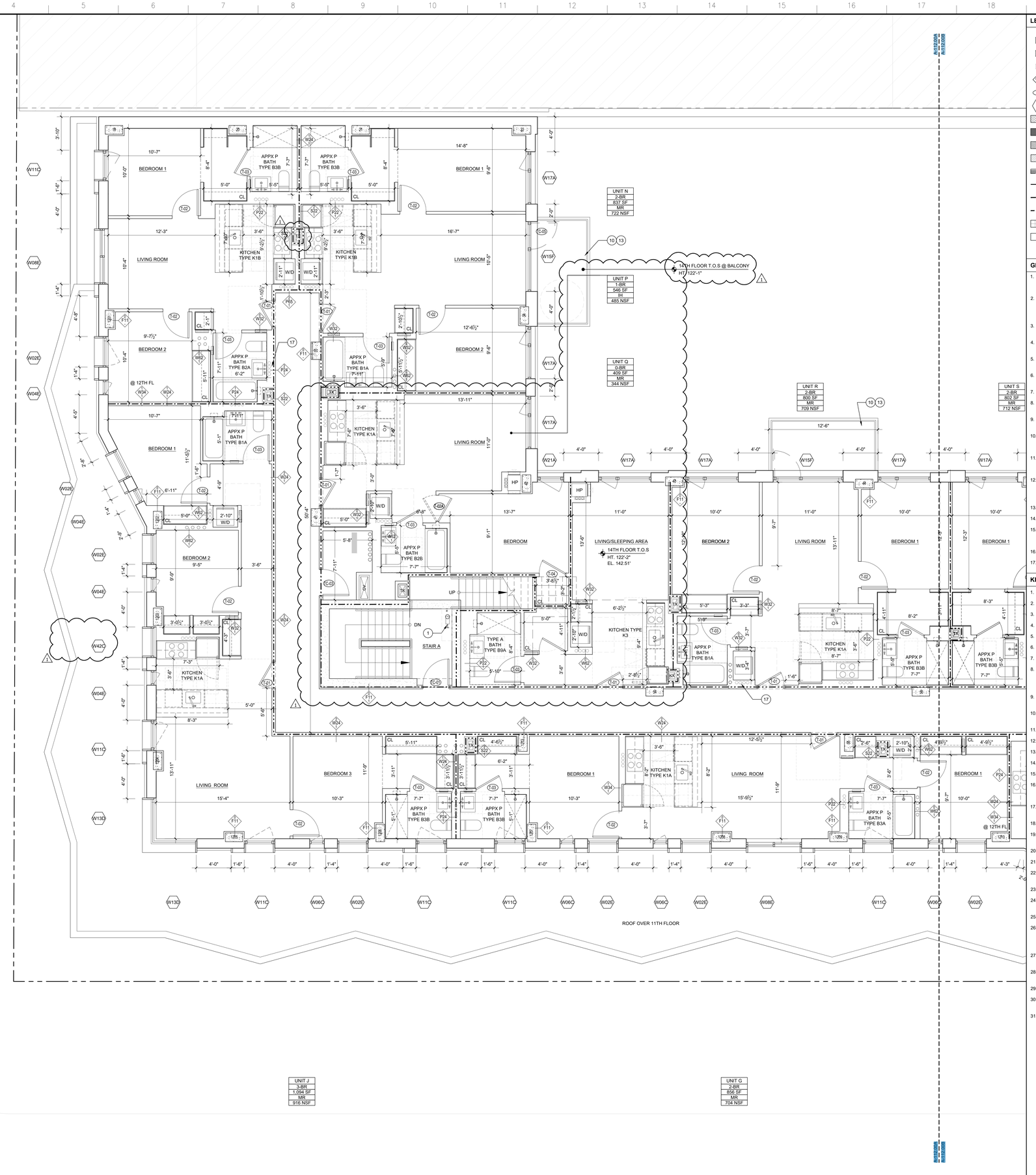

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5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-601.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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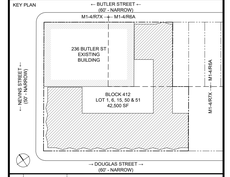
ACOUSTIC

KEY PLAN



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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

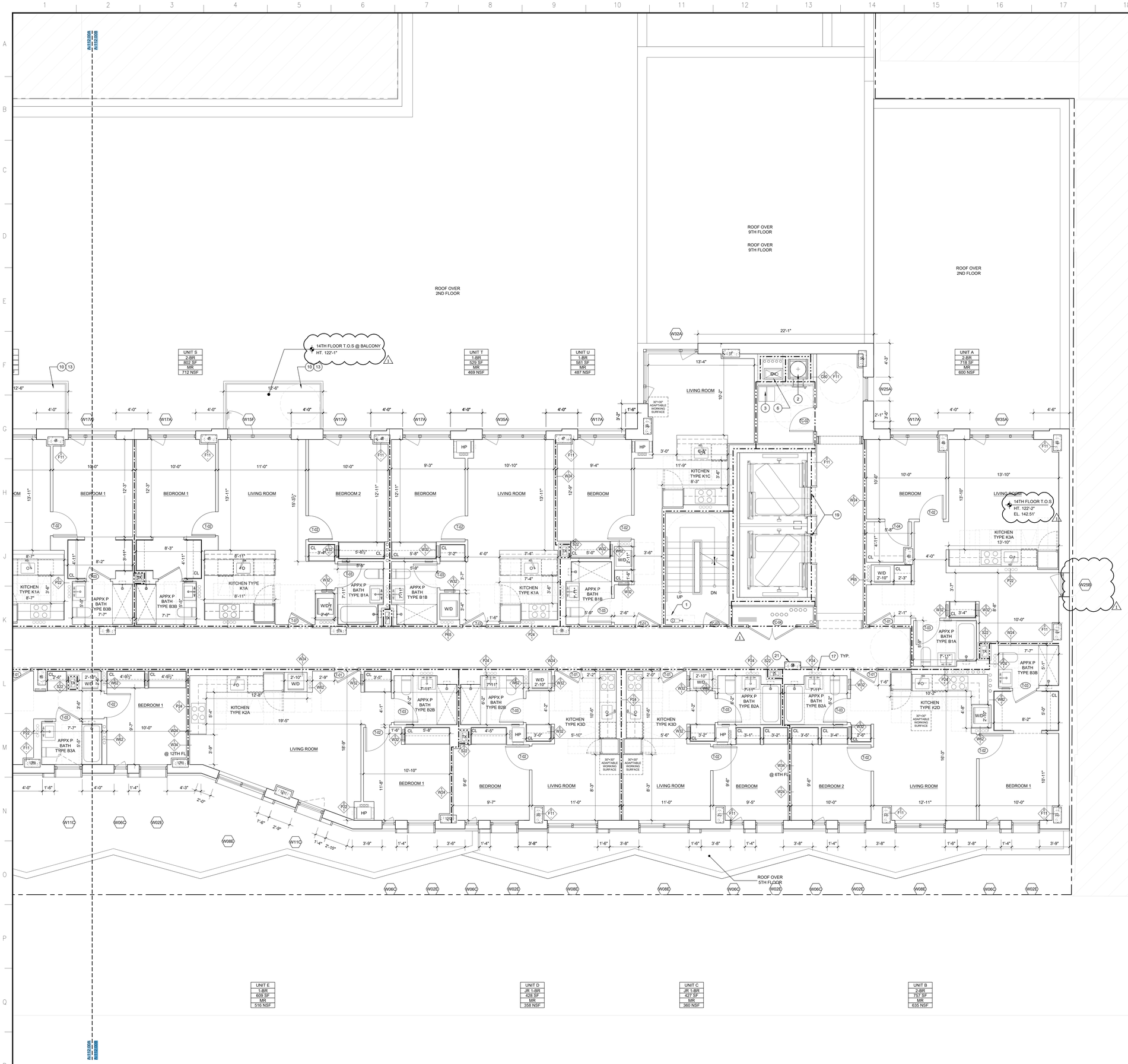
DRAWING TITLE
ENLARGED 14TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-114.00A

CADD FILE No.:



1 ENLARGED 14TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
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15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
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KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
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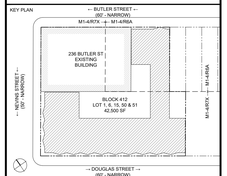

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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

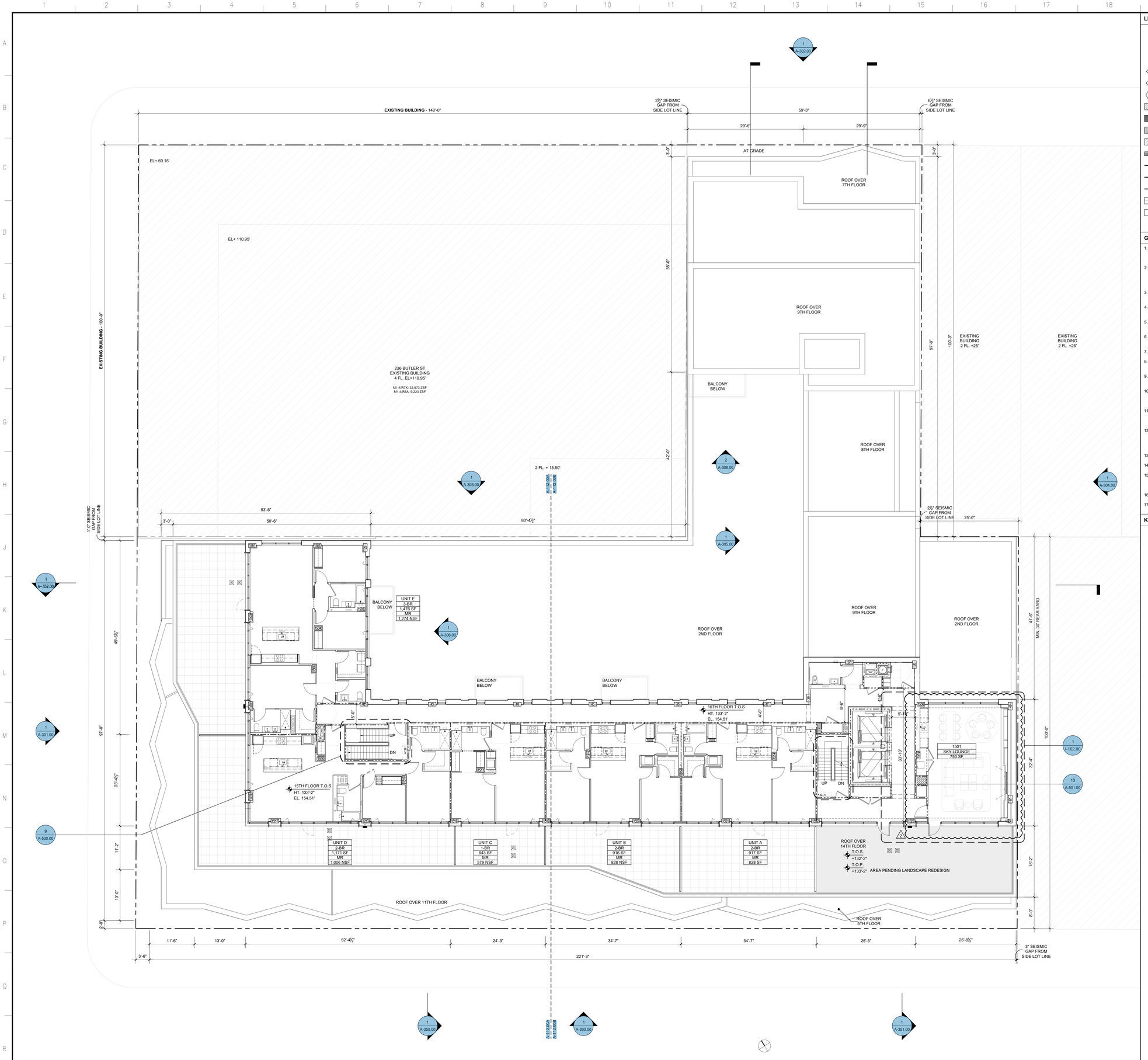
DRAWING TITLE
ENLARGED 14TH FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-114.00B

CADD FILE No.:
54 OF 175



1 15TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZZ U.O.N. CM TO HOLD DEDUCT ALTERNATE WZZ.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
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11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
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13. ALL CLOSETS 2'-2" DEEP U.O.N.
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15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

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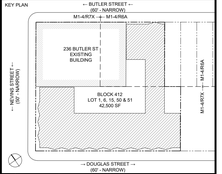

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

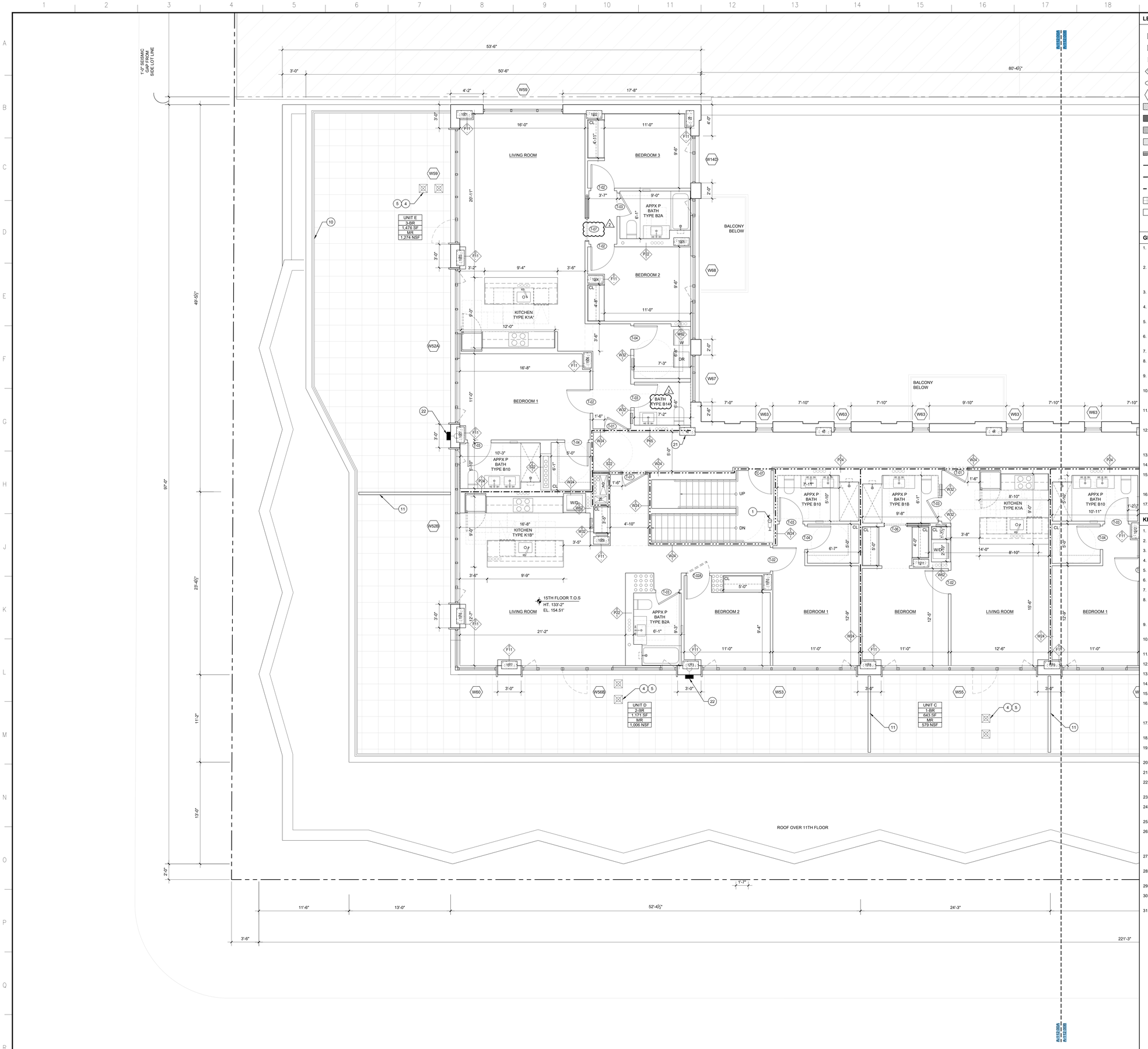
DRAWING TITLE
15TH FLOOR PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-115.00

CADD FILE No.:
55 OF 235



1 ENLARGED 15TH FLOOR PLAN A
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- W22 — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE W22 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE W22.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
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7. SEE EN-008 FOR ROOF DETAILS.
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KEY NOTES

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2. TRASH CHUTE
3. RECYCLING BINS.
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5. OVERFLOW DRAINS.
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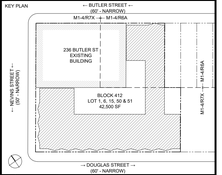
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
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PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

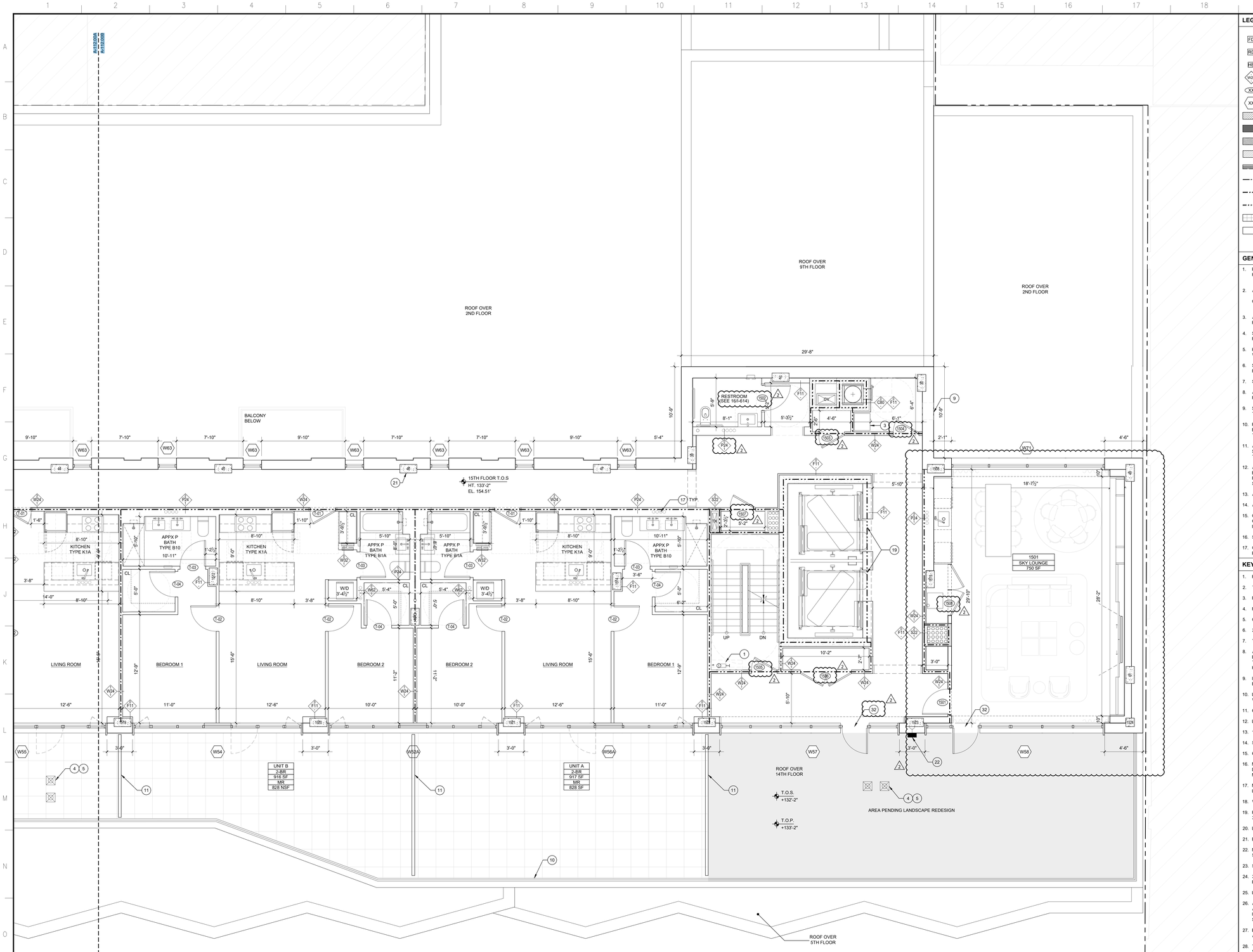
ENLARGED 15TH FLOOR PLAN A

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-115.00A

CADD FILE No.:
56 OF 235



1 ENLARGED 15TH FLOOR PLAN B
SCALE: 1/4" = 1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-461.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
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18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH, COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM. SEE ELEVATOR DRAWINGS A-621.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF
32. DOORS TO BE FITTED WITH CARD READER. SEE DOOR HARDWARE SET E13.

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BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED 15TH FLOOR PLAN B

SEAL & SIGNATURE

DATE (MM-DD-YY):	2024-12-12
PROJECT No.:	TAV_251 DOUGLASS ST
DRAWING BY:	FFA
CHK BY:	FFA

A-115.00B

CADD FILE No.:
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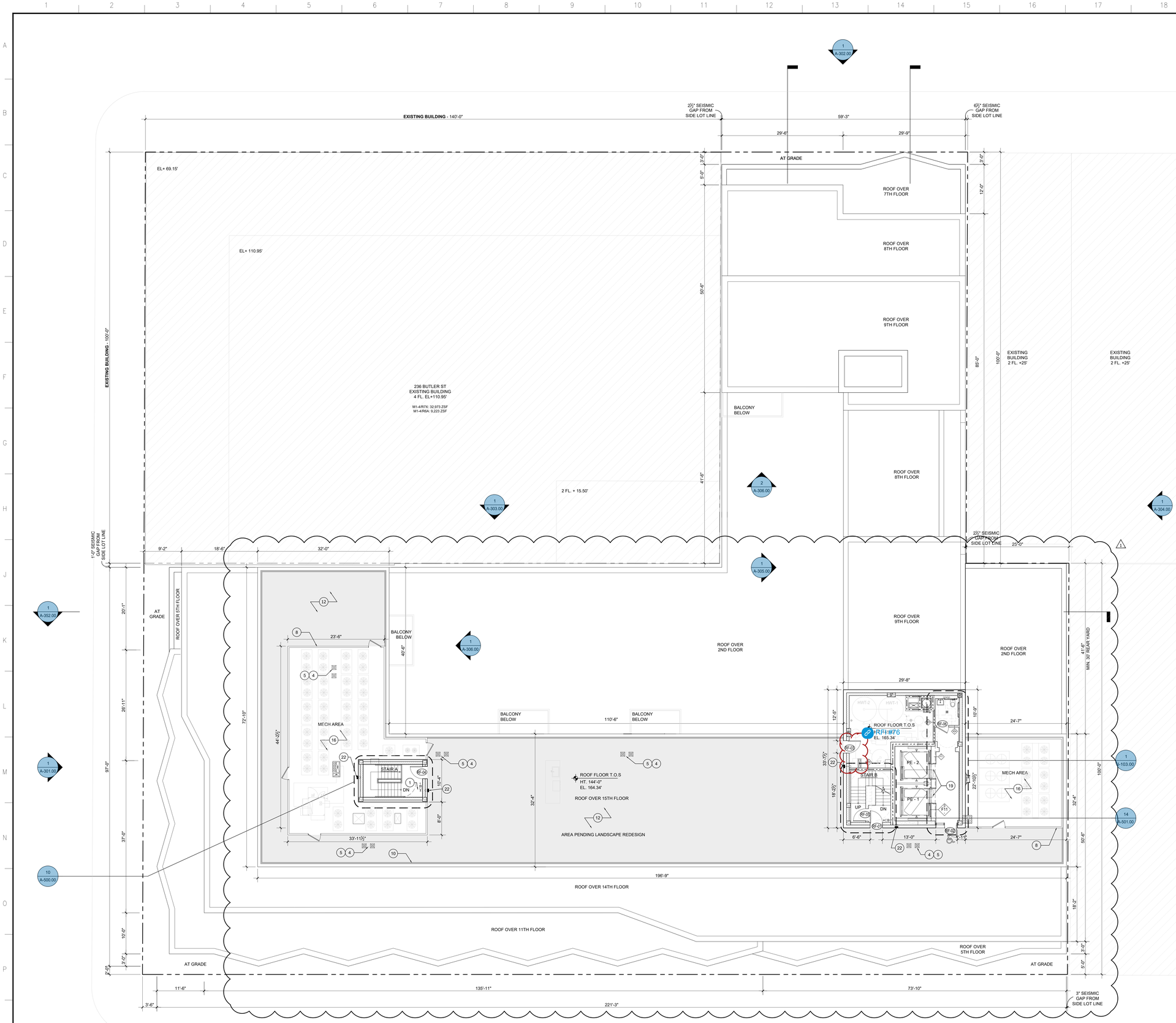

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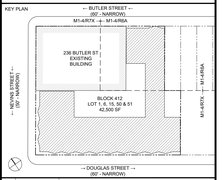

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251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ROOF PLAN

SEAL & SIGNATURE

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PROJECT No.: TAV_251 DOUGLASS ST
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A-116.00

CADD FILE No.:
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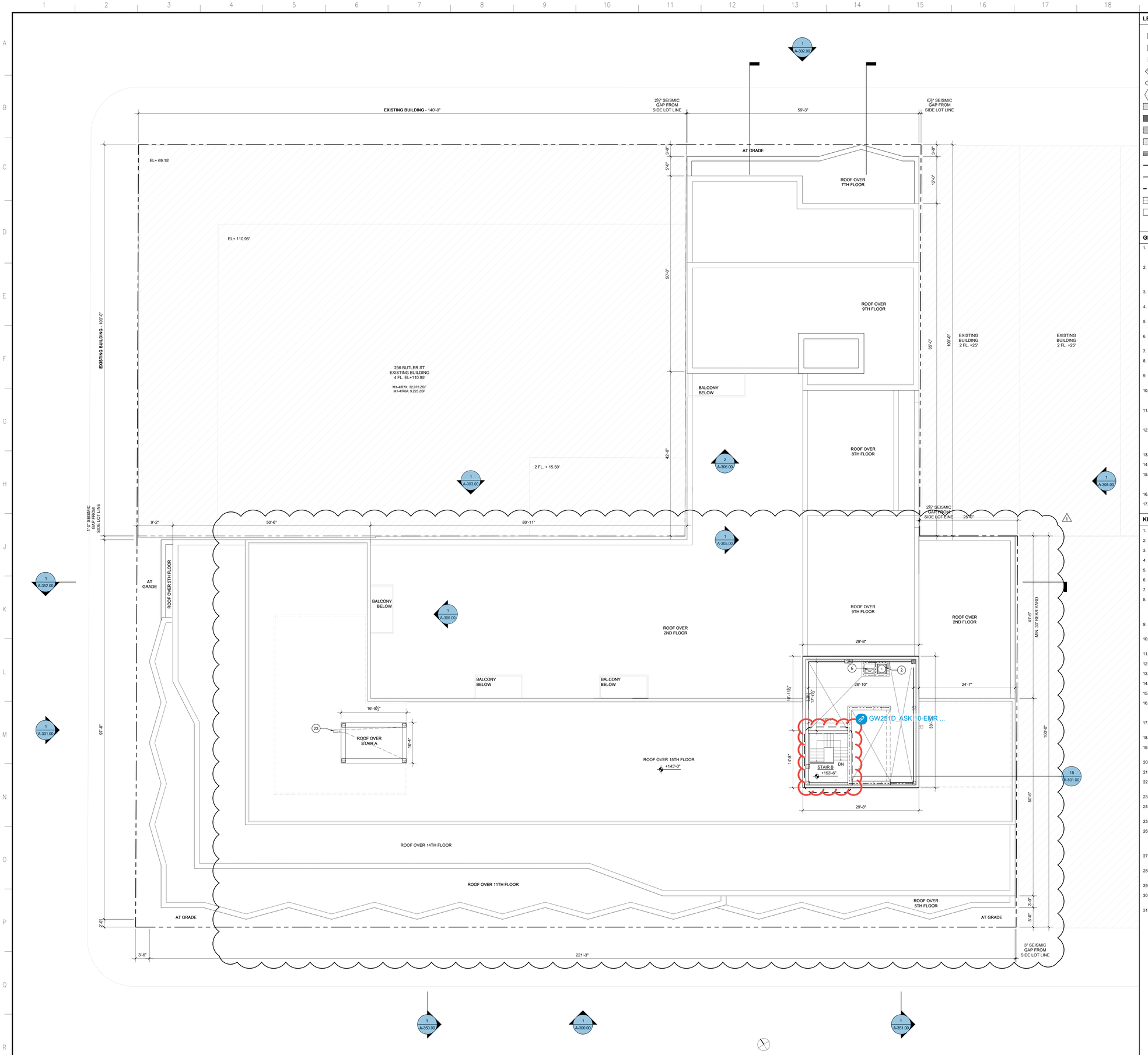

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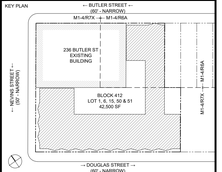

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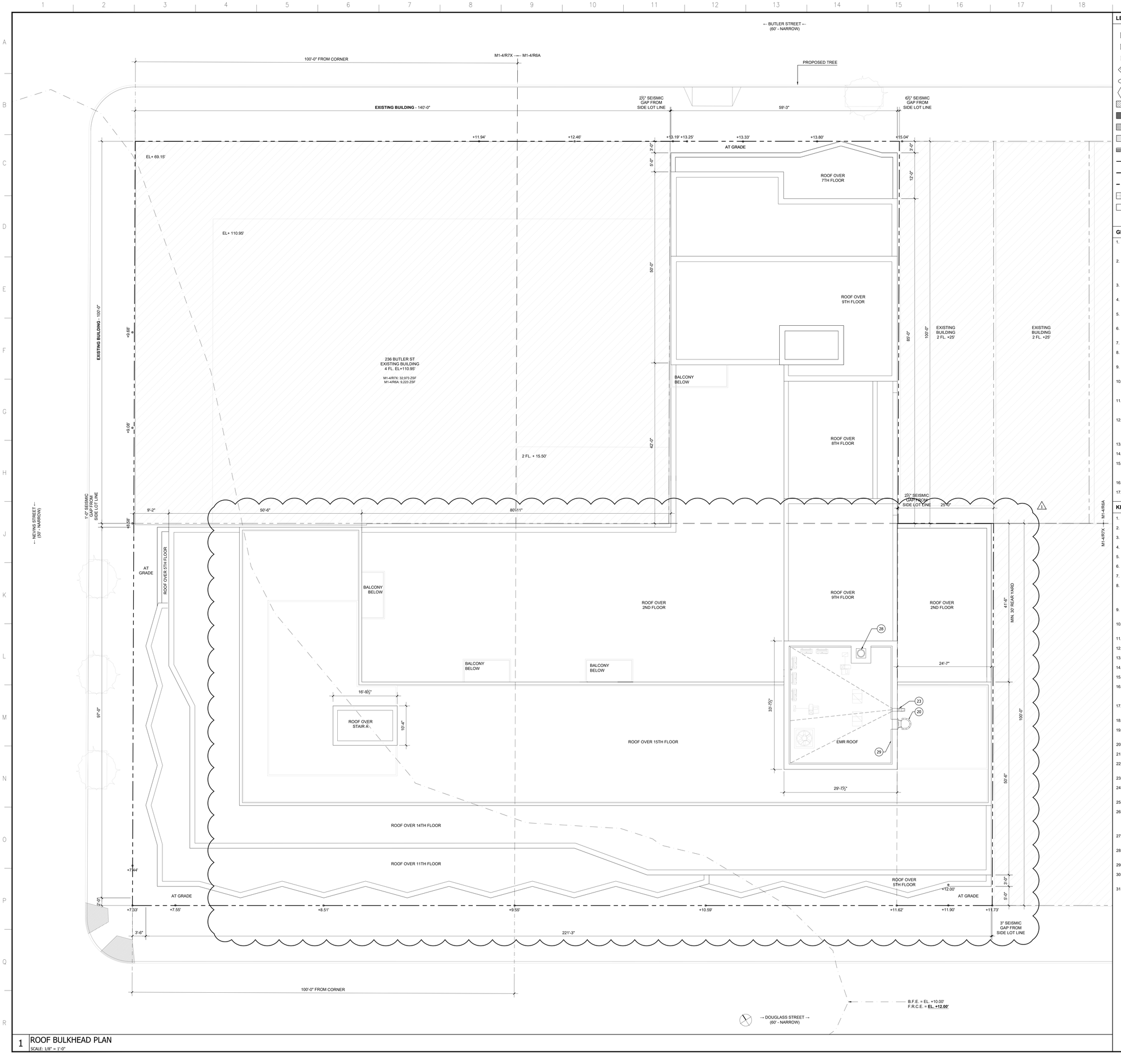

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- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ2 U.O.N.
   CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

KEY NOTES

1. PROVIDE CANE DETECTION AT STANDPIPE.
2. TRASH CHUTE
3. RECYCLING BINS.
4. ROOF DRAINS.
5. OVERFLOW DRAINS.
6. 2HR RATED MECH SHAFT TYP.
7. TERRACE. SEE LANDSCAPE DRAWINGS
8. ARCHITECTURAL SCREENING FOR MECHANICAL EQUIPMENT. SCREENING TO ALIGN WITH THE TOP OF TALLEST EQUIPMENT. SEE ELEVATIONS FOR HEIGHTS
9. INTAKE AND EXHAUST VENTS. COORDINATE WITH ELEVATIONS & MECH DRAWINGS.
10. LAMINATED GLASS RAILING AT 3'-6" AFF, TO COMPLY WITH ADA REQUIREMENTS
11. 6' TERRACE PARTITION. SEE A-401.00 FOR DETAILS.
12. LANDSCAPED AREA.
13. 12'-6" X 6'-0" CONCRETE BALCONY
14. SKYLIGHT TO BASKETBALL COURT 250SF
15. 6' WIDE CLEAR PATH FOR FDNY ACCESS.
16. MECHANICAL AREA. COORDINATE WITH MEP DRAWINGS.PROVIDE CURBS/DUNNAGE FOR MECHANICAL EQUIPMENT AS REQUIRED.
17. MAINTAIN CORRIDOR FIRE RATING AT PLUMBING LOCATIONS.
18. WATER FOUNTAIN.
19. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
20. LADDER
21. EXPOSED CONCRETE COLUMN
22. NFWH. COORDINATE LOCATION WITH ELEVATIONS. SEE MEP DRAWINGS FOR DETAILS.
23. SCUPPER. SEE MEP DRAWINGS
24. 30" x 48" CLEAR FLOOR SPACE AT EACH UNIQUE PIECE OF GYM EQUIPMENT.
25. LINE OF DROPPED SLAB ABOVE.
26. AMENITY SPACE: REFER TO INTERIOR PLANS, VIEWS, AND ELEVATIONS FOR ADDITIONAL INFORMATION INCLUDING DIMENSIONS, BLOCKING, AND SPECIFICATIONS.
27. EMR ROOM, SEE ELEVATOR DRAWINGS A-521.00 FOR ADDITIONAL INFORMATION
28. TERMINATION OF TRASH CHUTE. FULL DIAMETER OF VENT THROUGH ROOF CONSTRUCTION.
29. OSHA RAILING, 3'-6" AFF
30. DRAIN FOR WATER FEATURE. SEE LANDSCAPE & MEP DRAWINGS.
31. 2'-0" X 2'-0" GOVERNOR ACCESS PANEL LOCATED 2'-2.5" FROM END OF SHEAR WALL LEG AND MOUNTED 12" AFF

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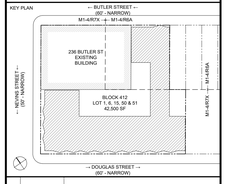
ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

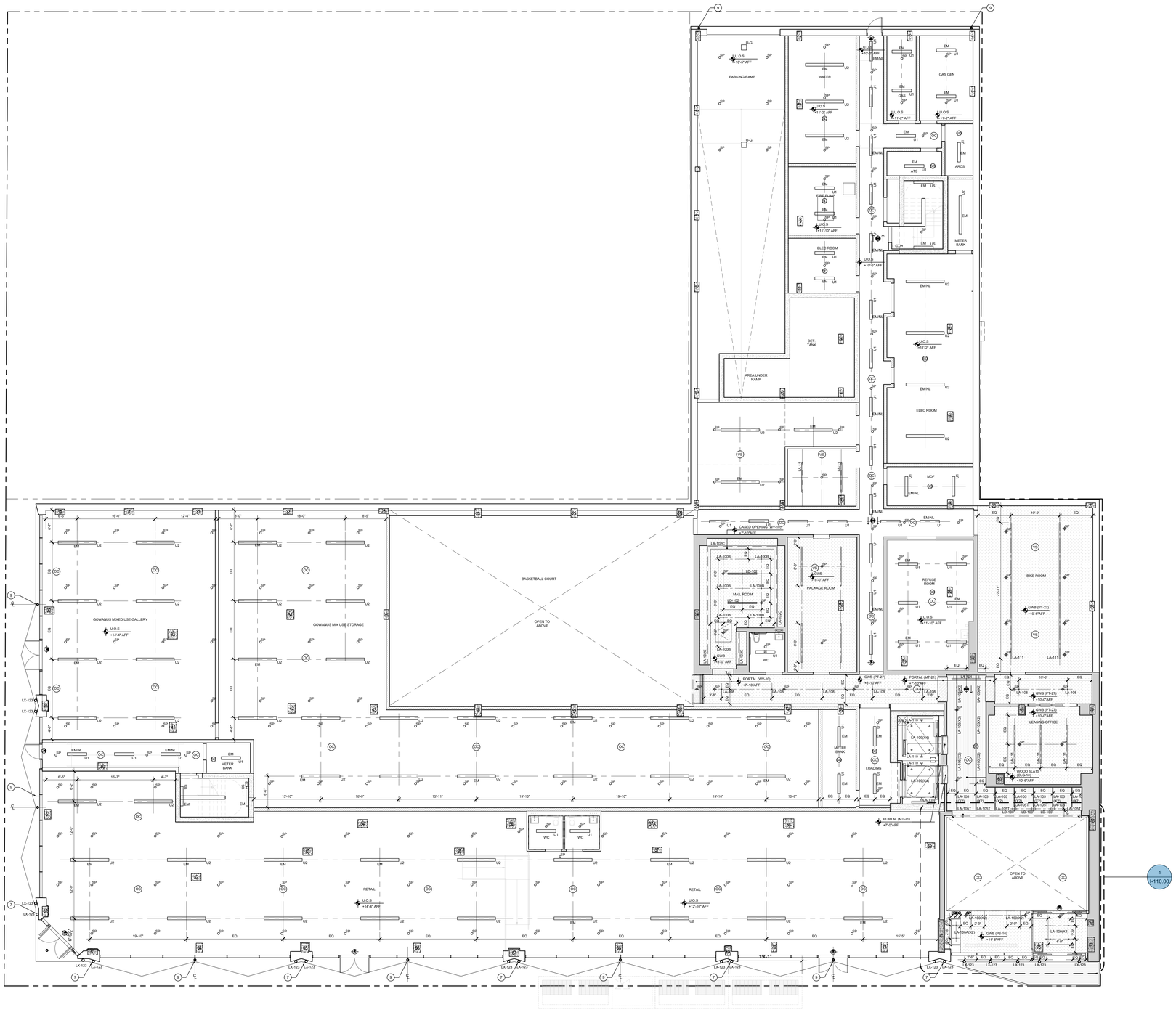
DRAWING TITLE
ROOF BULKHEAD PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-118.00

CADD FILE No.:
60 OF 175



GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

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D UNDERSIDE OF ALL EXPOSED SLABS SHALL HAVE KADEX FINISH: USG: 'COVER COAT' FINISH FREE OF ANY TOOL MARKING AND SAND SMOOTH. POLISHED AND EXPOSED AT AMENITIES U.O.N.

E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

F REFER TO LIGHTING SCHEDULE ON LIGHTING DRAWINGS (LTG SERIES) AND ON ELECTRICAL DRAWINGS. REFER TO ELECTRICAL DRAWINGS FOR ALL EMERGENCY LIGHTING.

G IN SWITCHED DUPLEX OUTLETS LOWER RECEPTACLE TO BE SWITCH

H FOR TYPICAL CEILING HEIGHTS AND FINISHES, REFER TO KEY NOTE LEGEND

I REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE LAYOUT AND SPECIFICATIONS AT ALL BACK OF HOUSE SPACES

J TYP FINISHED CLG. @ 8'-0" A.F.F., U.O.N. IN UNIT APARTMENTS & 7'-6" A.F.F. IN UNIT BATHROOMS

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O SEE I-617.00 FOR BATHROOM RCP'S

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LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- CONCEALED CEILING MOUNTED SPRINKLER
- WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
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ACOUSTIC

FFA 04/16/2025
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LOBBY AND GROUND FLOOR AMENITY REDESIGN

No.	DATE	ISSUE
07	12.13.2024	PAA ISSUANCE
06	10.07.2022	100% CD ISSUANCE
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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
1ST FLOOR RCP

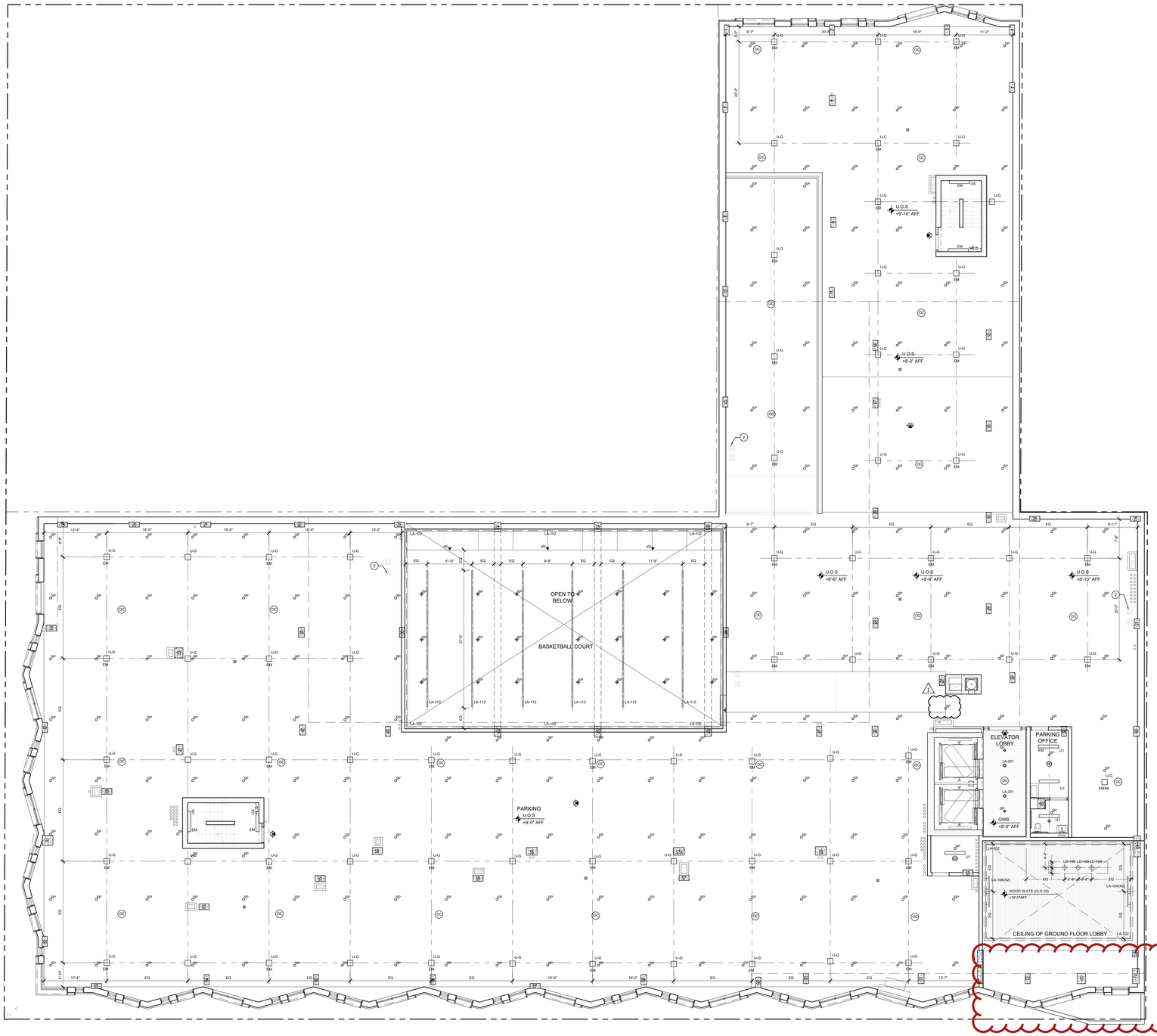
SEAL & SIGNATURE

DATE (MM-DD-YY):	2025-04-03
PROJECT No.:	B00621061-11
DRAWING BY:	FFA
CHK BY:	FFA

A-201.00

CADD FILE No.: 61 OF235

1 1ST FLOOR RCP
SCALE: 1/8" = 1'-0"



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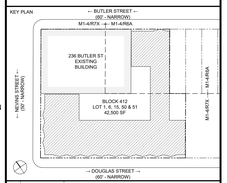

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

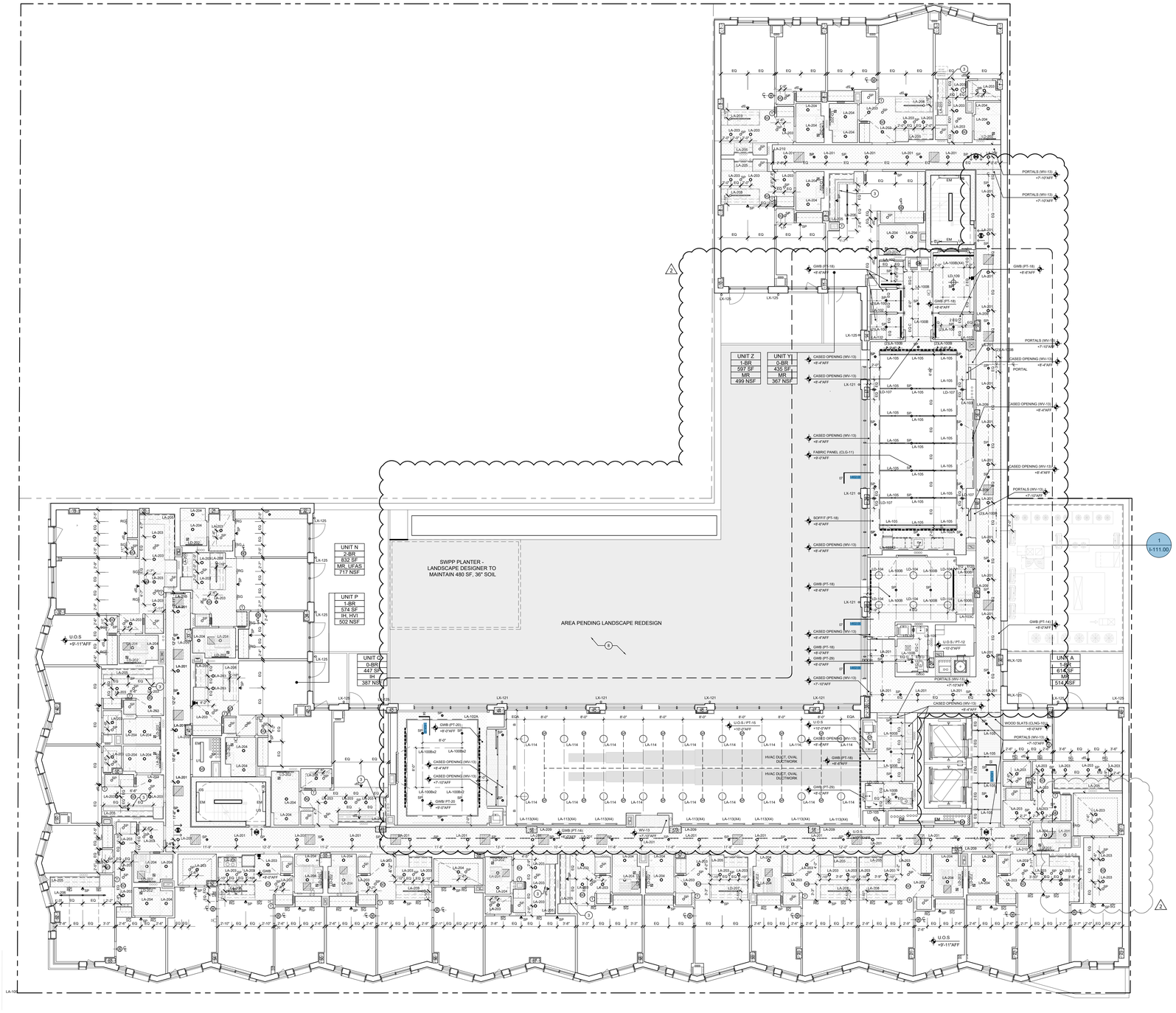
DRAWING TITLE
2ND FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-202.00

CADD FILE No.:
62 OF 175



1 3RD FLOOR RCP
SCALE: 1/8" = 1'-0"

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LEGEND

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- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
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UNION, NJ 07083

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ETTINGER ENGINEERING ASSOCIATES
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NEW YORK, NY 10018

FACADE
HATFIELD GROUP
285 WEST BROADWAY #410
NEW YORK, NY 10013

ELEVATOR
JENKINS HUNTINGTON
5 CLIMAX ROAD
AVON, CT 06001

LIGHTING
BOLD
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NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
102 MADISON AVE #11
NEW YORK, NY 0016

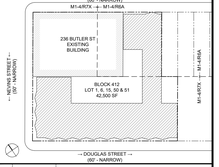
LANDSCAPE
GRAIN COLLECTIVE
339 DOUGLASS STR, SUITE 1
BROOKLYN, NY 11217

GEOTECH
GEOTECHNICAL ENGINEERING SERVICES
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
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03	03.18.2022	DD ISSUANCE
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01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

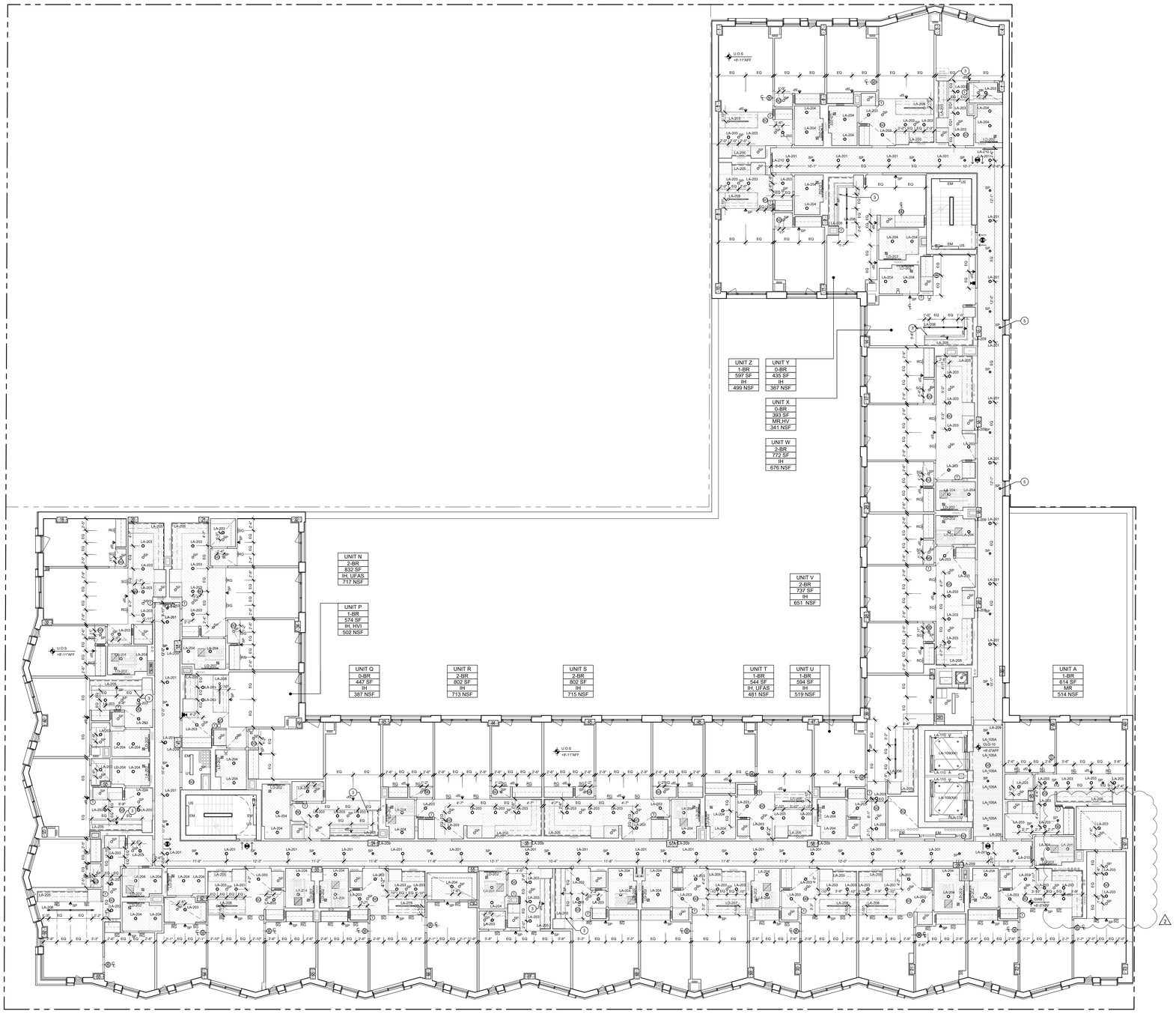
DRAWING TITLE
3RD FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-203.00

CADD FILE No.:
63 OF 235



1 4TH FLOOR RCP
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

B ALL GYP. BD. CEILING SHALL BE ASTM C-840-8 22.6.5 LEVEL 4 FINISH MINIMUM. TO RECEIVE PAINT (PT-01 (COMMON SPACES) PT-10 (APARTMENTS)) U.O.N

C ALL CLOSETS AND LAUNDRY CLOSET CEILING SHALL BE ASTM C840-8 22.6.4 LEVEL 3 FINISH OR BETTER TO RECEIVE PAINT

D UNDERSIDE OF ALL EXPOSED SLABS SHALL HAVE KADEX FINISH: USG: 'COVER COAT' FINISH FREE OF ANY TOOL MARKING AND SAND SMOOTH. POLISHED AND EXPOSED AT AMENITIES U.O.N.

E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

F REFER TO LIGHTING SCHEDULE ON LIGHTING DRAWINGS (LTG SERIES) AND ON ELECTRICAL DRAWINGS, REFER TO ELECTRICAL DRAWINGS FOR ALL EMERGENCY LIGHTING.

G IN SWITCHED DUPLEX OUTLETS LOWER RECEPTACLE TO BE SWITCH

H FOR TYPICAL CEILING HEIGHTS AND FINISHES, REFER TO KEY NOTE LEGEND

I REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE LAYOUT AND SPECIFICATIONS AT ALL BACK OF HOUSE SPACES

J TYP FINISHED CLG. @ 8'-0" A.F.F., U.O.N. IN UNIT APARTMENTS & 7'-6" A.F.F. IN UNIT BATHROOMS

K SEE ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING LIGHT FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.

L ALL SPRINKLERS IN W/D / CLOSETS AND W.I.C. TO BE CENTERED IN THE SPACE, U.O.N.

M ALIGN ALL CEILING DEVICES, AND SPRINKLER HEADS WITH CENTERLINE OF ADJACENT LIGHT FIXTURES. CENTER ON WALLS OR BETWEEN LIGHT FIXTURES IF POSSIBLE. SPRINKLER HEAD COVER COLOR & FINISH TO MATCH CEILING.

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O SEE I-617.00 FOR BATHROOM RCP'S

P SEE A-601 FOR CEILING DETAILS. 8'-0" CEILINGS TO BE MAINTAINED THROUGHOUT. SEE DETAIL 18 FOR DUCT + SPRINKLER CROSS DETAIL.

LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- SP — CONCEALED CEILING MOUNTED SPRINKLER
- SP/WP — WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- T — THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
- CEILING MOUNTED SMOKE/CARBON MONOXIDE ALARM
- DOOR MOUNTED EXIT SIGN
- CEILING MOUNTED EXIT SIGN
- J — J-BOX
- S# — SWITCH NOTATION INDICATES LIGHTING FIXTURE OR OUTLET IT CONTROLS
- CEILING DIFFUSER
- ACCESS PANEL
- STEALTH ACCESS PANEL / ACCESS DOOR
- T — SENSOR
- D — FLOOR OUTLET
- A — DEDICATED APPLIANCE OUTLET
- DUPLEX WALL OUTLET
- FLOOR MOUNTED DATA OUTLET
- DATA WALL OUTLET
- DATA WHIP LOCATION
- ELECTRICAL WHIP LOCATION
- W — WET RATED OUTLET
- SUPPLY GRILL
- RETURN GRILL

KEY NOTE LEGEND

1. LINE OF DROPPED SLAB ABOVE
2. ROOF DRAIN FROM ABOVE
3. SMOKE SOFFIT AT KITCHEN, 10" WIDE X 12" HIGH
4. EXTERIOR LIGHTING AT TERRACE
5. 8" SOFFIT TO PROVIDE REQUIRED SPRINKLERS AT THE LOT LINE WINDOWS
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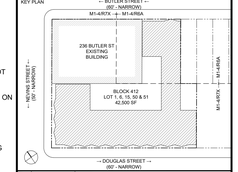

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251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
4TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-204.00

CADD FILE No.:
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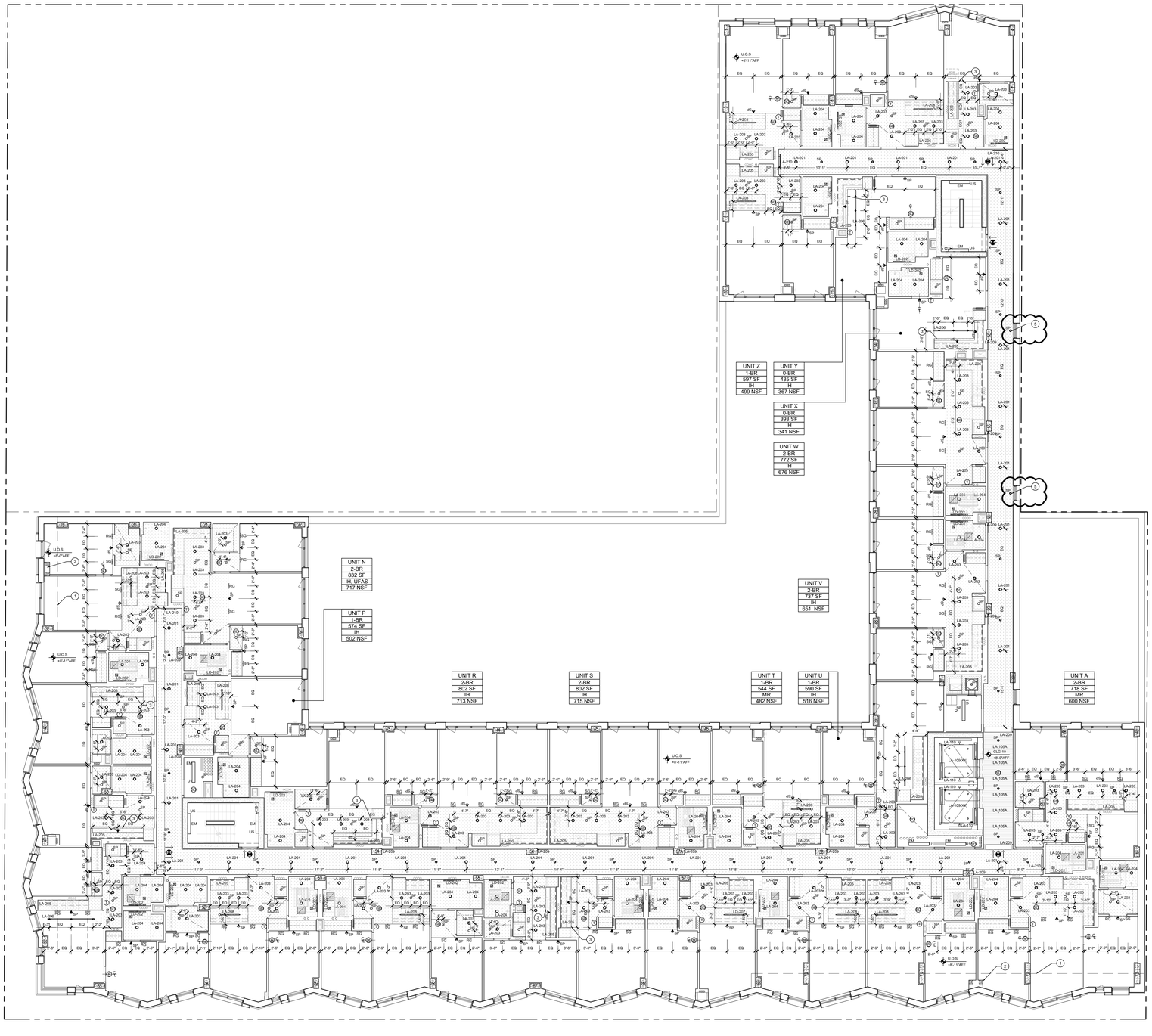

1 5TH FLOOR RCP
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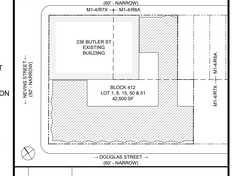

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
5TH FLOOR RCP

SEAL & SIGNATURE

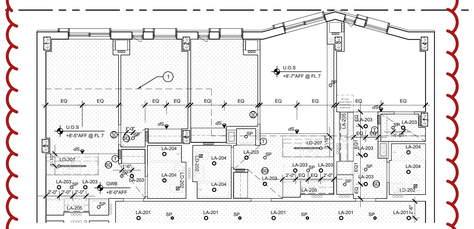
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

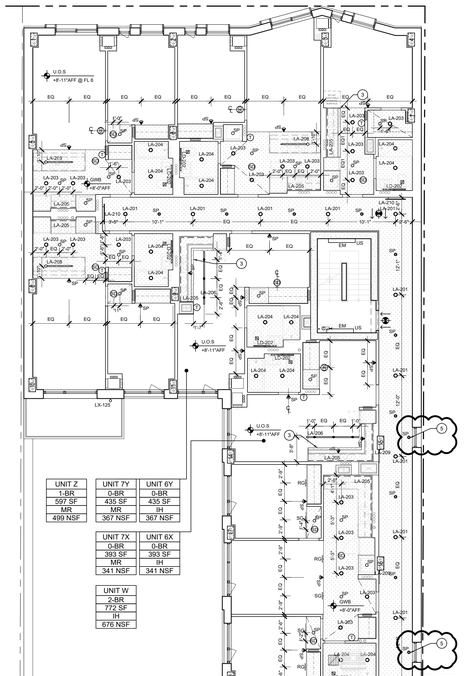
A-205.00

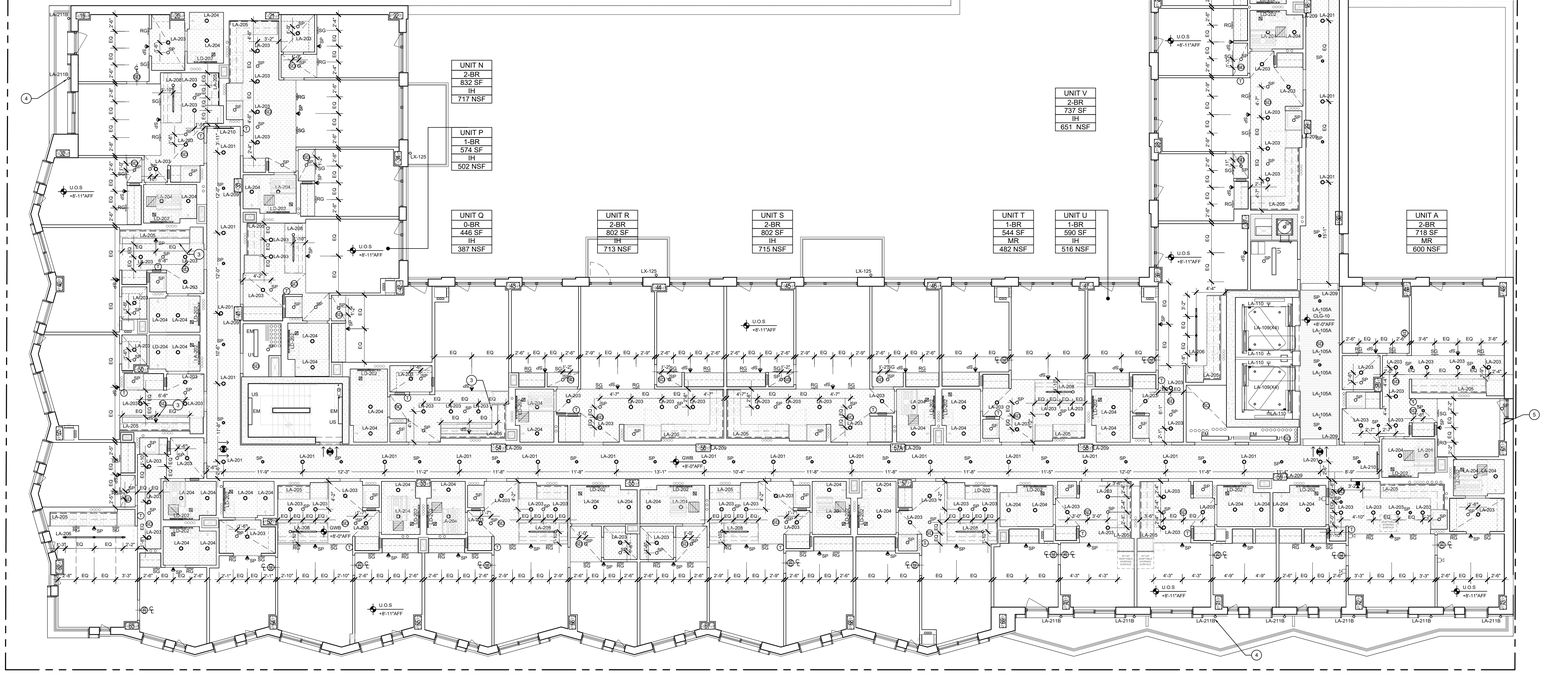
CADD FILE No.:
65 OF 175

ASK-007.00

7TH FLOOR ONLY







UNIT AA
1-BR
608 SF
MR
508 NSF

UNIT AB
1-BR
571 SF
MR
498 NSF

UNIT AC
0-BR
394 SF
MR
308 NSF

UNIT Z
1-BR
597 SF
MR
499 NSF

UNIT 7Y	UNIT 6Y
0-BR	0-BR
435 SF	435 SF
MR	IH
367 NSF	367 NSF

UNIT 7X	UNIT 6X
0-BR	0-BR
393 SF	393 SF
MR	IH
341 NSF	341 NSF

UNIT W
2-BR
772 SF
IH
676 NSF

UNIT M
2-BR
784 SF
MR
660 NSF

UNIT L
0-BR
395 SF
MR
335 NSF

UNIT K
0-BR
390 SF
MR
329 NSF

UNIT N
2-BR
832 SF
IH
717 NSF

UNIT P
1-BR
574 SF
IH
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UNIT Q
0-BR
446 SF
IH
387 NSF

UNIT R
2-BR
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IH
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UNIT S
2-BR
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IH
715 NSF

UNIT T
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MR
482 NSF

UNIT U
1-BR
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IH
516 NSF

UNIT V
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737 SF
IH
651 NSF

UNIT A
2-BR
718 SF
MR
600 NSF

UNIT J
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MR
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UNIT H
2-BR
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MR
680 NSF

UNIT G
2-BR
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MR
710 NSF

UNIT F
2-BR
803 SF
MR
710 NSF

UNIT E
1-BR
535 SF
MR
461 NSF

UNIT D
JR 1-BR
428 SF
MR
358 NSF

UNIT C
JR 1-BR
427 SF
MR
360 NSF

UNIT B
2-BR
757 SF
MR, HVI
635 NSF

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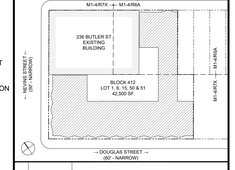
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.25.2024	ULE MEP COORDINATION PACKAGE
06	10.07.2022	100% CD ISSUANCE
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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

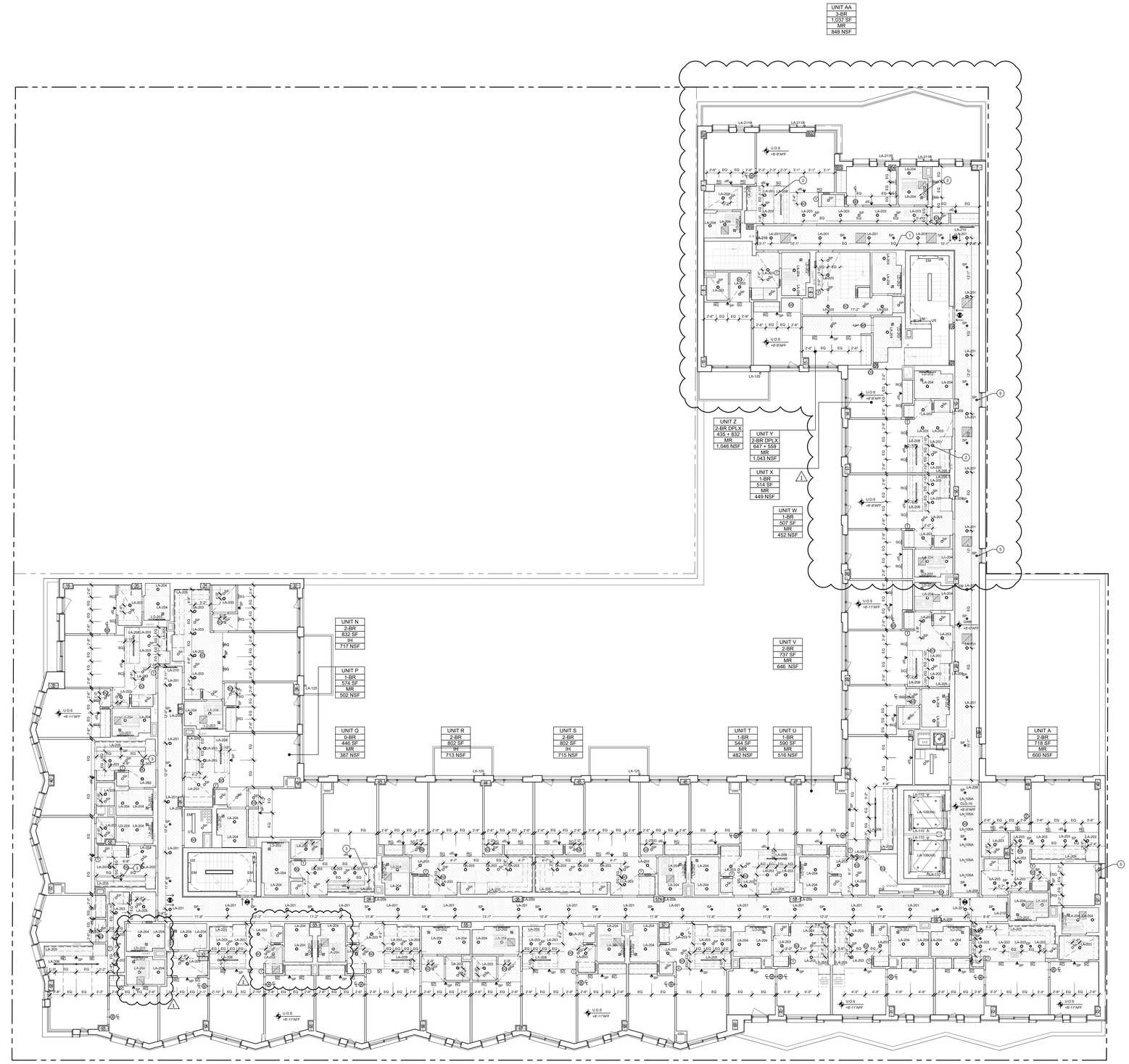
DRAWING TITLE
6TH - 7TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-206.00

CADD FILE No.:
66 OF 175



1 8TH FLOOR RCP
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

B ALL GYP. BD. CEILING SHALL BE ASTM C-840-8 22.6.5 LEVEL 4 FINISH MINIMUM. TO RECEIVE PAINT (PT-01 (COMMON SPACES) PT-10 (APARTMENTS)) U.O.N

C ALL CLOSETS AND LAUNDRY CLOSET CEILING SHALL BE ASTM C840-8 22.6.4 LEVEL 3 FINISH OR BETTER TO RECEIVE PAINT

D UNDERSIDE OF ALL EXPOSED SLABS SHALL HAVE KADEX FINISH: USG: 'COVER COAT' FINISH FREE OF ANY TOOL MARKING AND SAND SMOOTH. POLISHED AND EXPOSED AT AMENITIES U.O.N.

E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

F REFER TO LIGHTING SCHEDULE ON LIGHTING DRAWINGS (LTG SERIES) AND ON ELECTRICAL DRAWINGS. REFER TO ELECTRICAL DRAWINGS FOR ALL EMERGENCY LIGHTING.

G IN SWITCHED DUPLEX OUTLETS LOWER RECEPTACLE TO BE SWITCH

H FOR TYPICAL CEILING HEIGHTS AND FINISHES, REFER TO KEY NOTE LEGEND

I REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE LAYOUT AND SPECIFICATIONS AT ALL BACK OF HOUSE SPACES

J TYP FINISHED CLG. @ 8'-0" A.F.F., U.O.N. IN UNIT APARTMENTS & 7'-6" A.F.F. IN UNIT BATHROOMS

K SEE ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING LIGHT FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.

L ALL SPRINKLERS IN W/D / CLOSETS AND W.I.C. TO BE CENTERED IN THE SPACE, U.O.N.

M ALIGN ALL CEILING DEVICES, AND SPRINKLER HEADS WITH CENTERLINE OF ADJACENT LIGHT FIXTURES. CENTER ON WALLS OR BETWEEN LIGHT FIXTURES IF POSSIBLE. SPRINKLER HEAD COVER COLOR & FINISH TO MATCH CEILING.

N ALL CEILING ACCESS PANELS TO BE FLUSH AND TRIMLESS WITH CONCEALED HARDWARE. FINISH TO MATCH CEILING.

O SEE I-617.00 FOR BATHROOM RCP'S

P SEE A-601 FOR CEILING DETAILS. 8'-0" CEILINGS TO BE MAINTAINED THROUGHOUT. SEE DETAIL 18 FOR DUCT + SPRINKLER CROSS DETAIL.

LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- SP CONCEALED CEILING MOUNTED SPRINKLER
- WP WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- T THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SC SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
- SC CEILING MOUNTED SMOKE/CARBON MONOXIDE ALARM
- DOOR MOUNTED EXIT SIGN
- CEILING MOUNTED EXIT SIGN
- J J-BOX
- S# SWITCH NOTATION INDICATES LIGHTING FIXTURE OR OUTLET IT CONTROLS
- CEILING DIFFUSER
- ACCESS PANEL
- STEALTH ACCESS PANEL / ACCESS DOOR
- T SENSOR
- D FLOOR OUTLET
- A DEDICATED APPLIANCE OUTLET
- DUPLEX WALL OUTLET
- FLOOR MOUNTED DATA OUTLET
- DATA WALL OUTLET
- DATA WHIP LOCATION
- ELECTRICAL WHIP LOCATION
- W WET RATED OUTLET
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- RETURN GRILL

KEY NOTE LEGEND

1. LINE OF DROPPED SLAB ABOVE
2. ROOF DRAIN FROM ABOVE
3. SMOKE SOFFIT AT KITCHEN, 10" WIDE X 12" HIGH
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5. 8" SOFFIT TO PROVIDE REQUIRED SPRINKLERS AT THE LOT LINE WINDOWS
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9. SECURITY CAMERA MOUNTED TO CONCRETE

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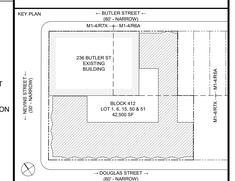

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

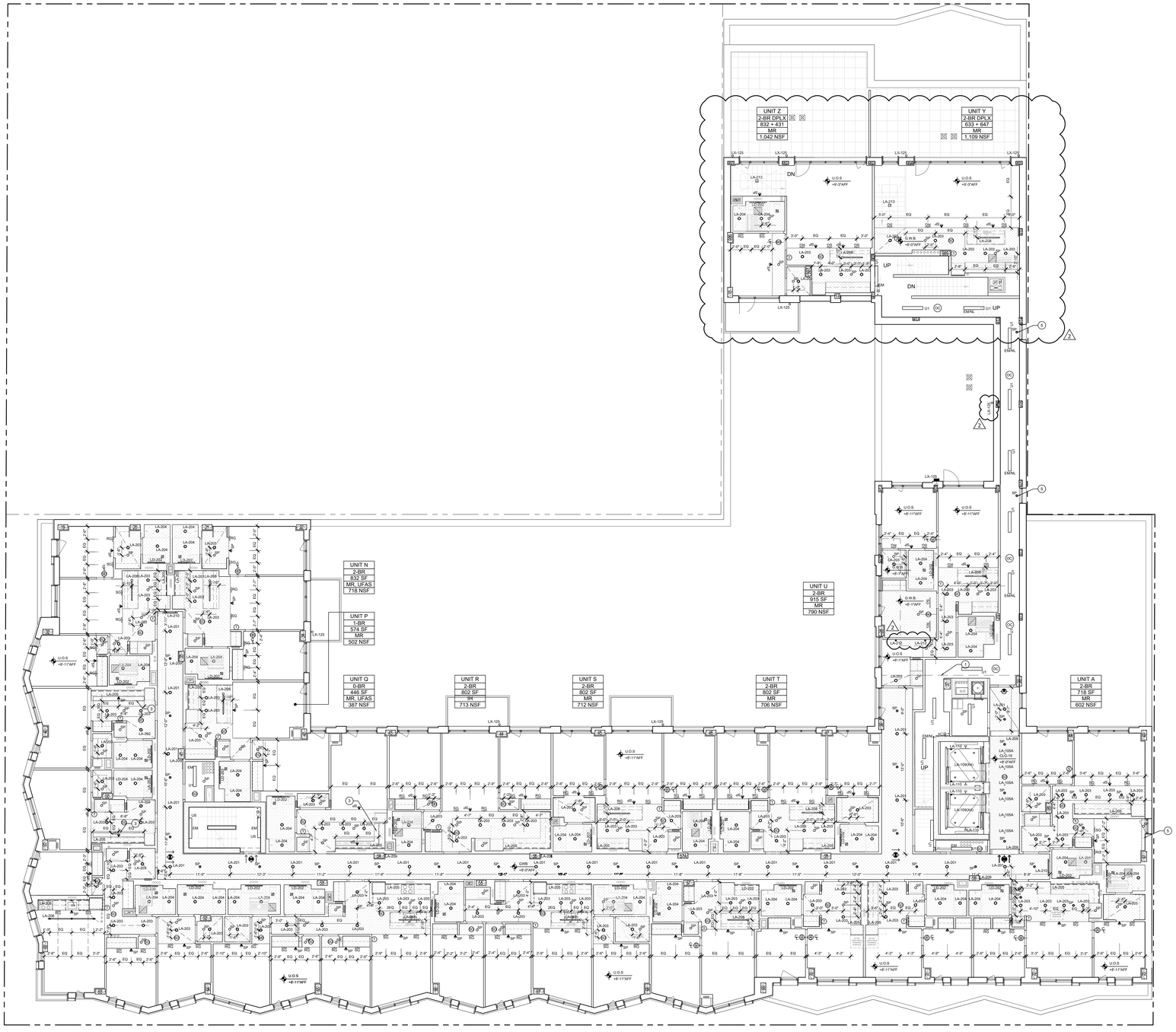
DRAWING TITLE
8TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-208.00

CADD FILE No.:
67 OF 175



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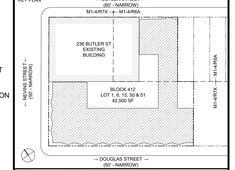

No.	DATE	ISSUE
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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

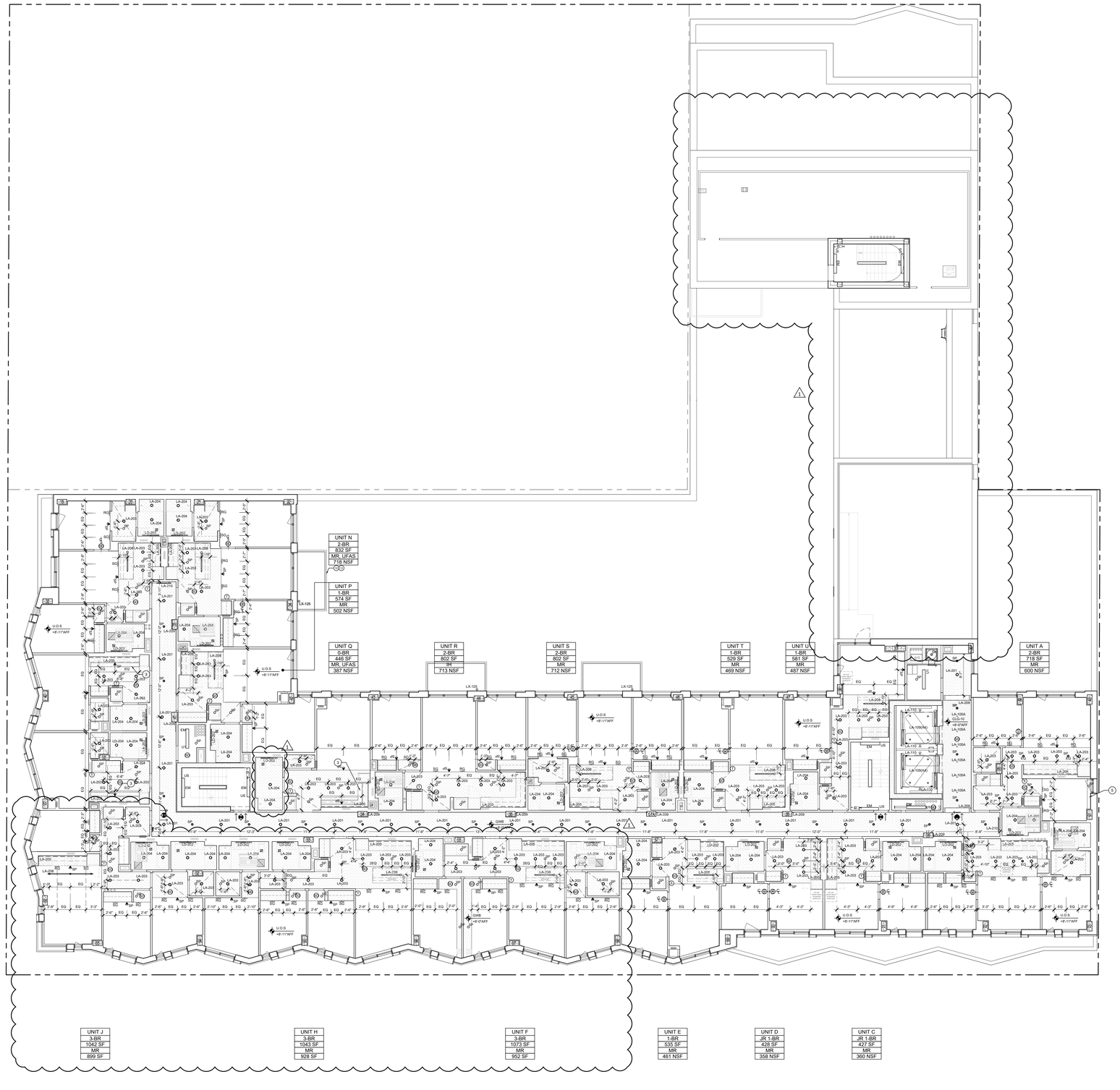
DRAWING TITLE
9TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-209.00

CADD FILE No.:
68 OF 235



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SCALE: 1/8" = 1'-0"

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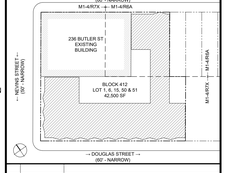

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
10TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
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A-210.00

CADD FILE No.:
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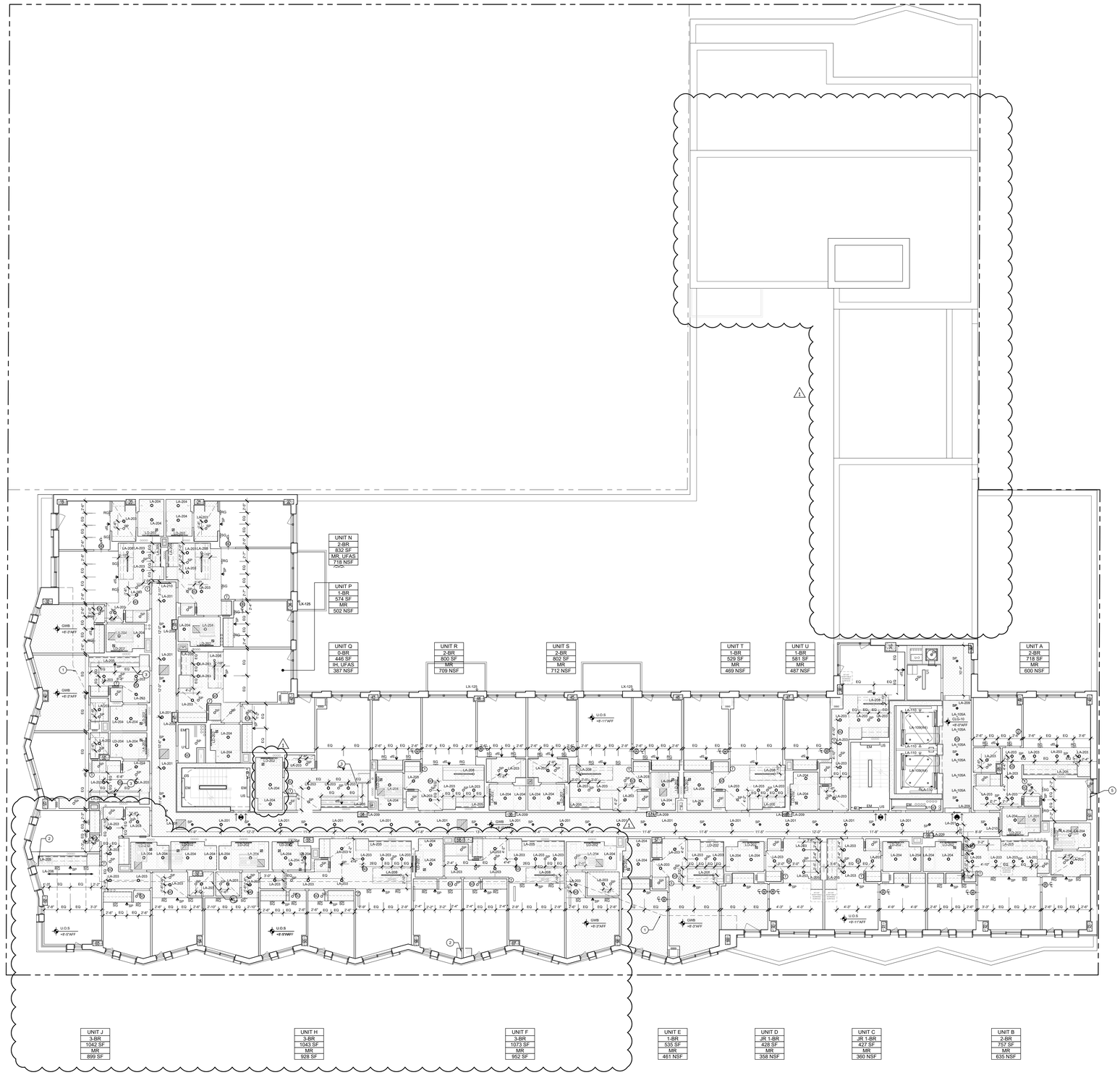

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P SEE A-601 FOR CEILING DETAILS. 8'-0" CEILINGS TO BE MAINTAINED THROUGHOUT. SEE DETAIL 18 FOR DUCT + SPRINKLER CROSS DETAIL.

LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- CONCEALED CEILING MOUNTED SPRINKLER
- WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
- CEILING MOUNTED SMOKE/CARBON MONOXIDE ALARM
- DOOR MOUNTED EXIT SIGN
- CEILING MOUNTED EXIT SIGN
- J-BOX
- SWITCH NOTATION INDICATES LIGHTING FIXTURE OR OUTLET IT CONTROLS
- CEILING DIFFUSER
- ACCESS PANEL
- STEALTH ACCESS PANEL / ACCESS DOOR
- SENSOR
- FLOOR OUTLET
- DEDICATED APPLIANCE OUTLET
- DUPLEX WALL OUTLET
- FLOOR MOUNTED DATA OUTLET
- DATA WALL OUTLET
- DATA WHIP LOCATION
- ELECTRICAL WHIP LOCATION
- WET RATED OUTLET
- SUPPLY GRILL
- RETURN GRILL

KEY NOTE LEGEND

1. LINE OF DROPPED SLAB ABOVE
2. ROOF DRAIN FROM ABOVE
3. SMOKE SOFFIT AT KITCHEN, 10" WIDE X 12" HIGH
4. EXTERIOR LIGHTING AT TERRACE
5. 8" SOFFIT TO PROVIDE REQUIRED SPRINKLERS AT THE LOT LINE WINDOWS
6. 2-HR RATED REFRIGERANT PIPING ENCLOSURE LOCATED ON UNDERSIDE OF SLAB
7. LIGHTING RECESSED IN SIDEWALK
8. TERRACE/ ROOF LIGHTING INTEGRATED IN LANDSCAPE DESIGN. REFER TO LANDSCAPE DRAWINGS AND LIGHTING SCHEDULE FOR LOCATION.
9. SECURITY CAMERA MOUNTED TO CONCRETE

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KEY PLAN

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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

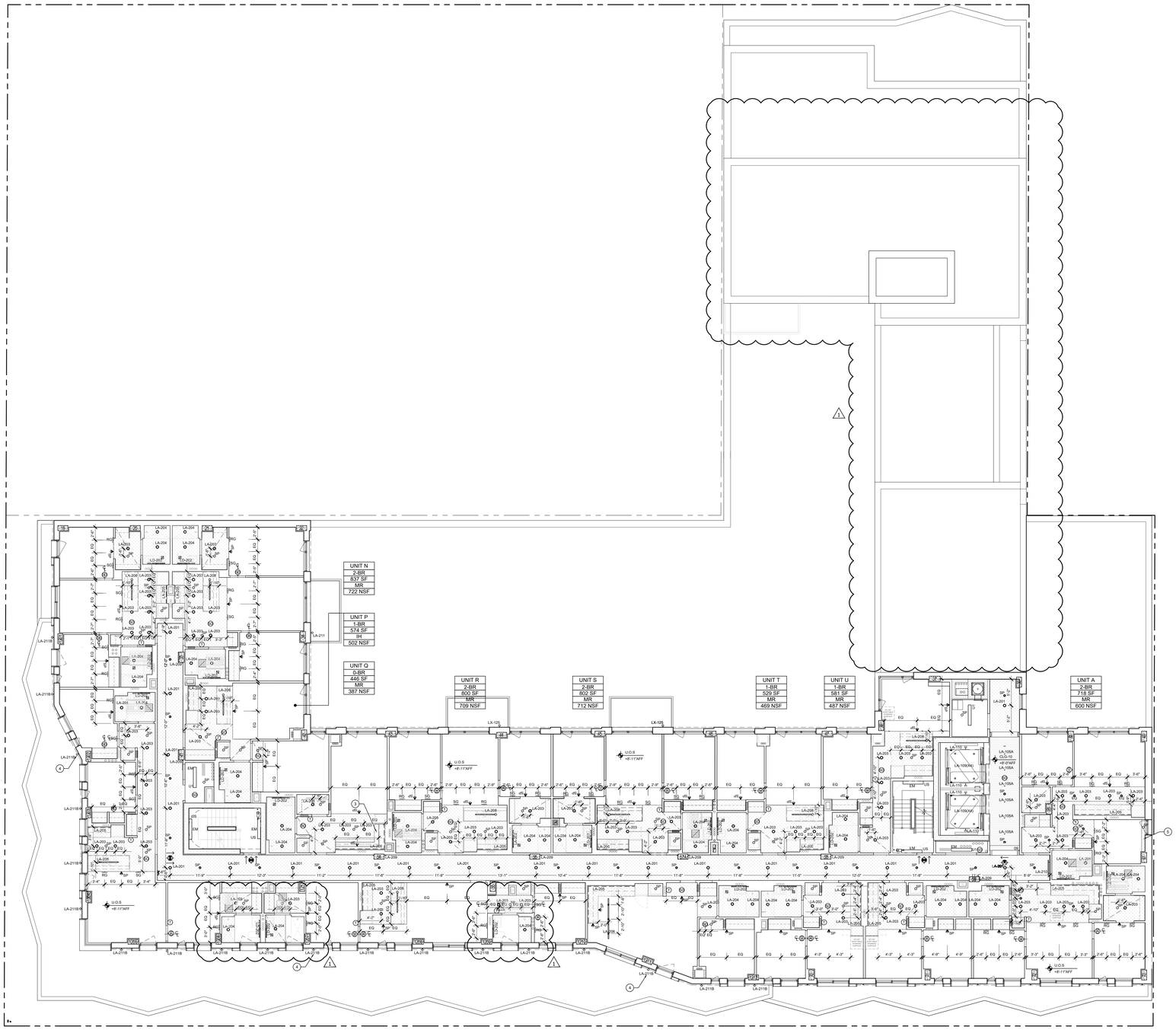
DRAWING TITLE
11TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-211.00

CADD FILE No.:
70 OF 175



1 12TH -13TH FLOOR RCP
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

B ALL GYP. BD. CEILING SHALL BE ASTM C-840-8 22.6.5 LEVEL 4 FINISH MINIMUM. TO RECEIVE PAINT (PT-01 (COMMON SPACES) PT-10 (APARTMENTS)) U.O.N

C ALL CLOSETS AND LAUNDRY CLOSET CEILING SHALL BE ASTM C840-8 22.6.4 LEVEL 3 FINISH OR BETTER TO RECEIVE PAINT

D UNDERSIDE OF ALL EXPOSED SLABS SHALL HAVE KADEX FINISH: USG: 'COVER COAT' FINISH FREE OF ANY TOOL MARKING AND SAND SMOOTH. POLISHED AND EXPOSED AT AMENITIES U.O.N.

E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

F REFER TO LIGHTING SCHEDULE ON LIGHTING DRAWINGS (LTG SERIES) AND ON ELECTRICAL DRAWINGS, REFER TO ELECTRICAL DRAWINGS FOR ALL EMERGENCY LIGHTING.

G IN SWITCHED DUPLEX OUTLETS LOWER RECEPTACLE TO BE SWITCH

H FOR TYPICAL CEILING HEIGHTS AND FINISHES, REFER TO KEY NOTE LEGEND

I REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE LAYOUT AND SPECIFICATIONS AT ALL BACK OF HOUSE SPACES

J TYP FINISHED CLG. @ 8'-0" A.F.F., U.O.N. IN UNIT APARTMENTS & 7'-6" A.F.F. IN UNIT BATHROOMS

K SEE ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING LIGHT FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.

L ALL SPRINKLERS IN W/D / CLOSETS AND W.I.C. TO BE CENTERED IN THE SPACE, U.O.N.

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N ALL CEILING ACCESS PANELS TO BE FLUSH AND TRIMLESS WITH CONCEALED HARDWARE. FINISH TO MATCH CEILING.

O SEE I617.00 FOR BATHROOM RCP'S

P SEE A-601 FOR CEILING DETAILS. 8'-0" CEILINGS TO BE MAINTAINED THROUGHOUT. SEE DETAIL 18 FOR DUCT + SPRINKLER CROSS DETAIL.

LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- CONCEALED CEILING MOUNTED SPRINKLER
- WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
- CEILING MOUNTED SMOKE/CARBON MONOXIDE ALARM
- DOOR MOUNTED EXIT SIGN
- CEILING MOUNTED EXIT SIGN
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- SWITCH NOTATION INDICATES LIGHTING FIXTURE OR OUTLET IT CONTROLS
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- STEALTH ACCESS PANEL / ACCESS DOOR
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01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

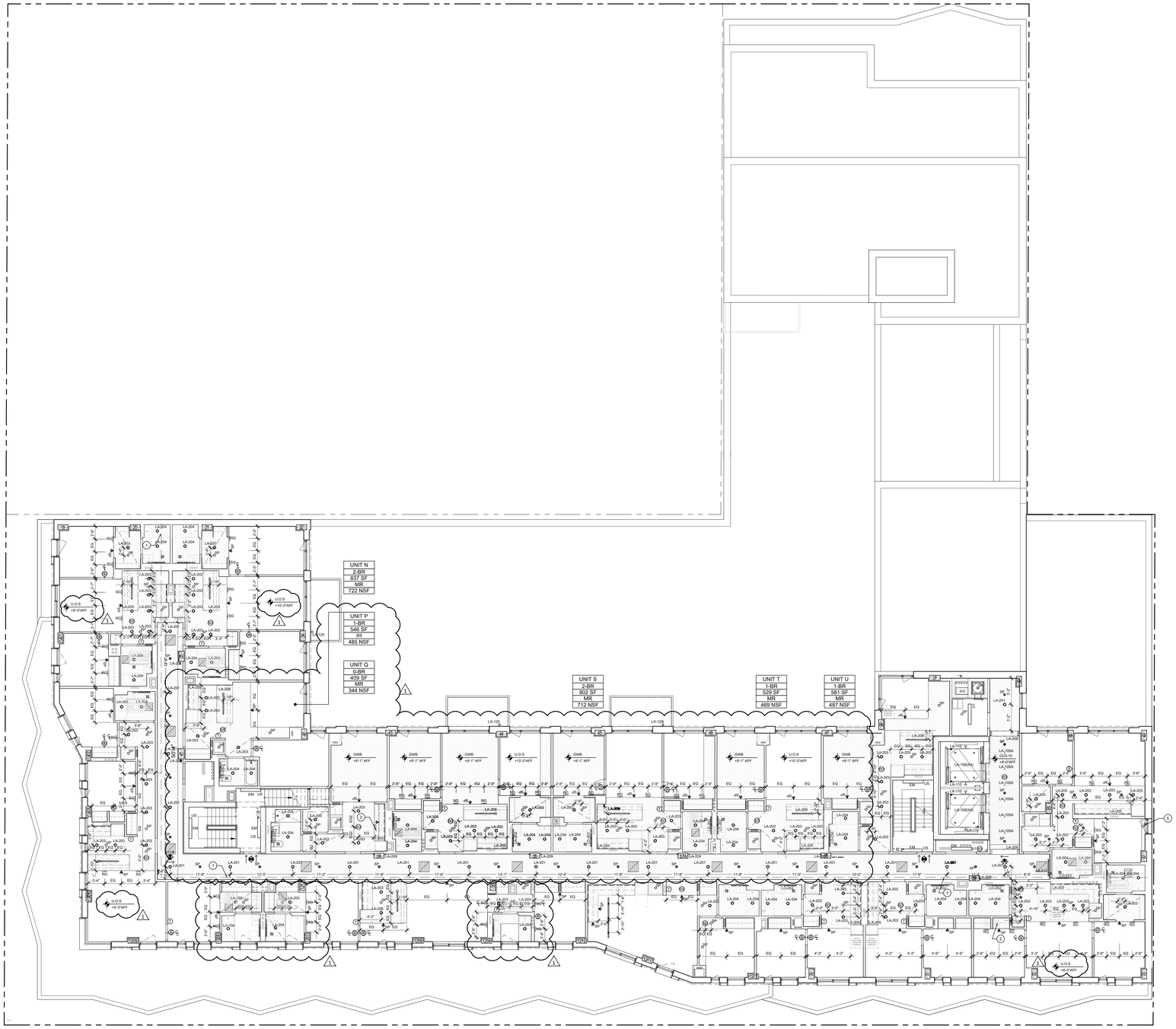
DRAWING TITLE
12TH -13TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-212.00

CADD FILE No.:
71 OF 175



1 14TH FLOOR RCP
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

B ALL GYP. BD. CEILING SHALL BE ASTM C-840-8 22.6.5 LEVEL 4 FINISH MINIMUM. TO RECEIVE PAINT (PT-01 (COMMON SPACES) PT-10 (APARTMENTS)) U.O.N

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E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

F REFER TO LIGHTING SCHEDULE ON LIGHTING DRAWINGS (LTG SERIES) AND ON ELECTRICAL DRAWINGS. REFER TO ELECTRICAL DRAWINGS FOR ALL EMERGENCY LIGHTING.

G IN SWITCHED DUPLEX OUTLETS LOWER RECEPTACLE TO BE SWITCH

H FOR TYPICAL CEILING HEIGHTS AND FINISHES, REFER TO KEY NOTE LEGEND

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J TYP FINISHED CLG. @ 8'-0" A.F.F., U.O.N. IN UNIT APARTMENTS & 7'-6" A.F.F. IN UNIT BATHROOMS

K SEE ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING LIGHT FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.

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LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- CONCEALED CEILING MOUNTED SPRINKLER
- WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
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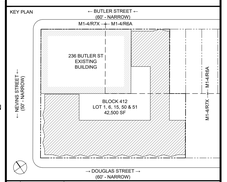
KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

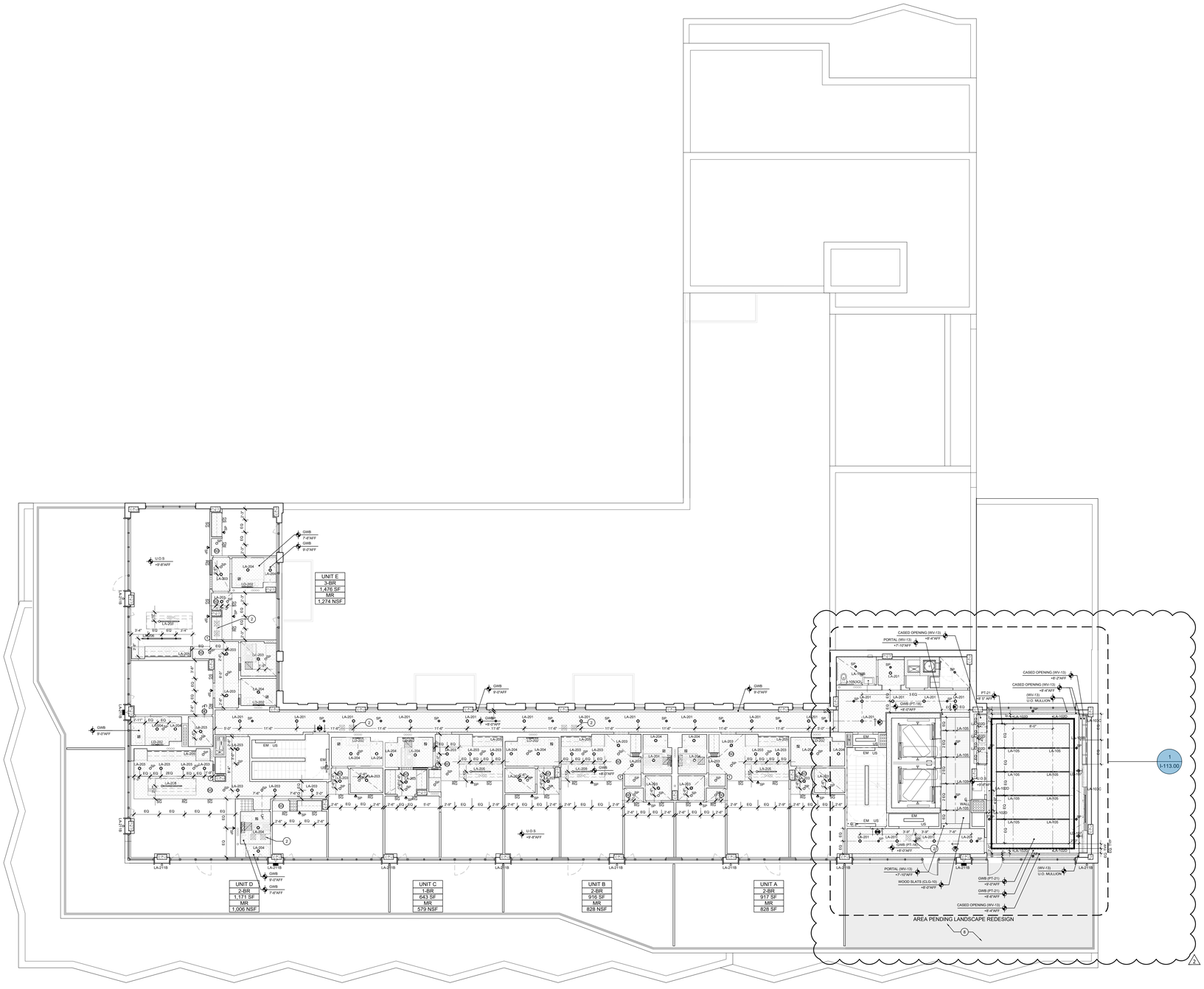
DRAWING TITLE
14TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-214.00

CADD FILE No:
72 OF 175



1 15TH FLOOR RCP
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

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E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

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LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- CONCEALED CEILING MOUNTED SPRINKLER
- WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
- CEILING MOUNTED SMOKE/CARBON MONOXIDE ALARM
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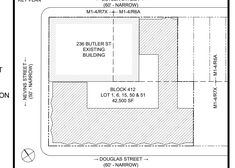
KEY PLAN



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251 DOUGLASS STREET
BROOKLYN, NY 11217

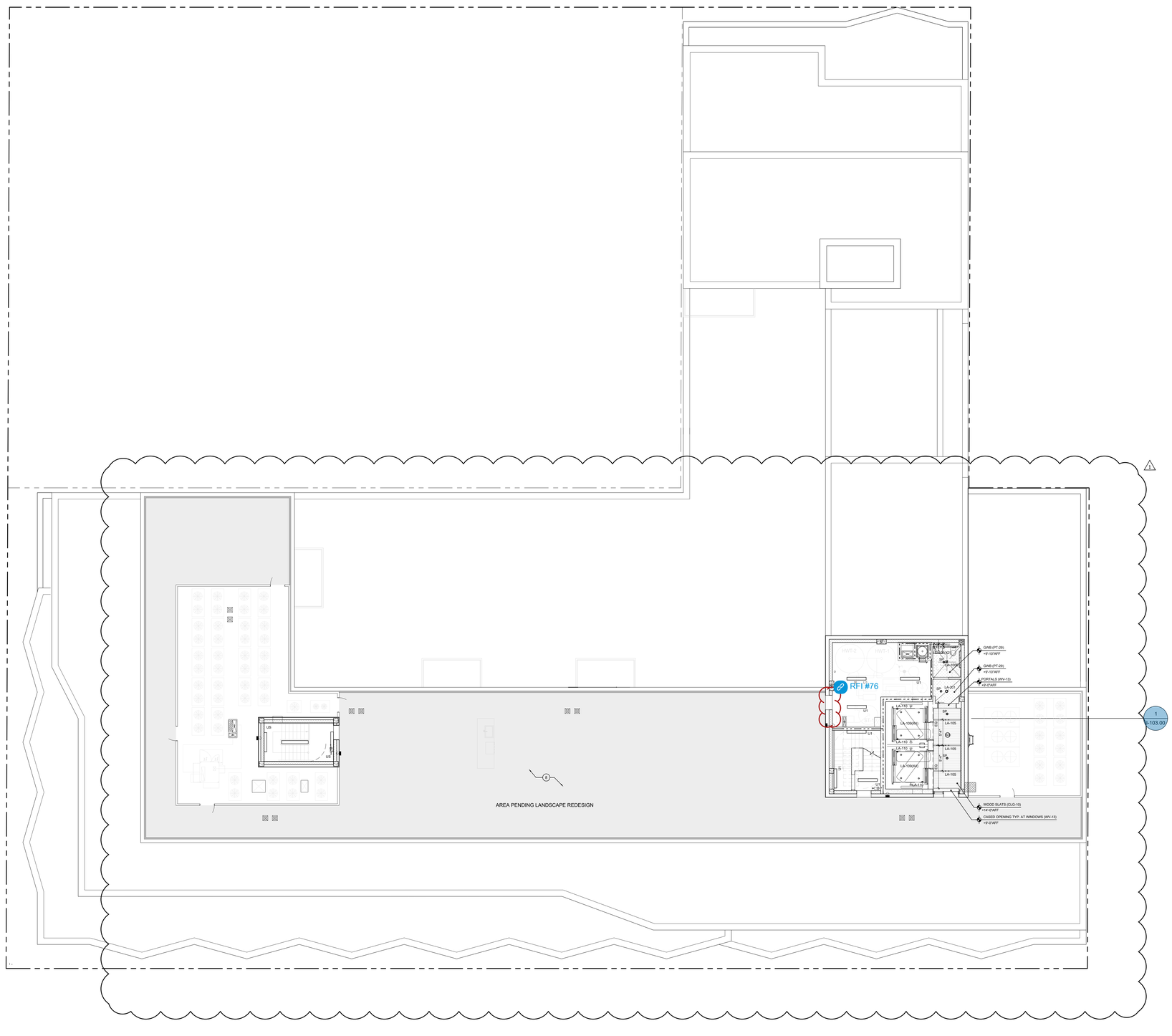
DRAWING TITLE
15TH FLOOR RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-215.00

CADD FILE No.:
73 OF 235



1 ROOF RCP
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A ALL SPOT ELEVATIONS SHOWN ARE FROM T.O.S.

B ALL GYP. BD. CEILING SHALL BE ASTM C-840-8 22.6.5 LEVEL 4 FINISH MINIMUM. TO RECEIVE PAINT (PT-01 (COMMON SPACES) PT-10 (APARTMENTS)) U.O.N

C ALL CLOSETS AND LAUNDRY CLOSET CEILING SHALL BE ASTM C840-8 22.6.4 LEVEL 3 FINISH OR BETTER TO RECEIVE PAINT

D UNDERSIDE OF ALL EXPOSED SLABS SHALL HAVE KADEX FINISH: USG: 'COVER COAT' FINISH FREE OF ANY TOOL MARKING AND SAND SMOOTH. POLISHED AND EXPOSED AT AMENITIES U.O.N.

E REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND DATA LAYOUT AND SYMBOLS LEGEND

F REFER TO LIGHTING SCHEDULE ON LIGHTING DRAWINGS (LTG SERIES) AND ON ELECTRICAL DRAWINGS. REFER TO ELECTRICAL DRAWINGS FOR ALL EMERGENCY LIGHTING.

G IN SWITCHED DUPLEX OUTLETS LOWER RECEPTACLE TO BE SWITCH

H FOR TYPICAL CEILING HEIGHTS AND FINISHES, REFER TO KEY NOTE LEGEND

I REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE LAYOUT AND SPECIFICATIONS AT ALL BACK OF HOUSE SPACES

J TYP FINISHED CLG. @ 8'-0" A.F.F., U.O.N. IN UNIT APARTMENTS & 7'-6" A.F.F. IN UNIT BATHROOMS

K SEE ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING LIGHT FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.

L ALL SPRINKLERS IN W/D / CLOSETS AND W.I.C. TO BE CENTERED IN THE SPACE, U.O.N.

M ALIGN ALL CEILING DEVICES, AND SPRINKLER HEADS WITH CENTERLINE OF ADJACENT LIGHT FIXTURES. CENTER ON WALLS OR BETWEEN LIGHT FIXTURES IF POSSIBLE. SPRINKLER HEAD COVER COLOR & FINISH TO MATCH CEILING.

N ALL CEILING ACCESS PANELS TO BE FLUSH AND TRIMLESS WITH CONCEALED HARDWARE. FINISH TO MATCH CEILING.

O SEE I-617.00 FOR BATHROOM RCP'S

P SEE A-601 FOR CEILING DETAILS. 8'-0" CEILINGS TO BE MAINTAINED THROUGHOUT. SEE DETAIL 18 FOR DUCT + SPRINKLER CROSS DETAIL.

LEGEND

- VERTICAL SHAFT
- GYP. BOARD CEILING
- EXPOSED CONCRETE SLAB OR KADEX FINISH CEILING. U.O.N. SEE PLANS
- CUSTOM PERFORATED METAL PANEL
- 4" MINERAL WOOL INSULATION
- CONCEALED CEILING MOUNTED SPRINKLER
- WALL-MOUNTED SPRINKLER. SEE I-618.00 FOR MOUNTING @ RES. UNITS
- SPRINKLER
- THERMOSTAT MOUNTED @ 4'-0" A.F.F. U.O.N.
- SMOKE/CARBON MONOXIDE ALARM. SEE I-618.00 FOR MOUNTING.
- CEILING MOUNTED SMOKE/CARBON MONOXIDE ALARM
- DOOR MOUNTED EXIT SIGN
- CEILING MOUNTED EXIT SIGN
- J-BOX
- SWITCH NOTATION INDICATES LIGHTING FIXTURE OR OUTLET IT CONTROLS
- CEILING DIFFUSER
- ACCESS PANEL
- STEALTH ACCESS PANEL / ACCESS DOOR
- SENSOR
- FLOOR OUTLET
- DEDICATED APPLIANCE OUTLET
- DUPLEX WALL OUTLET
- FLOOR MOUNTED DATA OUTLET
- DATA WALL OUTLET
- DATA WHIP LOCATION
- ELECTRICAL WHIP LOCATION
- WET RATED OUTLET
- SUPPLY GRILL
- RETURN GRILL

KEY NOTE LEGEND

1. LINE OF DROPPED SLAB ABOVE
2. ROOF DRAIN FROM ABOVE
3. SMOKE SOFFIT AT KITCHEN, 10" WIDE X 12" HIGH
4. EXTERIOR LIGHTING AT TERRACE
5. 8" SOFFIT TO PROVIDE REQUIRED SPRINKLERS AT THE LOT LINE WINDOWS
6. 2-HR RATED REFRIGERANT PIPING ENCLOSURE LOCATED ON UNDERSIDE OF SLAB
7. LIGHTING RECESSED IN SIDEWALK
8. TERRACE/ ROOF LIGHTING INTEGRATED IN LANDSCAPE DESIGN. REFER TO LANDSCAPE DRAWINGS AND LIGHTING SCHEDULE FOR LOCATION.
9. SECURITY CAMERA MOUNTED TO CONCRETE

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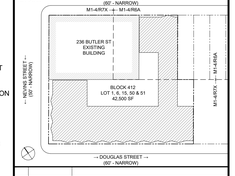
ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

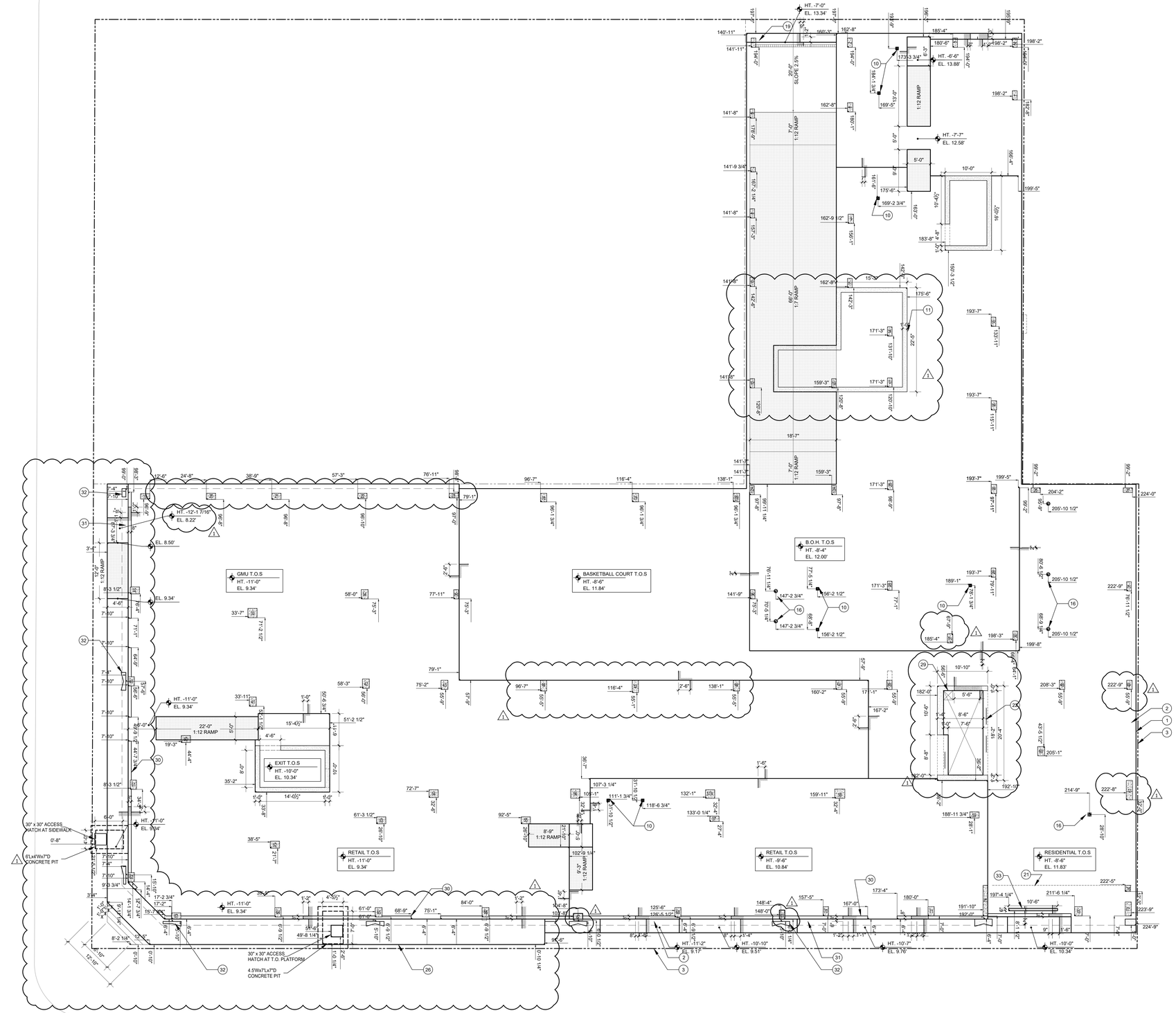
DRAWING TITLE
ROOF RCP

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-216.00

CADD FILE No.:
74 OF 175



SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

1 1ST FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
8. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING OF RETAINING WALL ON THE GROUND FLOOR
9. TYPICAL SLAB THICKNESS IS 8", UNLESS OTHERWISE NOTED.
10. ALL SLEEVE PENETRATIONS TO MAINTAIN APPROPRIATE CLEARANCE FROM OTHER SLEEVES, SHEAR WALLS OR EDGE OF SLAB ACCORDING TO STRUCTURAL REQUIREMENTS. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.

SHAFT OPENING NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR INFORMATION ON REINFORCING AT PERIMETERS OF SHAFT OPENINGS.
2. REFER TO MECHANICAL ENGINEER'S DRAWINGS FOR THE TYPE OF EQUIPMENT AND SIZE WITHIN EACH SHAFT. COORDINATE OPENING SIZE OF SHAFT WITH SAID EQUIPMENT. IF SIZE OF SHAFT REQ'D. DIFFERS FROM WHAT IS INDICATED ON THIS DRAWING, NOTIFY THE ARCHITECT AND AWAIT DIRECTION.
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5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
6. ALL PENETRATIONS NEAR COLUMNS TO BE COORDINATED AND APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

LEGEND

- ◆ & ◣ WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
8. 1" DEPRESSION AT SHOWER
9. ROOF DRAIN
10. FLOOR DRAIN
11. DETENTION TANK
12. THERMAL BREAK
13. 3"DEEP X 6"WIDE X 6'LONG NOTCH FOR SLIDING DOORS AT TERRACES
14. 12" 1ST STEP ON GRADE WITH SLAB & 4" SEAT. SEE STRUCTURAL DRAWINGS
15. EXPOSED UPTURN CONCRETE BEAM. SEE A-420 FOR DETAILS.
16. FLOOR BOX
17. 1" STEP UP AT STAIRS. SEE A-500 FOR DETAILS.
18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS & COORDINATION LOCATION WITH PLANS. REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
22. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
23. THERMAL BREAK ABOVE, SEE A-412.00 FOR DETAILS.
24. UPTURN BEAM.
25. SHEAR WALL PENETRATION
26. CONCRETE RAMP & PLATFORM
27. LINE OF BEAM BELOW
28. J-BOX EMBEDDED IN UNDERSIDE OF SLAB. REFER TO RCP DRAWING FOR LOCATION
29. ELEVATOR PIT AND SUMP PIT, REFER TO MEP & STRUCTURAL DRAWINGS
30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
1ST FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-231.00

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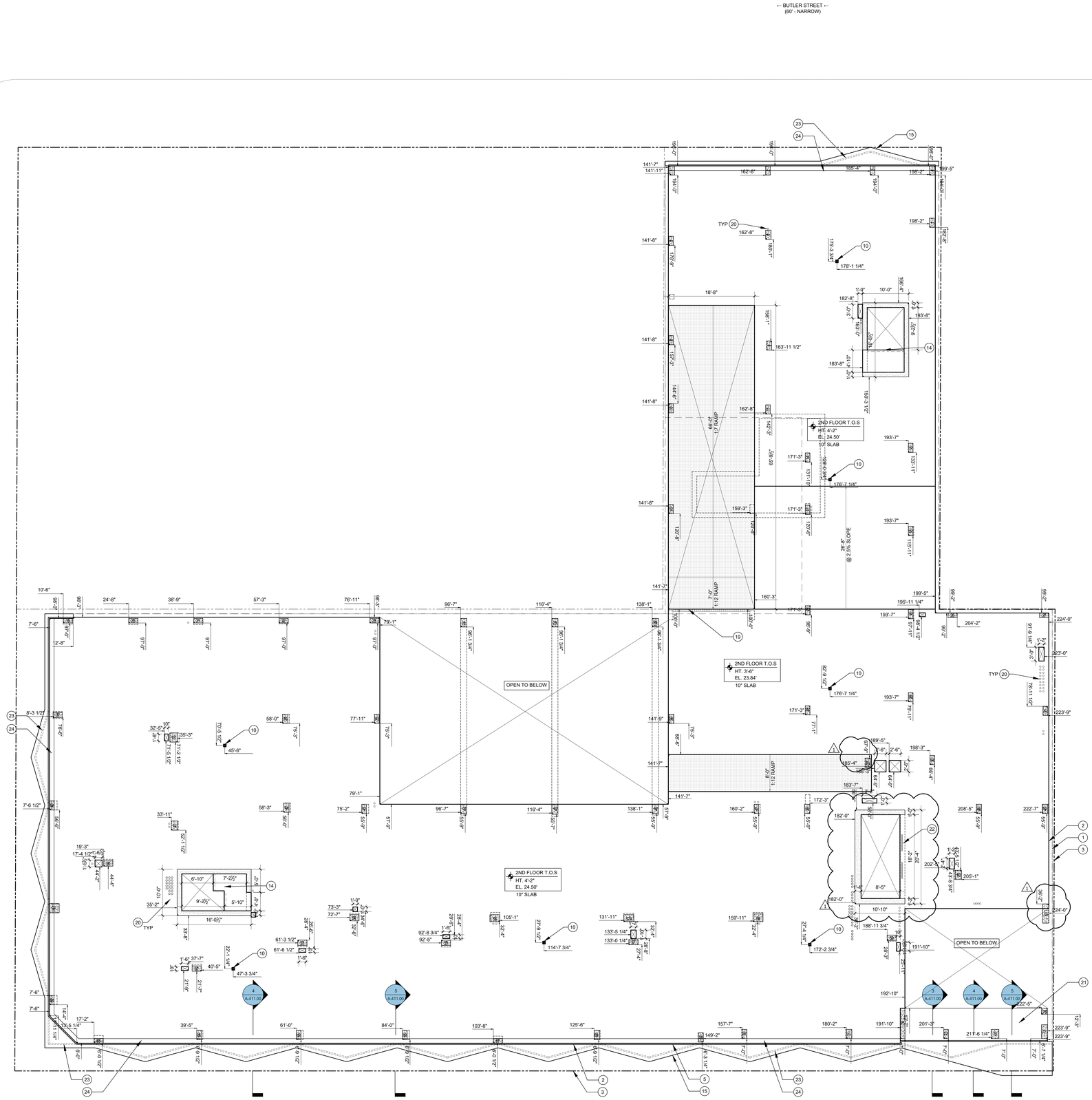
75 OF 175



1 2ND FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

GENERAL NOTES

SLAB NOTES

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- BUILDING LINE
- COORDINATES
- STEP IN SLAB
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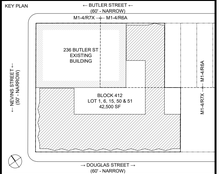

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

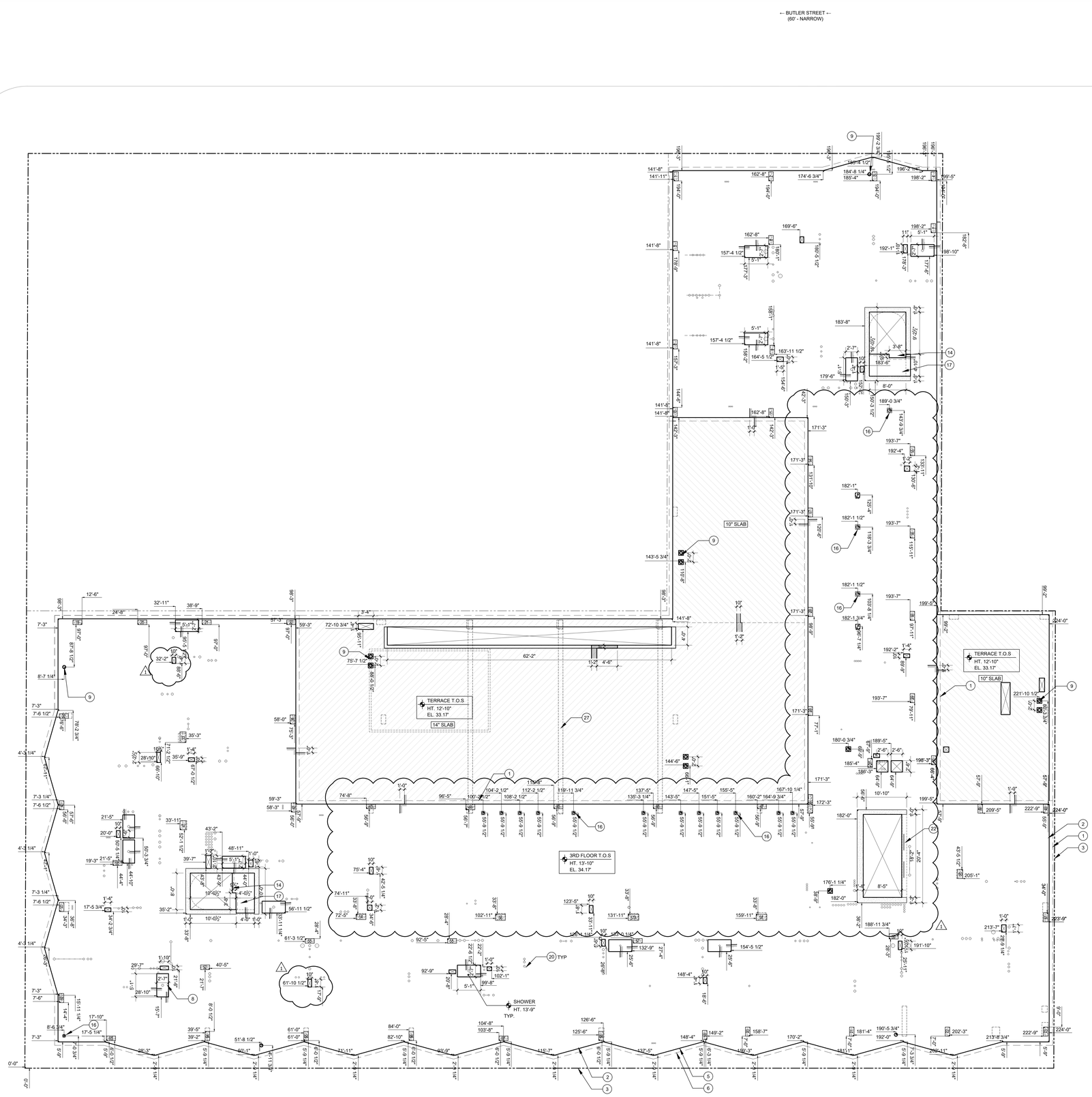
DRAWING TITLE
2ND FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-232.00

CADD FILE No.:
76 OF 175



1 3RD FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

GENERAL NOTES

SLAB NOTES

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3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
8. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING OF RETAINING WALL ON THE GROUND FLOOR
9. TYPICAL SLAB THICKNESS IS 8", UNLESS OTHERWISE NOTED.
10. ALL SLEEVE PENETRATIONS TO MAINTAIN APPROPRIATE CLEARANCE FROM OTHER SLEEVES, SHEAR WALLS OR EDGE OF SLAB ACCORDING TO STRUCTURAL REQUIREMENTS. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.

SHAFT OPENING NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR INFORMATION ON REINFORCING AT PERIMETERS OF SHAFT OPENINGS.
2. REFER TO MECHANICAL ENGINEER'S DRAWINGS FOR THE TYPE OF EQUIPMENT AND SIZE WITHIN EACH SHAFT. COORDINATE OPENING SIZE OF SHAFT WITH SAID EQUIPMENT. IF SIZE OF SHAFT REQ'D. DIFFERS FROM WHAT IS INDICATED ON THIS DRAWING, NOTIFY THE ARCHITECT AND AWAIT DIRECTION.
3. PROVIDE A SHOP DRAWING INDICATING ALL SHAFT OPENINGS AND SLEEVES LOCATIONS FOR REVIEW AND APPROVAL BY ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWING IS NOT PROVIDED AND SHAFT LOCATIONS ARE NOT AS INDICATED ON THIS DRAWING, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
4. REVIEW & COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ANY ADDITIONAL REQUIRED OR NECESSARY SHAFTS THAT ARE NOT SHOWN ON THIS DRAWING.
5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
6. ALL PENETRATIONS NEAR COLUMNS TO BE COORDINATED AND APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

LEGEND

- ◆ & ◣ WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
8. 1" DEPRESSION AT SHOWER
9. ROOF DRAIN
10. FLOOR DRAIN
11. DETENTION TANK
12. THERMAL BREAK
13. 3"DEEP X 6"WIDE X 6'LONG NOTCH FOR SLIDING DOORS AT TERRACES
14. 12" 1ST STEP ON GRADE WITH SLAB & 4" SEAT. SEE STRUCTURAL DRAWINGS
15. EXPOSED UPTURN CONCRETE BEAM. SEE A-420 FOR DETAILS.
16. FLOOR BOX
17. 1" STEP UP AT STAIRS. SEE A-500 FOR DETAILS.
18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS & COORDINATION LOCATION WITH PLANE REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
22. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
23. THERMAL BREAK ABOVE, SEE A-412.00 FOR DETAILS.
24. UPTURN BEAM.
25. SHEAR WALL PENETRATION
26. CONCRETE RAMP & PLATFORM
27. LINE OF BEAM BELOW
28. J-BOX EMBEDDED IN UNDERSIDE OF SLAB. REFER TO RCP DRAWING FOR LOCATION.
29. ELEVATOR PIT AND SUMP PIT, REFER TO MEP & STRUCTURAL DRAWINGS
30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

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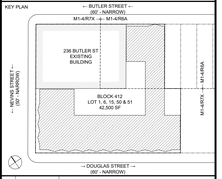
KEY PLAN



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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

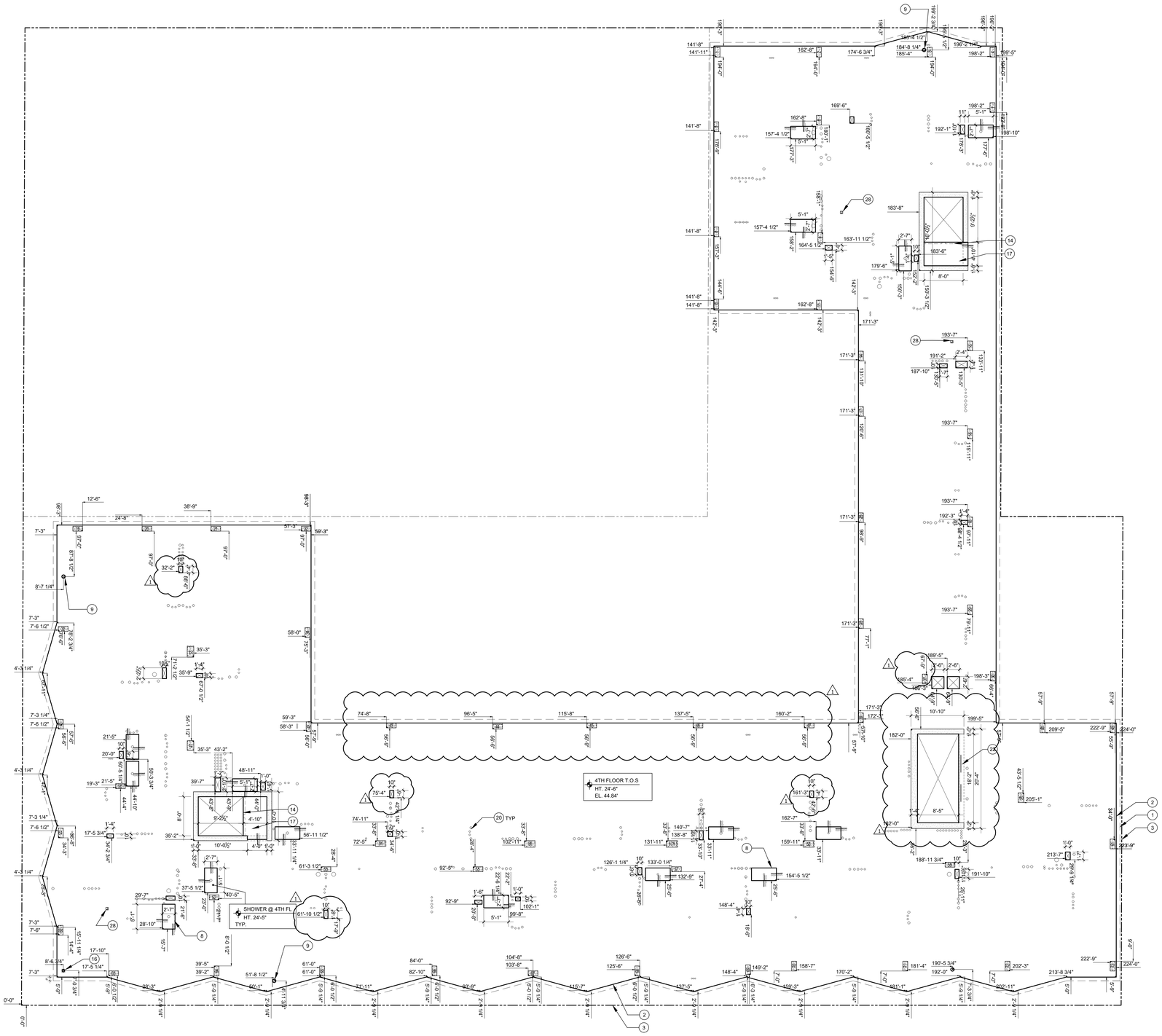
DRAWING TITLE
3RD FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-233.00

CADD FILE No.:
77 OF 175



SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

1 4TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
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5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
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LEGEND

- WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
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5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
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18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS & COORDINATION LOCATION WITH PLANS. REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
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30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
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32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
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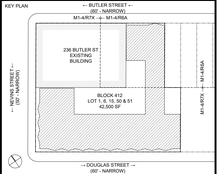
KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
4TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-234.00

CADD FILE No.:
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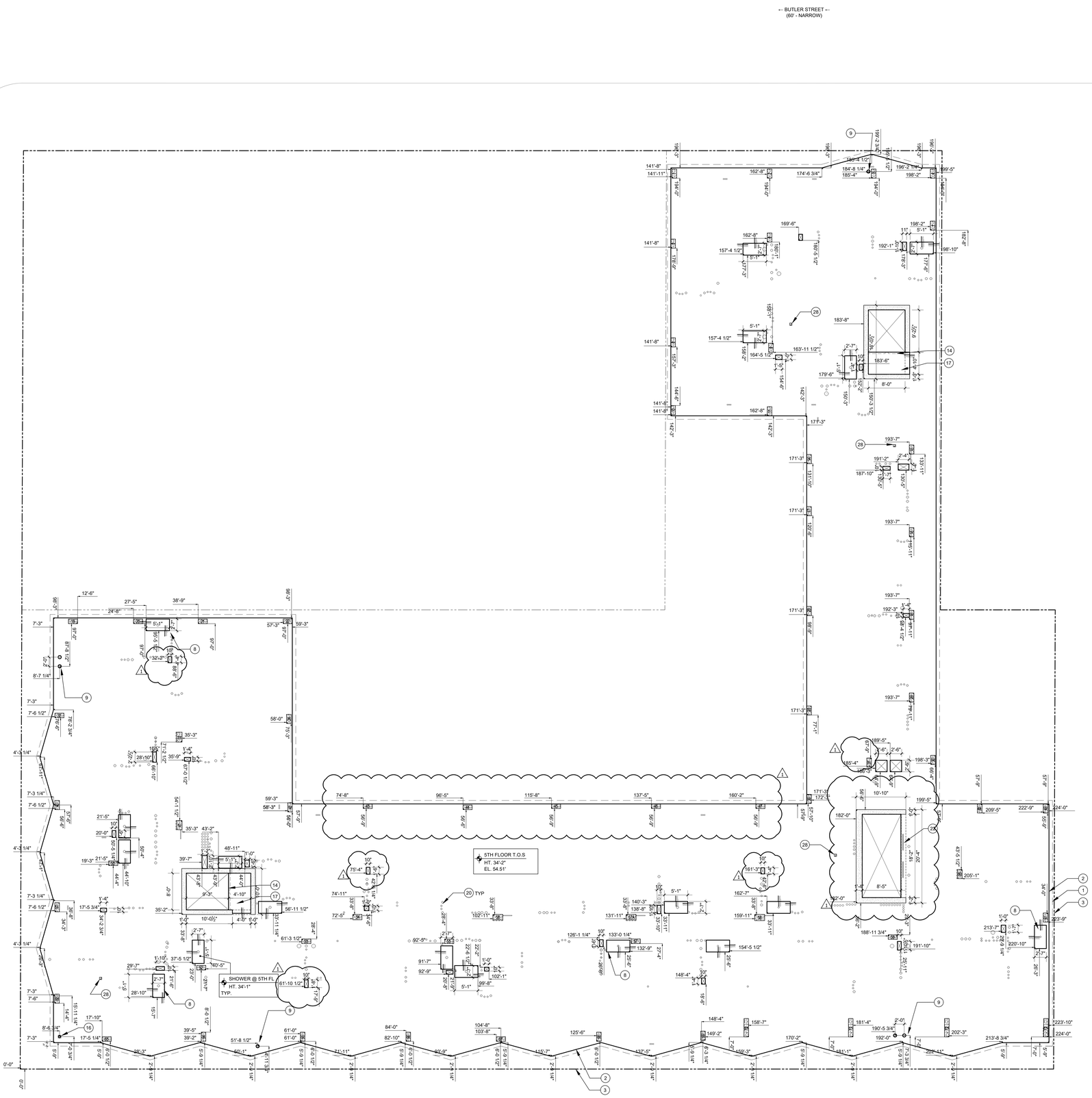

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

1 5TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
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4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
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LEGEND

- ◆ & ◣ WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
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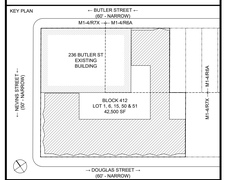

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

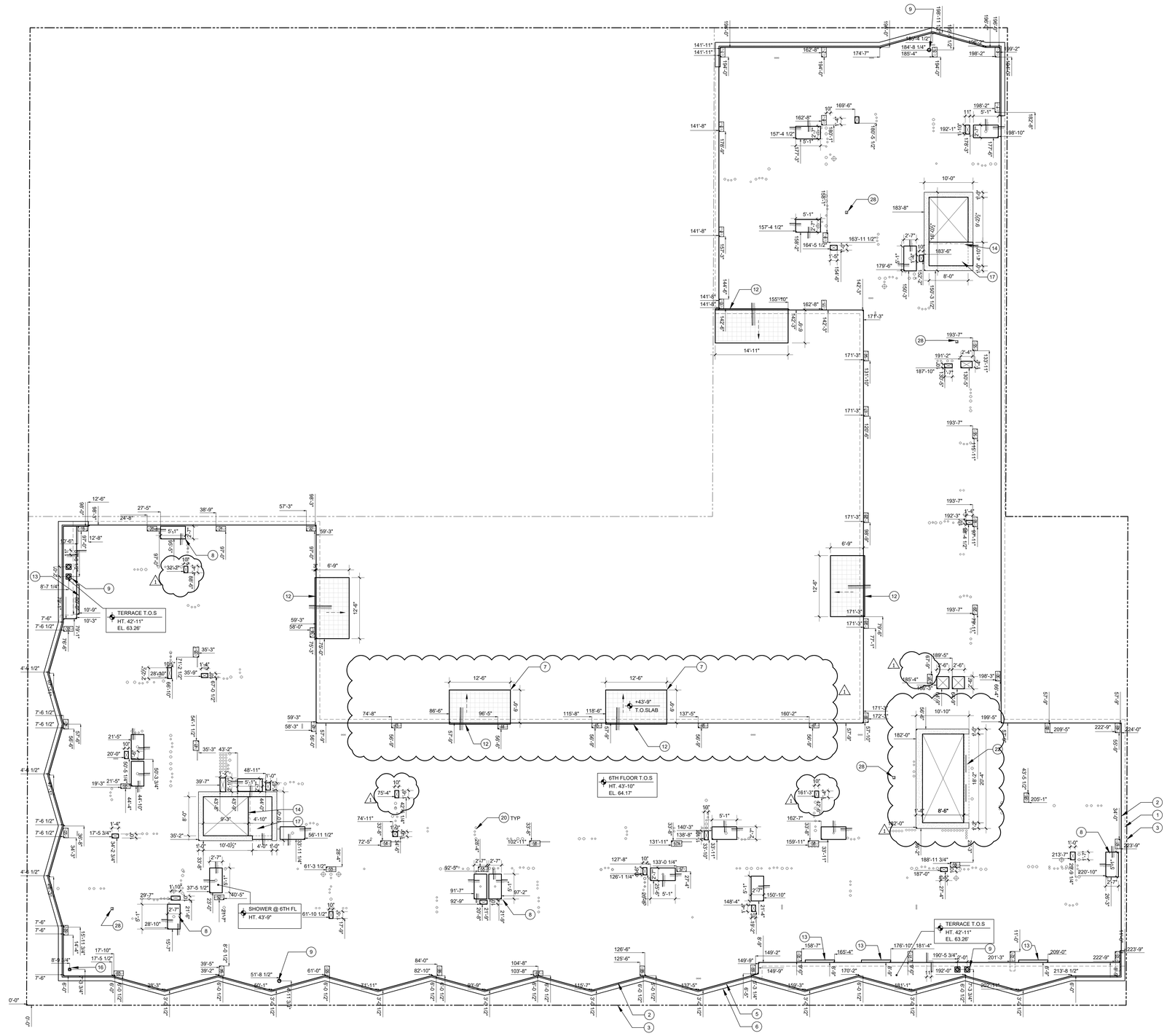
DRAWING TITLE
5TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-235.00

CADD FILE No.:
79 OF 175



1 6TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
8. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING OF RETAINING WALL ON THE GROUND FLOOR
9. TYPICAL SLAB THICKNESS IS 8", UNLESS OTHERWISE NOTED.
10. ALL SLEEVE PENETRATIONS TO MAINTAIN APPROPRIATE CLEARANCE FROM OTHER SLEEVES, SHEAR WALLS OR EDGE OF SLAB ACCORDING TO STRUCTURAL REQUIREMENTS. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.

SHAFT OPENING NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR INFORMATION ON REINFORCING AT PERIMETERS OF SHAFT OPENINGS.
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3. PROVIDE A SHOP DRAWING INDICATING ALL SHAFT OPENINGS AND SLEEVES LOCATIONS FOR REVIEW AND APPROVAL BY ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWING IS NOT PROVIDED AND SHAFT LOCATIONS ARE NOT AS INDICATED ON THIS DRAWING, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
4. REVIEW & COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ANY ADDITIONAL REQUIRED OR NECESSARY SHAFTS THAT ARE NOT SHOWN ON THIS DRAWING.
5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
6. ALL PENETRATIONS NEAR COLUMNS TO BE COORDINATED AND APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

LEGEND

- WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
8. 1" DEPRESSION AT SHOWER
9. ROOF DRAIN
10. FLOOR DRAIN
11. DETENTION TANK
12. THERMAL BREAK
13. 3"DEEP X 6"WIDE X 6LONG NOTCH FOR SLIDING DOORS AT TERRACES
14. 12" 1ST STEP ON GRADE WITH SLAB & 4" SEAT. SEE STRUCTURAL DRAWINGS
15. EXPOSED UPTURN CONCRETE BEAM. SEE A-420 FOR DETAILS.
16. FLOOR BOX
17. 1" STEP UP AT STAIRS. SEE A-500 FOR DETAILS.
18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS & COORDINATION LOCATION WITH PLANS. REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
22. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3A-520 FOR DETAIL.
23. THERMAL BREAK ABOVE, SEE A-412.00 FOR DETAILS.
24. UPTURN BEAM.
25. SHEAR WALL PENETRATION
26. CONCRETE RAMP & PLATFORM
27. LINE OF BEAM BELOW
28. J-BOX EMBEDDED IN UNDERSIDE OF SLAB. REFER TO RCP DRAWING FOR LOCATION.
29. ELEVATOR PIT AND SUMP PIT, REFER TO MEP & STRUCTURAL DRAWINGS
30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

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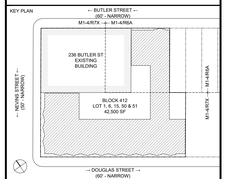
ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

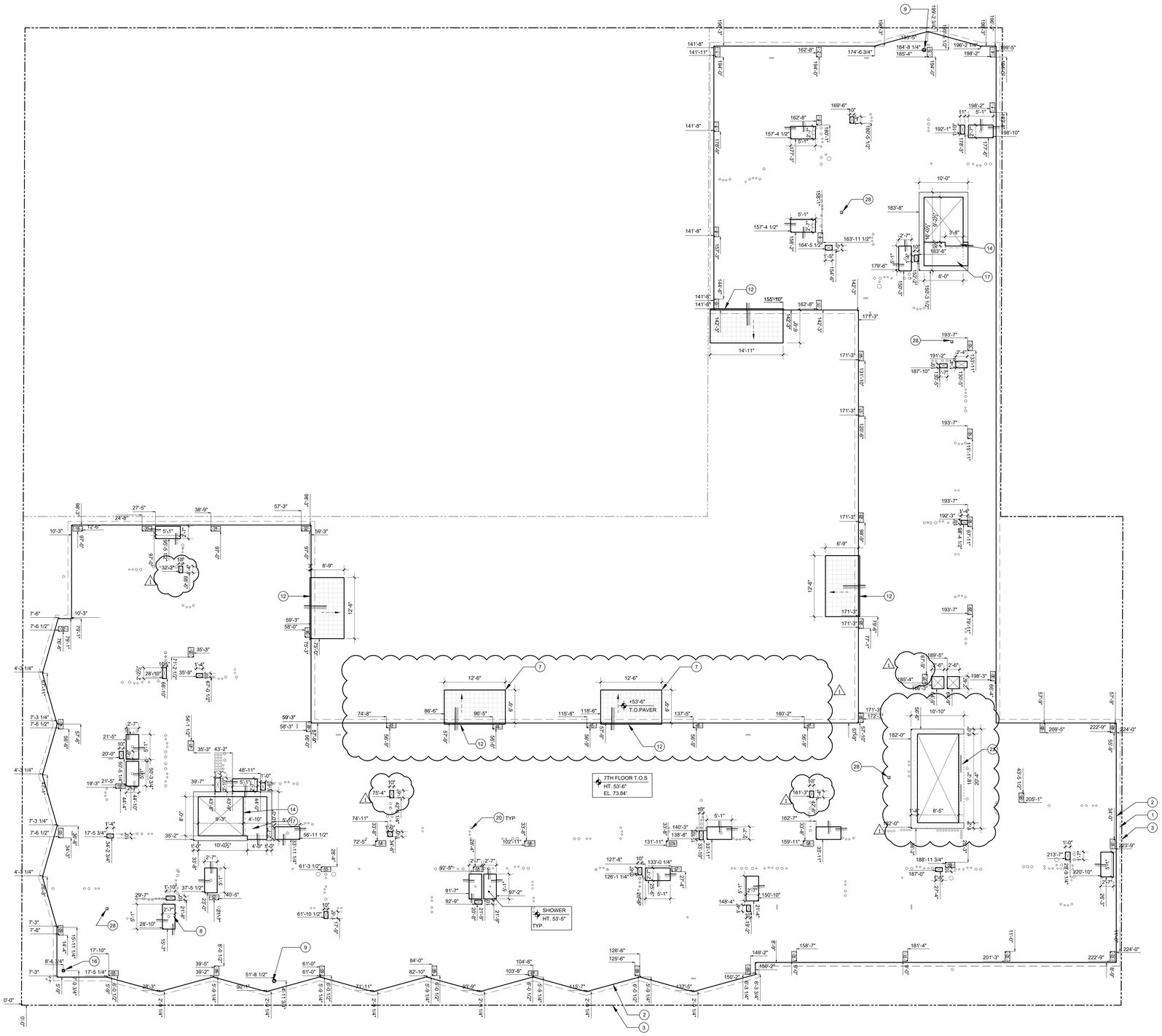
DRAWING TITLE
6TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-236.00

CADD FILE No.:
80 OF 175



1 7TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

GENERAL NOTES

SLAB NOTES

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- BUILDING LINE
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- STEP IN SLAB
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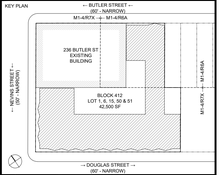

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
7TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-237.00

CADD FILE No.:
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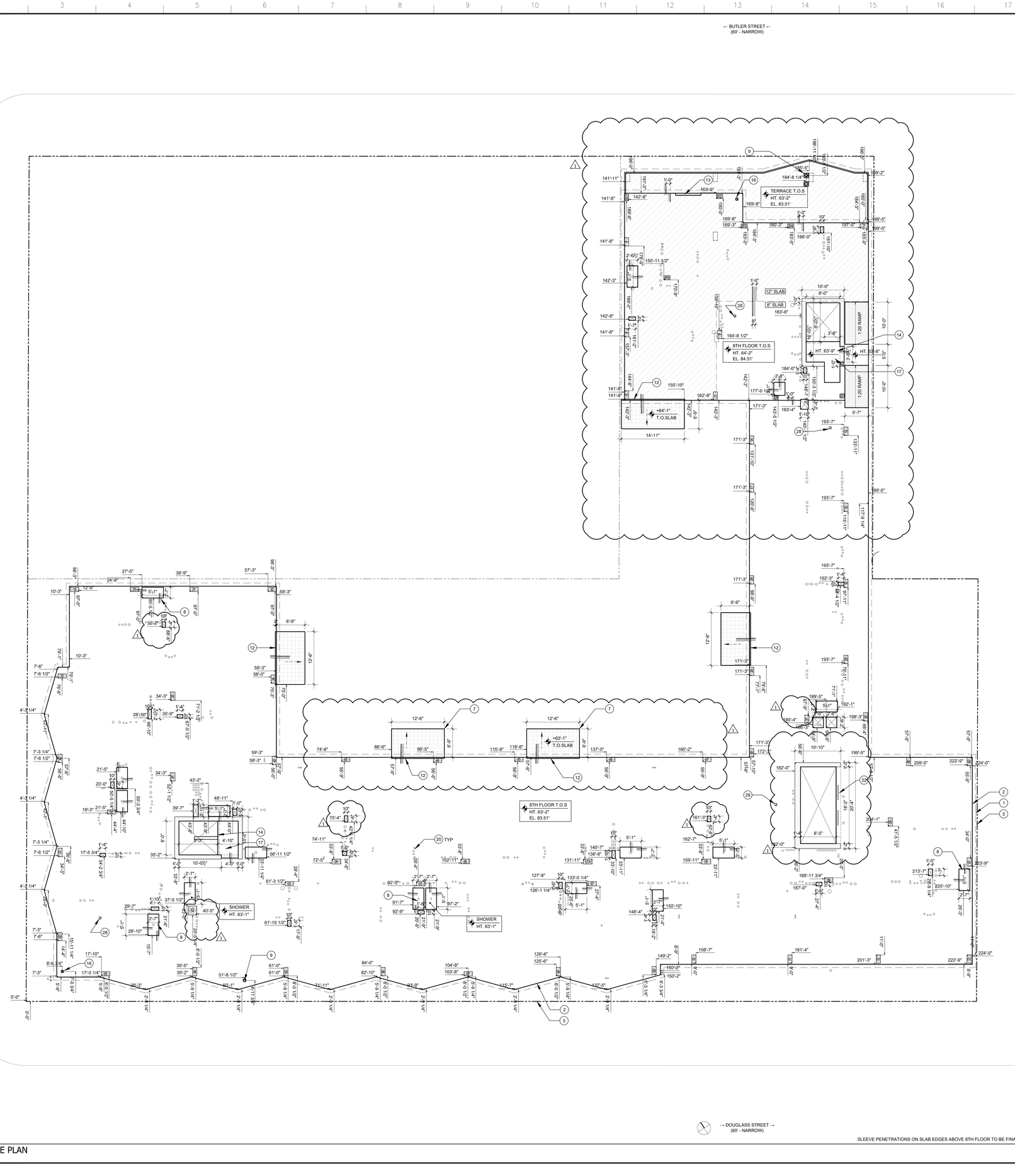

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- PROPERTY LINE
- BUILDING LINE
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- STEP IN SLAB
- CURB IN SLAB
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KEY NOTE LEGEND

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31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

1 8TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
8TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-238.00

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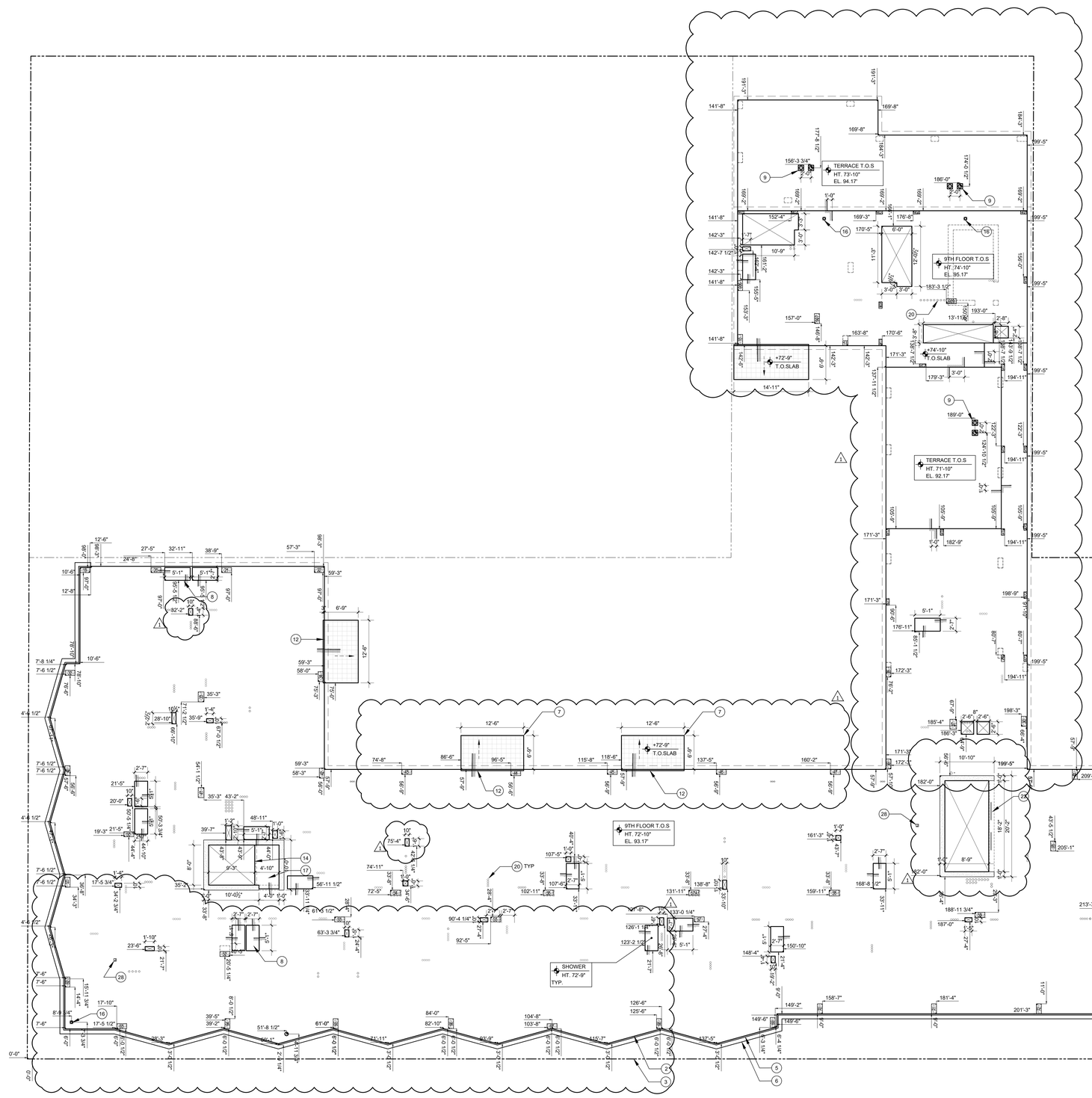

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SCALE: 1/8" = 1'-0"

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SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
8. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING OF RETAINING WALL ON THE GROUND FLOOR
9. TYPICAL SLAB THICKNESS IS 8", UNLESS OTHERWISE NOTED.
10. ALL SLEEVE PENETRATIONS TO MAINTAIN APPROPRIATE CLEARANCE FROM OTHER SLEEVES, SHEAR WALLS OR EDGE OF SLAB ACCORDING TO STRUCTURAL REQUIREMENTS. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.

SHAFT OPENING NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR INFORMATION ON REINFORCING AT PERIMETERS OF SHAFT OPENINGS.
2. REFER TO MECHANICAL ENGINEER'S DRAWINGS FOR THE TYPE OF EQUIPMENT AND SIZE WITHIN EACH SHAFT. COORDINATE OPENING SIZE OF SHAFT WITH SAID EQUIPMENT. IF SIZE OF SHAFT REQ'D. DIFFERS FROM WHAT IS INDICATED ON THIS DRAWING, NOTIFY THE ARCHITECT AND AWAIT DIRECTION.
3. PROVIDE A SHOP DRAWING INDICATING ALL SHAFT OPENINGS AND SLEEVES LOCATIONS FOR REVIEW AND APPROVAL BY ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWING IS NOT PROVIDED AND SHAFT LOCATIONS ARE NOT AS INDICATED ON THIS DRAWING, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
4. REVIEW & COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ANY ADDITIONAL REQUIRED OR NECESSARY SHAFTS THAT ARE NOT SHOWN ON THIS DRAWING.
5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
6. ALL PENETRATIONS NEAR COLUMNS TO BE COORDINATED AND APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

LEGEND

- ◆ & ◣ WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
8. 1" DEPRESSION AT SHOWER
9. ROOF DRAIN
10. FLOOR DRAIN
11. DETENTION TANK
12. THERMAL BREAK
13. 3"DEEP X 6"WIDE X 6'LONG NOTCH FOR SLIDING DOORS AT TERRACES
14. 12" 1ST STEP ON GRADE WITH SLAB & 4" SEAT. SEE STRUCTURAL DRAWINGS
15. EXPOSED UPTURN CONCRETE BEAM. SEE A-420 FOR DETAILS.
16. FLOOR BOX
17. 1" STEP UP AT STAIRS. SEE A-500 FOR DETAILS.
18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS &. COORDINATION LOCATION WITH PLANS. REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
22. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
23. THERMAL BREAK ABOVE, SEE A-412.00 FOR DETAILS.
24. UPTURN BEAM.
25. SHEAR WALL PENETRATION
26. CONCRETE RAMP & PLATFORM
27. LINE OF BEAM BELOW
28. J-BOX EMBEDDED IN UNDERSIDE OF SLAB. REFER TO RCP DRAWING FOR LOCATION.
29. ELEVATOR PIT AND SUMP PIT, REFER TO MEP & STRUCTURAL DRAWINGS
30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

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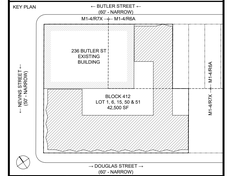

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
9TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

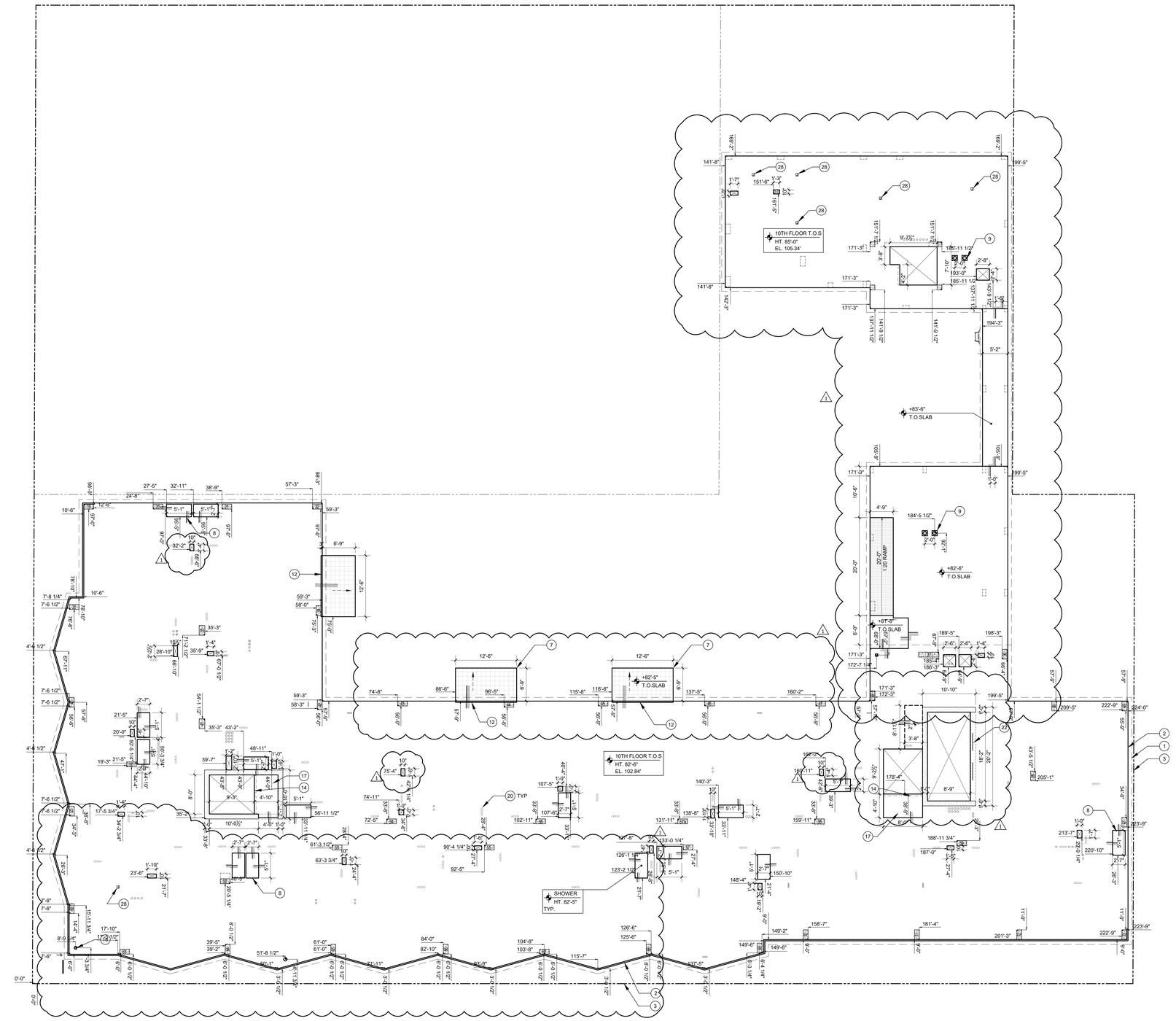
A-239.00

CADD FILE No.:
83 OF 175

← BUTLER STREET →
(60' - NARROW)

← NEVINS STREET →
(50' - NARROW)

→ DOUGLASS STREET →
(60' - NARROW)



SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

1 10TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

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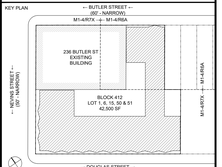

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
10TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-240.00

CADD FILE No.:
Drawings are not to be scaled. Contractor shall verify and be responsible for all dimensions and conditions on the job. Any discrepancies must be reported to the architect before proceeding with the work.

84 OF 175

← BUTLER STREET ←
(60' - NARROW)

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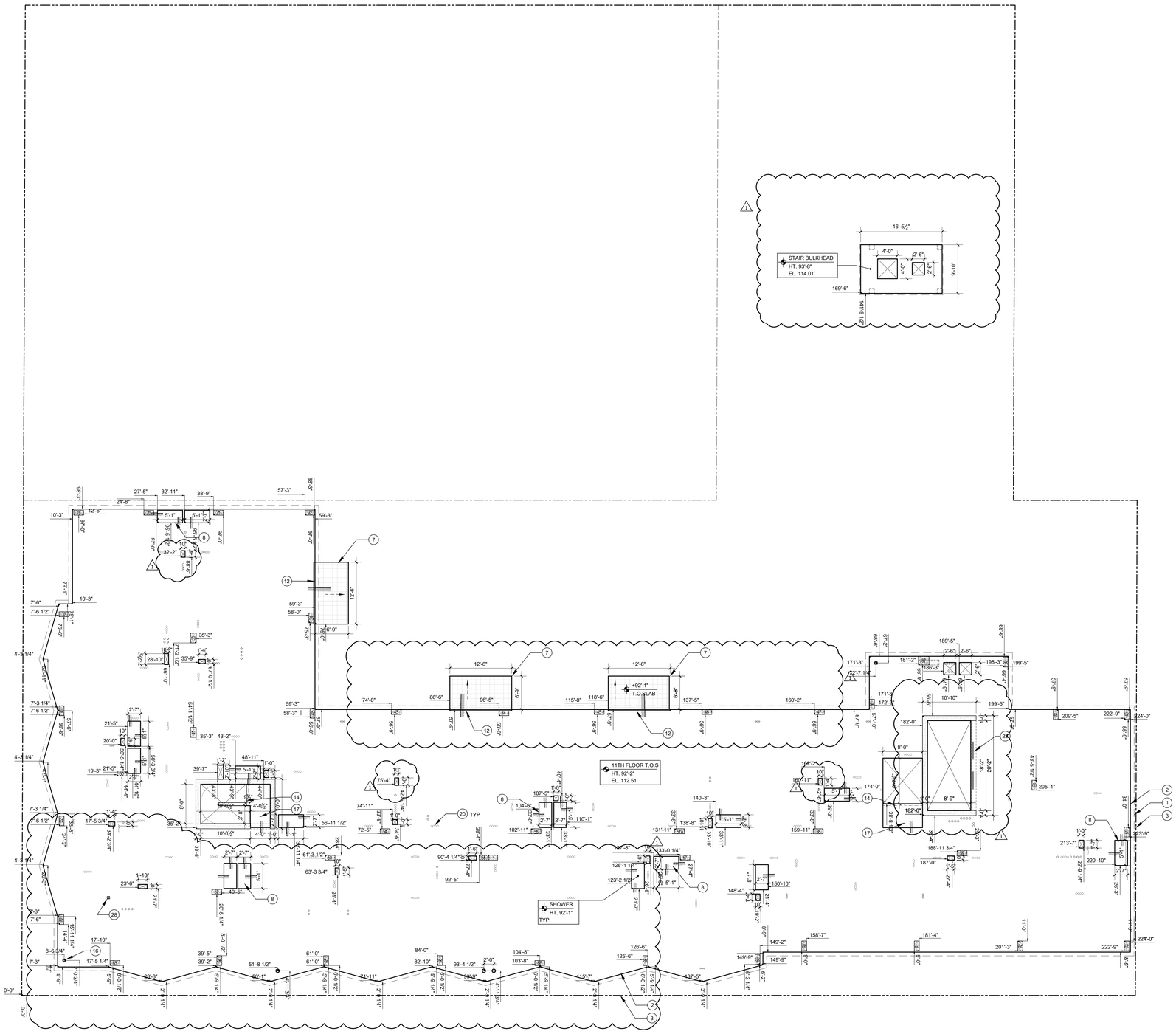

1 11TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

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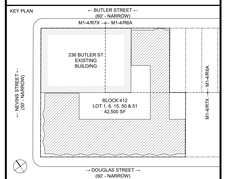

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SEAL & SIGNATURE

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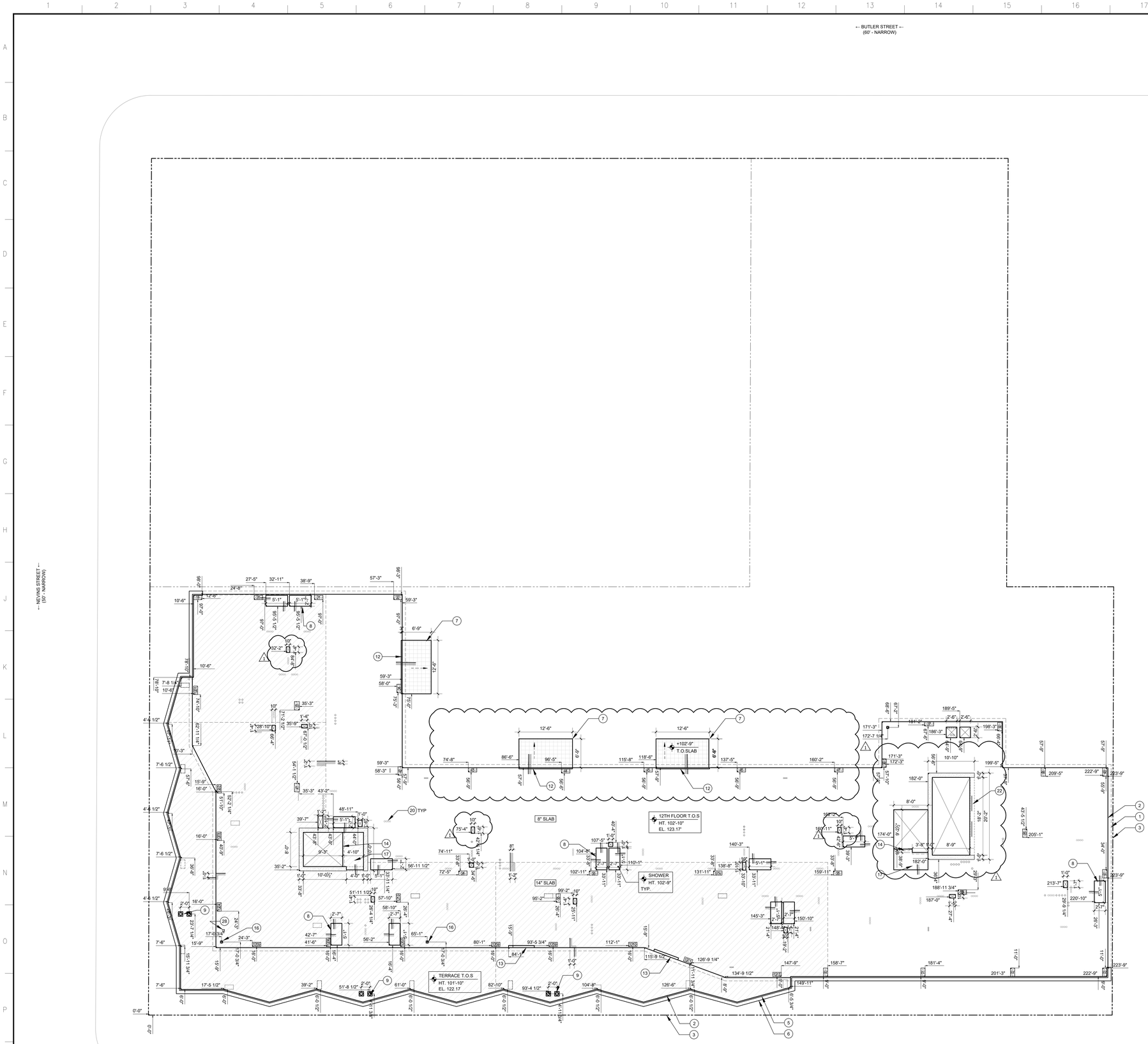
A-241.00

CADD FILE No.:



1 12TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

GENERAL NOTES

SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
8. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING OF RETAINING WALL ON THE GROUND FLOOR
9. TYPICAL SLAB THICKNESS IS 8", UNLESS OTHERWISE NOTED.
10. ALL SLEEVE PENETRATIONS TO MAINTAIN APPROPRIATE CLEARANCE FROM OTHER SLEEVES, SHEAR WALLS OR EDGE OF SLAB ACCORDING TO STRUCTURAL REQUIREMENTS. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.

SHAFT OPENING NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR INFORMATION ON REINFORCING AT PERIMETERS OF SHAFT OPENINGS.
2. REFER TO MECHANICAL ENGINEER'S DRAWINGS FOR THE TYPE OF EQUIPMENT AND SIZE WITHIN EACH SHAFT. COORDINATE OPENING SIZE OF SHAFT WITH SAID EQUIPMENT. IF SIZE OF SHAFT REQ'D. DIFFERS FROM WHAT IS INDICATED ON THIS DRAWING, NOTIFY THE ARCHITECT AND AWAIT DIRECTION.
3. PROVIDE A SHOP DRAWING INDICATING ALL SHAFT OPENINGS AND SLEEVES LOCATIONS FOR REVIEW AND APPROVAL BY ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWING IS NOT PROVIDED AND SHAFT LOCATIONS ARE NOT AS INDICATED ON THIS DRAWING, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
4. REVIEW & COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ANY ADDITIONAL REQUIRED OR NECESSARY SHAFTS THAT ARE NOT SHOWN ON THIS DRAWING.
5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
6. ALL PENETRATIONS NEAR COLUMNS TO BE COORDINATED AND APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

LEGEND

- ◆& ◣ WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
8. 1" DEPRESSION AT SHOWER
9. ROOF DRAIN
10. FLOOR DRAIN
11. DETENTION TANK
12. THERMAL BREAK
13. 3"DEEP X 6"WIDE X 6LONG NOTCH FOR SLIDING DOORS AT TERRACES
14. 12" 1ST STEP ON GRADE WITH SLAB & 4" SEAT. SEE STRUCTURAL DRAWINGS
15. EXPOSED UPTURN CONCRETE BEAM. SEE A-420 FOR DETAILS.
16. FLOOR BOX
17. 1" STEP UP AT STAIRS. SEE A-500 FOR DETAILS.
18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS & COORDINATION LOCATION WITH PLANS. REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
22. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
23. THERMAL BREAK ABOVE, SEE A-412.00 FOR DETAILS.
24. UPTURN BEAM.
25. SHEAR WALL PENETRATION
26. CONCRETE RAMP & PLATFORM
27. LINE OF BEAM BELOW
28. J-BOX EMBEDDED IN UNDERSIDE OF SLAB. REFER TO RCP DRAWING FOR LOCATION.
29. ELEVATOR PIT AND SUMP PIT, REFER TO MEP & STRUCTURAL DRAWINGS
30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

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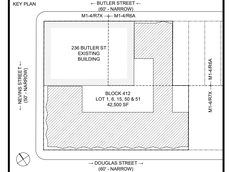

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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

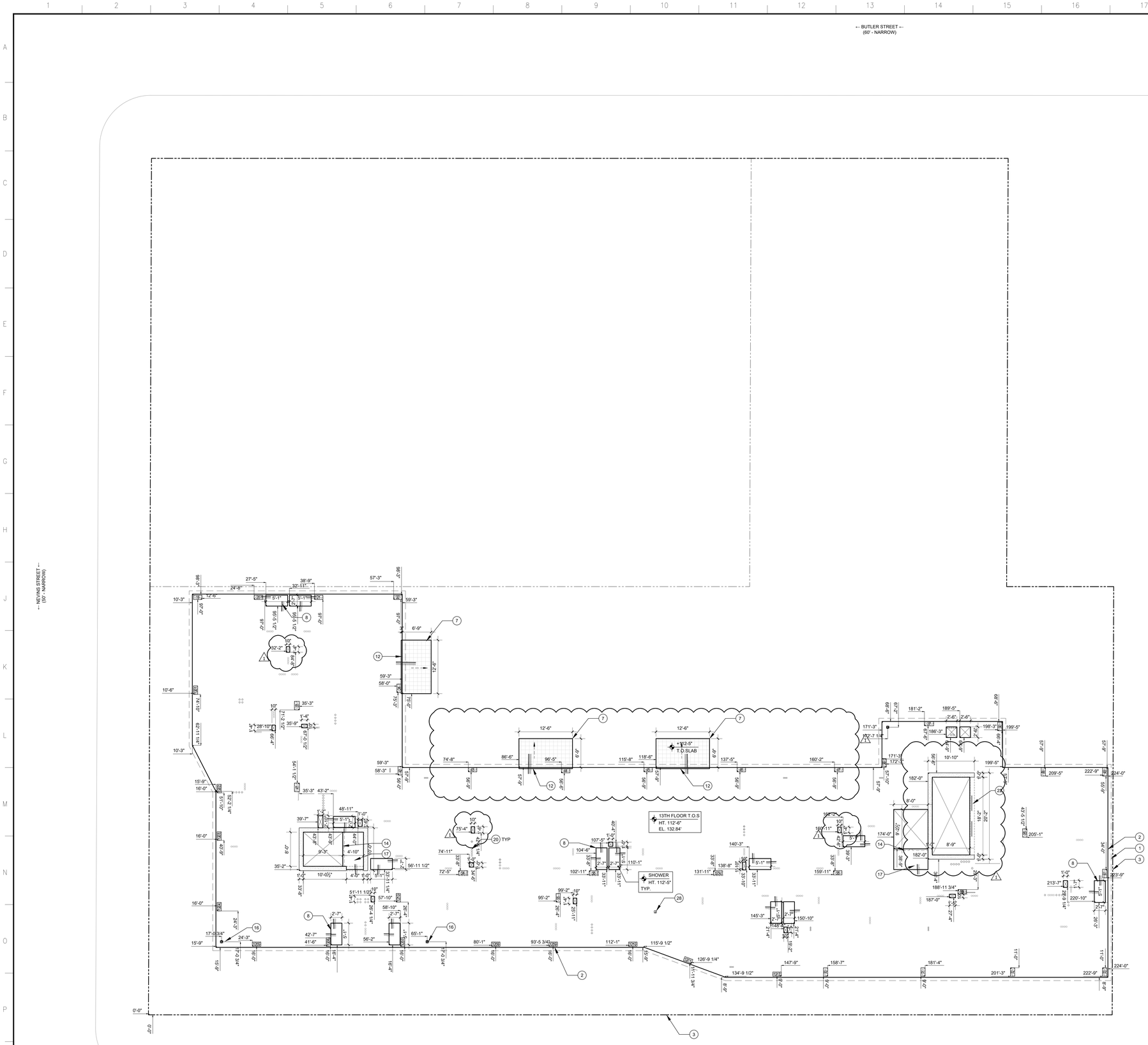
DRAWING TITLE
12TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-242.00

CADD FILE No.:



1 13TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

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- PROPERTY LINE
- BUILDING LINE
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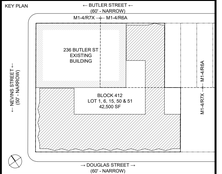

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
13TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

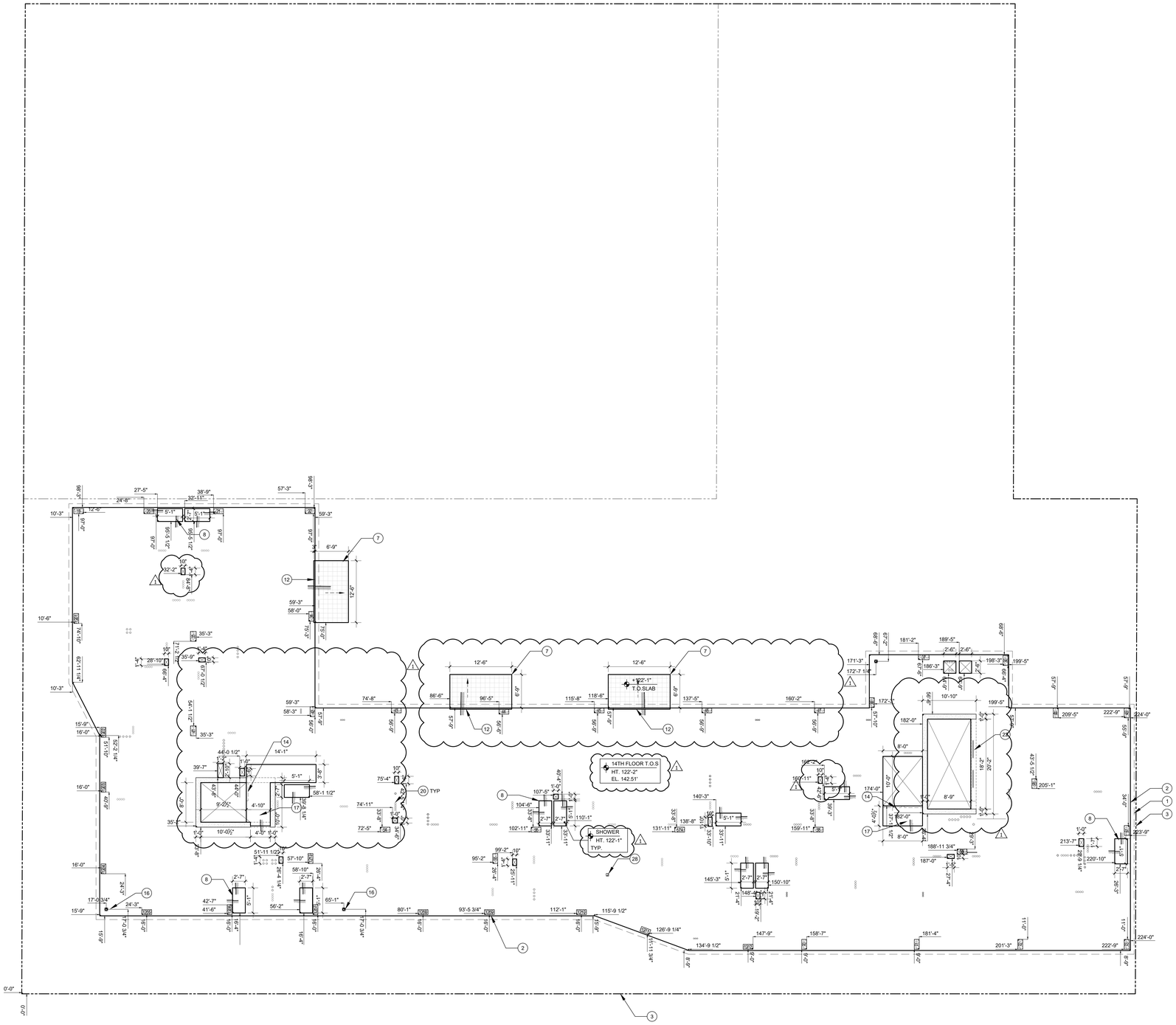
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-243.00

CADD FILE No.:

← BUTLER STREET ←
(60' - NARROW)

← NEVINS STREET ←
(60' - NARROW)



→ DOUGLASS STREET →
(60' - NARROW)

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

1 14TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

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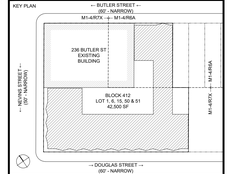

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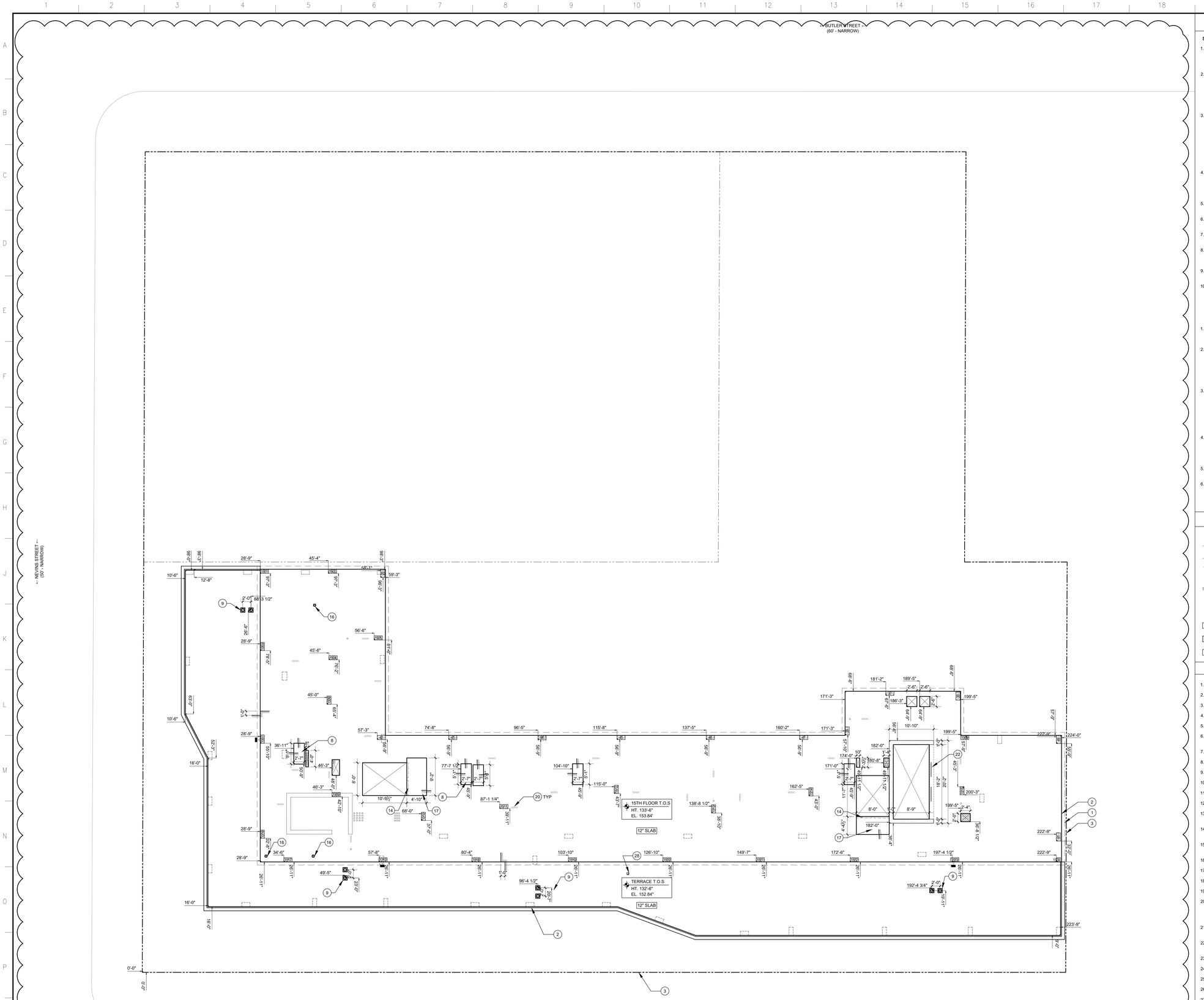
DRAWING TITLE
14TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-244.00

CADD FILE No.:



1 15TH FLOOR SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

SLAB NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR ANY ADDITIONAL INFORMATION REQUIRED IN ESTABLISHING THE SLAB EDGE THAT MAY NOT BE SHOWN ON THIS DRAWING.
2. PROVIDE SHOP DRAWINGS INDICATIING THE SLAB EDGE FOR ALL FLOORS FOR REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WITH WORK. IF SAID DRAWINGS ARE NOT PROVIDED AND THE FLOORS ARE POURED, THE GC WILL BE RESPONSIBLE FOR ANY CORRECTIVE STEPS.
3. A LICENSED LAND SURVEYOR SHALL PROVIDE A SIGNED & SEALED PLOT PLAN INDICATING ALL BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATOR SHAFTS AND THE PROPOSED BUILDING ON THE SUBJECT PROPERTY WITH ALL SETBACKS. THE ARCHITECT MUST REVIEW THE PLOT PLAN PRIOR TO STARTING ANY SITEWORK. THE PLOT PLAN MUST BE USED TO LOCATE BUILDING CORNERS, COLUMN CORNERS, STAIRS, ELEVATORS ETC.
4. SUBMIT SHOP DRAWINGS FOR ELEVATORS PRIOR TO SETTING ELEVATOR SHAFT WALLS AND FLOOR OPENINGS. COORDINATE ELEVATOR OPENING SIZES WITH CONCRETE WORK PRIOR TO FORMING. SLAB THICKNESS TO BE 8" U.O.N.
5. EXPOSED ARCHITECTURAL CONCRETE. SEE SPECIFICATION FOR REQUIREMENT
6. REFERENCE PLANE EL. +20.34' = PROJECT DATUM = HT. 0.00'
7. REFER TO STRUCTURAL ENGINEERS' DRAWINGS FOR COLUMN SIZE DIAGRAM PER FLOOR
8. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING OF RETAINING WALL ON THE GROUND FLOOR
9. TYPICAL SLAB THICKNESS IS 8", UNLESS OTHERWISE NOTED.
10. ALL SLEEVE PENETRATIONS TO MAINTAIN APPROPRIATE CLEARANCE FROM OTHER SLEEVES, SHEAR WALLS OR EDGE OF SLAB ACCORDING TO STRUCTURAL REQUIREMENTS. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.

SHAFT OPENING NOTES

1. REFER TO THE STRUCTURAL ENGINEER'S DRAWINGS FOR INFORMATION ON REINFORCING AT PERIMETERS OF SHAFT OPENINGS.
2. REFER TO MECHANICAL ENGINEER'S DRAWINGS FOR THE TYPE OF EQUIPMENT AND SIZE WITHIN EACH SHAFT. COORDINATE OPENING SIZE OF SHAFT WITH SAID EQUIPMENT. IF SIZE OF SHAFT REQ'D. DIFFERS FROM WHAT IS INDICATED ON THIS DRAWING, NOTIFY THE ARCHITECT AND AWAIT DIRECTION.
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4. REVIEW & COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ANY ADDITIONAL REQUIRED OR NECESSARY SHAFTS THAT ARE NOT SHOWN ON THIS DRAWING.
5. ALL PENETRATIONS TO BE MINIMUM OF 12" FROM SLAB EDGE
6. ALL PENETRATIONS NEAR COLUMNS TO BE COORDINATED AND APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

LEGEND

- WORK POINT
- PROPERTY LINE
- BUILDING LINE
- COORDINATES
- STEP IN SLAB
- CURB IN SLAB
- STEP AT SLAB EDGE
- SLOPED PORTION OF SLAB
- RAMP
- AREA OF THICKENED SLAB

KEY NOTE LEGEND

1. FACE OF BUILDING
2. EDGE OF SLAB
3. PROPERTY LINE
4. SEISMIC GAP
5. THERMAL BREAK
6. 9" WIDE EXPOSED CONCRETE BEAM. SEE A-420 FOR DETAILS.
7. CONCRETE BALCONY
8. 1" DEPRESSION AT SHOWER
9. ROOF DRAIN
10. FLOOR DRAIN
11. DETENTION TANK
12. THERMAL BREAK
13. 3"DEEP X 6"WIDE X 6'LONG NOTCH FOR SLIDING DOORS AT TERRACES
14. 12" 1ST STEP ON GRADE WITH SLAB & 4" SEAT. SEE STRUCTURAL DRAWINGS
15. EXPOSED UPTURN CONCRETE BEAM. SEE A-420 FOR DETAILS.
16. FLOOR BOX
17. 1" STEP UP AT STAIRS. SEE A-500 FOR DETAILS.
18. LINE OF COLUMNS BELOW
19. TRENCH DRAIN - SEE MEP DRAWINGS
20. SLEEVE PENETRATIONS, SEE MEP DRAWINGS & COORDINATION LOCATION WITH PLANS. REINFORCEMENT PER STRUCTURAL DETAILS, SEE STRUCTURAL DRAWINGS.
21. CONCRETE BEAM ABOVE (2ND FLOOR) TO SUPPORT CANOPY. SEE STRUCTURAL DRAWINGS.
22. FIRE SERVICE ELEVATOR TRENCH DRAIN PER BC 3007.3. REFER TO 3/A-520 FOR DETAIL.
23. THERMAL BREAK ABOVE, SEE A-412.00 FOR DETAILS.
24. UPTURN BEAM.
25. SHEAR WALL PENETRATION
26. CONCRETE RAMP & PLATFORM
27. LINE OF BEAM BELOW
28. J-BOX EMBEDDED IN UNDERSIDE OF SLAB. REFER TO RCP DRAWING FOR LOCATION.
29. ELEVATOR PIT AND SUMP PIT, REFER TO MEP & STRUCTURAL DRAWINGS
30. KNEE WALL. REFER TO STRUCTURAL DRAWINGS & A-400 SERIES FOR DETAILS.
31. LINE OF FACADE SHELF
32. EXPOSED CONCRETE PIERS RESTING ON PILE CAPS. SEE STRUCTURAL DRAWINGS.
33. 2" REPRESSION FOR TRENCH HEATER

SLEEVE PENETRATIONS ON SLAB EDGES ABOVE 8TH FLOOR TO BE FINALIZED DURING SHOP DRAWING PROCESS.

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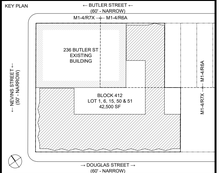
ACOUSTIC

KEY PLAN



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07	09.04.2024	ULE STRUCTURE PACKAGE
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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

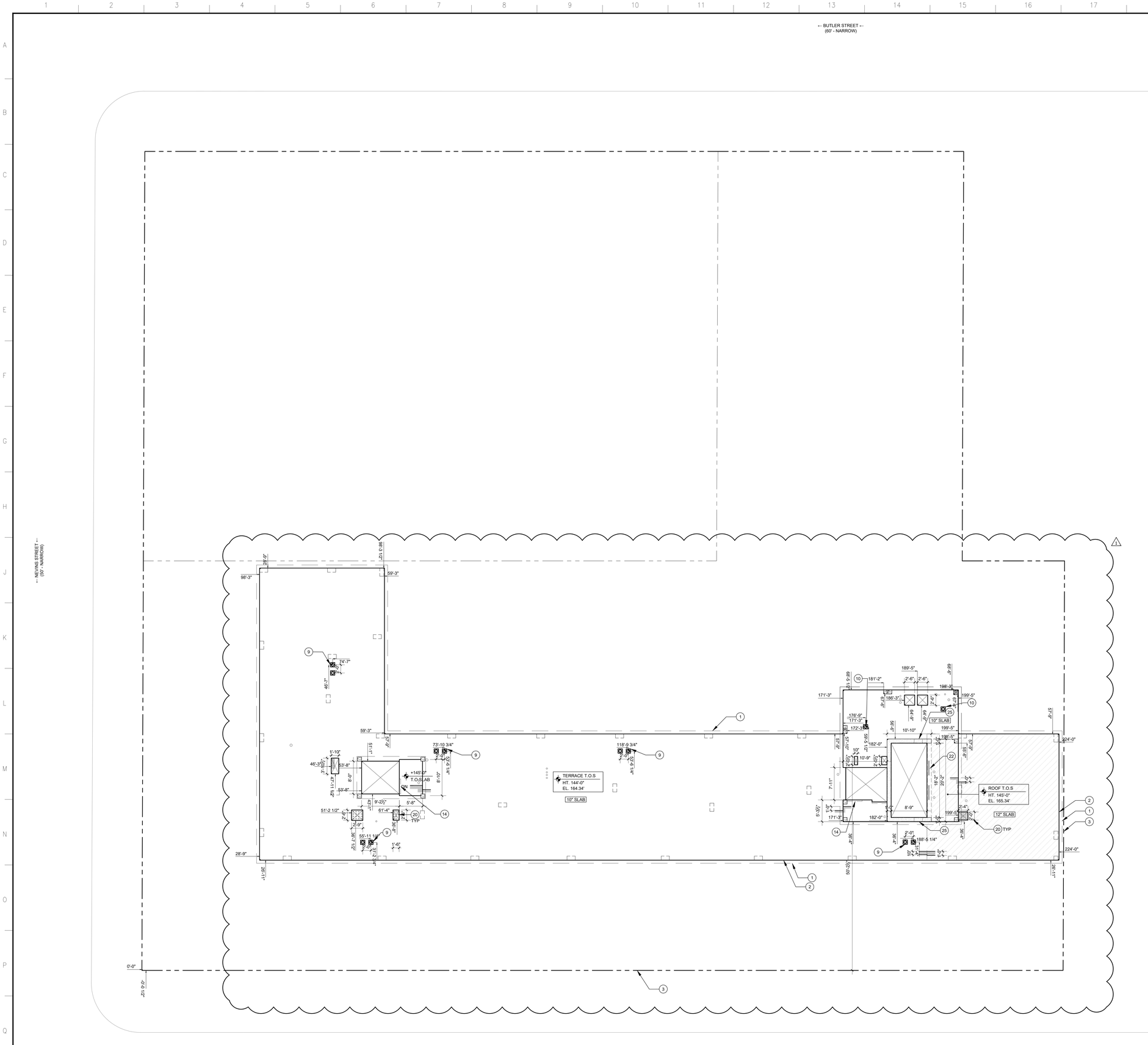
DRAWING TITLE
15TH FLOOR SLAB EDGE PLAN

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-245.00

CADD FILE No.:



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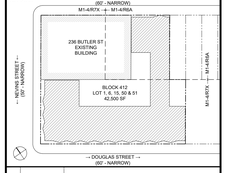
KEY PLAN



No.	DATE	ISSUE
08	02.04.2025	SEP COORDINATION
07	11.04.2024	BULLETIN #1 - ULE REDESIGN
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
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01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ROOF SLAB EDGE PLAN

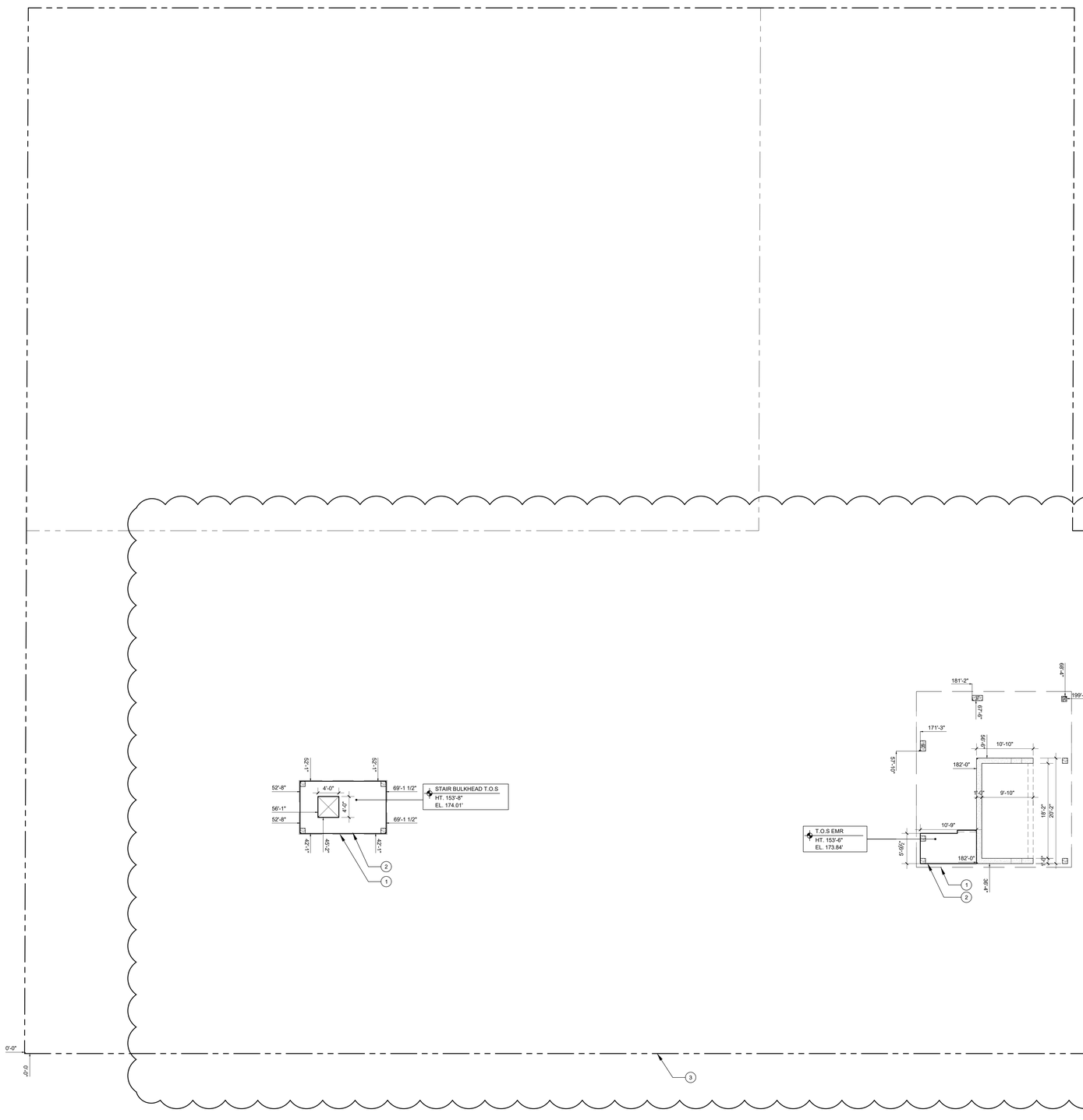
SEAL & SIGNATURE

DATE (MM-DD-YY)	2025-02-04
PROJECT No.:	B00621061-11
DRAWING BY:	FFA
CHK BY:	FFA

A-246.00

CADD FILE No.: 90 OF235

1 ROOF SLAB EDGE PLAN
SCALE: ######



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DRAWING TITLE
EMR ROOF SLAB EDGE PLAN

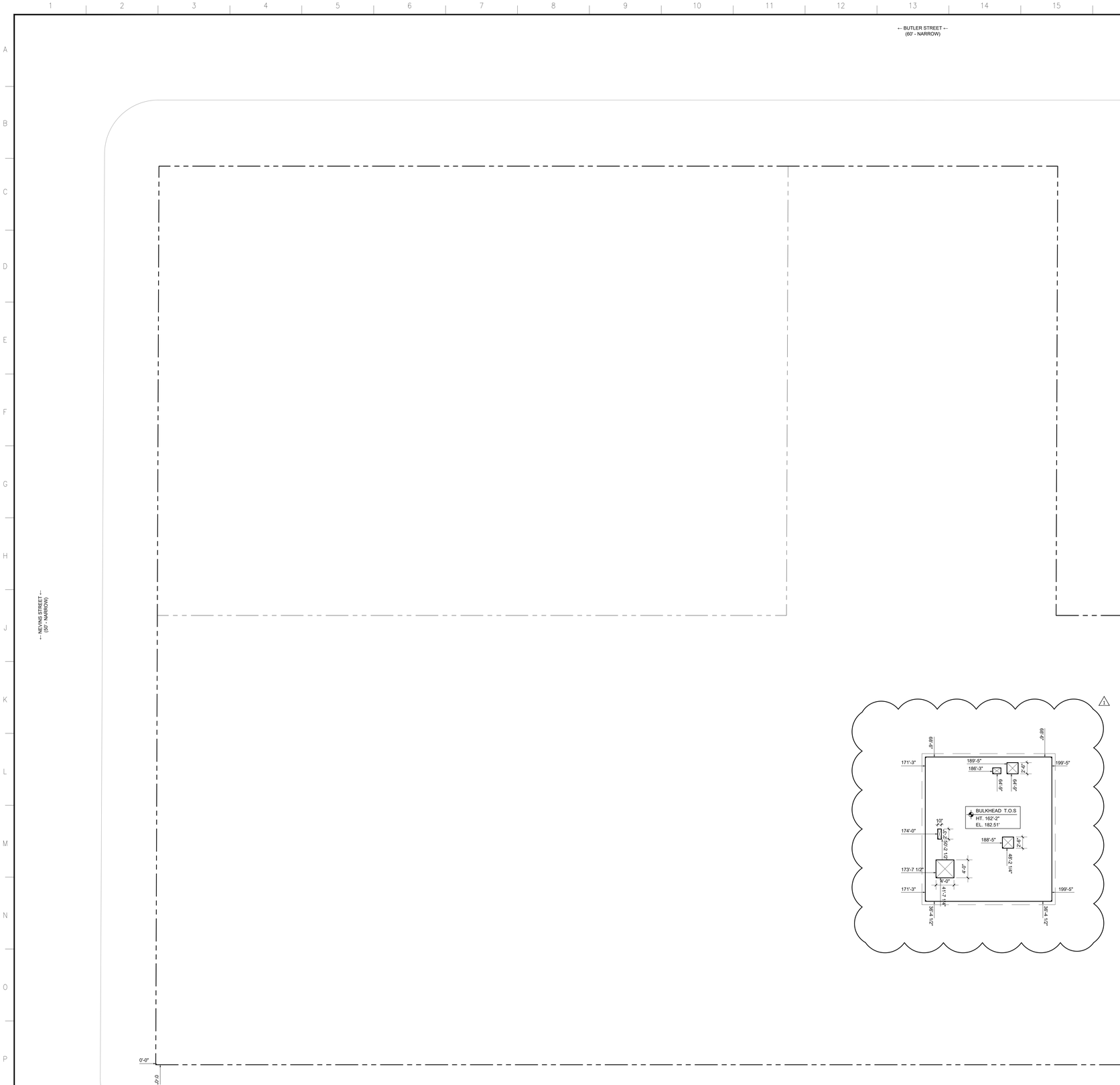
SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-247.00

CADD FILE No.:
91 OF 175

1 EMR ROOF SLAB EDGE PLAN
SCALE: 1/8" = 1'-0"


← BUTLER STREET ←
(60' - NARROW)
← NEVINS STREET ←
(50' - NARROW)
0'-0"
-0'-0"
BULKHEAD T.O.S
HT. 162'-2"
EL. 182.51'
189'-5"
186'-3"
171'-3"
199'-5"
174'-0"
188'-5"
173'-7 1/2"
171'-3"
199'-5"
-9'-6"
-9'-6"
-9'-6

1 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

LEGEND

- XX-0 — MATERIALS TAG
- 0 — KEYED NOTES
- W0 — WINDOW TAG
- D — DOOR TAG

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE +0'-0" = EL. +20.34' (NAVD 88)
2. SEE A-400S FOR TYPICAL WALL TYPES
3. FAÇADE GLASS, GLASS RAILINGS, AND OTHER EXTERIOR GLASS SHALL COMPLY WITH AMENDMENTS TO THE NEW YORK CITY BUILDING CODE (CODE) MANDATED BY LOCAL LAW 15 OF 2020. BIRD FRIENDLY GLASS SHALL MEET THE DEFINITION OF BIRD FRIENDLY MATERIAL AS DEFINED BY CODE. EXCEPTIONS TO BIRD FRIENDLY MATERIALS CAN BE FOLLOWED PER LOCAL LAW 15/2020.
4. SEE RCP AND ELEC. DWGS FOR EXTERIOR LIGHTING FIXTURE LOCATIONS. SEE LOW VOLTAGE DWGS FOR INTERCOMS AND SECURITY CAMERAS
5. SEE MEP. DWGS FOR EXTERIOR WALL PENETRATIONS. LOUVER LOCATIONS TO BE COORDINATED WITH MECH. DWGS
6. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE

KEY NOTES LEGEND

1. TYP. WINDOW WALL SYSTEM - SEE 400S FOR DETAILS
2. STOREFRONT - FOUR SIDED STRUCTURAL SILICONE SYSTEM, KAWNEER 1600 AS DESIGN BASIS, INCLUDING FOOD BARRIER GLAZING SYSTEM.
3. EXTRUDED ALUM. WINDOW SHROUD, CONTRACTOR TO PROVIDE SHOP DWGS AND CALCULATIONS FOR SHROUD PROFILES AND ATTACHMENT, TYP
4. LAMINATED GLASS RAILING (BIRD-FRIENDLY), 3'-6" AFF
5. OSHA RAILING, 3'-6" AFF
6. INTERNALLY DRAINED CANOPY SEE A-411.00
7. SIGNAGE, CNC CUT METAL, FINISH TBD
8. MECHANICAL SCREENING
9. NEIGHBORING BUILDINGS
10. BALCONY
11. PAINTED METAL COPING FOR EIFS, SEE A-400S
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29. ARCHITECTURAL EXPOSED CONCRETE ELEMENTS. SEE A-445, A-446, AND A-447 FOR AXON DRAWINGS

MATERIALS LEGEND

CONC–01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC–02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC–03	EXPOSED BOARD FORMED CONCRETE
MT–01	PTD METAL PANEL COLOR TBD
MT–01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT–02	PTD METAL PANEL COLOR TBD
MT–02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT–03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT–03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT–04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT–04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT–05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT–06	PERFORATED METAL LOUVER, COLOR TBD
MT–07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF–01	9" EIFS, COLOR TO MATCH MT-01
EF–01A	6" EIFS, COLOR TO MATCH MT-01
EF–01B	4" EIFS, COLOR TO MATCH MT-01
EF–02	9" EIFS, COLOR TO MATCH MT-02
EF–02A	6" EIFS, COLOR TO MATCH MT-02
EF–03	9" EIFS, COLOR TO MATCH CONC-01
EF–04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST–01	STOREFRONT STONE BASE, GRANITE, GREY
GL–01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL–01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL–02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL–02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL–03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL–03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL–04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL–04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL–05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL–06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL–07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST–01	STONE BASE

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ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
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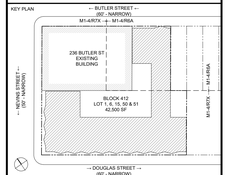
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

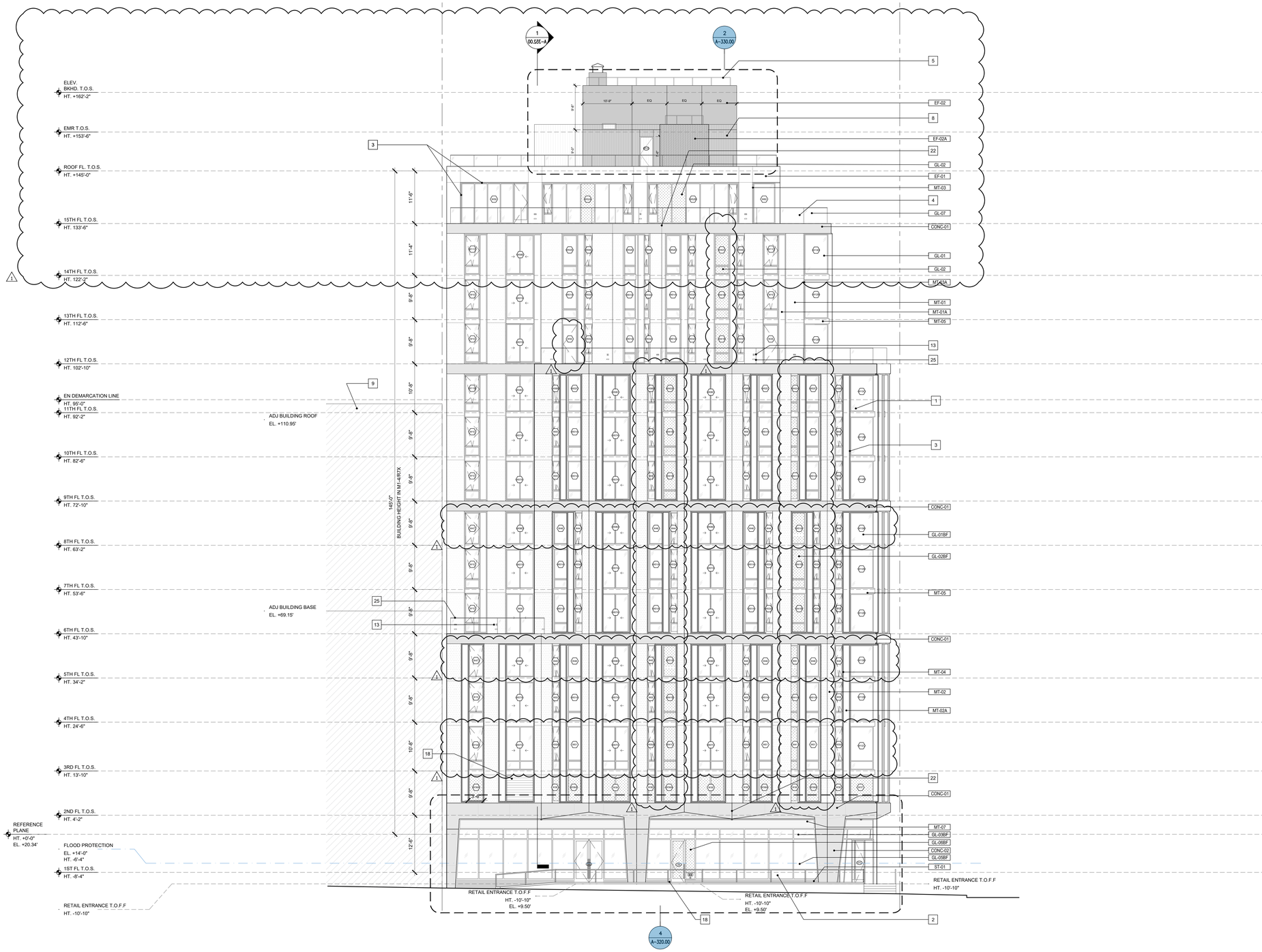
DRAWING TITLE
BUILDING ELEVATIONS - SOUTH

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-300.00

CADD FILE No.:
93 OF 175


LOT LINE
LOT LINE
1
00.02E-A
2
A-330.00
ELEV. BKHD. T.O.S.
HT. +162'-2"
EMR T.O.S.
HT. +153'-6"
ROOF FL. T.O.S.
HT. +145'-0"
15TH FL T.O.S.
HT. 133'-6"
14TH FL T.O.S.
HT. 122'-2"
13TH FL T.O.S.
HT. 112'-6"
12TH FL T.O.S.
HT. 102'-10"
EN DEMARCATION LINE
HT. 95'-0"
11TH FL T.O.S.
HT. 92'-2"
10TH FL T.O.S.
HT. 82'-6"
9TH FL T.O.S.
HT. 72'-10"
8TH FL T.O.S.
HT. 63'-2"
7TH FL T.O.S.
HT. 53'-6"
6TH FL T.O.S.
HT. 43'-10"
5TH FL T.O.S.
HT. 34'-2"
4TH FL T.O.S.
HT. 24'-6"
3RD FL T.O.S.
HT. 13'-10"
2ND FL T.O.S.
HT. 4'-2"
REFERENCE PLANE
HT. +0'-0"
EL. +20.34'
FLOOD PROTECTION
EL. +14'-0"
HT. -6'-4"
1ST FL T.O.S.
HT. -8'-4"
RETAIL ENTRANCE T.O.F.F
HT. -10'-10"
ADJ BUILDING ROOF
EL. +110.95'
ADJ BUILDING BASE
EL. +69.15'
BUILDING HEIGHT IN M1-4/R7X
145'-0"
10'-8"
9'-8"
9'-8"
9'-8"
9'-8"
9'-8"
9'-8"
9'-8"
10'-6"
9'-8"
12'-6"
1'-6"
11'-4"
9'-8"
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9'-4"
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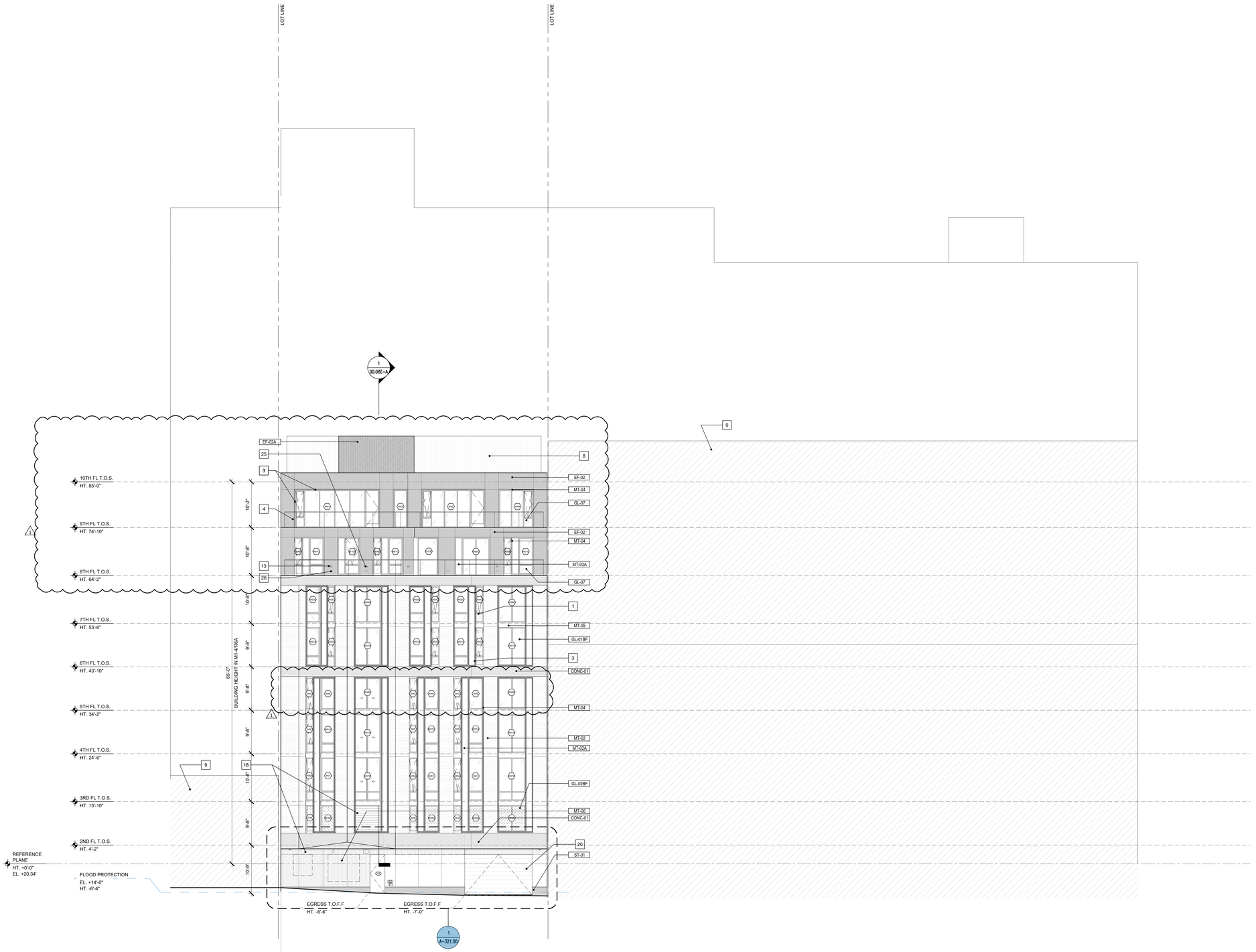

1 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

LEGEND

XX-0	MATERIALS TAG
0	KEYED NOTES
W0	WINDOW TAG
D	DOOR TAG

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MATERIALS LEGEND

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CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
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EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
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GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
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GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
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XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

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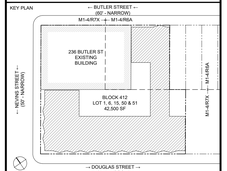
ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

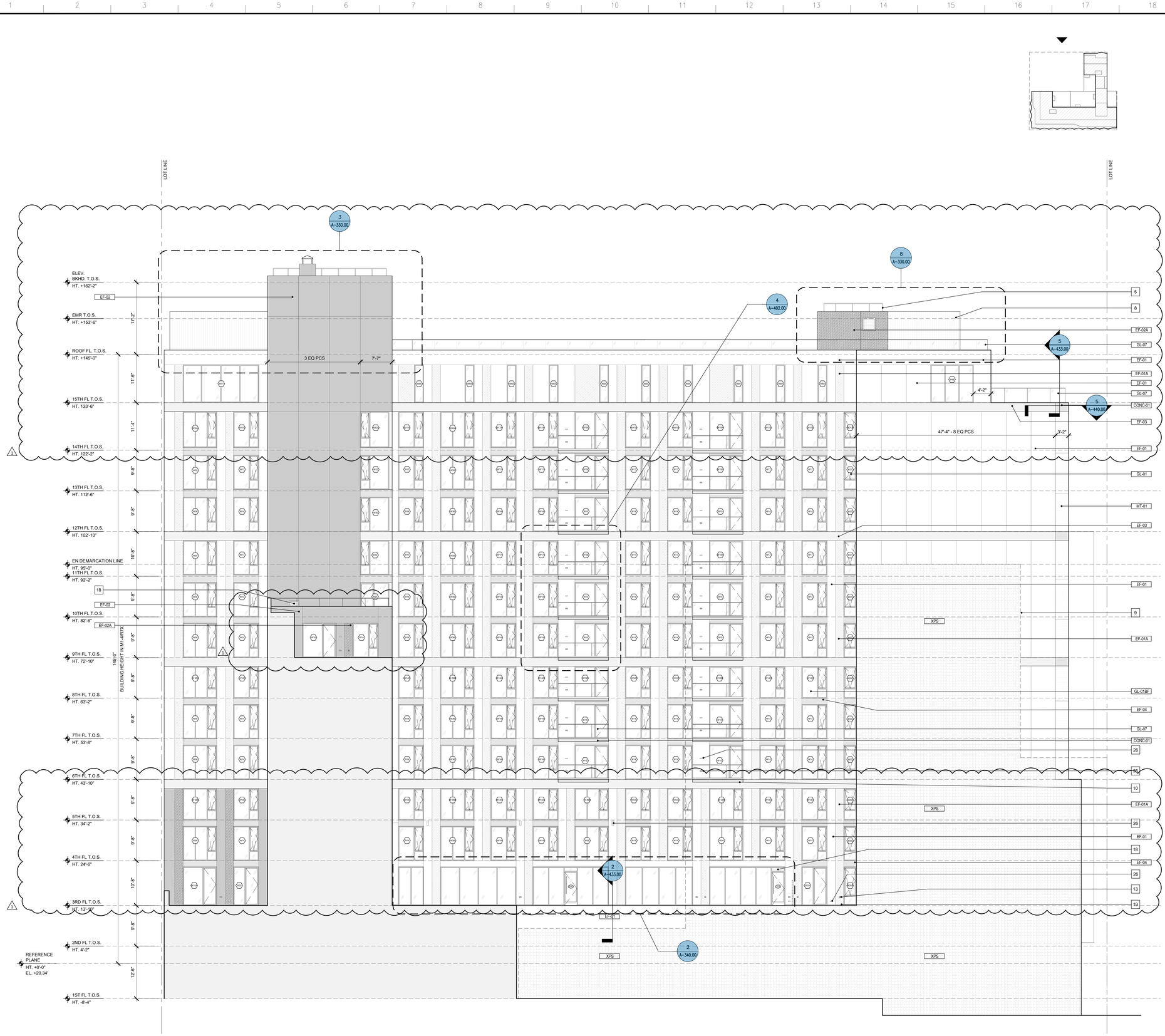
DRAWING TITLE
BUILDING ELEVATIONS - NORTH

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-302.00

CADD FILE No.:



1 INNER COURTYARD NORTH ELEVATION
SCALE: 1/8" = 1'-0"

LEGEND

- XX-0 — MATERIALS TAG
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- W0 — WINDOW TAG
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	MT–03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
	MT–04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
	MT–04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
	MT–05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
	MT–06	PERFORATED METAL LOUVER, COLOR TBD
	MT–07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
	EF–01	9" EIFS, COLOR TO MATCH MT-01
	EF–01A	6" EIFS, COLOR TO MATCH MT-01
	EF–01B	4" EIFS, COLOR TO MATCH MT-01
	EF–02	9" EIFS, COLOR TO MATCH MT-02
	EF–02A	6" EIFS, COLOR TO MATCH MT-02
	EF–03	9" EIFS, COLOR TO MATCH CONC-01
	EF–04	6" EIFS, COLOR TO MATCH WINDOW FRAME
	ST–01	STOREFRONT STONE BASE, GRANITE, GREY
	GL–01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
	GL–01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
	GL–02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
	GL–02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
	GL–03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
	GL–03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
	GL–04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
	GL–04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
	GL–05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
	GL–06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
	GL–07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
	XPS	EXPOSED XPS RIGID INSULATION
	ST–01	STONE BASE

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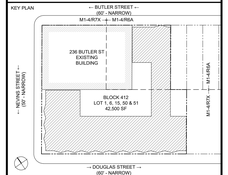
KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

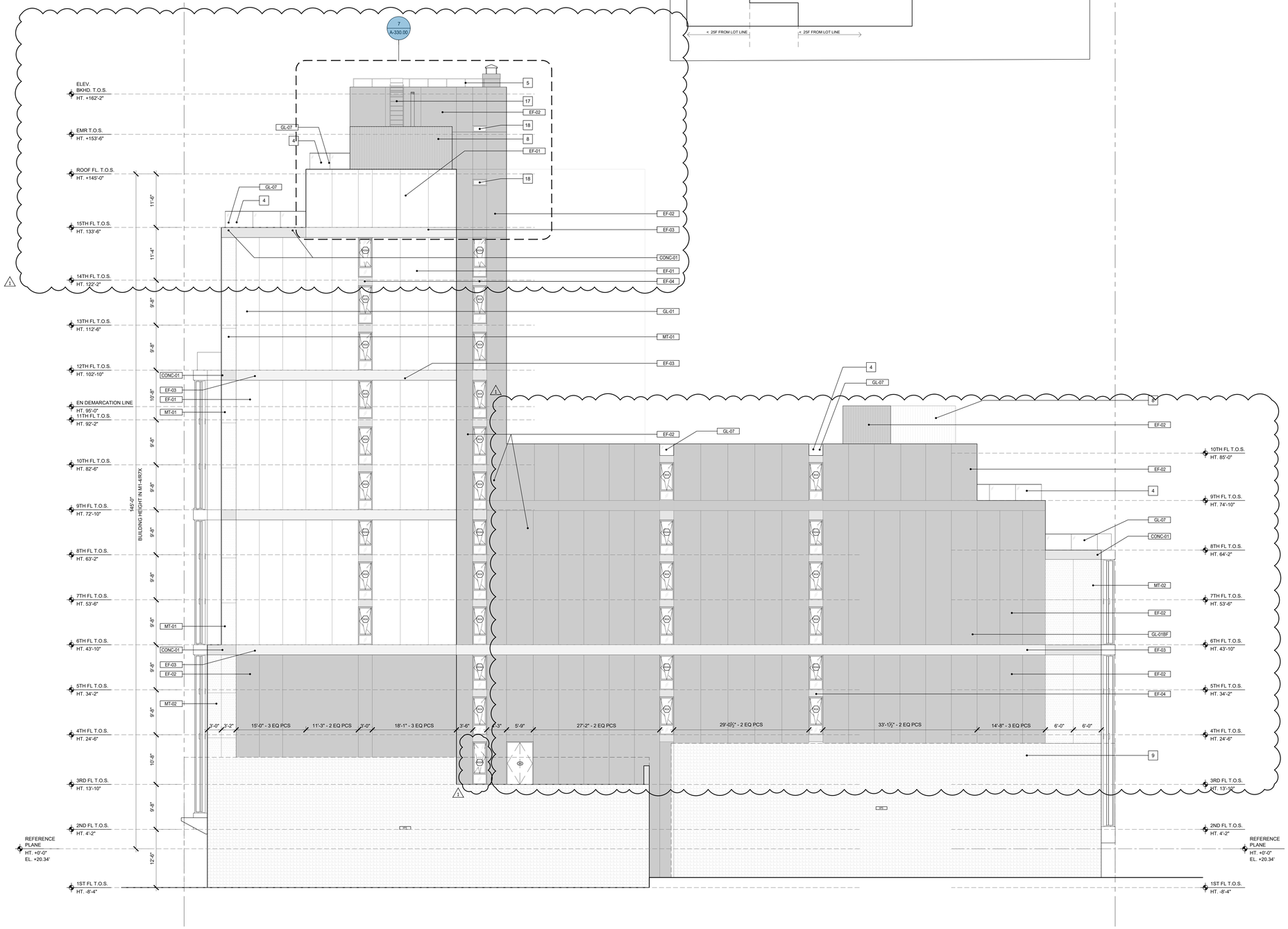
DRAWING TITLE
BUILDING ELEVATIONS - COURTYARD NORTH

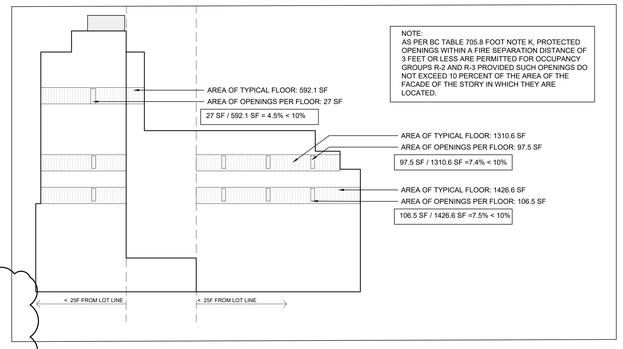
SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-303.00

CADD FILE No.:





LEGEND

XX-0	MATERIALS TAG
0	KEYED NOTES
W0	WINDOW TAG
0	DOOR TAG

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE +0'-0" = EL. +20.34' (NAVD 88)
2. SEE A-400S FOR TYPICAL WALL TYPES
3. FAÇADE GLASS, GLASS RAILINGS, AND OTHER EXTERIOR GLASS SHALL COMPLY WITH AMENDMENTS TO THE NEW YORK CITY BUILDING CODE (CODE) MANDATED BY LOCAL LAW 15 OF 2020. BIRD FRIENDLY GLASS SHALL MEET THE DEFINITION OF BIRD FRIENDLY MATERIAL AS DEFINED BY CODE. EXCEPTIONS TO BIRD FRIENDLY MATERIALS CAN BE FOLLOWED PER LOCAL LAW 15/2020.
4. SEE RCP AND ELEC. DWGS FOR EXTERIOR LIGHTING FIXTURE LOCATIONS. SEE LOW VOLTAGE DWGS FOR INTERCOMS AND SECURITY CAMERAS
5. SEE MEP. DWGS FOR EXTERIOR WALL PENETRATIONS. LOUVER LOCATIONS TO BE COORDINATED WITH MECH. DWGS
6. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE

KEY NOTES LEGEND

1. TYP. WINDOW WALL SYSTEM - SEE 400S FOR DETAILS
2. STOREFRONT - FOUR SIDED STRUCTURAL SILICONE SYSTEM, KAWNEER 1600 AS DESIGN BASIS, INCLUDING FOOD BARRIER GLAZING SYSTEM.
3. EXTRUDED ALUM. WINDOW SHROUD, CONTRACTOR TO PROVIDE SHOP DWGS AND CALCULATIONS FOR SHROUD PROFILES AND ATTACHMENT, TYP
4. LAMINATED GLASS RAILING (BIRD-FRIENDLY), 3'-6" AFF
5. OSHA RAILING, 3'-6" AFF
6. INTERNALLY DRAINED CANOPY SEE A-411.00
7. SIGNAGE, CNC CUT METAL, FINISH TBD
8. MECHANICAL SCREENING
9. NEIGHBORING BUILDINGS
10. BALCONY
11. PAINTED METAL COPING FOR EIFS, SEE A-400S
12. 1:12 RAMP
13. HOSE BIB, SEE PLANS AND PLUMBING DWGS
14. SCUPPER, SEE PLUMBING DWGS
15. COMBINED STANDPIPE AND SPRINKLER FIRE DEPARTMENT CONNECTION, SEE FIRE PROTECTION DWGS
16. CM TO COORDINATE BASE HEIGHT AND DETAIL W/ ADJ. CURB, GRADE AND ETC.
17. LADDER
18. MECHANICAL LOUVERS, REFER TO MECHANICAL DRAWINGS FOR DETAILS
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20. RYTEC LOW HEADROOM ROLL UP GARAGE DOOR
21. METAL RAILING, 3'-6" AFF WITH EDGE PROTECTION
22. CONCRETE JOINT LINES
23. RECESSED VIDEO INTERCOM SYSTEM
24. BOARD MARK CONCRETE
25. WEATHER PROOF RECEPTABLE. SEE ELEC DWGS AND A-400,401,402,403 FOR TYP MOUNTING HEIGHTS
26. EXTERNAL LIGHTING ON TERRACES. SEE ELEC DWGS AND A-400,401,402,403 FOR TYP MOUNTING HEIGHTS
27. CONCRETE FORMWORK JOINTS
28. SECURITY CAMERAS MOUNTED ON CONCRETE, COORDINATE CONDUIT RUNS THROUGH CONCRETE. SEE RCP'S FOR LOCATION. SEE LOW VOLTAGE DWGS FOR SPECS. FINISH LIGHT GREY TO MATCH CONCRETE.
29. ARCHITECTURAL EXPOSED CONCRETE ELEMENTS, SEE A-445, A-446, AND A-447 FOR AXON DRAWINGS

MATERIALS LEGEND

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
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EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
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XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

1 EAST ELEVATION
SCALE: 1/8" = 1'-0"

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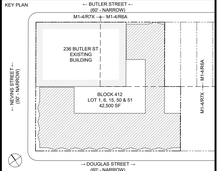

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
BUILDING ELEVATIONS - EAST

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-304.00

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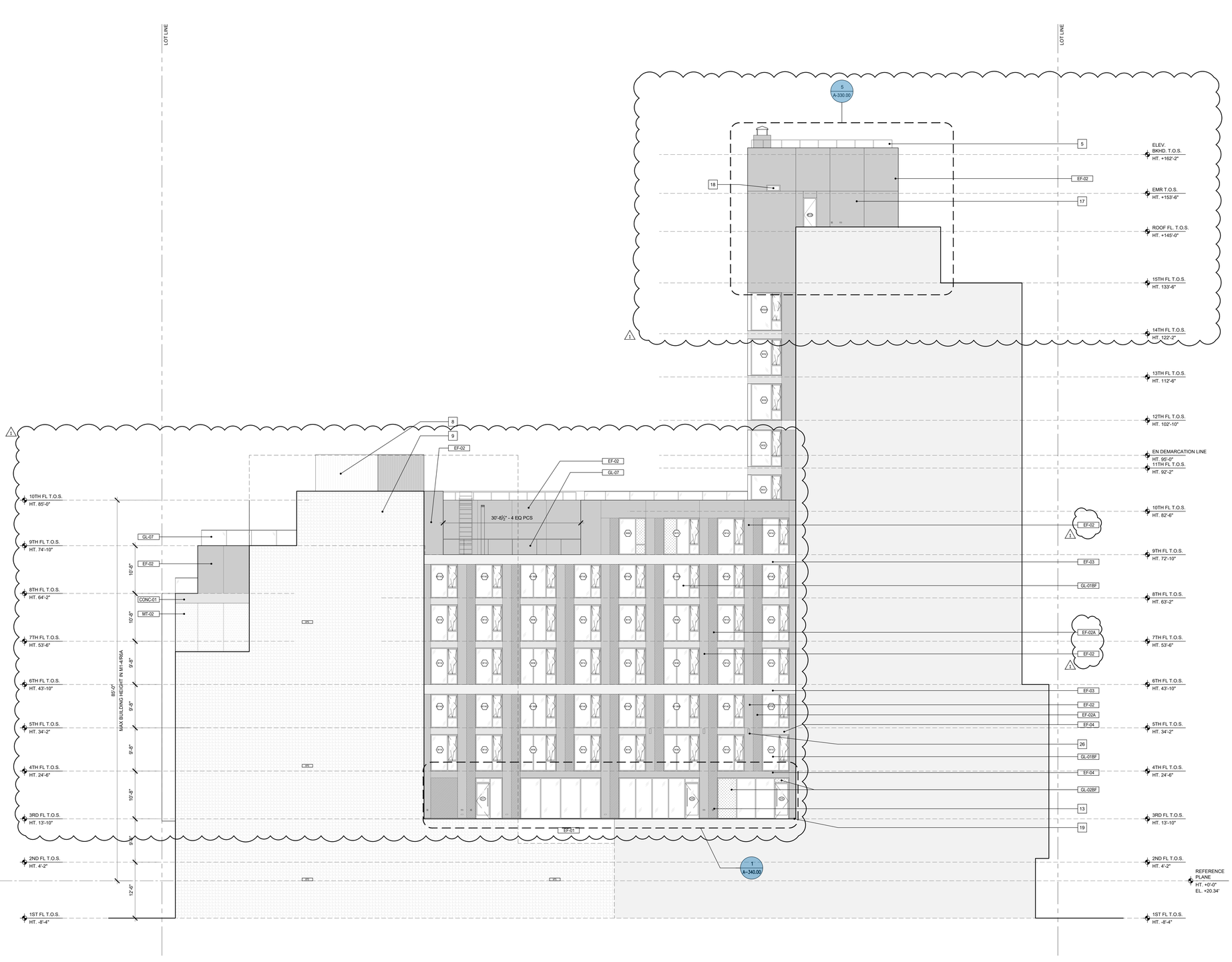

1 INNER COURTYARD WEST ELEVATION

SCALE: 1/8" = 1'-0"

LEGEND

XX-0	MATERIALS TAG
0	KEYED NOTES
W0	WINDOW TAG
0	DOOR TAG

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MATERIALS LEGEND

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	CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
	CONC-03	EXPOSED BOARD FORMED CONCRETE
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	MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
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	MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
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	MT-06	PERFORATED METAL LOUVER, COLOR TBD
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	EF-01A	6" EIFS, COLOR TO MATCH MT-01
	EF-01B	4" EIFS, COLOR TO MATCH MT-01
	EF-02	9" EIFS, COLOR TO MATCH MT-02
	EF-02A	6" EIFS, COLOR TO MATCH MT-02
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	GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
	GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
	GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
	GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
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	GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
	XPS	EXPOSED XPS RIGID INSULATION
	ST-01	STONE BASE

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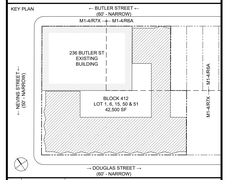
KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

BUILDING ELEVATIONS - COURTYARD WEST

SEAL & SIGNATURE

DATE (MM-DD-YY):	2024-11-05
PROJECT No.:	TAV_251 DOUGLASS ST
DRAWING BY:	FFA
CHK BY:	FFA

A-305.00

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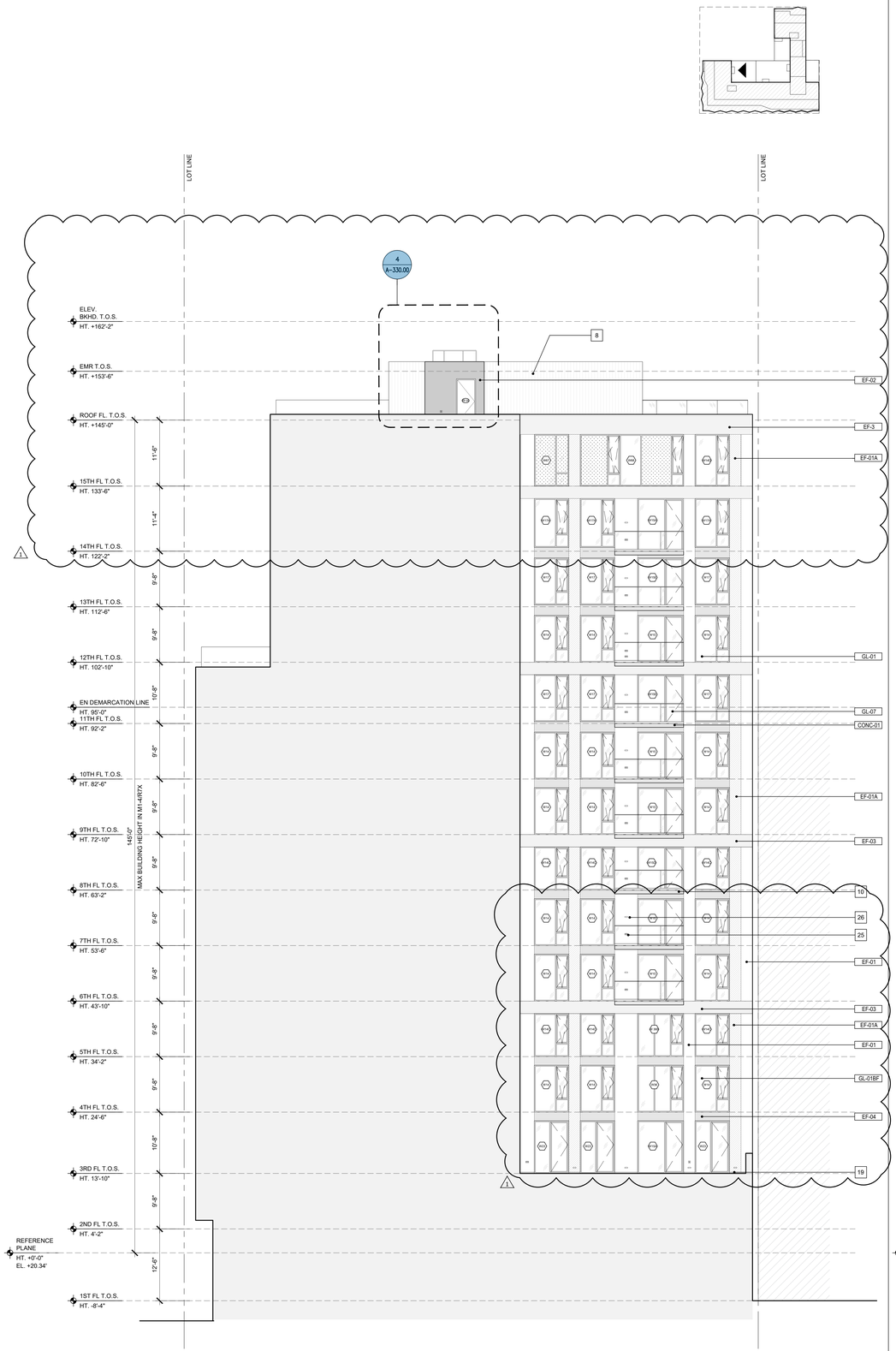
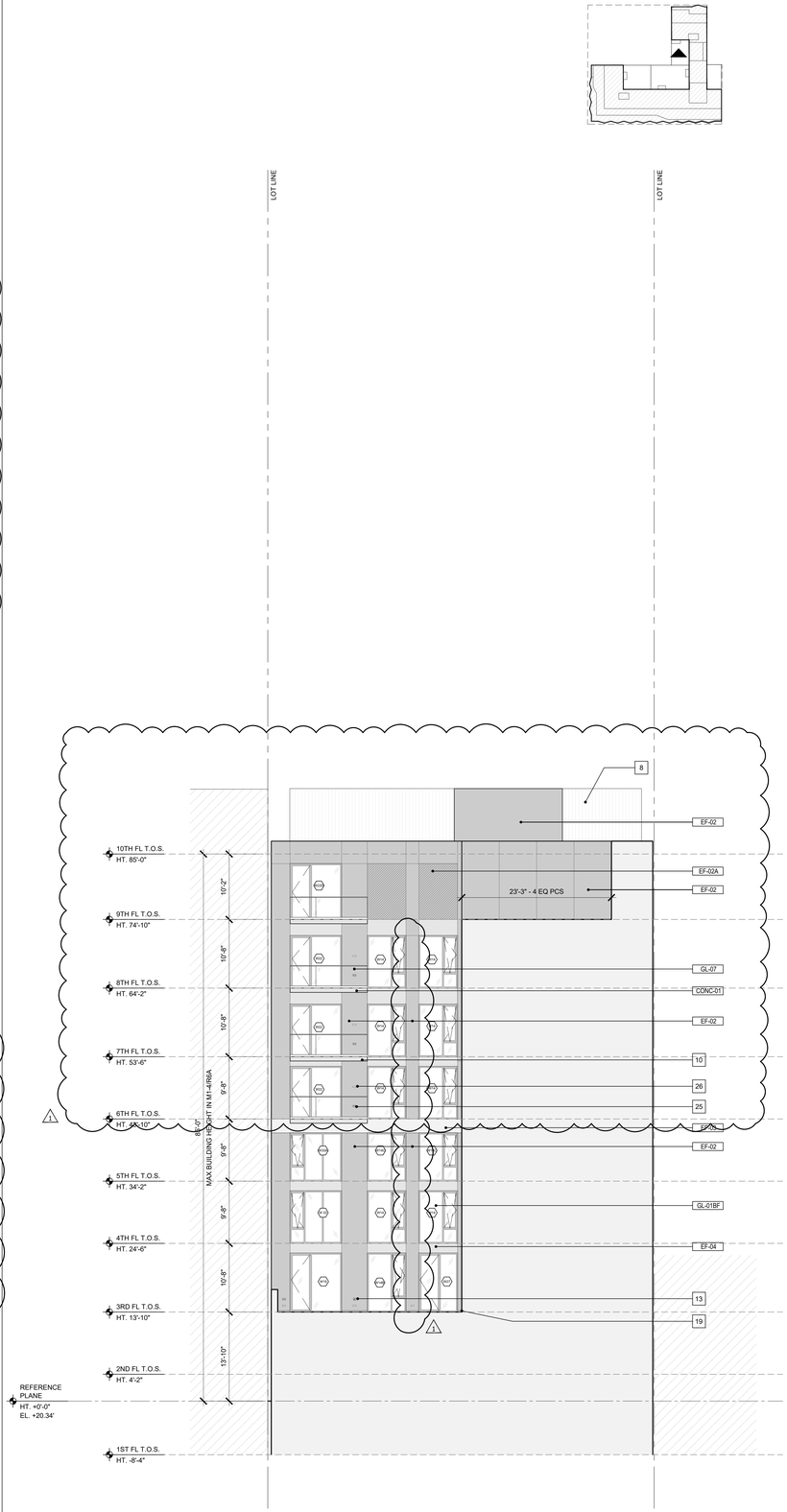


2 INNER COURTYARD EAST ELEVATION

SCALE: 1/8" = 1'-0"



1 INNER COURTYARD SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

LEGEND

XX-0	MATERIALS TAG
0	KEYED NOTES
W0	WINDOW TAG
D	DOOR TAG

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE +0'-0" = EL. +20.34' (NAVD 88)
2. SEE A-400S FOR TYPICAL WALL TYPES
3. FAÇADE GLASS, GLASS RAILINGS, AND OTHER EXTERIOR GLASS SHALL COMPLY WITH AMENDMENTS TO THE NEW YORK CITY BUILDING CODE (CODE) MANDATED BY LOCAL LAW 15 OF 2020. BIRD FRIENDLY GLASS SHALL MEET THE DEFINITION OF BIRD FRIENDLY MATERIAL AS DEFINED BY CODE. EXCEPTIONS TO BIRD FRIENDLY MATERIALS CAN BE FOLLOWED PER LOCAL LAW 15/2020.
4. SEE RCP AND ELEC. DWGS FOR EXTERIOR LIGHTING FIXTURE LOCATIONS. SEE LOW VOLTAGE DWGS FOR INTERCOMS AND SECURITY CAMERAS
5. SEE MEP. DWGS FOR EXTERIOR WALL PENETRATIONS. LOUVER LOCATIONS TO BE COORDINATED WITH MECH. DWGS
6. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE

KEY NOTES LEGEND

1. TYP. WINDOW WALL SYSTEM - SEE 400S FOR DETAILS
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3. EXTRUDED ALUM. WINDOW SHROUD, CONTRACTOR TO PROVIDE SHOP DWGS AND CALCULATIONS FOR SHROUD PROFILES AND ATTACHMENT, TYP
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9. NEIGHBORING BUILDINGS
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11. PAINTED METAL COPING FOR EIFS, SEE A-400S
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18. MECHANICAL LOUVERS, REFER TO MECHANICAL DRAWINGS FOR DETAILS
19. 2 1/2" METAL BASE
20. RYTEC LOW HEADROOM ROLL UP GARAGE DOOR
21. METAL RAILING, 3'-6" AFF WITH EDGE PROTECTION
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27. CONCRETE FORMWORK JOINTS
28. SECURITY CAMERAS MOUNTED ON CONCRETE, COORDINATE CONDUIT RUNS THROUGH CONCRETE. SEE RCPS FOR LOCATION. SEE LOW VOLTAGE DWGS FOR SPECS. FINISH LIGHT GREY TO MATCH CONCRETE.
29. ARCHITECTURAL EXPOSED CONCRETE ELEMENTS. SEE A-445, A-446, AND A-447 FOR AXON DRAWINGS

MATERIALS LEGEND

CONC–01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC–02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC–03	EXPOSED BOARD FORMED CONCRETE
MT–01	PTD METAL PANEL COLOR TBD
MT–01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT–02	PTD METAL PANEL COLOR TBD
MT–02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT–03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT–03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT–04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT–04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT–05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT–06	PERFORATED METAL LOUVER, COLOR TBD
MT–07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF–01	9" EIFS, COLOR TO MATCH MT-01
EF–01A	6" EIFS, COLOR TO MATCH MT-01
EF–01B	4" EIFS, COLOR TO MATCH MT-01
EF–02	9" EIFS, COLOR TO MATCH MT-02
EF–02A	6" EIFS, COLOR TO MATCH MT-02
EF–03	9" EIFS, COLOR TO MATCH CONC-01
EF–04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST–01	STOREFRONT STONE BASE, GRANITE, GREY
GL–01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL–01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL–02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL–02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL–03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL–03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL–04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL–04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL–05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL–06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL–07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST–01	STONE BASE

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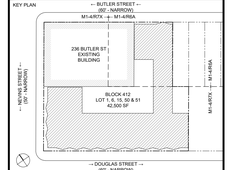
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

BUILDING ELEVATIONS - COURTYARD SOUTH & EAST

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-306.00

CADD FILE No.:

99 OF 175

251 DOUGLASS STREET
FOGARTY FINGER ARCHITECTURE
10.07.2022
100% CONSTRUCTION DOCUMENTS

EXTERIOR FINISH SCHEDULE

GENERAL NOTES

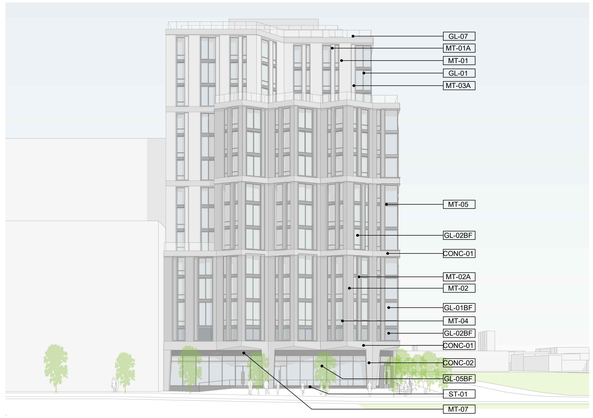
1. In all instances whether noted or not, this schedule is supplimented by corresponding written project specifications
2. Locations identified in this schedule are not exhaustive - see plans & elevations for complete information on locations of materials
3. Provide mockup for exposed concrete finish and shape for architect's approval prior to installation

TAG	DESCRIPTION		LOCATION	COLOR/ FINISH
PRECAST CONCRETE				
CONC-01	Thermally broken exposed cast in place concrete slab edge		See elevations	Mock up required for architect approval. Color TBD. Coordinate pour joints with elevations.
CONC-02	Thermally broken cast in place concrete panel		See elevations	Mock up required for architect approval. Color to match conc-01. Coordinate pour joints with elevations.
CONC-03	Cast in place board formed concrete		See elevations	Mock up required for architect approval. Color to match conc-01. 3" wide timber form boards. See drawing A-411.
EIFS & XPS				
EF-01	6" EIFS system, STO or equal.		See elevations	Color to match MT-01 in fine sand finish; Submit samples for Architect's Approval;
EF-01A	6" EIFS system, STO or equal.		See elevations	Color to match MT-01 in fine sand finish; Submit samples for Architect's Approval;
EF-01B	4" EIFS system, STO or equal.		See elevations	Color to match MT-01 in fine sand finish; Submit samples for Architect's Approval;
EF-02	9" EIFS system, STO or equal.		See elevations	Color to match MT-02 in fine sand finish; Submit samples for Architect's Approval;
EF-02A	6" EIFS system, STO or equal.		See elevations	Color to match MT-02 in fine sand finish; Submit samples for Architect's Approval;
EF-03	9" EIFS system, STO or equal.		See elevations	Color to match CONC-01 in fine sand finish; Submit samples for Architect's Approval;
EF-04	6" EIFS system, STO or equal.		See elevations	Color to match window frames in fine sand finish; Submit samples for Architect's Approval;
XP-1	XPS exterior insulation		Lot Line Wall	N/A
METAL				
MT-01	Painted dimpled metal panel, 3mm thick Dimples: 1" diameter, 1/4" deep Pattern: stacked @ 5" o.c.		See elevations	Color to match Alucobond Silver Metallic, Finish metallic, Gloss 25-35; Submit samples for Architect's Approval;
MT-01A	Painted flat metal panel, 3mm thick		See elevations	Color to match MT-01; Submit samples for Architect's Approval;
MT-02	Painted dimpled metal panel, 3mm thick Dimples: 1" diameter, 1/4" deep Pattern: stacked @ 5" o.c.		See elevations	Color to match Alucobond Serpentine Metallic, Finish metallic, Gloss 5-10; Submit samples for Architect's Approval;
MT-02A	Painted flat metal panel, 3mm thick		See elevations	Color to match MT-02; Submit samples for Architect's Approval;
MT-03	12" Painted extruded metal window shroud		See elevations	Color to match MT-01; Submit samples for Architect's Approval;
MT-03A	9" Painted extruded metal window shroud		Set back locations only. See elevations.	Color to match MT-01; Submit samples for Architect's Approval;
MT-04	12" Painted extruded metal window shroud		See elevations	Colour to match MT-02; Submit samples for Architect's Approval;
MT-04A	9" Painted extruded metal window shroud		Set back locations only. See elevations.	Colour to match MT-02; Submit samples for Architect's Approval;
MT-05	Painted metal slab edge cover		See elevations	Color to match window frames; Submit samples for Architect's Approval;
MT-06	Perforated metal louver C/S PL-5800 or equal		See elevations	Color TBD; Submit samples for Architect's Approval;
MT-07	Architectural metal louvres		See elevations	Finish to match storefron system; Submit samples for Architect's Approval;
STONE				
ST-01	Stone Base, Granite		See elevations	Dark Grey, Submit samples for Architect's Approval;
GLAZING				
GL-01	1 1/4" I.G.U. Vision Exterior Lite: Air space: Interior Lite:	OITC 31 min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	9th floor and above	Refer to energy sheets, window schedules and specs. Glass colour SNX 51/23 on clear; Submit samples for Architect's Approval;
GL-01BF	1 1/4" I.G.U. Vision Bird Friendly Exterior Lite: Air space: Interior Lite:	OITC 31 min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating guardian bird 1st with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	8th floor and below	Refer to energy sheets, window schedules and specs. Glass colour SNX 51/23 on clear; Submit samples for Architect's Approval; G.C. to price the following options as alts: 1. Acid Etched, 2. Ceranic Frit
GL-02	1 1/4" I.G.U. Spandrel Exterior Lite: Air space: Interior Lite:	OITC 31 min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	9th floor and above	See GL-01, back-painted glass color to match; Submit samples for Architect's Approval;
GL-02BF	1 1/4" I.G.U. Spandrel Bird Friendly Exterior Lite: Air space: Interior Lite:	OITC 31 min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating guardian bird 1st with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	8th floor and below	See GL-01BF, back-painted glass color to match; Submit samples for Architect's Approval; G.C. to price the following options as alts: 1. Acid Etched, 2. Ceranic Frit
GL-03	1 1/4" I.G.U. Storefront Exterior Lite: Air space: Interior Lite:	OITC 31 min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	9th floor and above	Refer to energy sheets, window schedules and specs. Glass colour SNX 51/23 on clear; Submit samples for Architect's Approval;
GL-03BF	1 1/4" I.G.U. Storefront Bird Friendly Exterior Lite: Air space: Interior Lite:	OITC 26.31* min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	8th floor and below	Refer to energy sheets, window schedules and specs. Glass colour SNX 51/23 on clear; Submit samples for Architect's Approval;
GL-04	1 1/4" I.G.U. Storefront Spandrel Exterior Lite: Air space: Interior Lite:	OITC 31 min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	9th floor and above	See GL-03, back-painted glass color to match; Submit samples for Architect's Approval;
GL-04BF	1 1/4" I.G.U. Storefront Spandrel Bird Friendly Exterior Lite: Air space: Interior Lite:	OITC 26.31* min. 1/2" thk. laminated heat strenghtened or fully tempered**, low-e coating guardian bird 1st with SNX 62/27 on #4 1/2" 1/4" thk. heat strengthened or fully tempered**	8th floor and below	See GL-03, back-painted glass color to match; Submit samples for Architect's Approval;
GL-05BF	Flood Proof Storefront Visual I.G.U. Bird Friendly	OITC 26 min. 1/2" thk.*** laminated fully tempered**, low-e coating guardian bird 1st with SNX 62/27 on #4 1/2" 1/4" thk. fully tempered**	Ground floor	Refer to energy sheets, window scheuldes and specs. Glass colour TBD; Submit samples for Architect's Approval;
GL-06BF	Flood Proof Storefront Spandrel I.G.U. Bird Friendly	OITC 26 min. 1/2" thk.*** laminated fully tempered**, low-e coating guardian bird 1st with SNX 62/27 on #4 1/2" 1/4" thk. fully tempered**	Ground floor	See GL-05, back-painted glass color to match; Submit samples for Architect's Approval;
GL-07BF	Laminated Glass Railing Bird Friendly	9/16" laminated glass with bird friendly UV coating	See elevations	
ROOF ASSEMBLY				
RT-01	Cold-Fluid Applied IRMA System w/ Paver		Tenant occupied terrace and amenity roof	Concrete pavers for tenant terraces , color and finish TBD; See landscape drawings for pavers on amenity roofs; Submit samples for Architect's Approval;
RT-02	SBS Modified Bitumen Built-up Roofing Membrane Assembly		Non occupied terrace and bulkhead roof	N/A

* OITC 31 for all residential spaces, OITC 26 for commercial spaces
** Fully tempered safety glass only where required per NYC BC section 2406.4, typ.
*** Flood proof glass thickness to be engineered by contractor to meet required loads.

1 EXTERIOR FINISH SCHEDULE
SCALE: N.T.S.

2 DOUGLASS STREET VIEW (FOR REFERENCE ONLY)
SCALE: N.T.S.



3 NEVINS STREET VIEW (FOR REFERENCE ONLY)
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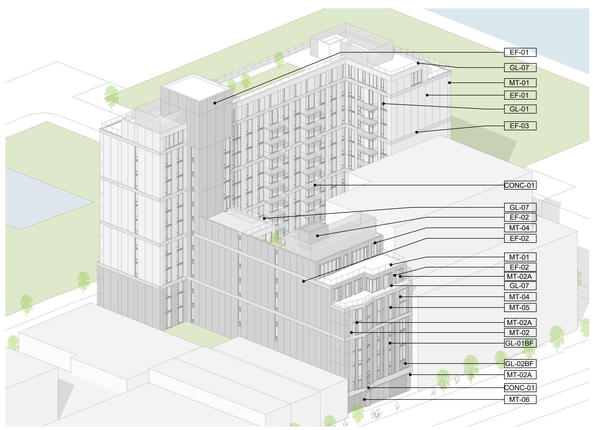

4 BUTLER STREET VIEW (FOR REFERENCE ONLY)
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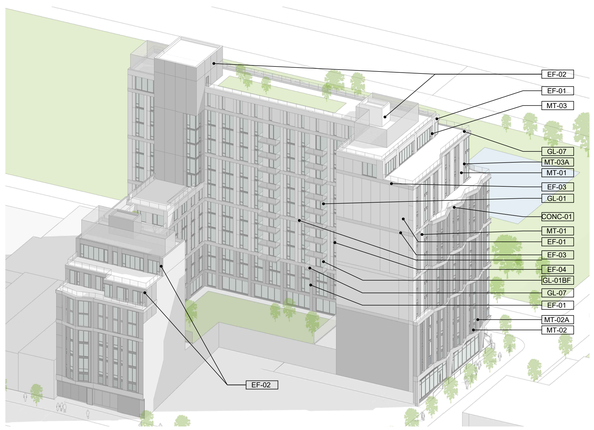

5 COURTYARD VIEW (FOR REFERENCE ONLY)
SCALE: N.T.S.

LEGEND

- XX-0 — MATERIALS TAG
- 0 — KEYED NOTES
- W0 — WINDOW TAG
- 0 — DOOR TAG

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- MT-06 — PERFORATED METAL LOUVER, COLOR TBD
- MT-07 — METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
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- EF-01A — 6" EIFS, COLOR TO MATCH MT-01
- EF-01B — 4" EIFS, COLOR TO MATCH MT-01
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- EF-02A — 6" EIFS, COLOR TO MATCH MT-02
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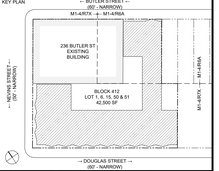
LANDSCAPE
GRAIN COLLECTIVE
339 DOUGLASS STR, SUITE 1
BROOKLYN, NY 11217

GEOTECH
GEOTECHNICAL ENGINEERING SERVICES
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

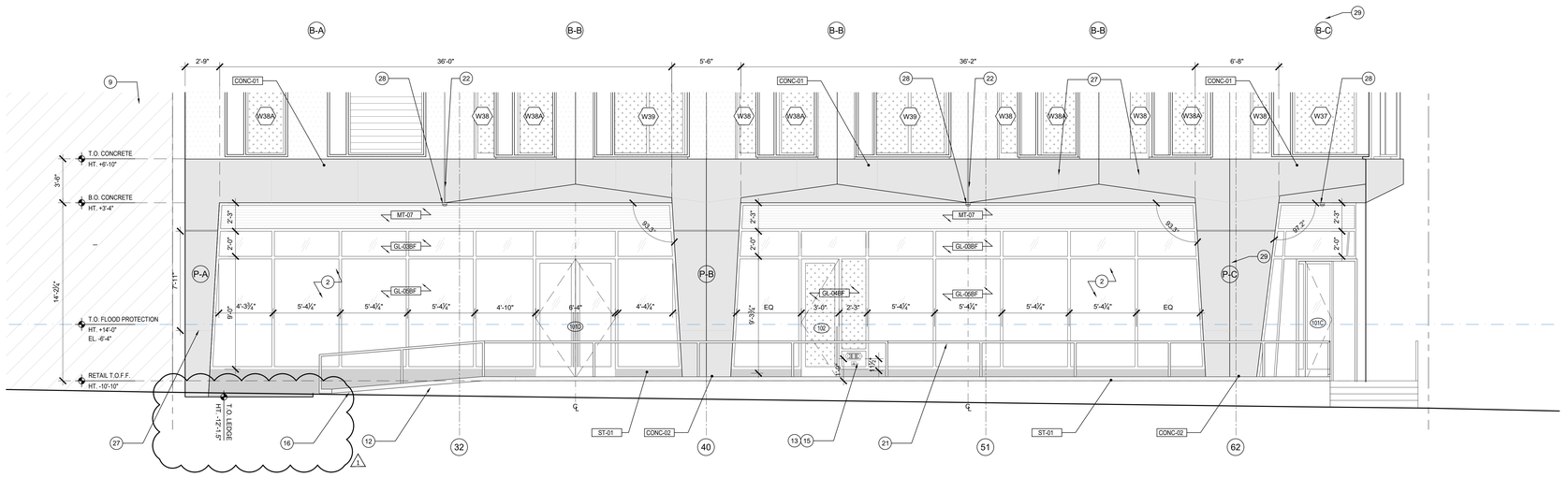
DRAWING TITLE
EXTERIOR FINISH SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

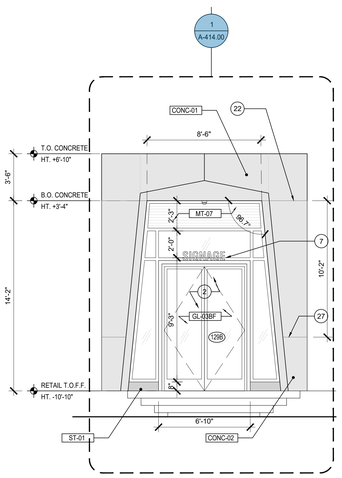
A-310.00

CADD FILE No.:
100 OF 175



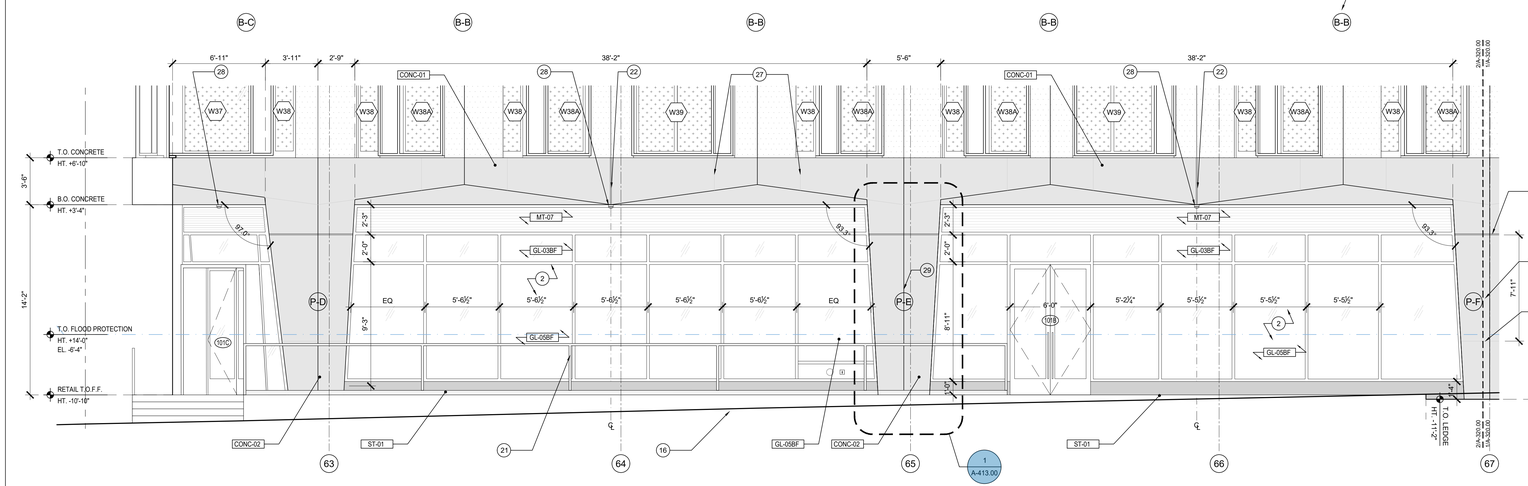
4 ENLARGED STOREFRONT ELEVATION - NEVINS ST

SCALE: 1/4" = 1'-0"



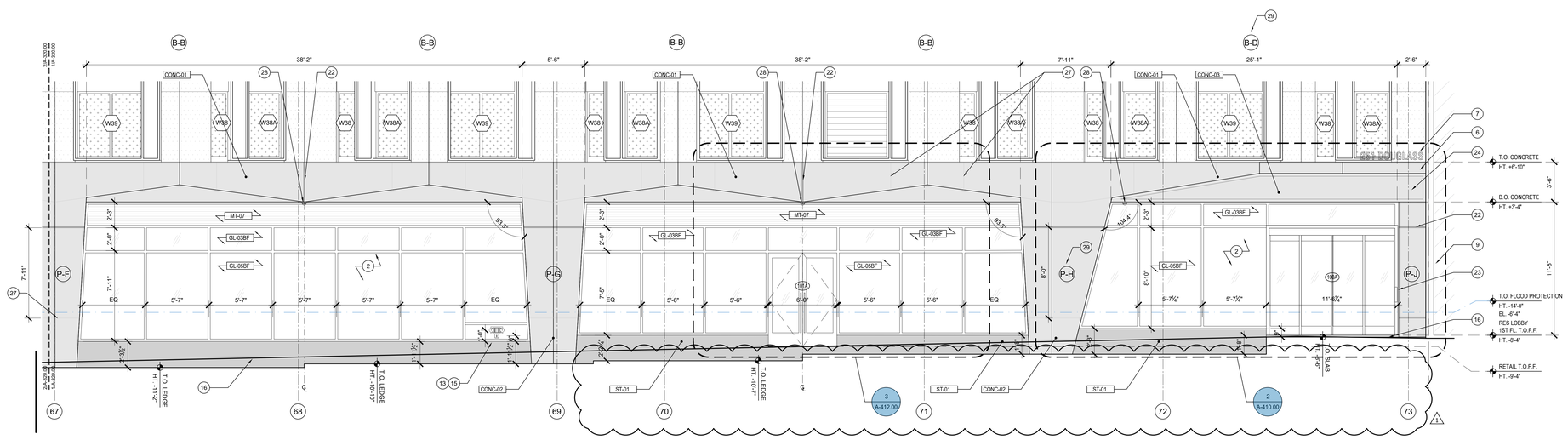
3 ENLARGED STOREFRONT ELEVATION - CORNER

SCALE: 1/4" = 1'-0"



2 ENLARGED STOREFRONT ELEVATION - DOUGLASS ST

SCALE: 1/4" = 1'-0"



1 ENLARGED STOREFRONT ELEVATION - DOUGLASS ST

SCALE: 1/4" = 1'-0"

LEGEND

XX-0	MATERIALS TAG
0	KEYED NOTES
W0	WINDOW TAG
0	DOOR TAG

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE +0'-0" = EL. +20.34' (NAVD 88)
2. SEE A-400S FOR TYPICAL WALL TYPES
3. FAÇADE GLASS, GLASS RAILINGS, AND OTHER EXTERIOR GLASS SHALL COMPLY WITH AMENDMENTS TO THE NEW YORK CITY BUILDING CODE (CODE) MANDATED BY LOCAL LAW 15 OF 2020. BIRD FRIENDLY GLASS SHALL MEET THE DEFINITION OF BIRD FRIENDLY MATERIAL AS DEFINED BY CODE. EXCEPTIONS TO BIRD FRIENDLY MATERIALS CAN BE FOLLOWED PER LOCAL LAW 15/2020.
4. SEE RCP AND ELEC. DWGS FOR EXTERIOR LIGHTING FIXTURE LOCATIONS. SEE LOW VOLTAGE DWGS FOR INTERCOMS AND SECURITY CAMERAS
5. SEE MEP. DWGS FOR EXTERIOR WALL PENETRATIONS. LOUVER LOCATIONS TO BE COORDINATED WITH MECH. DWGS
6. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE

KEY NOTES LEGEND

1. TYP. WINDOW WALL SYSTEM - SEE 400S FOR DETAILS
2. STOREFRONT - FOUR SIDED STRUCTURAL SILICONE SYSTEM, KAWNEER 1600 AS DESIGN BASIS, INCLUDING FOOD BARRIER GLAZING SYSTEM.
3. EXTRUDED ALUM. WINDOW SHROUD, CONTRACTOR TO PROVIDE SHOP DWGS AND CALCULATIONS FOR SHROUD PROFILES AND ATTACHMENT, TYP
4. LAMINATED GLASS RAILING (BIRD-FRIENDLY), 3'-6" AFF
5. OSHA RAILING, 3'-6" AFF
6. INTERNALLY DRAINED CANOPY SEE A-411.00
7. SIGNAGE, CNC CUT METAL, FINISH TBD
8. MECHANICAL SCREENING
9. NEIGHBORING BUILDINGS
10. BALCONY
11. PAINTED METAL COPING FOR EIFS, SEE A-400S
12. 1:12 RAMP
13. HOSE BIB, SEE PLANS AND PLUMBING DWGS
14. SCUPPER, SEE PLUMBING DWGS
15. COMBINED STANDPIPE AND SPRINKLER FIRE DEPARTMENT CONNECTION, SEE FIRE PROTECTION DWGS
16. CM TO COORDINATE BASE HEIGHT AND DETAIL W/ ADJ. CURB, GRADE AND ETC.
17. LADDER
18. MECHANICAL LOUVERS, REFER TO MECHANICAL DRAWINGS FOR DETAILS
19. 2 1/2" METAL BASE
20. RYTEC LOW HEADROOM ROLL UP GARAGE DOOR
21. METAL RAILING, 3'-6" AFF WITH EDGE PROTECTION
22. CONCRETE JOINT LINES
23. RECESSED VIDEO INTERCOM SYSTEM
24. BOARD MARK CONCRETE
25. WEATHER PROOF RECEPTABLE. SEE ELEC DWGS AND A-400,401,402,403 FOR TYP MOUNTING HEIGHTS
26. EXTERNAL LIGHTING ON TERRACES. SEE ELEC DWGS AND A-400,401,402,403 FOR TYP MOUNTING HEIGHTS
27. CONCRETE FORMWORK JOINTS
28. SECURITY CAMERAS MOUNTED ON CONCRETE, COORDINATE CONDUIT RUNS THROUGH CONCRETE. SEE RCPS FOR LOCATION. SEE LOW VOLTAGE DWGS FOR SPECS. FINISH LIGHT GREY TO MATCH CONCRETE.
29. ARCHITECTURAL EXPOSED CONCRETE ELEMENTS. SEE A-445, A-446, AND A-447 FOR AXON DRAWINGS

MATERIALS LEGEND

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT-05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT-06	PERFORATED METAL LOUVER, COLOR TBD
MT-07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF-01	9" EIFS, COLOR TO MATCH MT-01
EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
EF-03	9" EIFS, COLOR TO MATCH CONC-01
EF-04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST-01	STOREFRONT STONE BASE, GRANITE, GREY
GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL-01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

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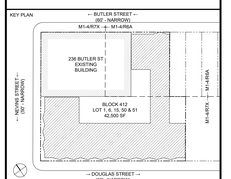

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PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

ENLARGED ELEVATIONS - STOREFRONT

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-320.00

CADD FILE No.:
101 OF 175

LEGEND

- XX-0 — MATERIALS TAG
- 0 — KEYED NOTES
- W0 — WINDOW TAG
- D — DOOR TAG

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	MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
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	EF-01	9" EIFS, COLOR TO MATCH MT-01
	EF-01A	6" EIFS, COLOR TO MATCH MT-01
	EF-01B	4" EIFS, COLOR TO MATCH MT-01
	EF-02	9" EIFS, COLOR TO MATCH MT-02
	EF-02A	6" EIFS, COLOR TO MATCH MT-02
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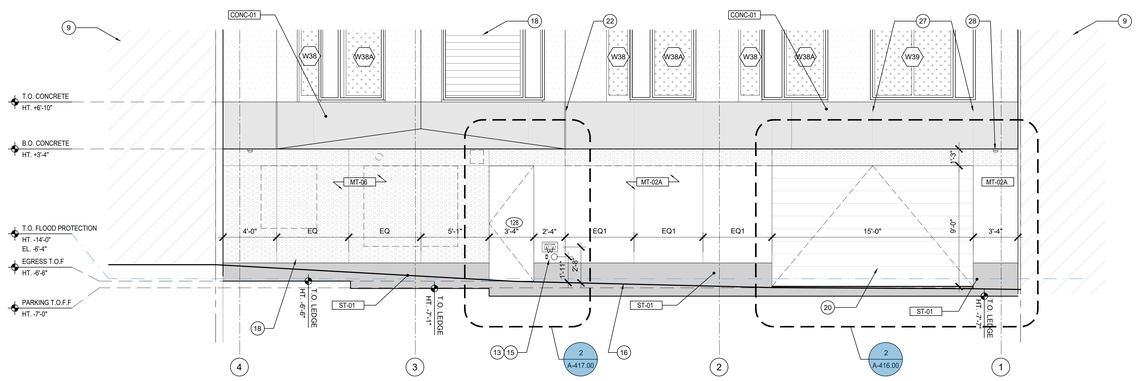
	GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
	GL-01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
	GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
	GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
	GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
	GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
	GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
	GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
	GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
	GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
	GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
	XPS	EXPOSED XPS RIGID INSULATION
	ST-01	STONE BASE



1 ENLARGED STOREFRONT ELEVATION - BUTLER ST

SCALE: 1/4" = 1'-0"

CLIENT
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LONG ISLAND CITY, NY 11101

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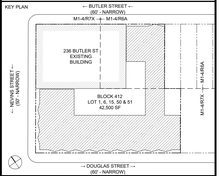

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DRAWING TITLE

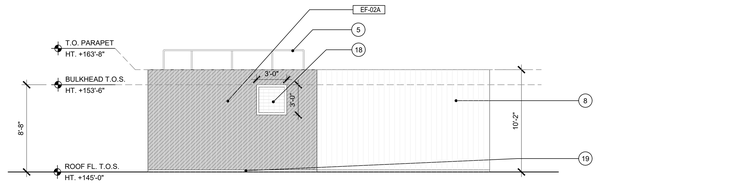
ENLARGED ELEVATIONS - STOREFRONT

SEAL & SIGNATURE

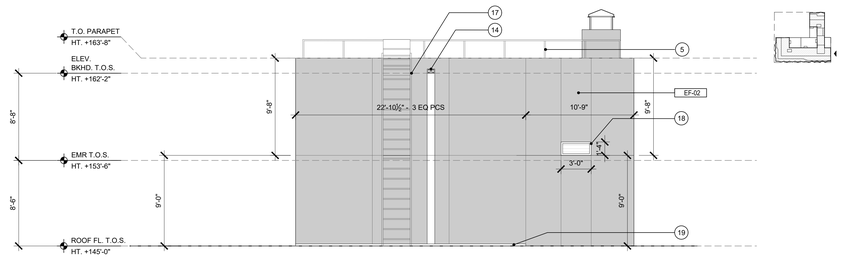
DATE (MM-DD-YY):	2024-11-05
PROJECT No.:	TAV_251 DOUGLASS ST
DRAWING BY:	FFA
CHK BY:	FFA

A-321.00

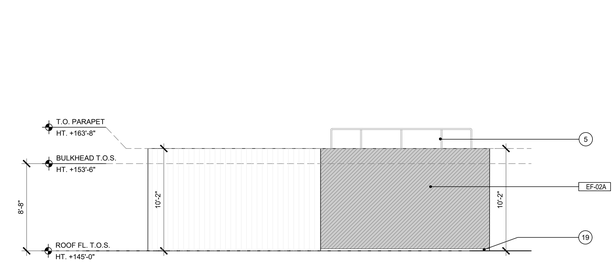
CADD FILE No.:



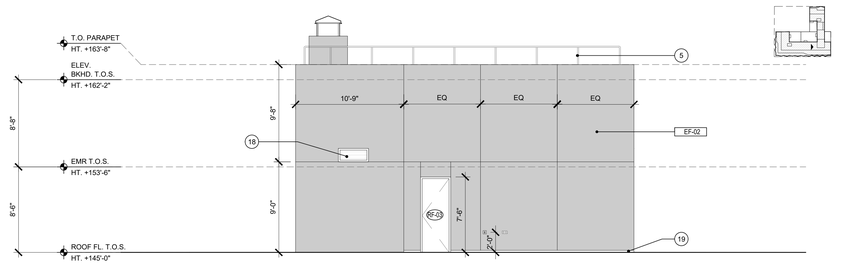
8 NORTH ELEVATION - STAIR A BULKHEAD
SCALE: 3/16" = 1'-0"



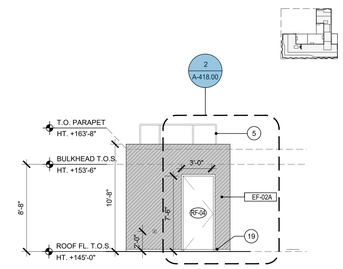
7 EAST ELEVATION - ELEVATOR BULKHEAD
SCALE: 3/16" = 1'-0"



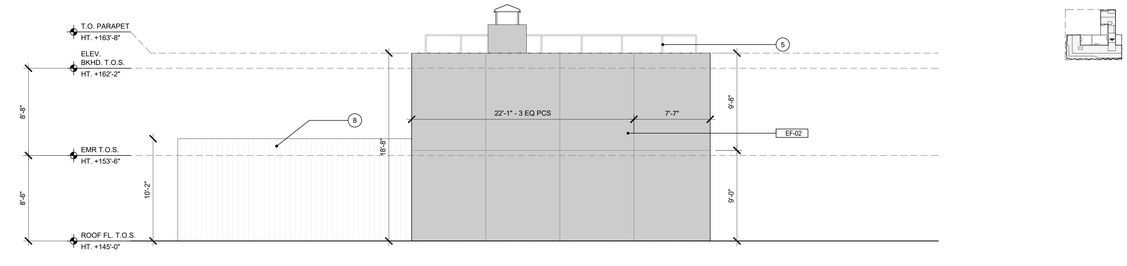
6 SOUTH ELEVATION - STAIR A BULKHEAD
SCALE: 3/16" = 1'-0"



5 WEST ELEVATION - ELEVATOR BULKHEAD
SCALE: 3/16" = 1'-0"



4 EAST ELEVATION - STAIR A BULKHEAD
SCALE: 3/16" = 1'-0"



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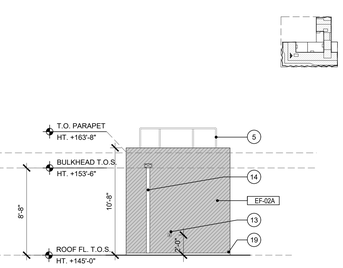
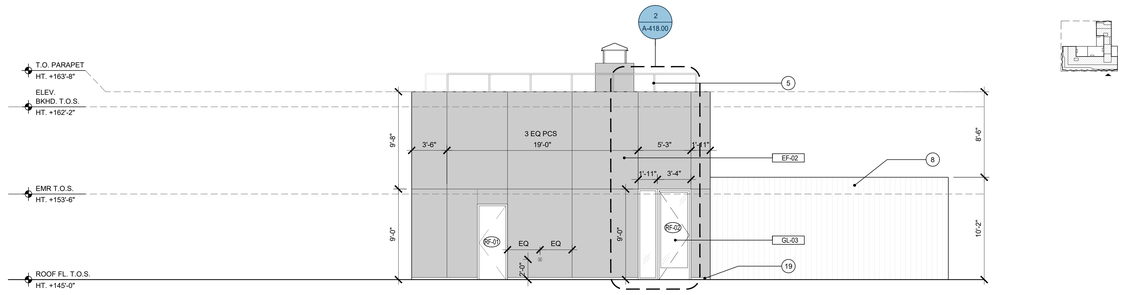
SCALE: 3/16" = 1'-0"



2 WEST ELEVATION - STAIR A BULKHEAD
SCALE: 3/16" = 1'-0"



1 SOUTH ELEVATION - ELEVATOR BULKHEAD
SCALE: 3/16" = 1'-0"

LEGEND

XX-0	MATERIALS TAG
0	KEYED NOTES
W0	WINDOW TAG
D	DOOR TAG

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE +0'-0" = EL. +20.34' (NAVD 88)
2. SEE A-400S FOR TYPICAL WALL TYPES
3. FACADE GLASS, GLASS RAILINGS, AND OTHER EXTERIOR GLASS SHALL COMPLY WITH AMENDMENTS TO THE NEW YORK CITY BUILDING CODE (CODE) MANDATED BY LOCAL LAW 15 OF 2020. BIRD FRIENDLY GLASS SHALL MEET THE DEFINITION OF BIRD FRIENDLY MATERIAL AS DEFINED BY CODE. EXCEPTIONS TO BIRD FRIENDLY MATERIALS CAN BE FOLLOWED PER LOCAL LAW 15/2020.
4. SEE RCP AND ELEC. DWGS FOR EXTERIOR LIGHTING FIXTURE LOCATIONS. SEE LOW VOLTAGE DWGS FOR INTERCOMS AND SECURITY CAMERAS
5. SEE MEP. DWGS FOR EXTERIOR WALL PENETRATIONS. LOUVER LOCATIONS TO BE COORDINATED WITH MECH. DWGS
6. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE

KEY NOTES LEGEND

1. TYP. WINDOW WALL SYSTEM - SEE 400S FOR DETAILS
2. STOREFRONT - FOUR SIDED STRUCTURAL SILICONE SYSTEM, KAWNEER 1600 AS DESIGN BASIS, INCLUDING FOOD BARRIER GLAZING SYSTEM.
3. EXTRUDED ALUM. WINDOW SHROUD, CONTRACTOR TO PROVIDE SHOP DWGS AND CALCULATIONS FOR SHROUD PROFILES AND ATTACHMENT, TYP
4. LAMINATED GLASS RAILING (BIRD-FRIENDLY), 3'-6" AFF
5. OSHA RAILING, 3'-6" AFF
6. INTERNALLY DRAINED CANOPY SEE A-411.00
7. SIGNAGE, CNC CUT METAL, FINISH TBD
8. MECHANICAL SCREENING
9. NEIGHBORING BUILDINGS
10. BALCONY
11. PAINTED METAL COPING FOR EIFS, SEE A-400S
12. 1:12 RAMP
13. HOSE BIB, SEE PLANS AND PLUMBING DWGS
14. SCUPPER, SEE PLUMBING DWGS
15. COMBINED STANDPIPE AND SPRINKLER FIRE DEPARTMENT CONNECTION, SEE FIRE PROTECTION DWGS
16. CM TO COORDINATE BASE HEIGHT AND DETAIL W/ ADJ. CURB, GRADE AND ETC.
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18. MECHANICAL LOUVERS, REFER TO MECHANICAL DRAWINGS FOR DETAILS
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22. CONCRETE JOINT LINES
23. RECESSED VIDEO INTERCOM SYSTEM
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29. ARCHITECTURAL EXPOSED CONCRETE ELEMENTS. SEE A-445, A-446, AND A-447 FOR AXON DRAWINGS

MATERIALS LEGEND

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT-05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT-06	PERFORATED METAL LOUVER, COLOR TBD
MT-07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF-01	9" EIFS, COLOR TO MATCH MT-01
EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
EF-03	9" EIFS, COLOR TO MATCH CONC-01
EF-04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST-01	STOREFRONT STONE BASE, GRANITE, GREY
GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL-01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

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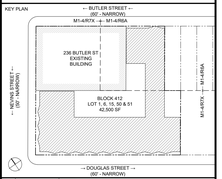
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

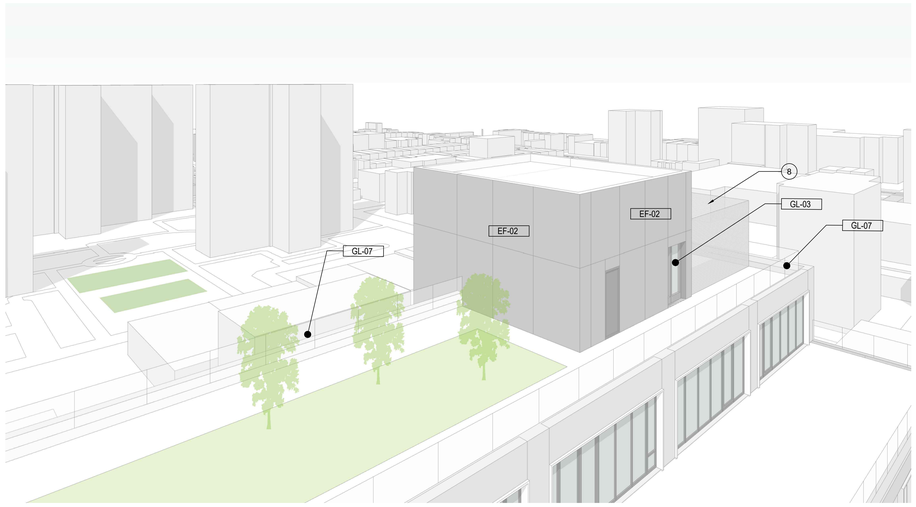
DRAWING TITLE
BULKHEAD ELEVATIONS

SEAL & SIGNATURE

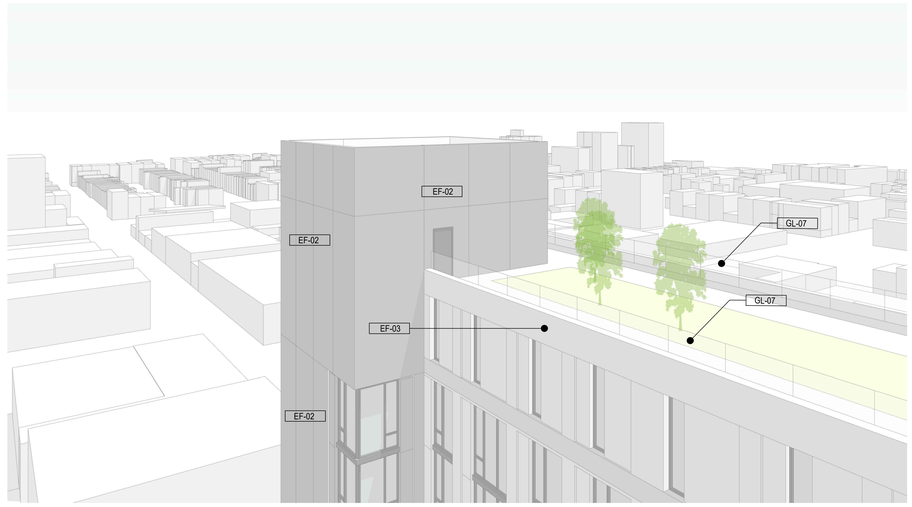
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-330.00

CADD FILE No.:
103 OF 175



1 3D VIEWS
SCALE: N.T.S.



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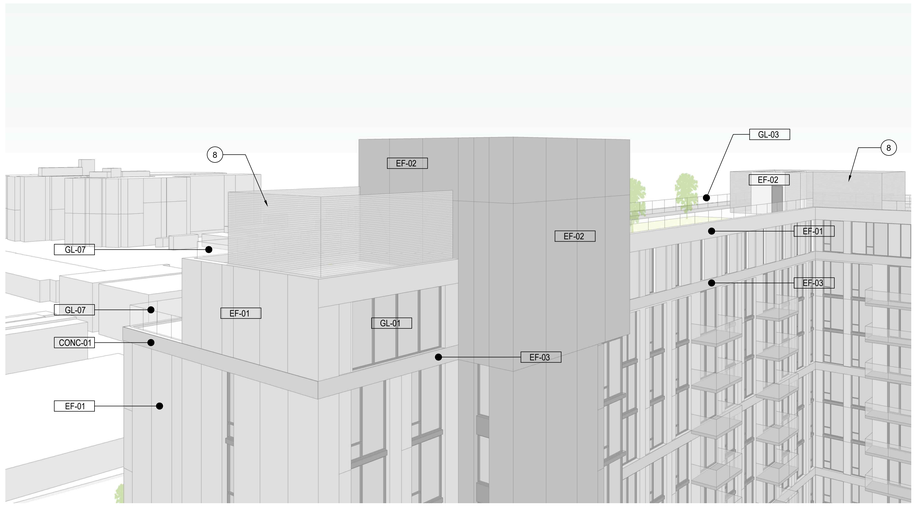
SCALE: N.T.S.



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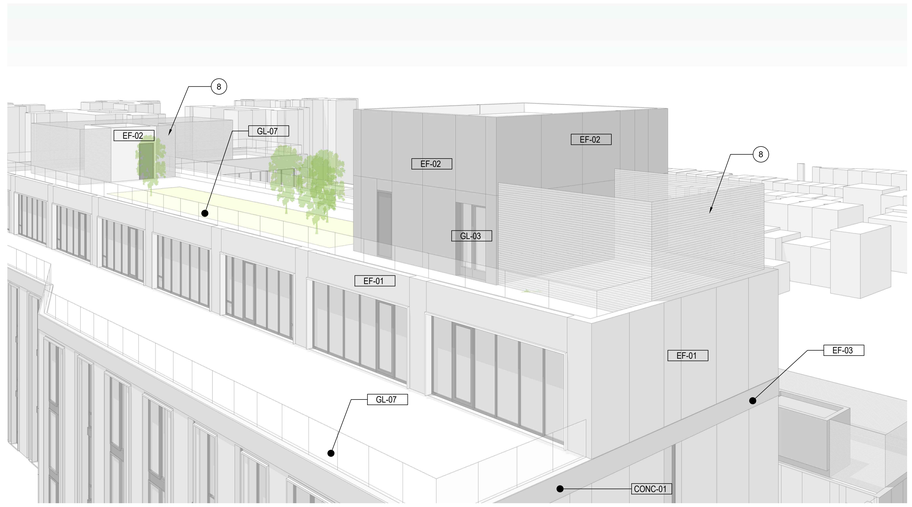

4 3D VIEWS
SCALE: N.T.S.

LEGEND

- XX-0 — MATERIALS TAG
- 0 — KEYED NOTES
- W0 — WINDOW TAG
- D — DOOR TAG

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CONC-03	EXPOSED BOARD FORMED CONCRETE
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MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
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EF-01A	6" EIFS, COLOR TO MATCH MT-01
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EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
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GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
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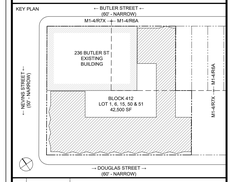
ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

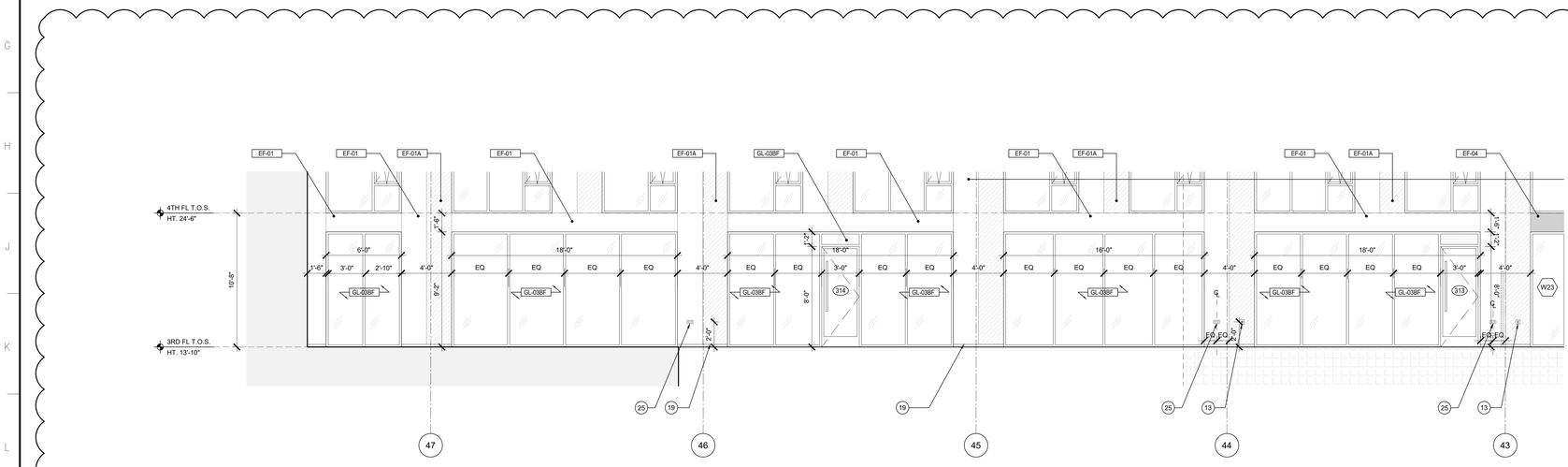
DRAWING TITLE
BULKHEAD VIEWS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

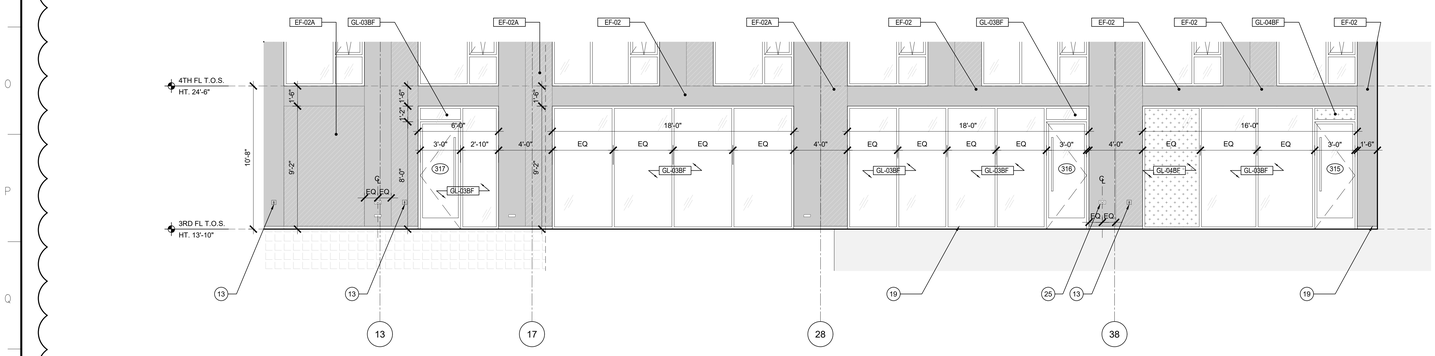
A-331.00

CADD FILE No.:
104 OF 175



2 INNER COURTYARD NORTH ELEVATION-3RD FLOOR

SCALE: 1/4" = 1'-0"



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- EF-01A — 6" EIFS, COLOR TO MATCH MT-01
- EF-01B — 4" EIFS, COLOR TO MATCH MT-01
- EF-02 — 9" EIFS, COLOR TO MATCH MT-02
- EF-02A — 6" EIFS, COLOR TO MATCH MT-02
- EF-03 — 9" EIFS, COLOR TO MATCH CONC-01
- EF-04 — 6" EIFS, COLOR TO MATCH WINDOW FRAME
- ST-01 — STOREFRONT STONE BASE, GRANITE, GREY
- GL-01 — VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
- GL-01BF — BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
- GL-02 — SPANDREL I.G.U. AT 9TH FL AND ABOVE
- GL-02BF — BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
- GL-03 — STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
- GL-03BF — BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-04 — SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
- GL-04BF — BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-05BF — BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
- GL-06BF — BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
- GL-07 — LAMINATED GLASS RAILING (BIRD FRIENDLY)
- XPS — EXPOSED XPS RIGID INSULATION
- ST-01 — STONE BASE

CLIENT

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5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
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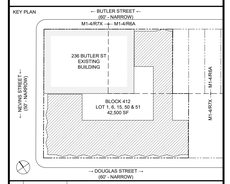
ACOUSTIC

KEY PLAN:



No.	DATE	ISSUE
08	11.08.2024	ENVELOPE PACKAGE DESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

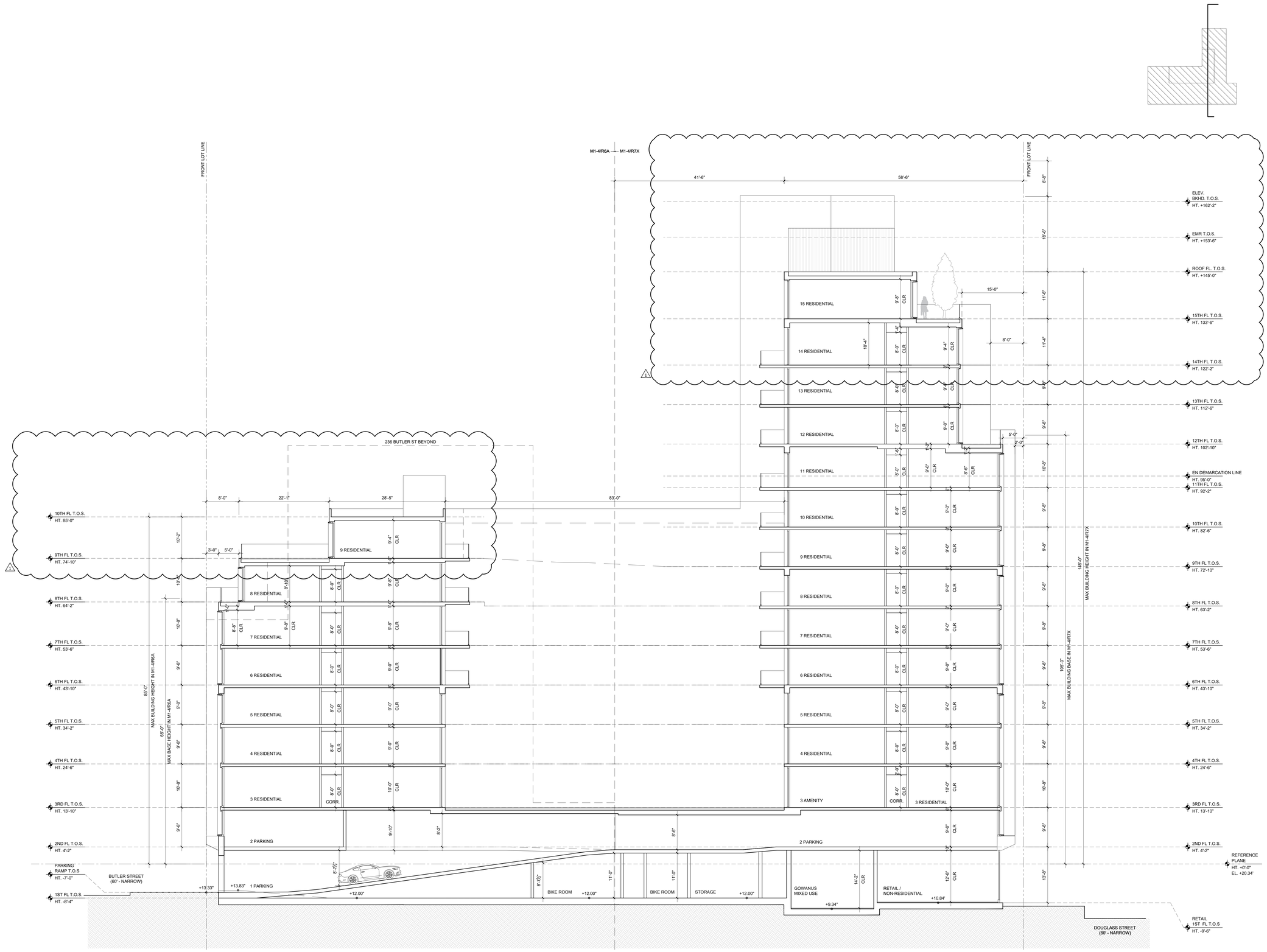
ENLARGED ELEVATIONS- AMENITY

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-340.00

CADD FILE No.:
105 OF 175



1 CROSS SECTION @ RETAIL
SCALE: 1/8" = 1'-0"

CLIENT
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5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

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CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
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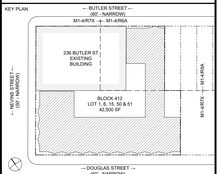
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.04.2024	ULE STRUCTURE PACKAGE
06	10.07.2022	100% CD ISSUANCE
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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

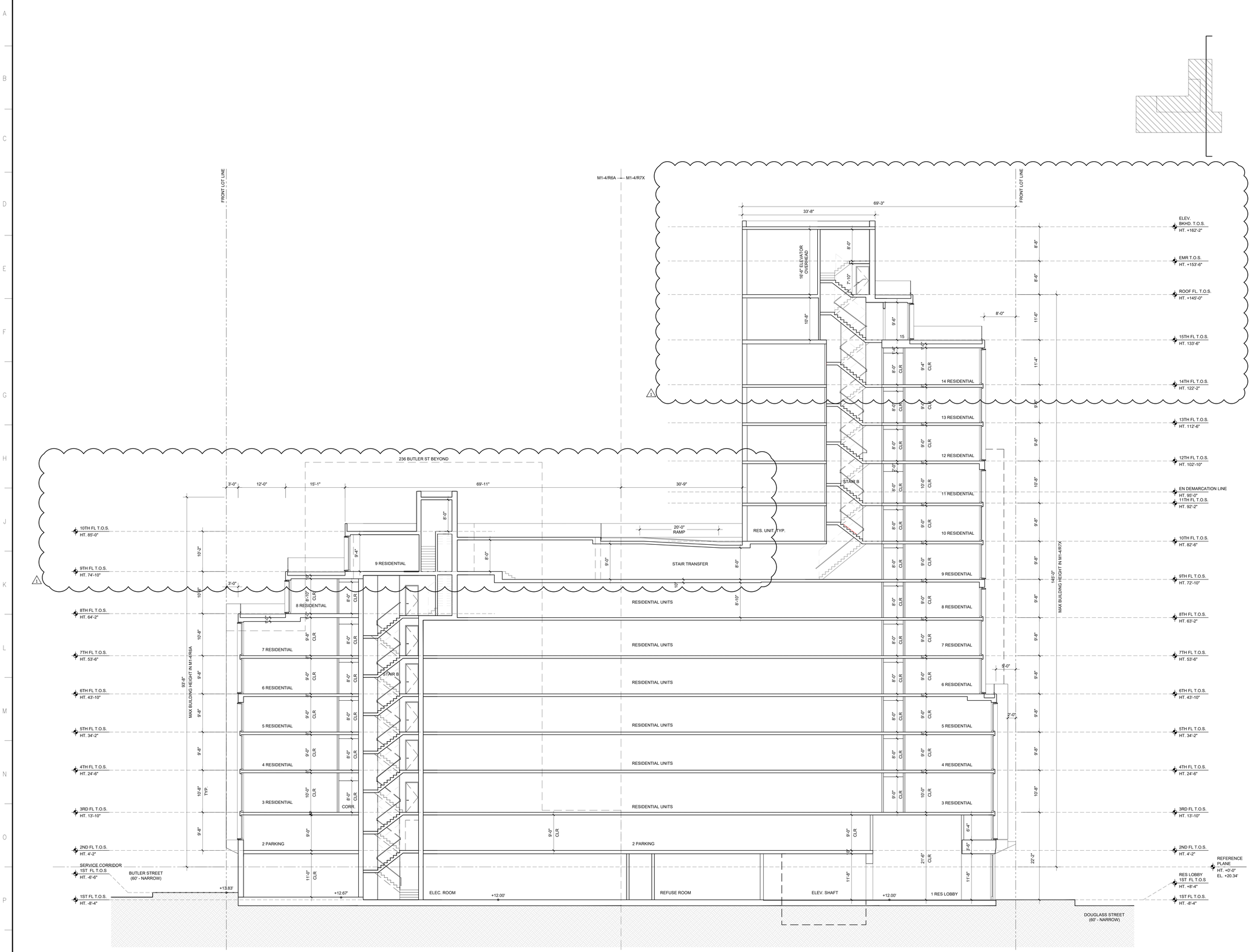
DRAWING TITLE
BUILDING SECTIONS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-350.00

CADD FILE No.:
106 OF 175



1 CROSS SECTION @ LOBBY
SCALE: 1/8" = 1'-0"

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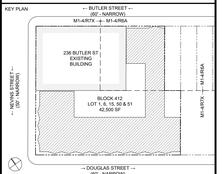

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
BUILDING SECTIONS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-351.00

CADD FILE No.:
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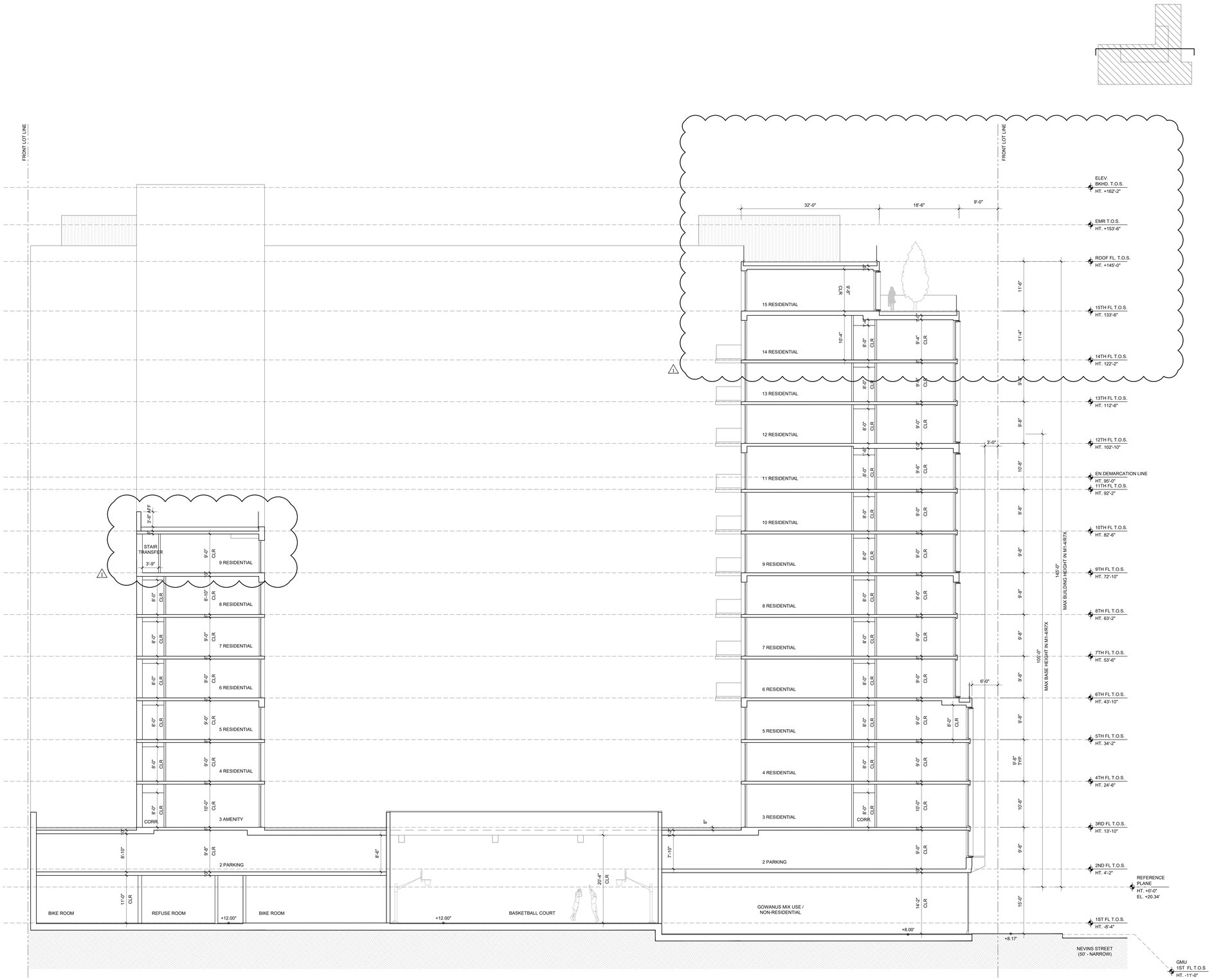
107 OF 175



1 CROSS SECTION @ NEVINS
SCALE: 1/8" = 1'-0"

CLIENT
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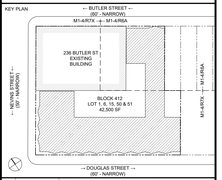

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
BUILDING SECTIONS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-352.00

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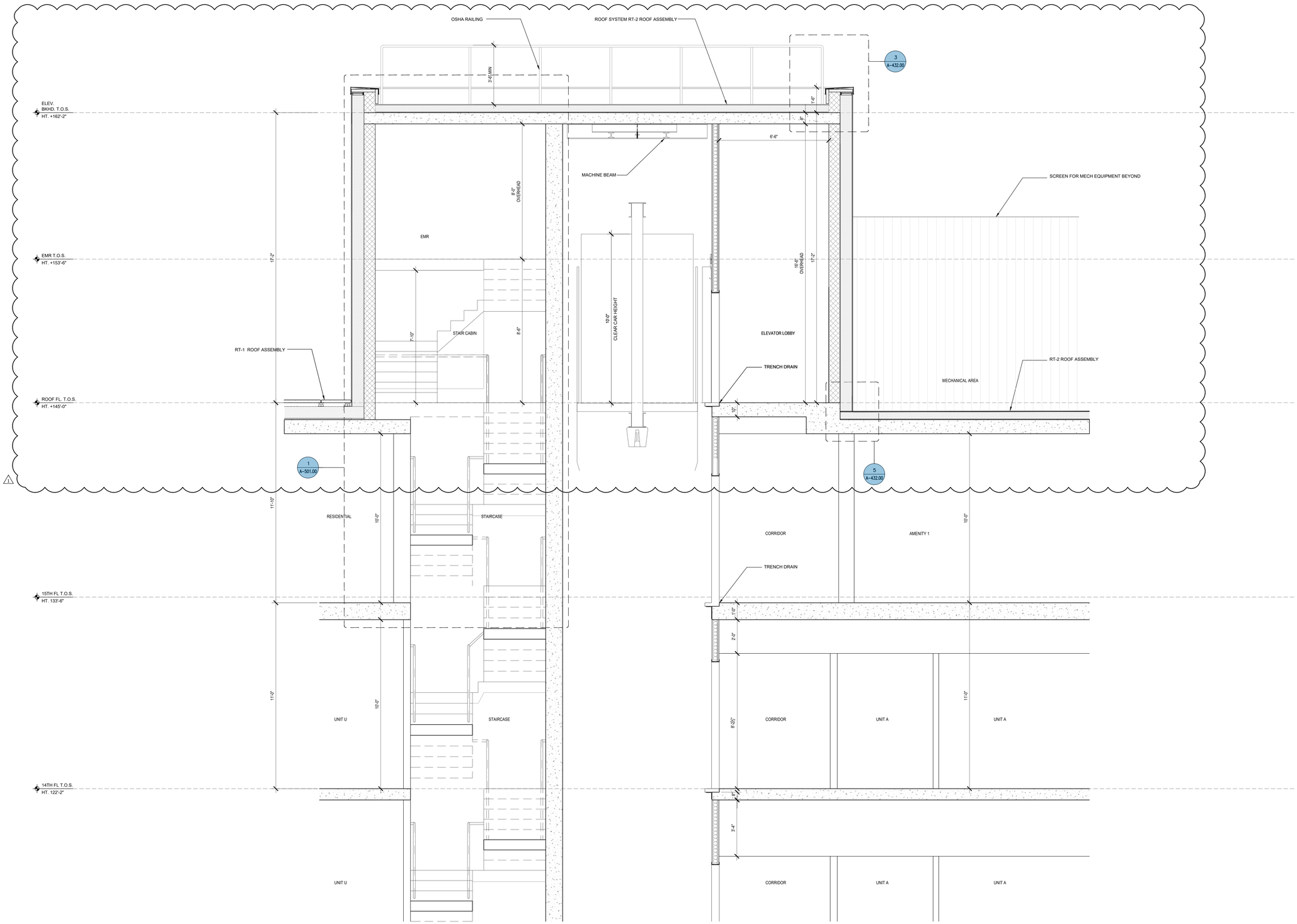

1 ENLARGED BULKHEAD SECTIONS
SCALE: 1/2" = 1'-0"

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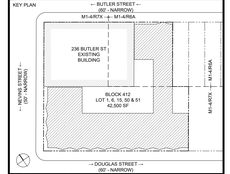

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED BULKHEAD SECTIONS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

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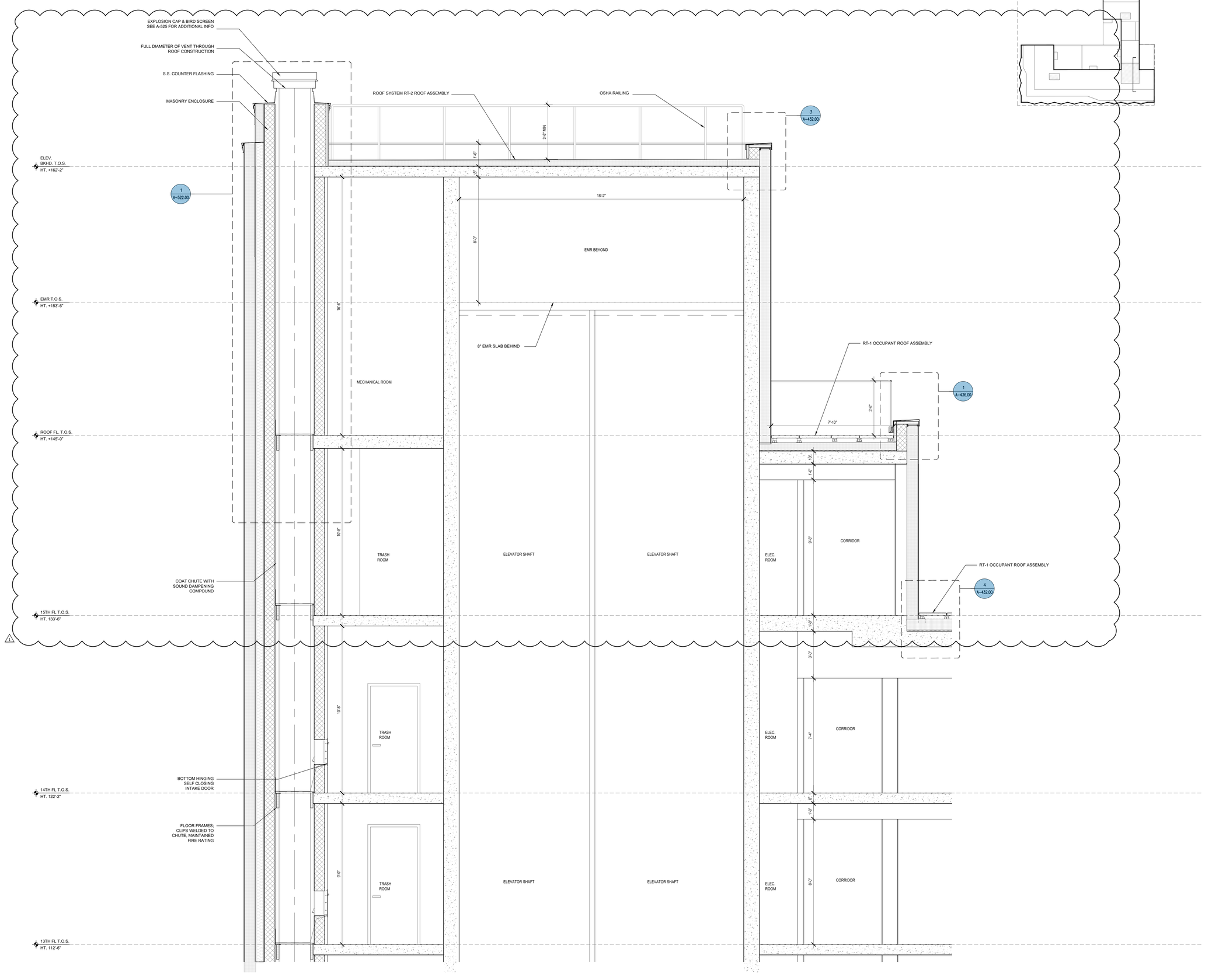

1 ENLARGED BULKHEAD SECTIONS
SCALE: 1/2" = 1'-0"

CLIENT
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LONG ISLAND CITY, NY 11101

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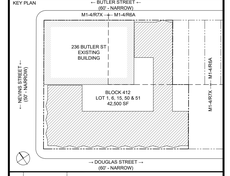

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

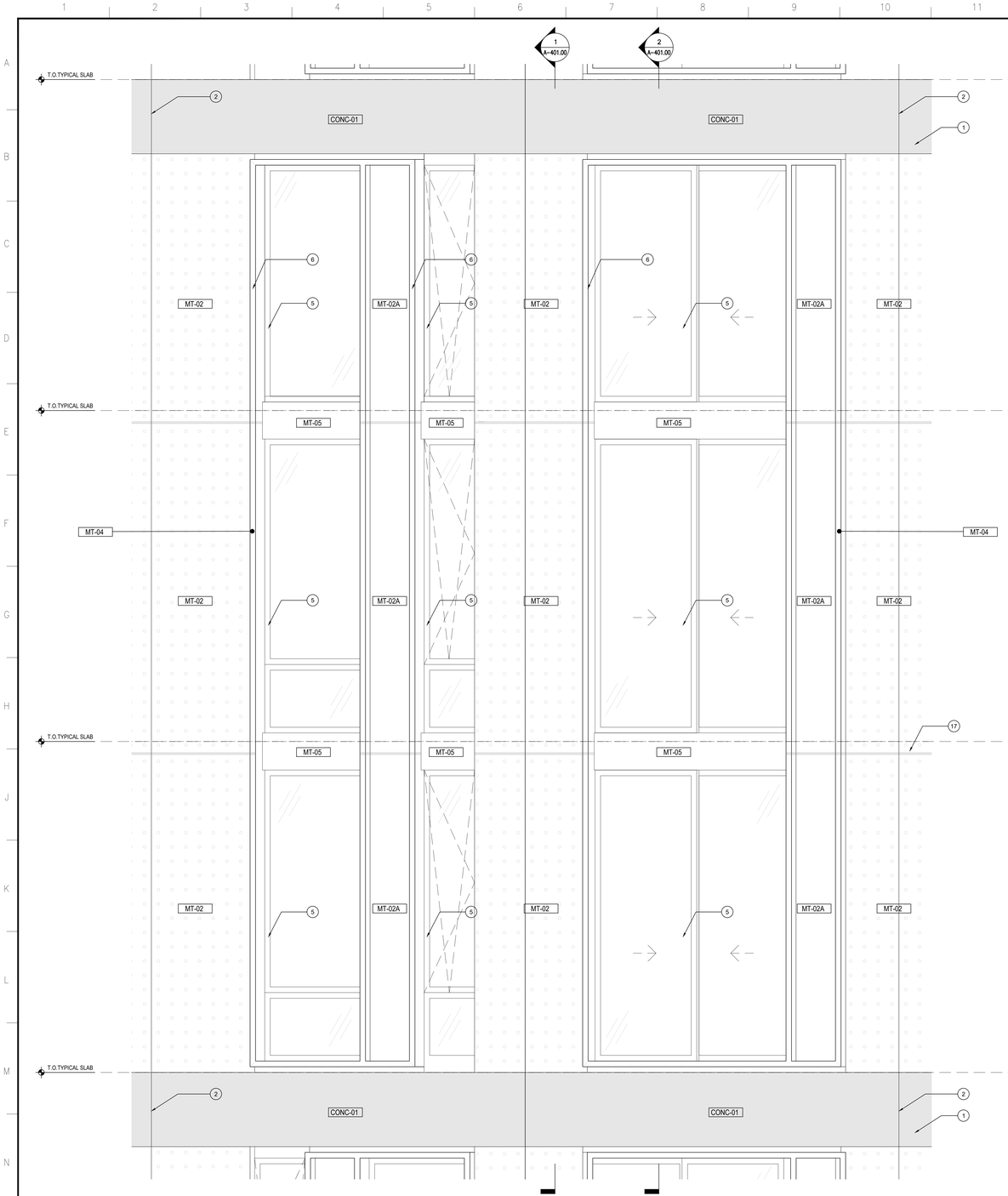
DRAWING TITLE
ENLARGED BULKHEAD SECTIONS

SEAL & SIGNATURE

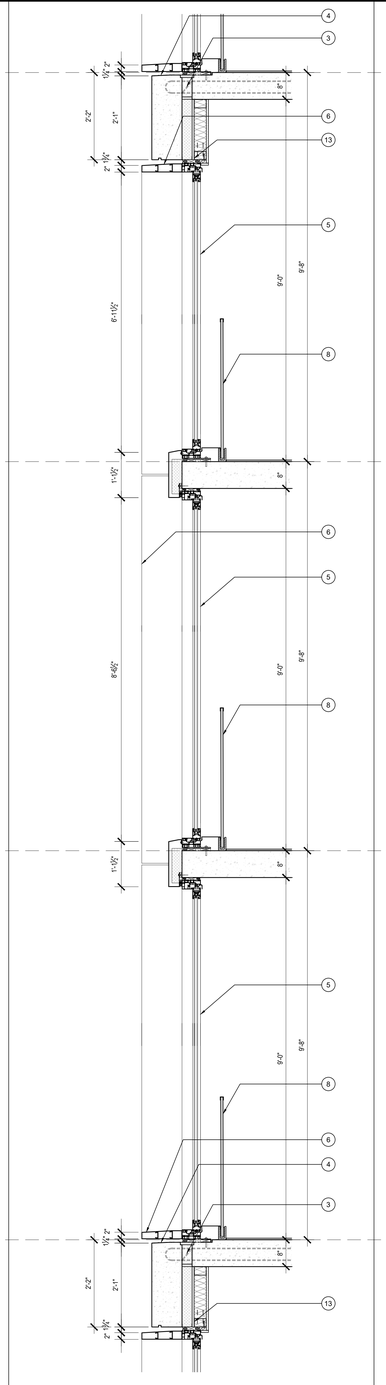
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-356.00

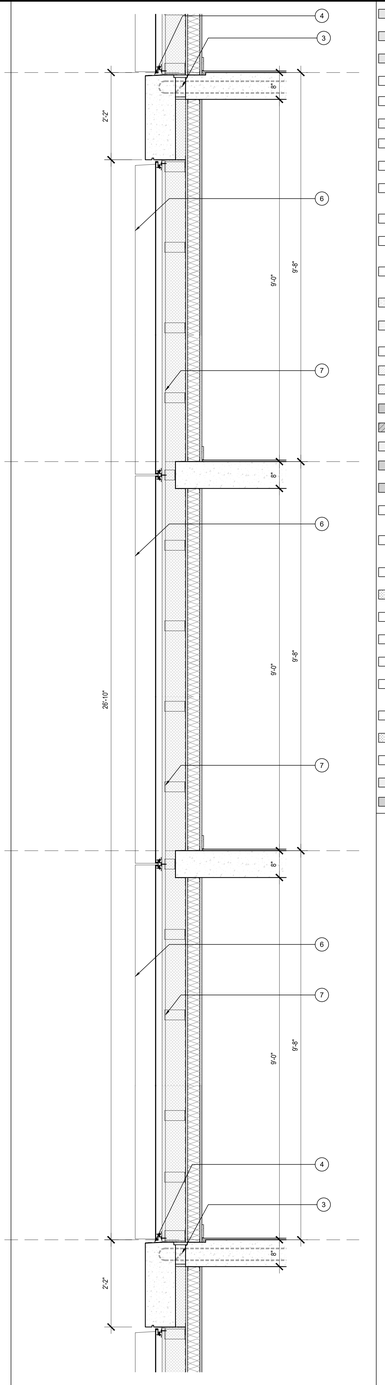
CADD FILE No.:



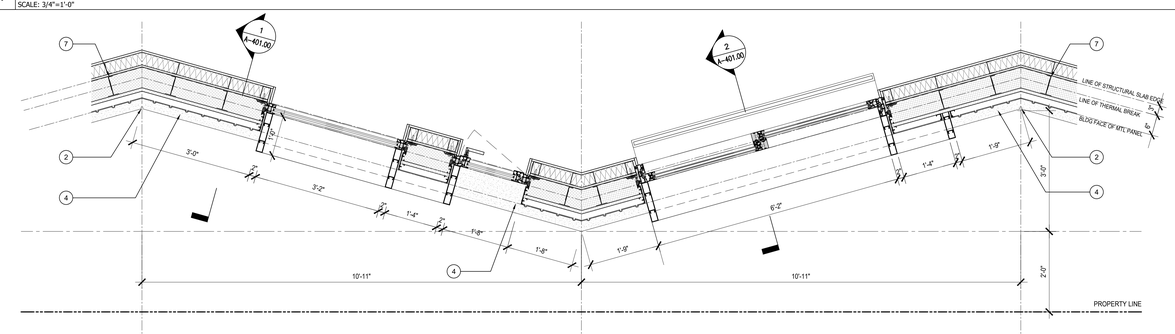
4 ENLARGED ELEVATION
SCALE: 3/4"=1'-0"



2 WALL SECTION THROUGH WINDOW WALL
SCALE: 3/4"=1'-0"



1 WALL SECTION THROUGH METAL PANEL
SCALE: 3/4"=1'-0"



3 PLAN SECTION THROUGH WINDOW WALL
SCALE: 3/4"=1'-0"

1. EXPOSED ARCHITECTURAL CONCRETE, SEE SPEC FOR FORMWORK, PROVIDE MOCKUP FOR ARCHITECTS APPROVAL
2. CONCRETE CONTROL JOINT AT ALL INNER CORNERS AS PER SPEC
3. SCHÖCK THERMAL BREAK SYSTEM EXPANSION JOINT TO BE PROVIDED AS PER SPEC
4. TRANSPARENT WATERPROOFING COATING ON ALL HORIZONTAL SURFACE OF EXPOSED CONCRETE (POSITIVE SLOPE TO EXTERIOR). PRODUCT TO BE APPROVED BY ARCHITECT & ENVELOPE CONSULTANT
5. TYP. WINDOW WALL SYSTEM. SEE WINDOW SCHEDULES FOR DIMENSIONS, SEE ELEVATIONS FOR GLAZING TYPES
6. FIELD INSTALLED EXTRUDED ALUM. WINDOW SHROUD CONTRACTOR TO PROVIDE SHOP DWG/CALCULATIONS FOR SHROUD PROFILE AND ATTACHMENT, TYP.
7. THERMALLY BROKEN ANCHORAGE SYSTEM FOR RAINSCREEN METAL PANEL SYSTEM. 9" CANTILEVER FROM FACE OF METAL PANEL TO BACKUP WALL, ENGINEERED BY G.C.
8. LAMINATED GLASS RAILING, 3'-6" A.F.F.
9. EIFS SYSTEM
10. REGULAR V GROOVE JOINT
11. THROUGH SYSTEM WEEPED JOINT AS PER SPEC
12. CANTILEVERED CONCRETE BALCONY WITH SCHÖCK THERMAL BREAK SYSTEM
13. WINDOW FASTENED TO STEEL HEADER, ENGINEERED FOR LATERAL LOAD AND CERTIFIED BY N.Y.P.E.
14. WEATHERPROOF RECEPTABLE. SEE ELECTRICAL DRAWINGS FOR LOCATION. RECEPTABLE TO BE MOUNTED AT 2'-0" HEIGHT
15. EXTERNAL WALL SCONCE. SEE PLANS AND ELECTRICAL DRAWINGS FOR SPECS.
16. HOSE BIB MOUNTED 24" AFF, TYP. SEE PLUMBING DWGS
17. METAL PANEL JOINT, 3/8" MAX

5 KEY NOTE LEGEND
SCALE: N/A

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT-05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT-06	PERFORATED METAL LOUVER, COLOR TBD
MT-07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF-01	9" EIFS, COLOR TO MATCH MT-01
EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
EF-03	9" EIFS, COLOR TO MATCH CONC-01
EF-04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST-01	STOREFRONT STONE BASE, GRANITE, GREY
GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL-01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

CLIENT
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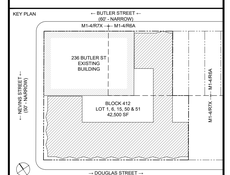
ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

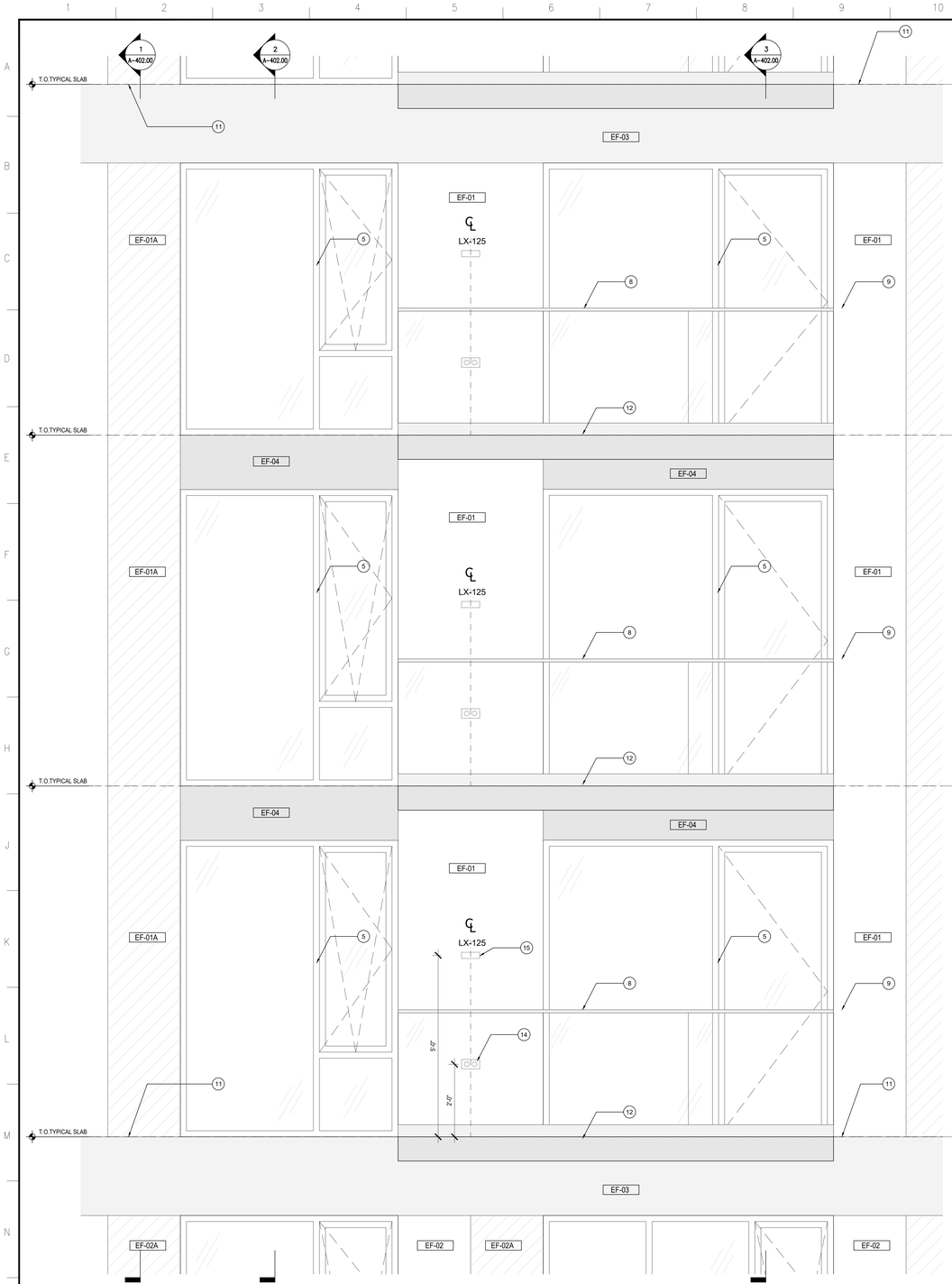
DRAWING TITLE
TYPICAL EXTERIOR WALL TYPES

SEAL & SIGNATURE

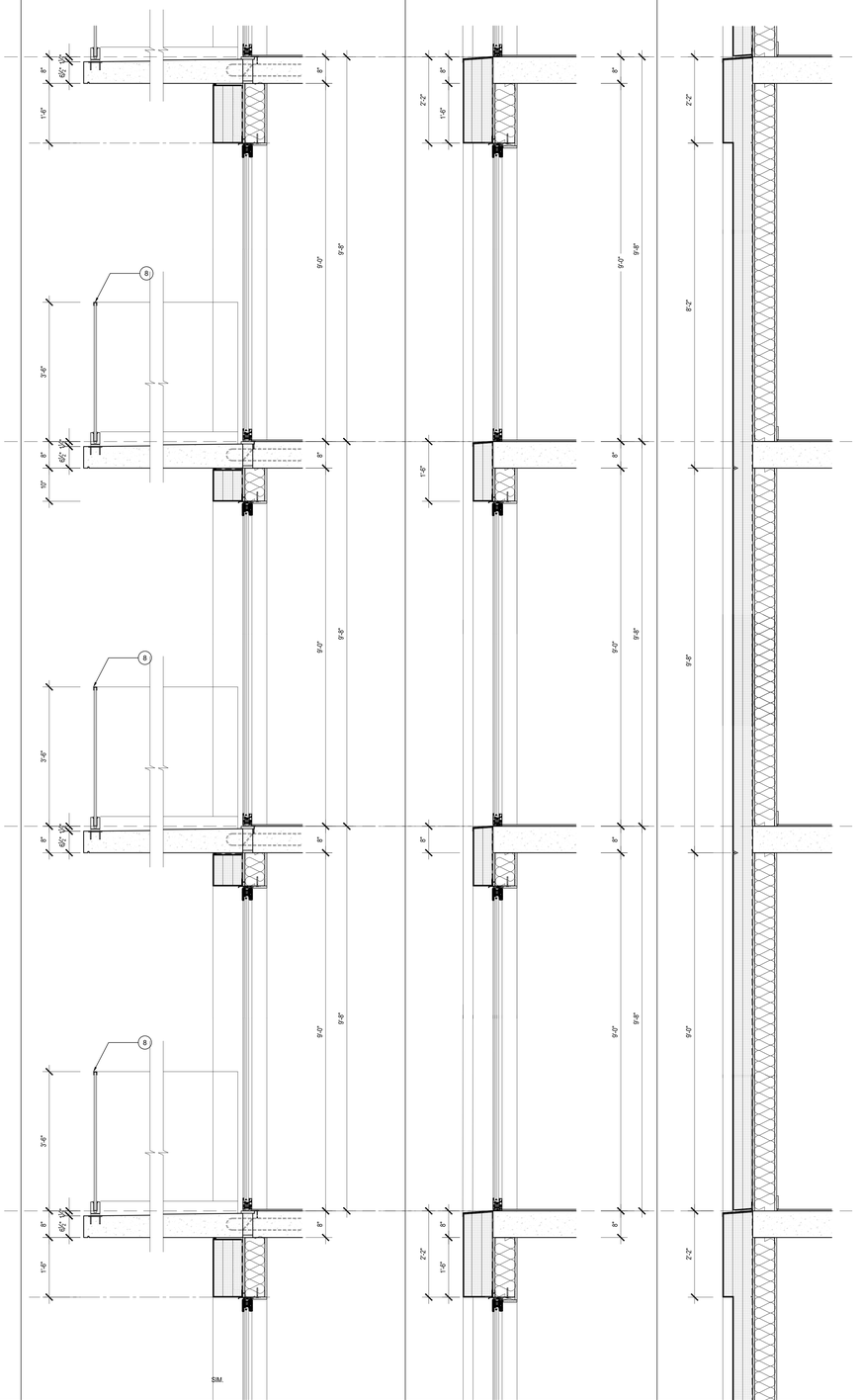
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-401.00

CADD FILE No.:
111 OF175



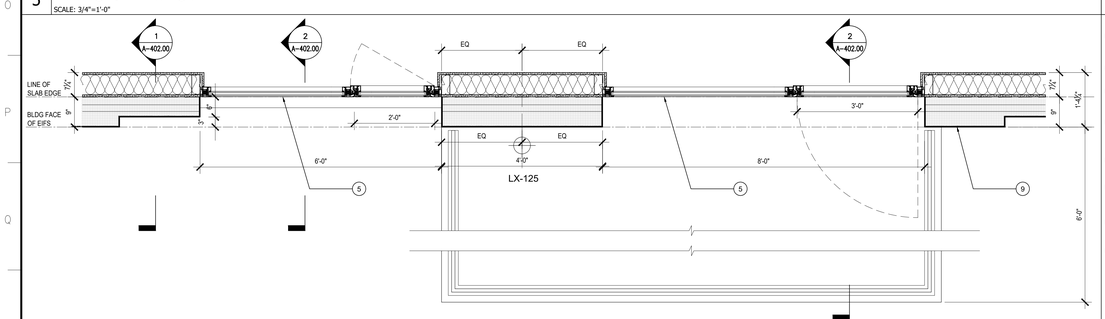
5 ENLARGED ELEVATION
SCALE: 3/4"=1'-0"



3 WALL SECTION THROUGH WINDOW WALL/BALCONY
SCALE: 3/4"=1'-0"

2 WALL SECTION AT SILL
SCALE: 3/4"=1'-0"

1 WALL SECTION AT EIFS
SCALE: 3/4"=1'-0"



4 PLAN SECTION THROUGH WINDOW WALL
SCALE: 3/4"=1'-0"

1. EXPOSED ARCHITECTURAL CONCRETE, SEE SPEC FOR FORMWORK, PROVIDE MOCKUP FOR ARCHITECTS APPROVAL
2. CONCRETE CONTROL JOINT AT ALL INNER CORNERS AS PER SPEC
3. SCHÖCK THERMAL BREAK SYSTEM EXPANSION JOINT TO BE PROVIDED AS PER SPEC
4. TRANSPARENT WATERPROOFING COATING ON ALL HORIZONTAL SURFACE OF EXPOSED CONCRETE (POSITIVE SLOPE TO EXTERIOR). PRODUCT TO BE APPROVED BY ARCHITECT & ENVELOPE CONSULTANT
5. TYP. WINDOW WALL SYSTEM, SEE WINDOW SCHEDULES FOR DIMENSIONS, SEE ELEVATIONS FOR GLAZING TYPES
6. FIELD INSTALLED EXTRUDED ALUM. WINDOW SHROUD CONTRACTOR TO PROVIDE SHOP DWG/CALCULATIONS FOR SHROUD PROFILE AND ATTACHMENT, TYP.
7. THERMALLY BROKEN ANCHORAGE SYSTEM FOR RAINSCREEN METAL PANEL SYSTEM. 9" CANTILEVER FROM FACE OF METAL PANEL TO BACKUP WALL, ENGINEERED BY G.C.
8. LAMINATED GLASS RAILING, 3'-6" A.F.F.
9. EIFS SYSTEM
10. REGULAR V GROOVE JOINT
11. THROUGH SYSTEM WEEPED JOINT AS PER SPEC
12. CANTILEVERED CONCRETE BALCONY WITH SCHÖCK THERMAL BREAK SYSTEM
13. WINDOW FASTENED TO STEEL HEADER, ENGINEERED FOR LATERAL LOAD AND CERTIFIED BY N.Y.P.E.
14. WEATHERPROOF RECEPTABLE. SEE ELECTRICAL DRAWINGS FOR LOCATION. RECEPTABLE TO BE MOUNTED AT 2'-0" HEIGHT
15. EXTERNAL WALL SCONCE. SEE PLANS AND ELECTRICAL DRAWINGS FOR SPECS.
16. HOSE BIB MOUNTED 24" AFF. TYP. SEE PLUMBING DWGS
17. METAL PANEL JOINT, 3/8" MAX

6 KEY NOTE LEGEND
SCALE: N/A

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT-05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT-06	PERFORATED METAL LOUVER, COLOR TBD
MT-07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF-01	9" EIFS, COLOR TO MATCH MT-01
EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
EF-03	9" EIFS, COLOR TO MATCH CONC-01
EF-04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST-01	STOREFRONT STONE BASE, GRANITE, GREY
GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
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GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
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XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

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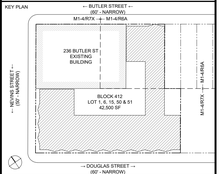

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

SEAL & SIGNATURE

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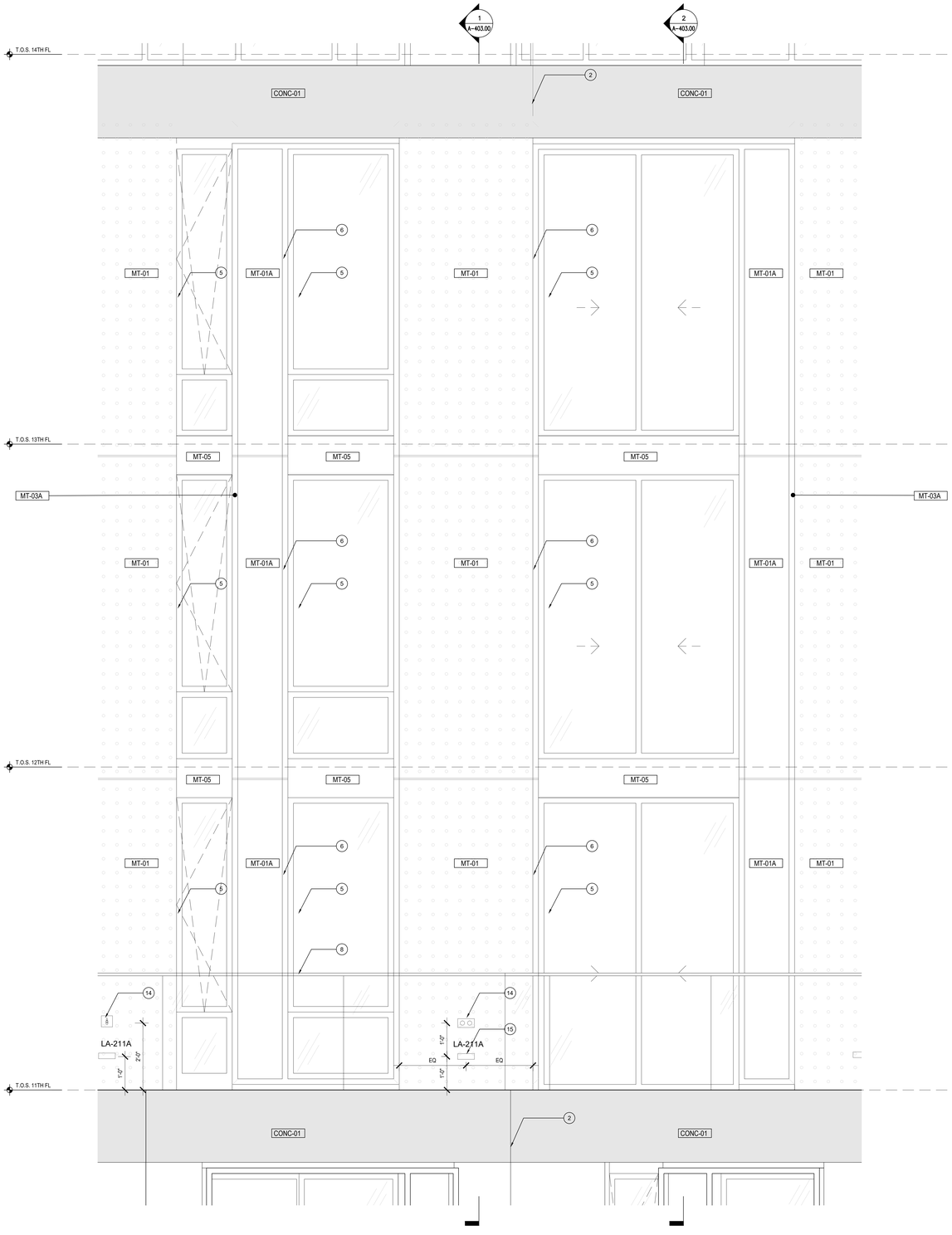
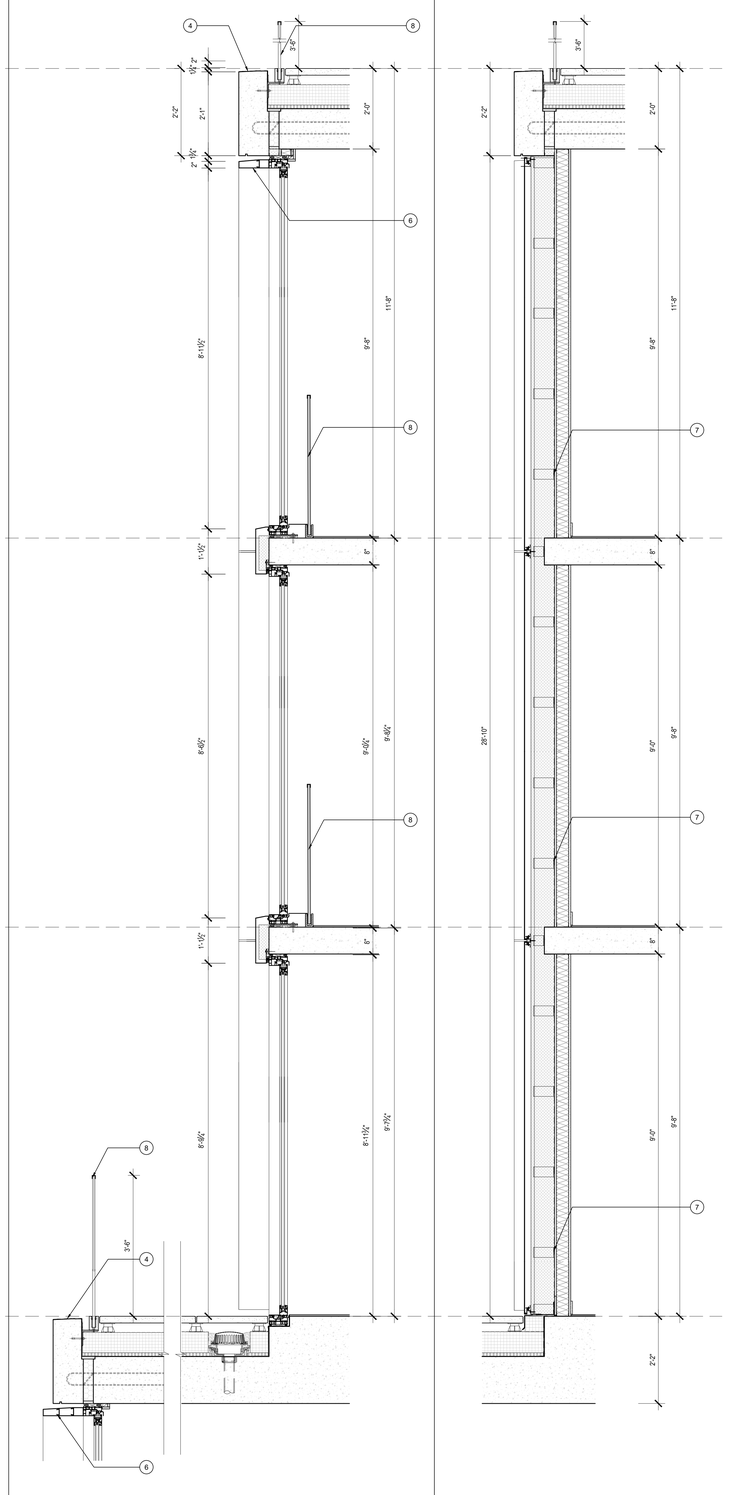
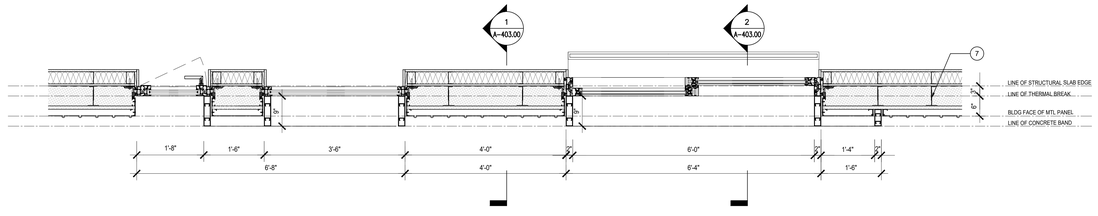


4 ENLARGED ELEVATION
SCALE: 3/4"=1'-0"



2 WALL SECTION THROUGH WINDOW WALL
SCALE: 3/4"=1'-0"

1 WALL SECTION THROUGH METAL PANEL
SCALE: 3/4"=1'-0"



3 PLAN SECTION THROUGH WINDOW WALL
SCALE: 3/4"=1'-0"

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
MT-01	PTD METAL PANEL COLOR TBD
MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
MT-02	PTD METAL PANEL COLOR TBD
MT-02A	PTD METAL PANEL COLOR TO MATCH MT-02
MT-03	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-01
MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT-05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT-06	PERFORATED METAL LOUVER, COLOR TBD
MT-07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF-01	9" EIFS, COLOR TO MATCH MT-01
EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
EF-03	9" EIFS, COLOR TO MATCH CONC-01
EF-04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST-01	STOREFRONT STONE BASE, GRANITE, GREY
GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL-01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

1 EXPOSED ARCHITECTURAL CONCRETE, SEE SPEC FOR FORMWORK, PROVIDE MOCKUP FOR ARCHITECT'S APPROVAL
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8 LAMINATED GLASS RAILING, 3'-6" A.F.F.
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12 CANTILEVERED CONCRETE BALCONY WITH SCHÖCK THERMAL BREAK SYSTEM
13 WINDOW FASTENED TO STEEL HEADER, ENGINEERED FOR LATERAL LOAD AND CERTIFIED BY N.Y.P.E.
14 WEATHERPROOF RECEPTABLE. SEE ELECTRICAL DRAWINGS FOR LOCATION. RECEPTABLE TO BE MOUNTED AT 2'-0" HEIGHT
15 EXTERNAL WALL SCONCE. SEE PLANS AND ELECTRICAL DRAWINGS FOR SPECS.
16 HOSE BIB MOUNTED 24" AFF. TYP. SEE PLUMBING DWGS
17 METAL PANEL JOINT, 3/8" MAX

5 KEY NOTE LEGEND
SCALE: N/A

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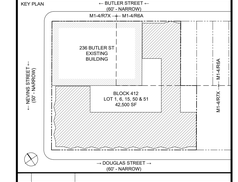

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
TYPICAL EXTERIOR WALL TYPES

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-403.00

CADD FILE No.:
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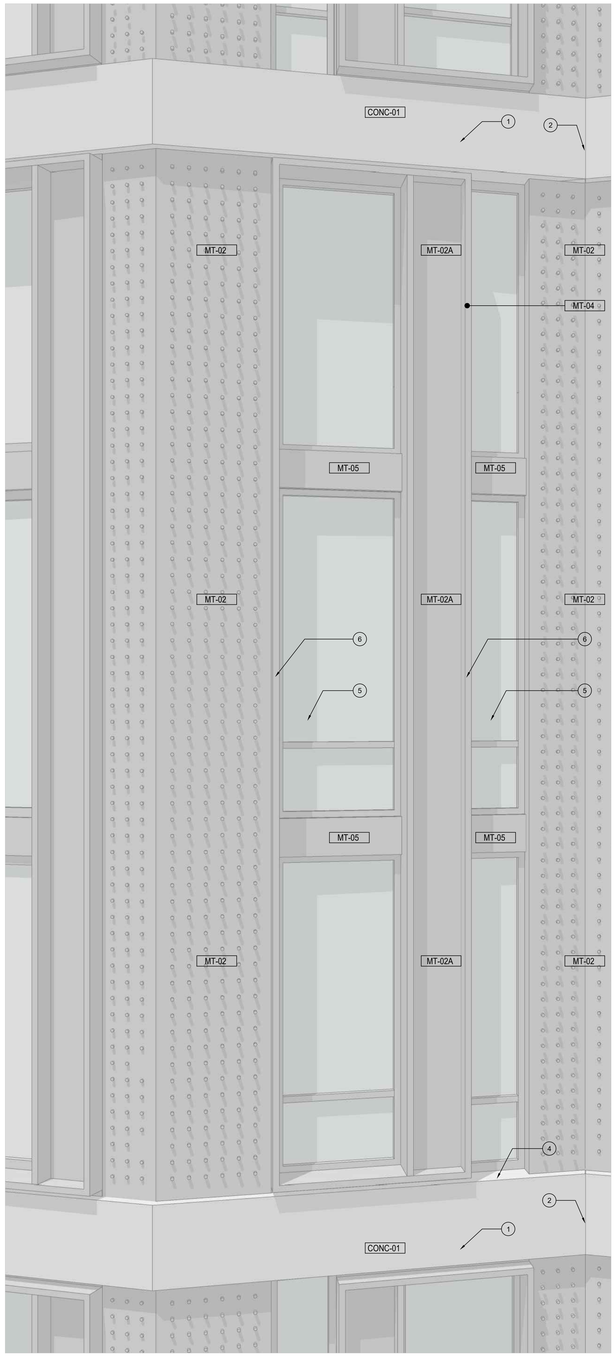
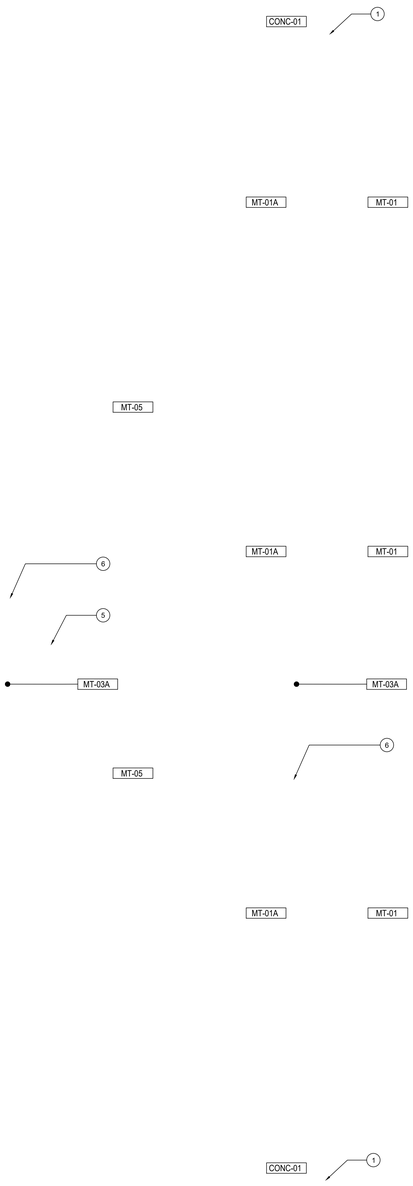
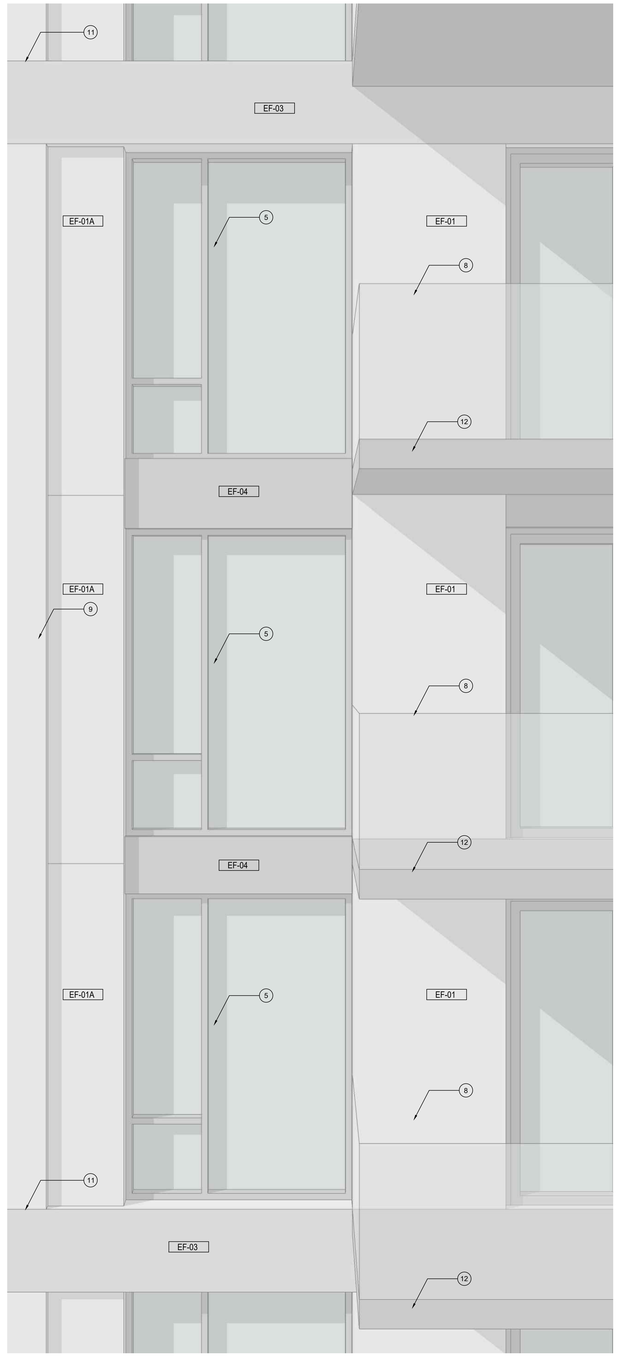


1 RENDERING - TYP. METAL PANEL
SCALE: N.T.S.



2 RENDERING - METAL PANEL AT SETBACK
SCALE: N.T.S.



3 RENDERING - TYP. EIFS
SCALE: N.T.S.

1. EXPOSED ARCHITECTURAL CONCRETE, SEE SPEC FOR FORMWORK, PROVIDE MOCKUP FOR ARCHITECT'S APPROVAL
2. CONCRETE CONTROL JOINT AT ALL INNER CORNERS AS PER SPEC
3. SCHÖCK THERMAL BREAK SYSTEM EXPANSION JOINT TO BE PROVIDED AS PER SPEC
4. TRANSPARENT WATERPROOFING COATING ON ALL HORIZONTAL SURFACE OF EXPOSED CONCRETE (POSITIVE SLOPE TO EXTERIOR). PRODUCT TO BE APPROVED BY ARCHITECT & ENVELOPE CONSULTANT
5. TYP. WINDOW WALL SYSTEM, SEE WINDOW SCHEDULES FOR DIMENSIONS, SEE ELEVATIONS FOR GLAZING TYPES
6. FIELD INSTALLED EXTRUDED ALUM. WINDOW SHROUD CONTRACTOR TO PROVIDE SHOP DWG/CALCULATIONS FOR SHROUD PROFILE AND ATTACHMENT, TYP.
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17. METAL PANEL JOINT, 3/8" MAX

4 KEY NOTE LEGEND
SCALE: N/A

CONC-01	THERMALLY BROKEN EXPOSED CONCRETE SLAB EDGE
CONC-02	THERMALLY BROKEN EXPOSED CONCRETE PIER
CONC-03	EXPOSED BOARD FORMED CONCRETE
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MT-01A	PTD METAL PANEL COLOR TO MATCH MT-01
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MT-03A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-01
MT-04	12" EXTRUDED ALUMINUM WINDOW SHROUD, COLOR TO MATCH MT-02
MT-04A	9" EXTRUDED ALUMINUM WINDOW SHROUD AT SETBACKS ONLY, COLOR TO MATCH MT-02
MT-05	PTD METAL SLAB EDGE COVER, COLOR TO MATCH WINDOW FRAMES
MT-06	PERFORATED METAL LOUVER, COLOR TBD
MT-07	METAL LOUVERS, COLOR TO MATCH WINDOW FRAMES
EF-01	9" EIFS, COLOR TO MATCH MT-01
EF-01A	6" EIFS, COLOR TO MATCH MT-01
EF-01B	4" EIFS, COLOR TO MATCH MT-01
EF-02	9" EIFS, COLOR TO MATCH MT-02
EF-02A	6" EIFS, COLOR TO MATCH MT-02
EF-03	9" EIFS, COLOR TO MATCH CONC-01
EF-04	6" EIFS, COLOR TO MATCH WINDOW FRAME
ST-01	STOREFRONT STONE BASE, GRANITE, GREY
GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
GL-01BF	BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
GL-02	SPANDREL I.G.U. AT 9TH FL AND ABOVE
GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)
XPS	EXPOSED XPS RIGID INSULATION
ST-01	STONE BASE

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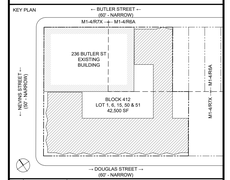

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01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
TYPICAL EXTERIOR WALL TYPES

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-404.00

CADD FILE No.:
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1. EXPOSED ARCHITECTURAL CONCRETE BEAM (NON-LOAD BEARING) HEIGHT AND DEPTH VARY - SEE PLANS, ELEVATIONS AND RENDERINGS FOR REF.
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3. SEE STRUC. DWGS FOR HANGER/REINFORCEMENT DETAILS IF REQUIRED
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12. FLOOD BARRIER SYSTEM REQUIRED IN FRONT OF ENTRANCE DOORS BELOW FLOOD PROTECTION ELEVATION. SEE G-006 FOR DETAILS
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17. STEEL TO SUPPORT STOREFRONT, ENGINEERED FOR LATERAL LOAD AND CERTIFIED BY N.Y.P.E.
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19. BOARD-MARKED CONCRETE TO MATCH ARCHITECT'S SAMPLE.
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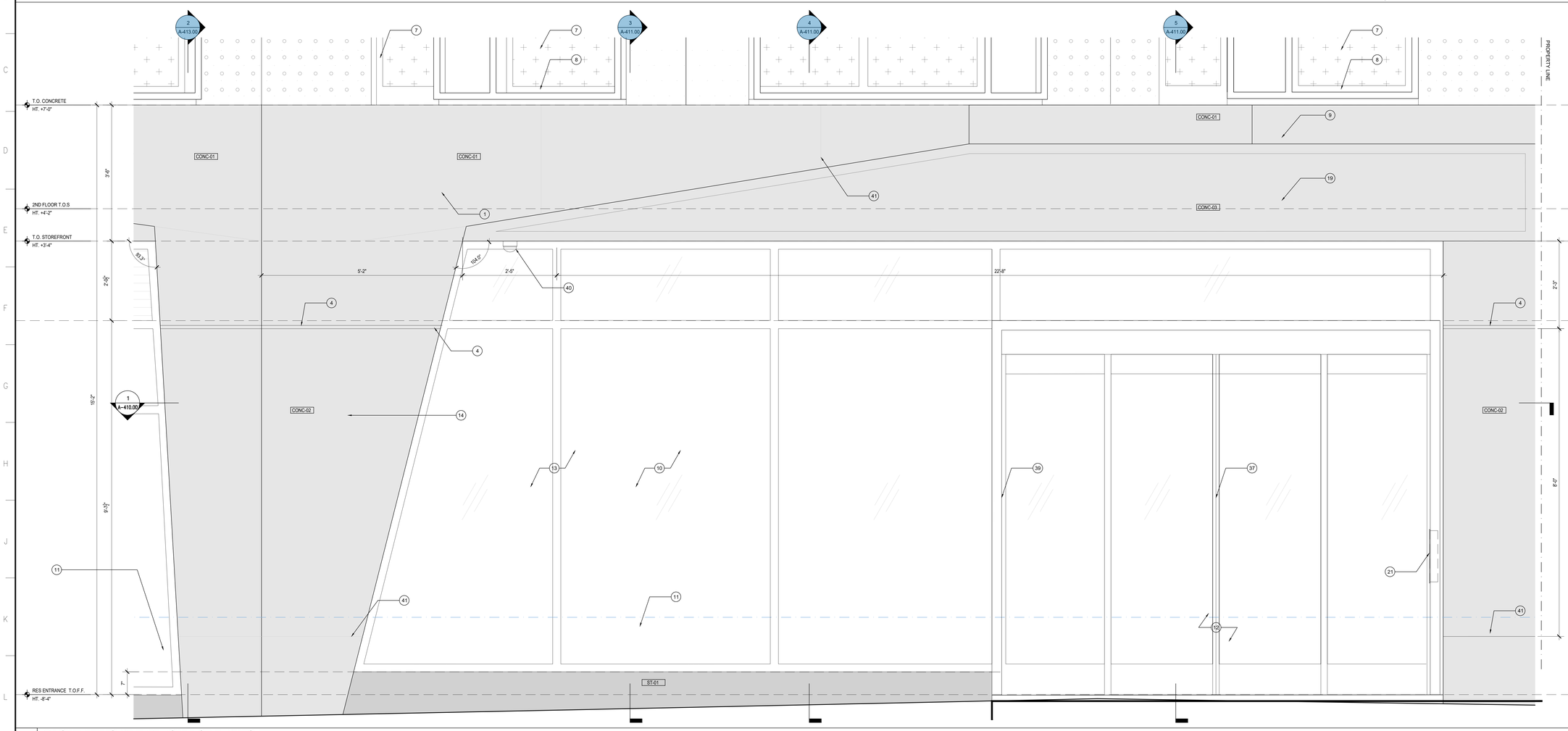
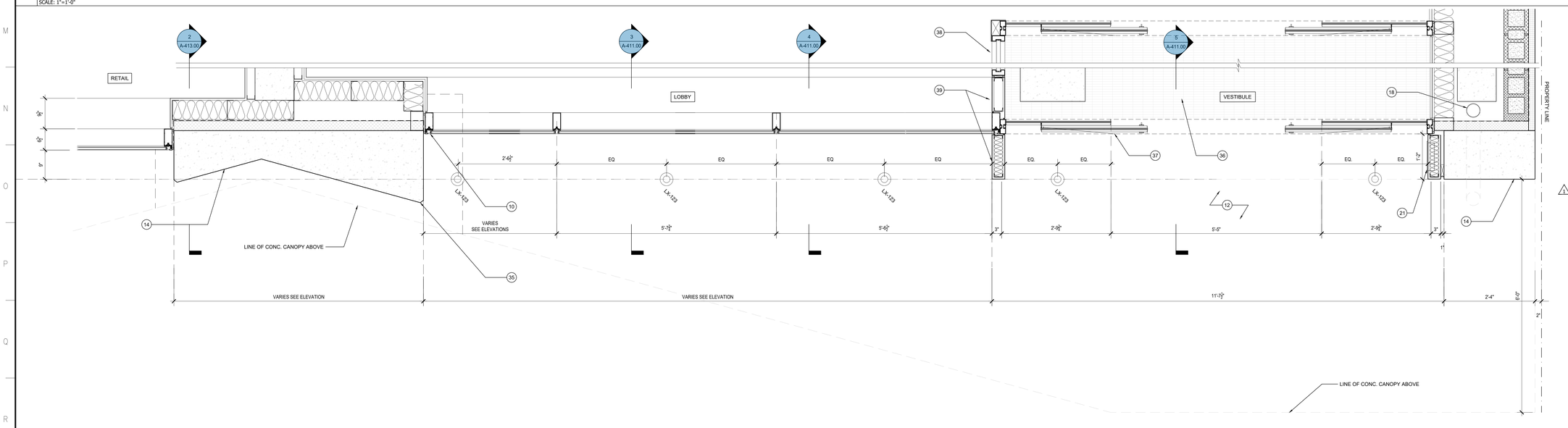


2 TYPICAL ENLARGED ELEVATION-RES. ENTRANCE
SCALE: 1"=1'-0"



1 ENLARGED LOBBY ENTRANCE PLAN
SCALE: 1"=1'-0"

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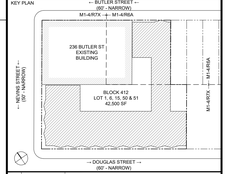

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED LOBBY ELEVATION

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-410.00

CADD FILE No.:

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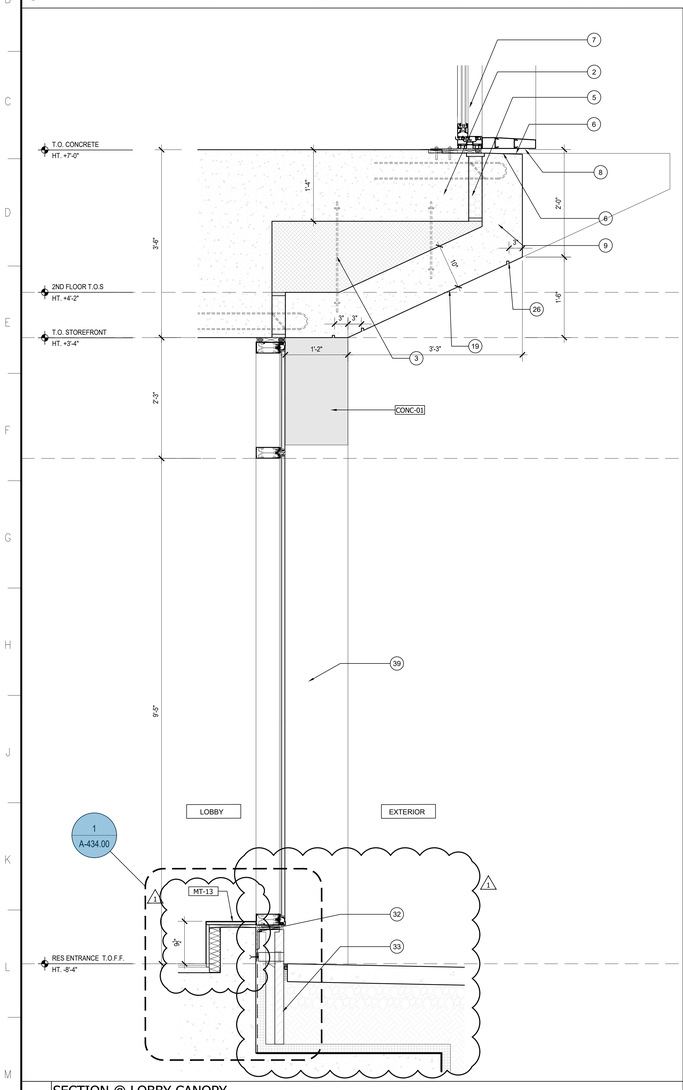

3 SECTION @ LOBBY CANOPY
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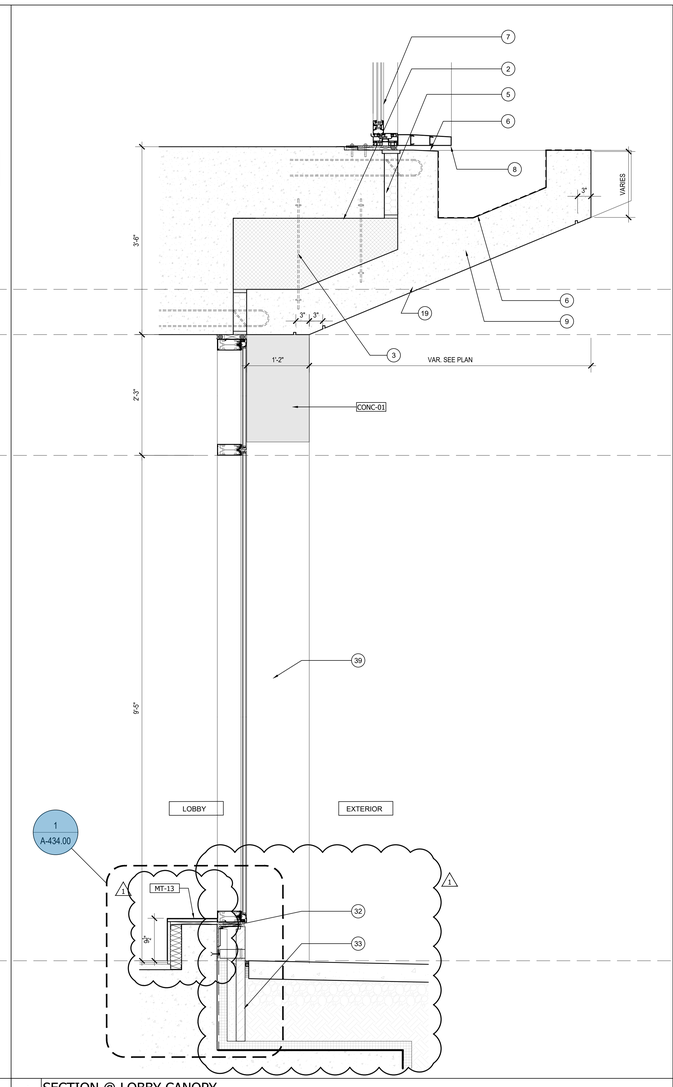

4 SECTION @ LOBBY CANOPY
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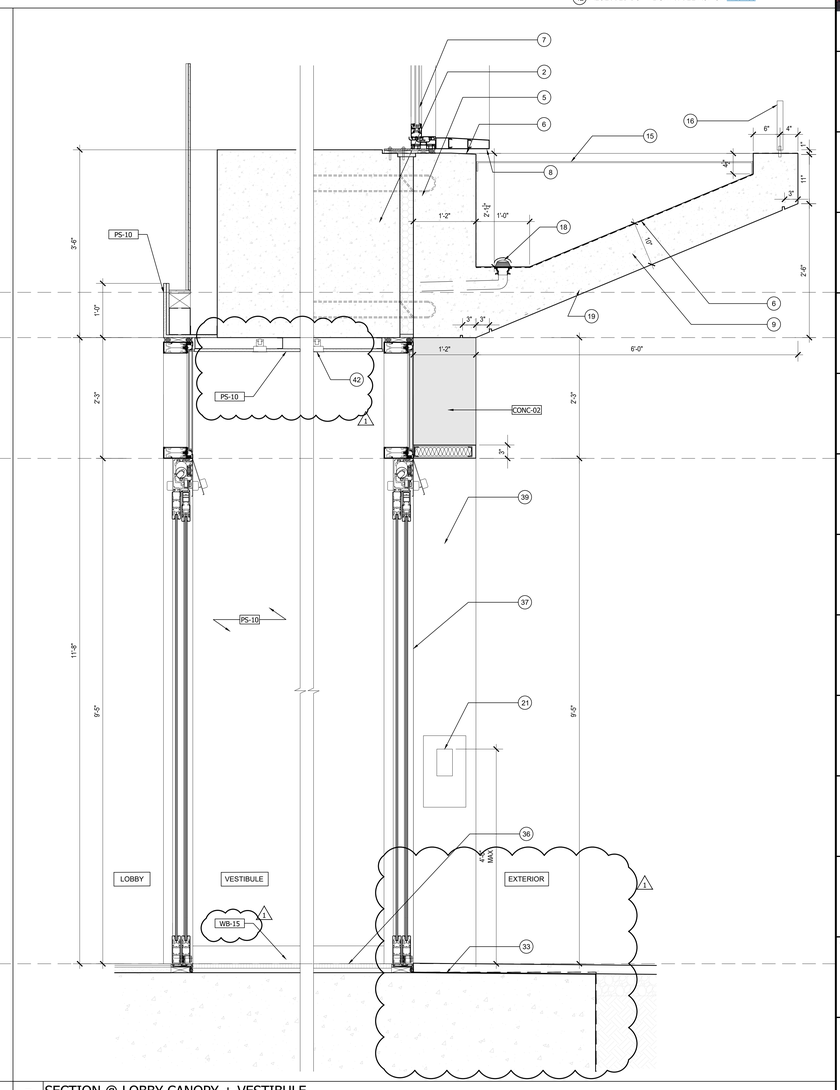
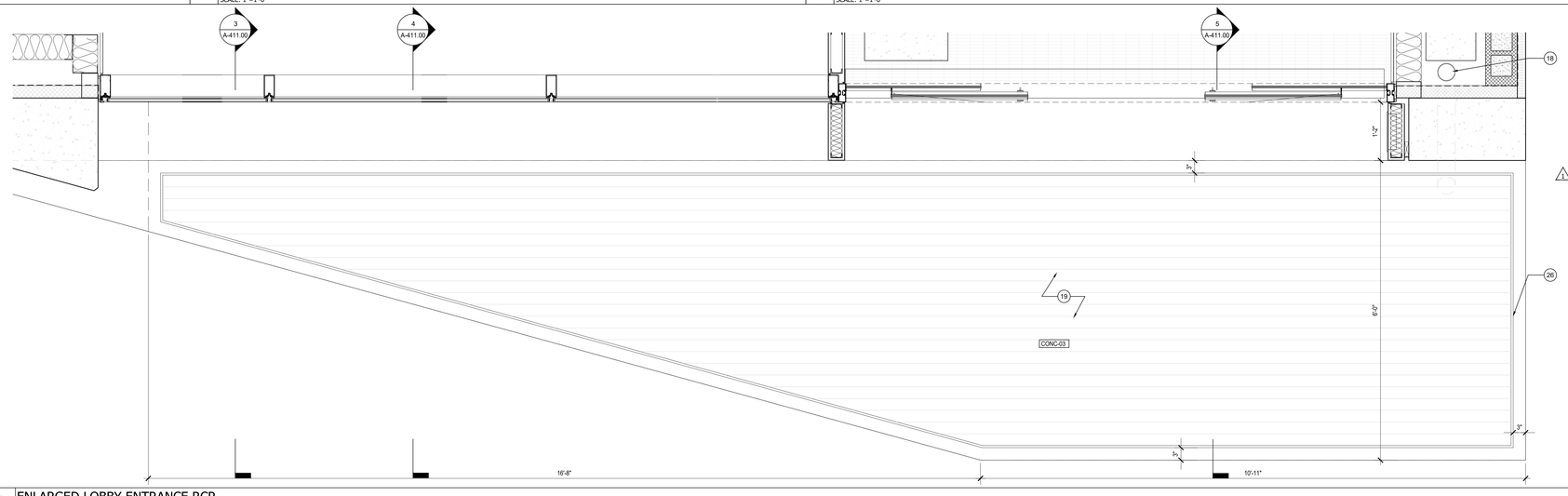


5 SECTION @ LOBBY CANOPY + VESTIBULE
SCALE: 1"=1'-0"

1 3D VIEW
SCALE: N.T.S



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251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED LOBBY SECTIONS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
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DRAWING BY: FFA
CHK BY: FFA

A-411.00

CADD FILE No.:
116 OF 175

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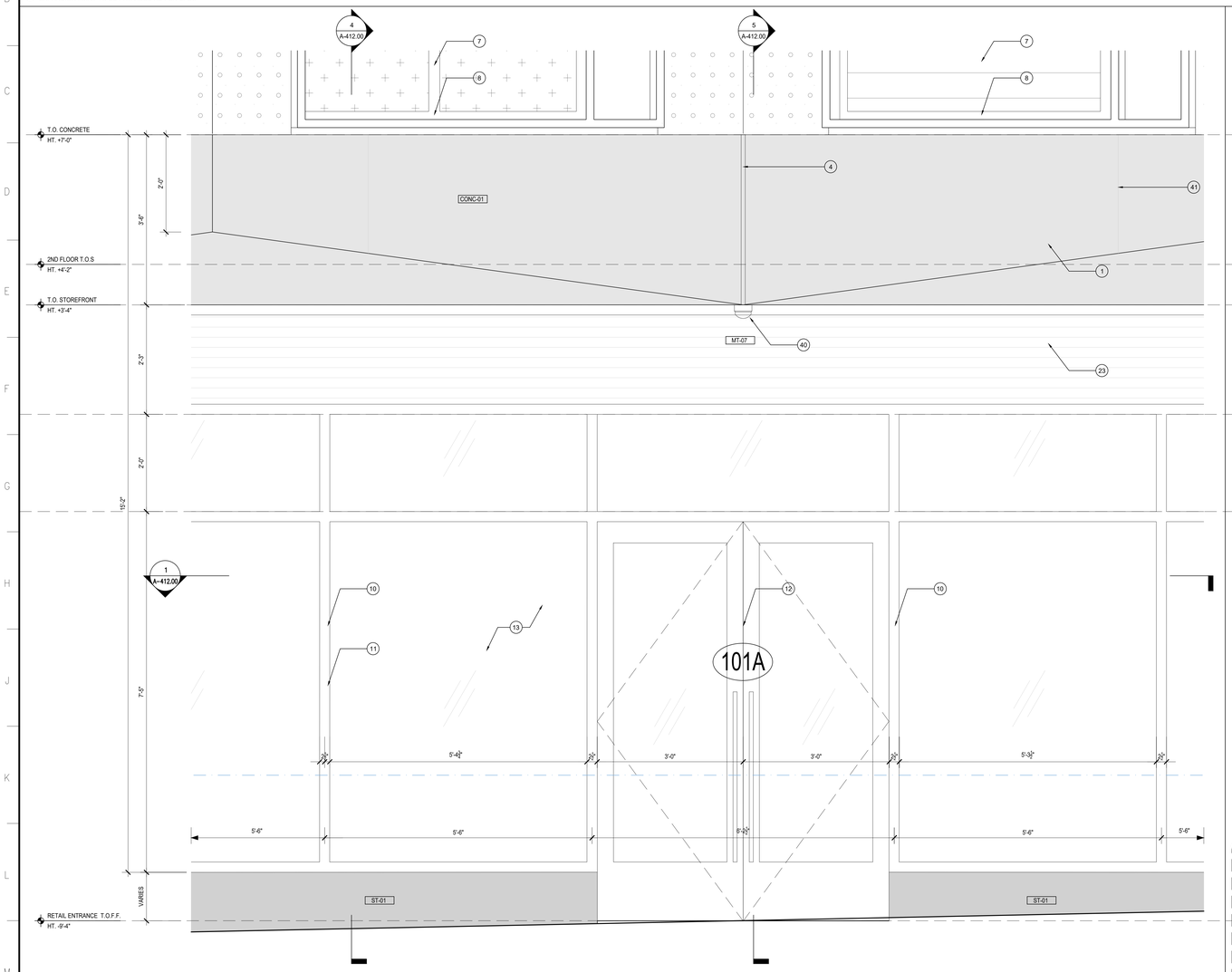
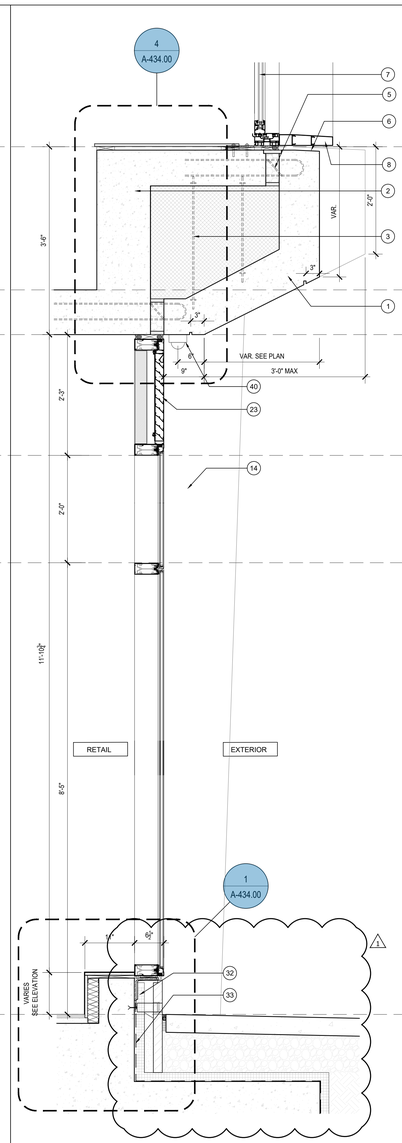
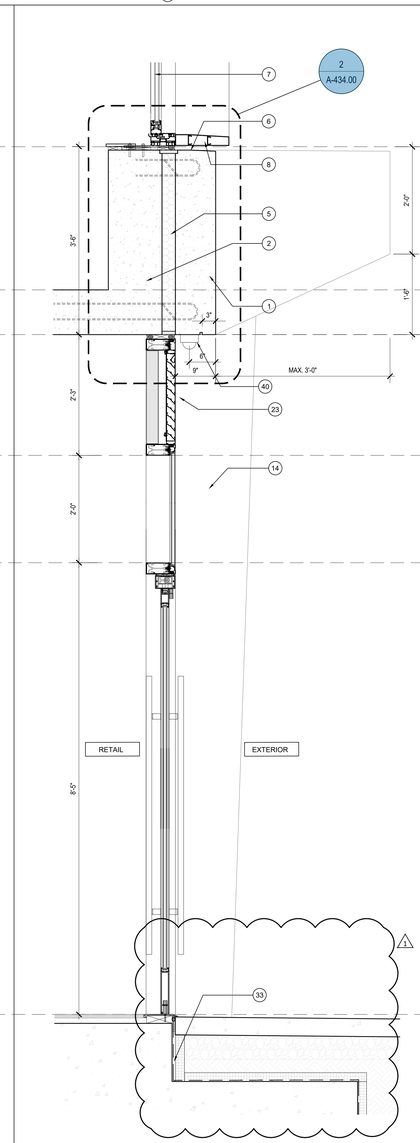


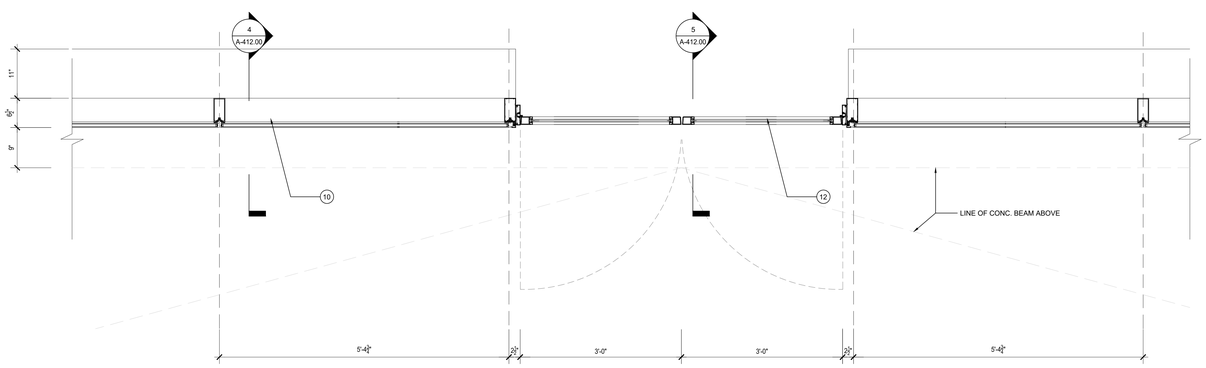
3 TYPICAL ENLARGED ELEVATION-STOREFRONT
SCALE: 1"=1'-0"



4 TYPICAL ENLARGED SECTION-STOREFRONT
SCALE: 1"=1'-0"



5 TYPICAL ENLARGED SECTION-STOREFRONT DOOR
SCALE: 1"=1'-0"



1 TYPICAL ENLARGED PLAN-STOREFRONT
SCALE: 1"=1'-0"

2 3D VIEW
SCALE: N.T.S

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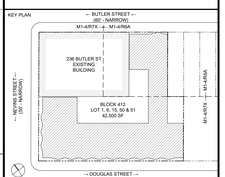

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED STOREFRONT ELEVATIONS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
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DRAWING BY: FFA
CHK BY: FFA

A-412.00

CADD FILE No.:
117 OF 175

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1. EXPOSED ARCHITECTURAL CONCRETE BEAM (NON-LOAD BEARING) HEIGHT AND DEPTH VARY - SEE PLANS, ELEVATIONS AND RENDERINGS FOR REF.
2. STRUCTURAL BEAM / LOCALLY THICKENED SLAB AT PERIMETER, SEE STRUC. DWGS FOR DIMENSIONS
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8. FIELD INSTALLED EXTRUDED ALUM. WINDOW SHROUD CONTRACTOR TO PROVIDE SHOP DWG/CALCULATIONS FOR SHROUD PROFILE AND ATTACHMENT, TYP.
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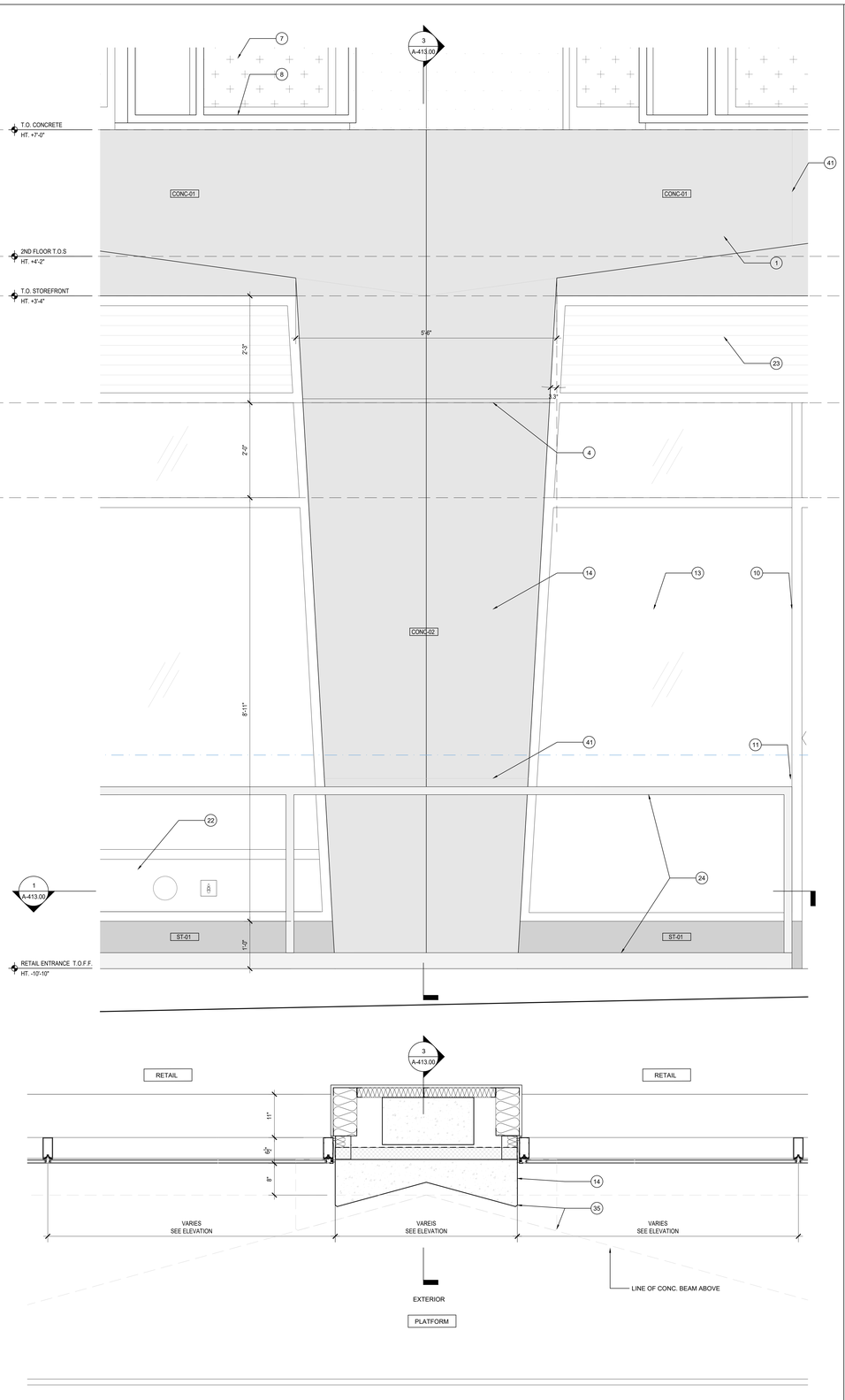

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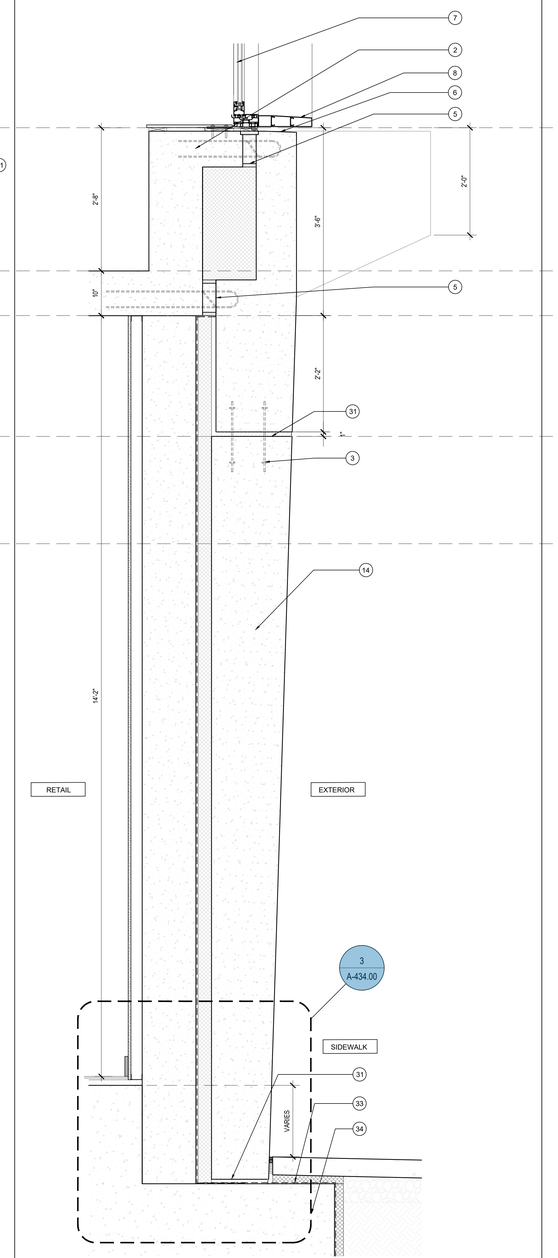
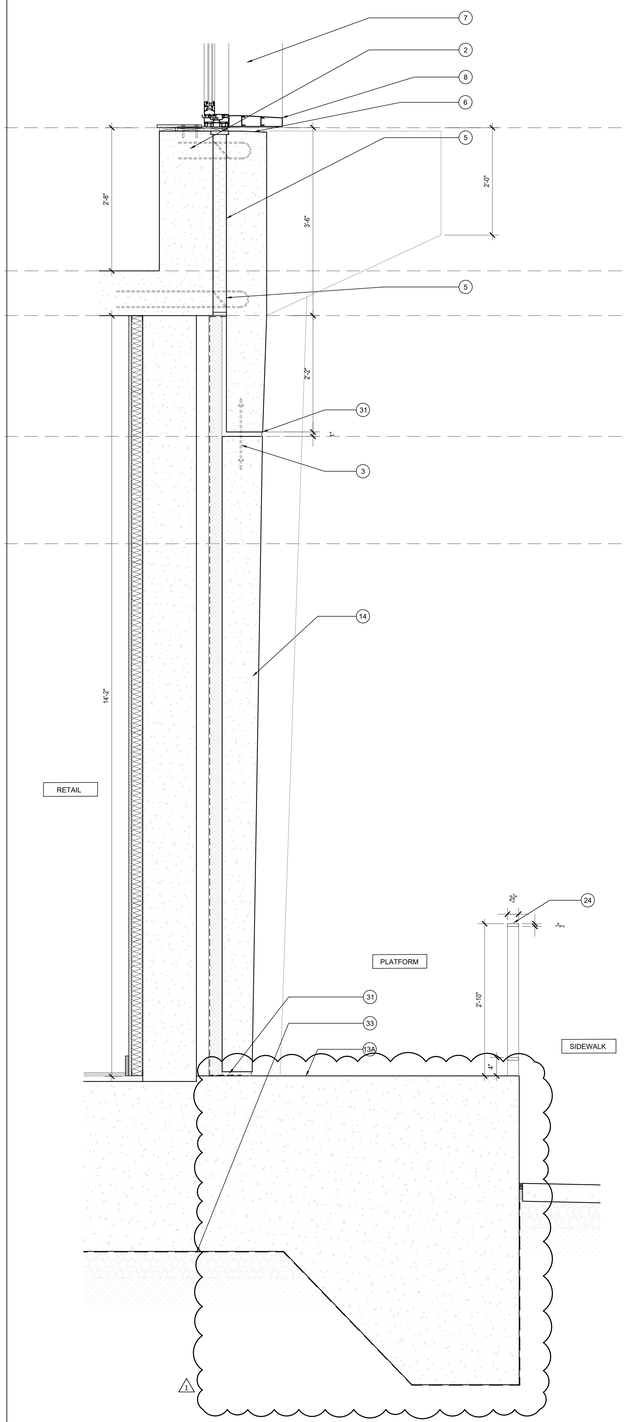
SCALE: 1"=1'-0"



2 SECTION @ CONCRETE PIER
SCALE: 1"=1'-0"



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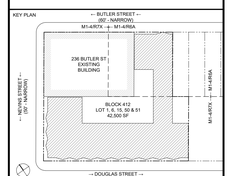

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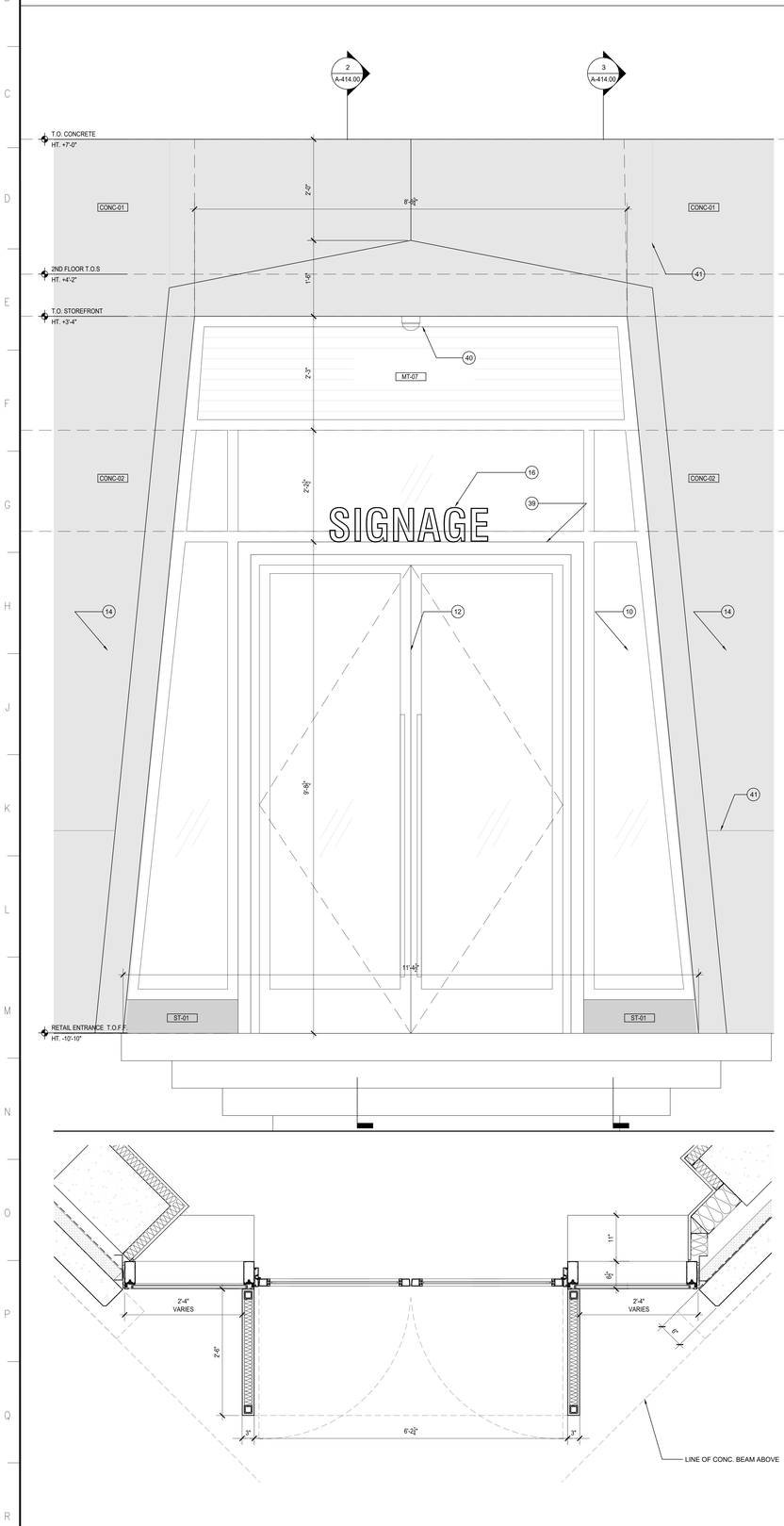
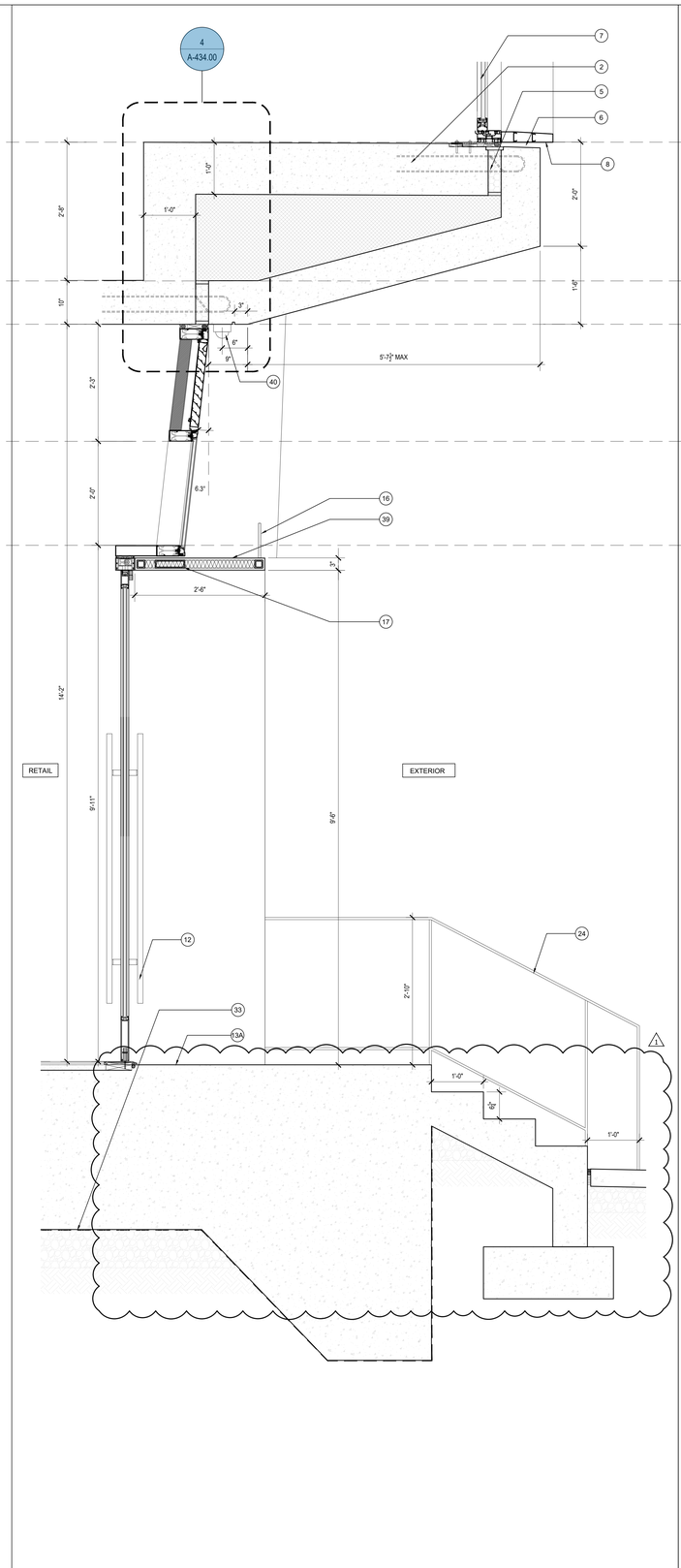


1 ELEVATION & PLAN @ CORNER STOREFRONT
SCALE: 1"=1'-0"



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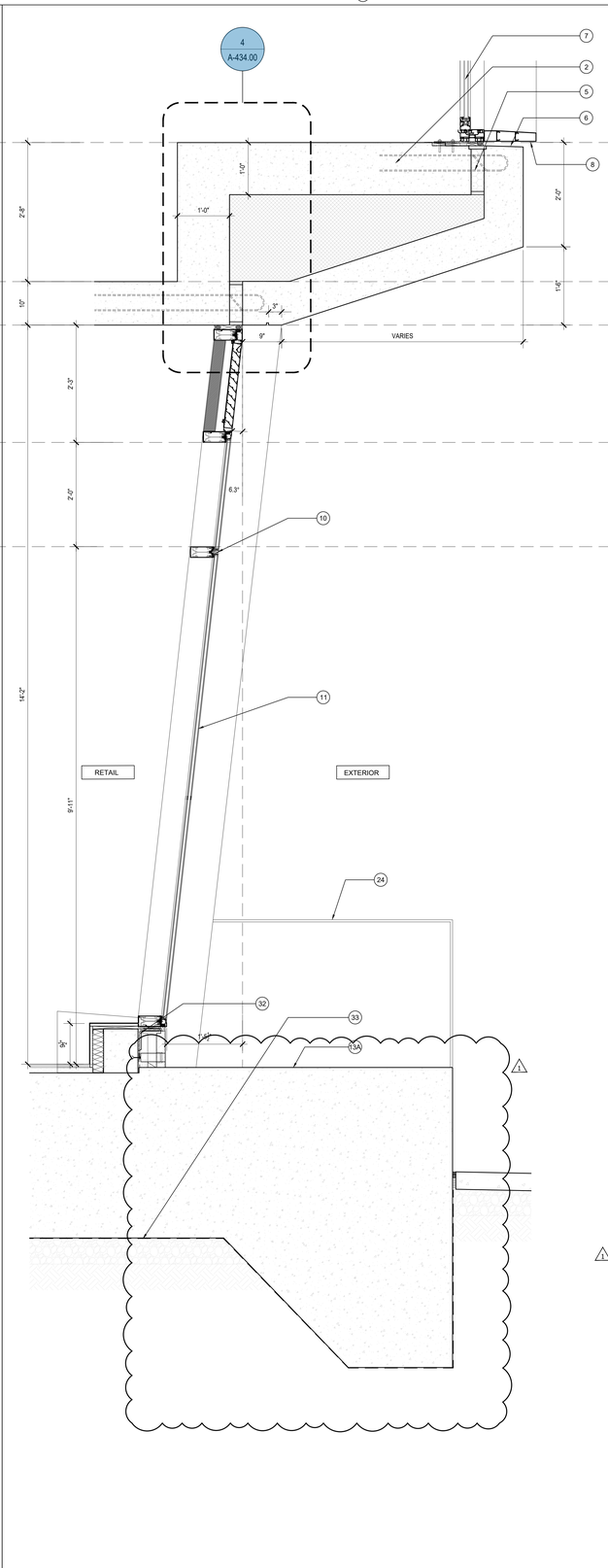

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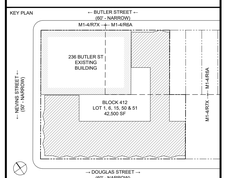

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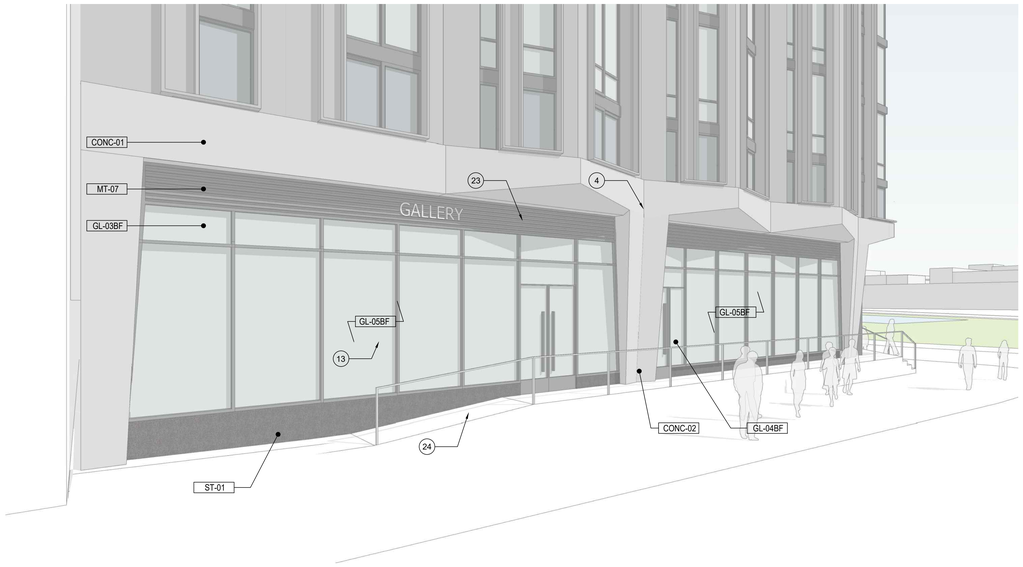
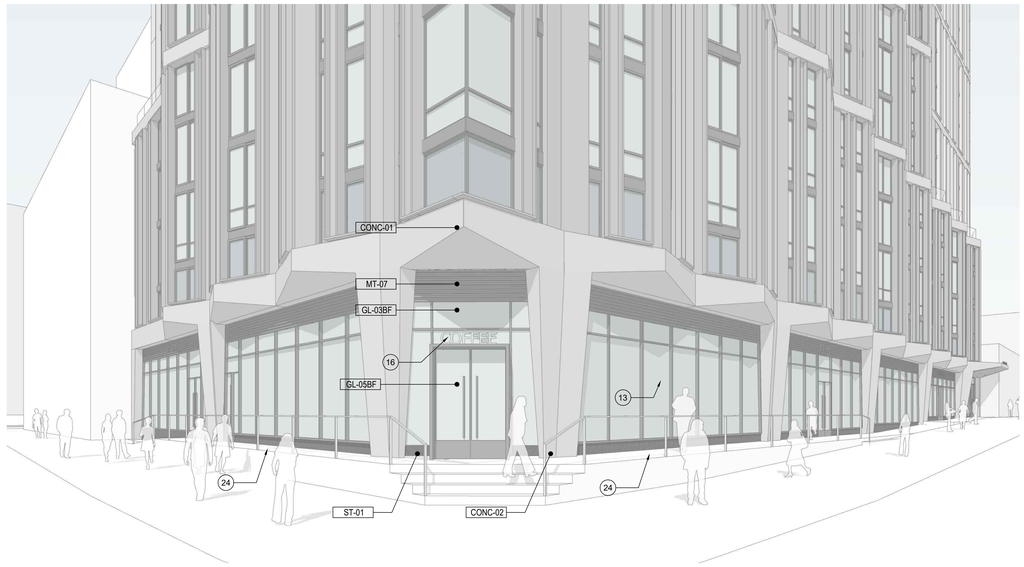
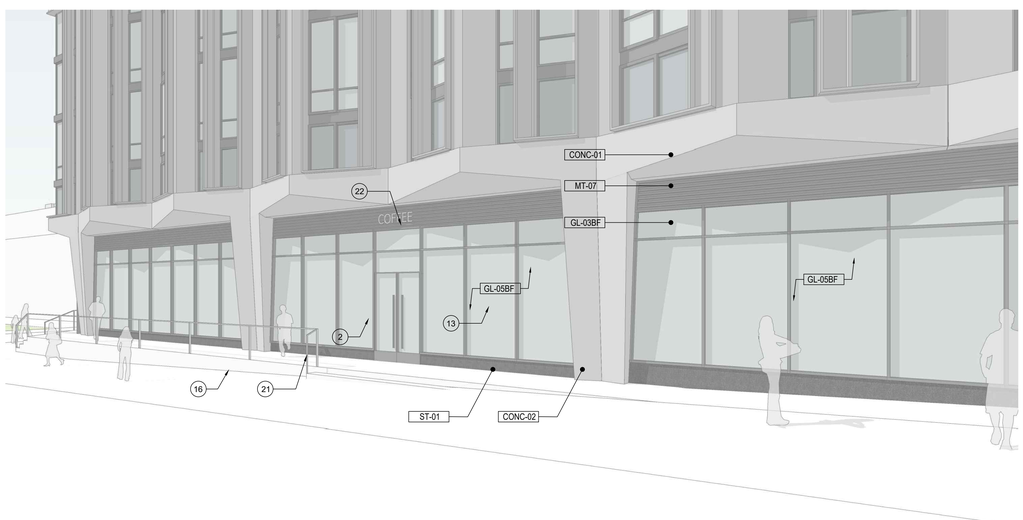


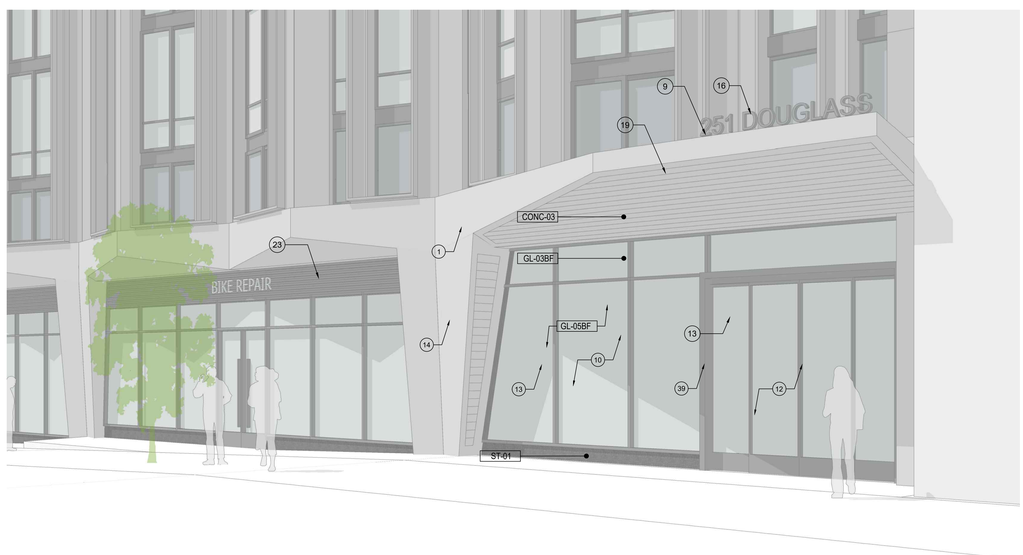
4 STOREFRONT VIEW - WEST ELEVATION
SCALE: N.T.S.



3 STOREFRONT CORNER VIEW
SCALE: N.T.S.



2 STOREFRONT VIEW - SOUTH ELEVATION
SCALE: N.T.S.



1 STOREFRONT VIEW - SOUTH ELEVATION (ENTRANCE)
SCALE: N.T.S.

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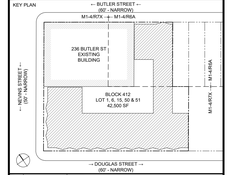
ACOUSTIC

KEY PLAN



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01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
STOREFRONT VIEWS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-415.00

CADD FILE No.:

KEY NOTE LEGEND

1. EXPOSED ARCHITECTURAL CONCRETE BEAM (NON-LOAD BEARING) HEIGHT AND DEPTH VARY - SEE PLANS, ELEVATIONS AND RENDERINGS FOR REF.
2. STRUCTURAL BEAM / LOCALLY THICKENED SLAB AT PERIMETER, SEE STRUC. DWGS FOR DIMENSIONS
3. SEE STRUC. DWGS FOR HANGER/REINFORCEMENT DETAILS IF REQUIRED
4. CONCRETE CONTROL JOINT AS PER SPEC. SEE ELEVATIONS FOR LOCATIONS.
5. SCHÖCK THERMAL BREAK SYSTEM EXPANSION JOINT TO BE PROVIDED AS PER SPEC
6. TRANSPARENT WATERPROOFING COATING ON ALL HORIZONTAL SURFACE OF EXPOSED CONCRETE (POSITIVE SLOPE TO EXTERIOR). PRODUCT TO BE APPROVED BY ARCHITECT & ENVELOPE CONSULTANT
7. TYP. WINDOW WALL SYSTEM, SEE WINDOW SCHEDULES FOR DIMENSIONS, SEE ELEVATIONS FOR GLAZING TYPES
8. FIELD INSTALLED EXTRUDED ALUM. WINDOW SHROUD CONTRACTOR TO PROVIDE SHOP DWG/CALCULATIONS FOR SHROUD PROFILE AND ATTACHMENT, TYP.
9. CANTILEVERED ARCHITECTURAL CONCRETE CANOPY (INTERNALLY DRAINED) HEIGHT AND DEPTH VARY, SEE PLANS, ELEVATIONS AND RENDERINGS FOR REF.
10. FOUR SIDED STRUCTURAL SILICONE STOREFRONT AS DESIGN BASIS
11. PROVIDE FLOOD PROOFING GLAZING AND REINFORCED MULLIONS FOR STOREFRONT SYSTEM BELOW FLOOD PROTECTION ELEVATION
12. FLOOD BARRIER SYSTEM REQUIRED IN FRONT OF ENTRANCE DOORS BELOW FLOOD PROTECTION ELEVATION. SEE G-006 FOR DETAILS
13. SEE ELEVATIONS FOR GLAZING TYPES AND STOREFRONT DIMENSIONS
13A. MAT SLAB IN THIS LOCATION TO BE FINISHED SIMILAR TO FINISHED ARCHITECTURAL CONCRETE.
14. EXPOSED ARCHITECTURAL CONCRETE PIER (NON-LOAD BEARING). SEE A-445 FOR AXONOMETRIC DRAWINGS.
15. PERFORATED METAL CAVITY CLOSURE FOR CANOPY
16. CNC CUT METAL SIGNAGE
17. STEEL TO SUPPORT STOREFRONT, ENGINEERED FOR LATERAL LOAD AND CERTIFIED BY N.Y.P.E.
18. ROOF DRAIN FROM CONCRETE CANOPY ABOVE
19. BOARD-MARKED CONCRETE TO MATCH ARCHITECT'S SAMPLE.
20. LINE OF COLUMN BEYOND
21. 7" BUTTERFLY MX SYSTEM RECESSED IN METAL SHROUD
22. SPANDREL PANEL FOR SIAMESE, NFWH, OR FAI PENETRATIONS. SEE PLANS AND ELEVATIONS.
23. LOUVERS WITH BLANK OFF PANELS AS REQUIRED
24. 2 1/2"X1/2" S.S. HANDRAIL @ 34" AFF WITH EDGE PROTECTION @ 4" AFF
25. KISS-MULLION AT SHADOWBOX TO ALIGN WITH TOP OF F.F.
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35. 1/2" CHAMFER AT EXPOSED CONCRETE EDGE
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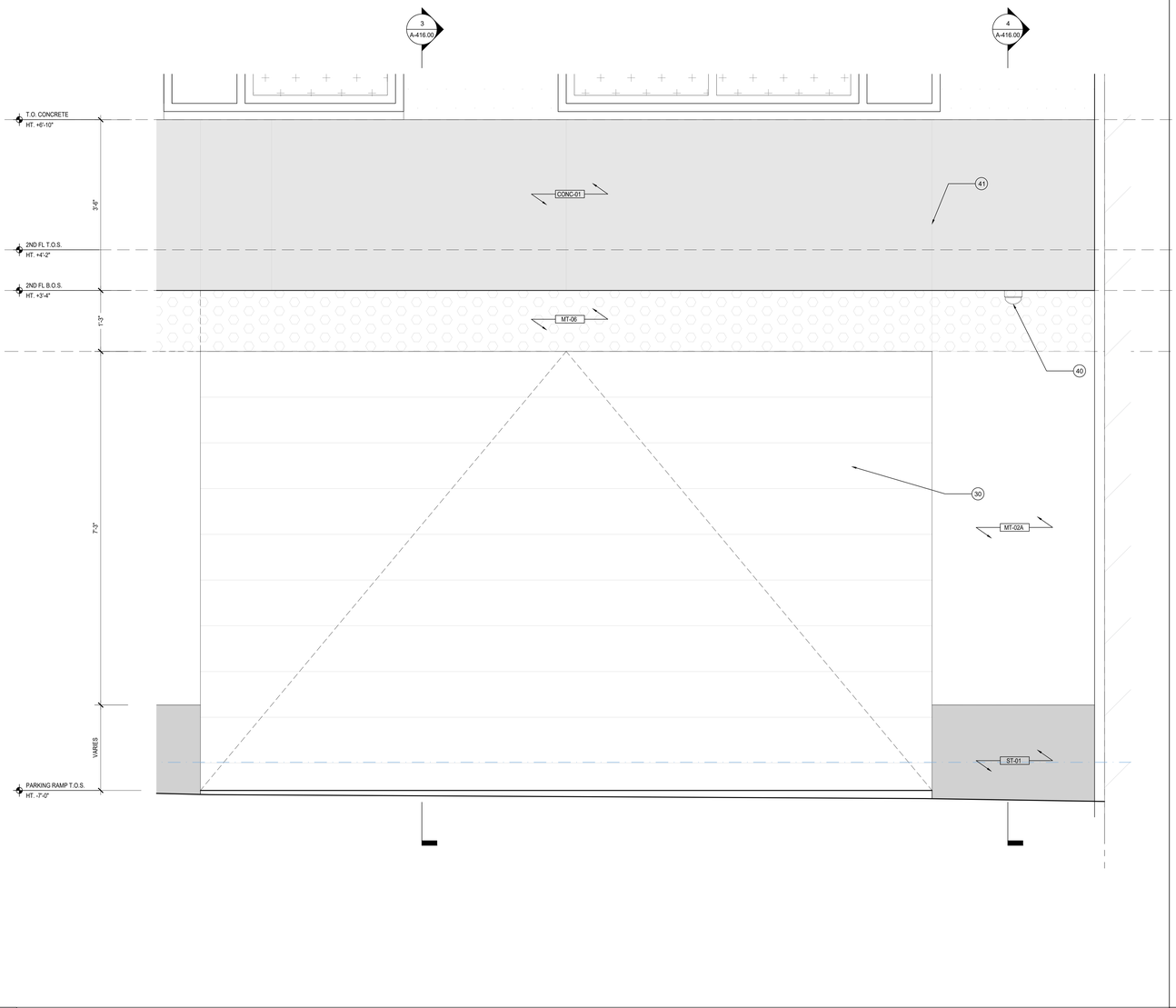
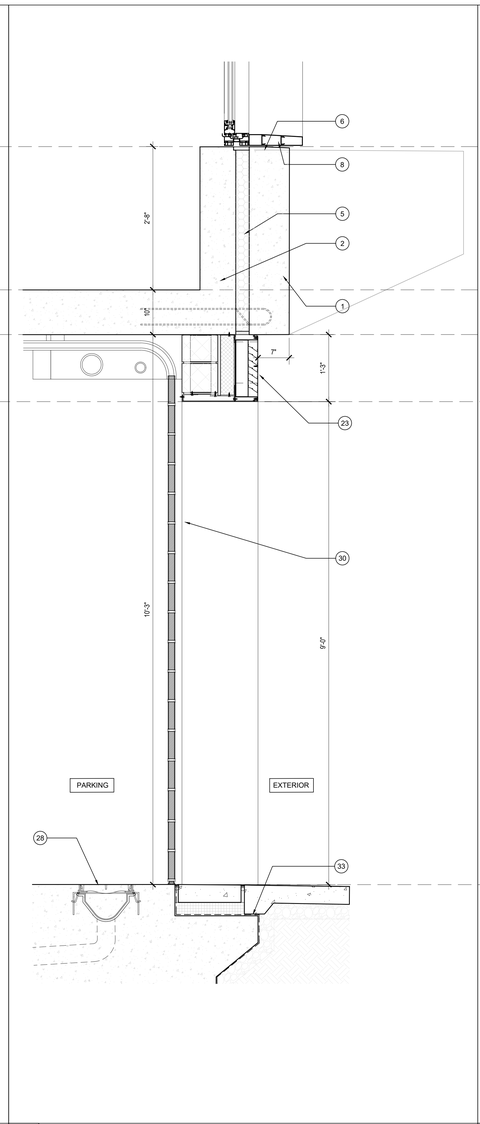
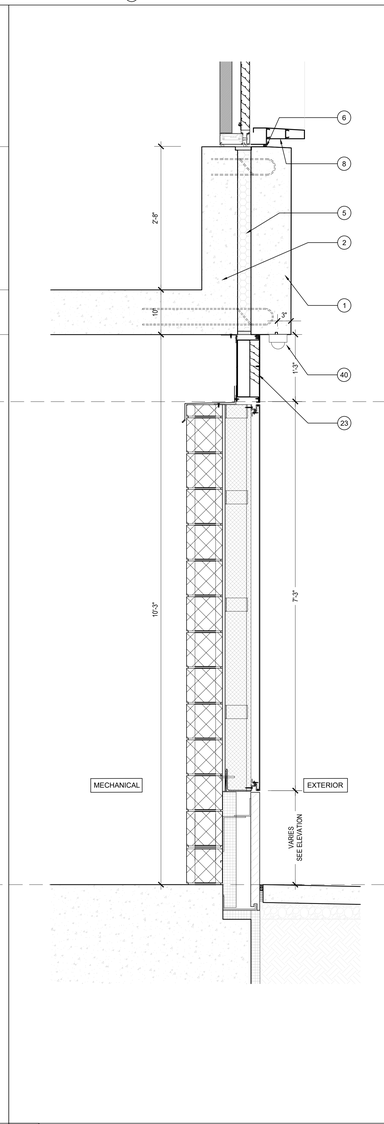
42. RECESSED DOWNLIGHTS. SEE RCP ON A-201.00



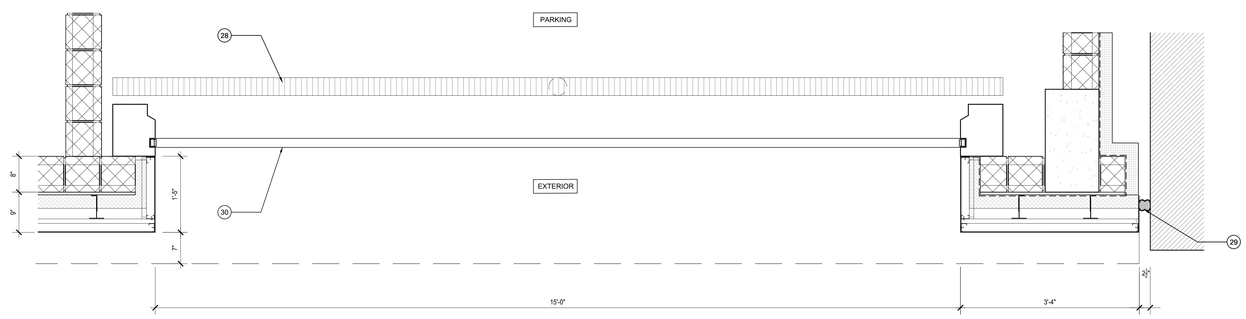
2 ENLARGED GARAGE ELEVATION
SCALE: 1"=1'-0"



3 SECTION AT GARAGE DOOR
SCALE: 1"=1'-0"



4 SECTION AT METAL PANEL
SCALE: 1"=1'-0"



1 ENLARGED GARAGE PLAN
SCALE: 1"=1'-0"

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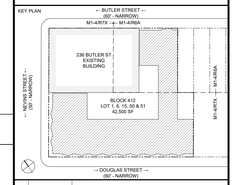

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED GARAGE ELEVATION

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-416.00

CADD FILE No.:
121 OF 175

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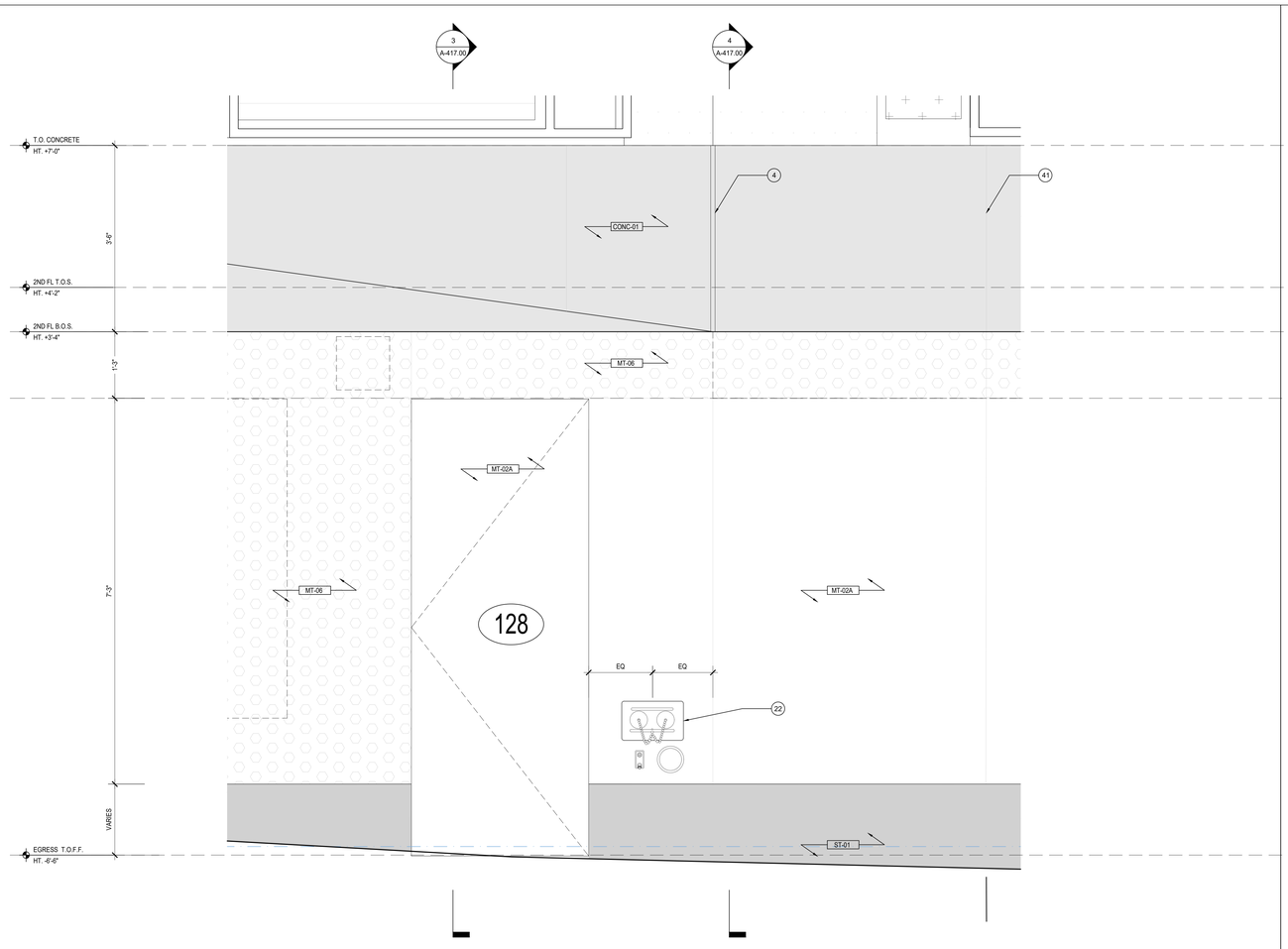
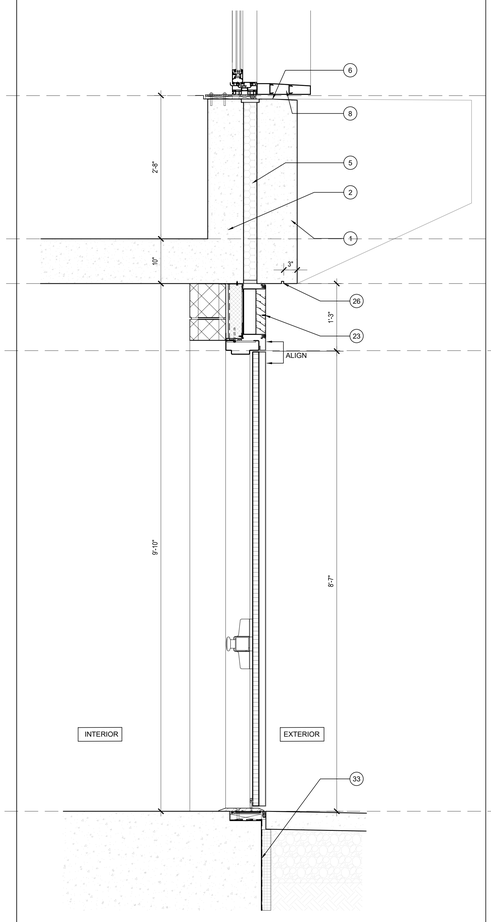
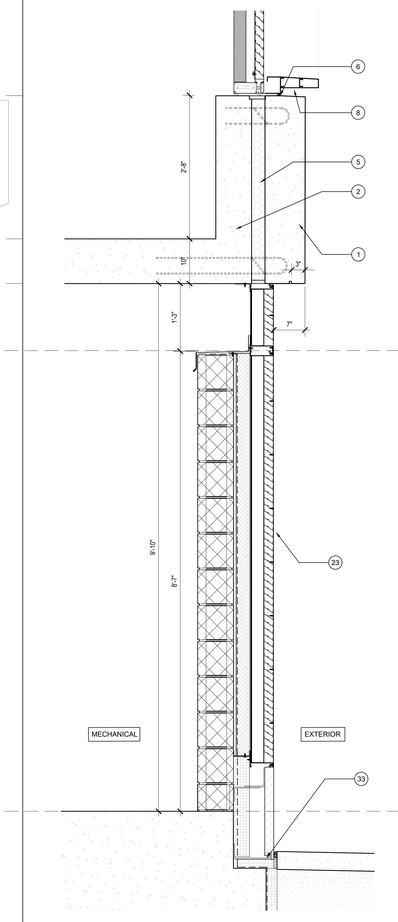


2 ENLARGED GARAGE ELEVATION
SCALE: 1"=1'-0"



3 SECTION AT METAL DOOR
SCALE: 1"=1'-0"



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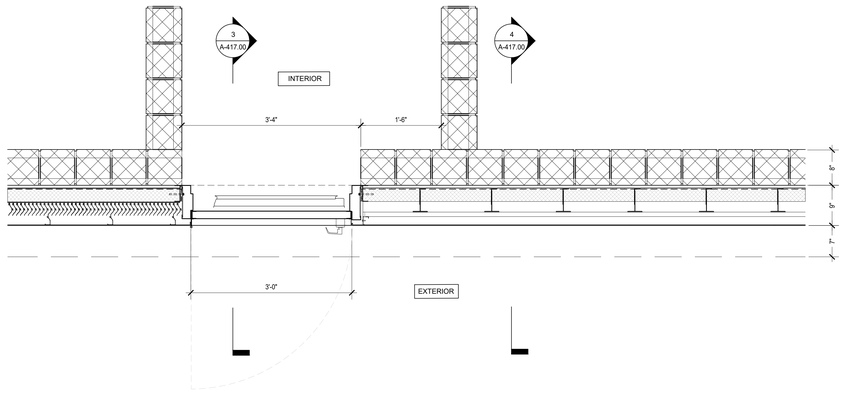

1 ENLARGED GARAGE PLAN
SCALE: 1"=1'-0"

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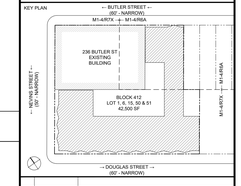

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251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ENLARGED GARAGE ELEVATION

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-417.00

CADD FILE No.:
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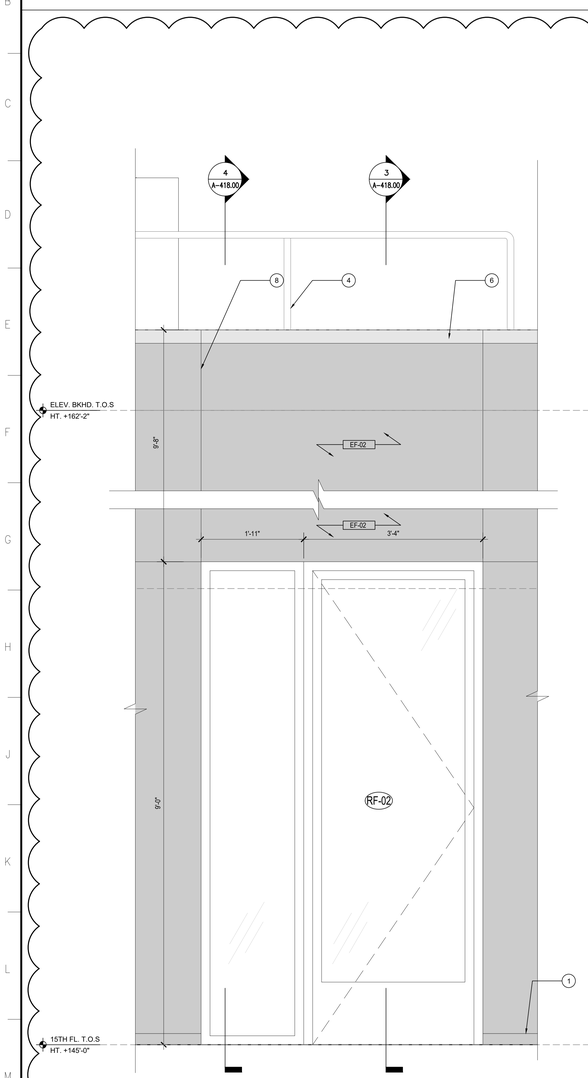
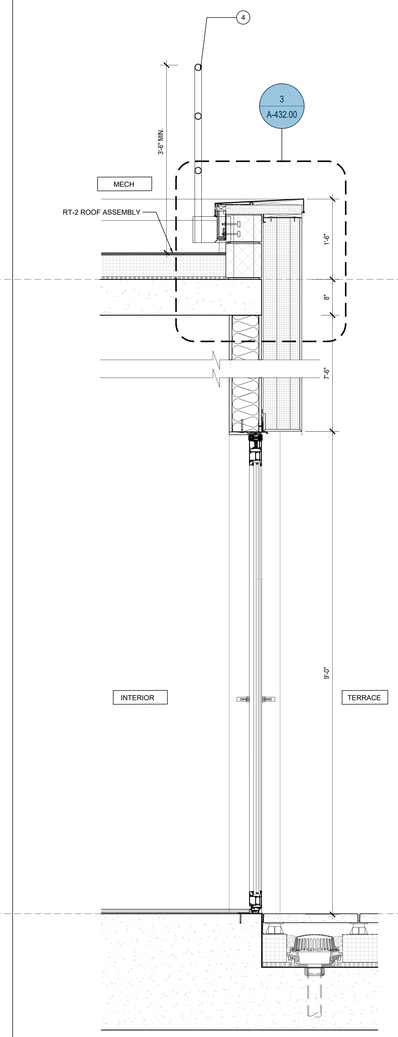
KEY NOTE LEGEND

1. 2 1/2" METAL BASE. FINISH TO MATCH EIFS ABOVE.
2. HOSE BIB, SEE PLANS AND PLUMBING DRAWINGS.
3. LAMINATED GLASS RAILING (BIRD FRIENDLY) 3'-6" AFF
4. OSHA RAILING 3'-6" MIN AFF
5. MECHANICAL SCREENING
6. PAINTED METAL COPING AT EIFS
7. SCUPPER, SEE PLUMBING DRAWINGS
8. EIFS JOINT LINES
9. EXTERIOR LIGHTING. SEE RCP'S FOR LOCATION.



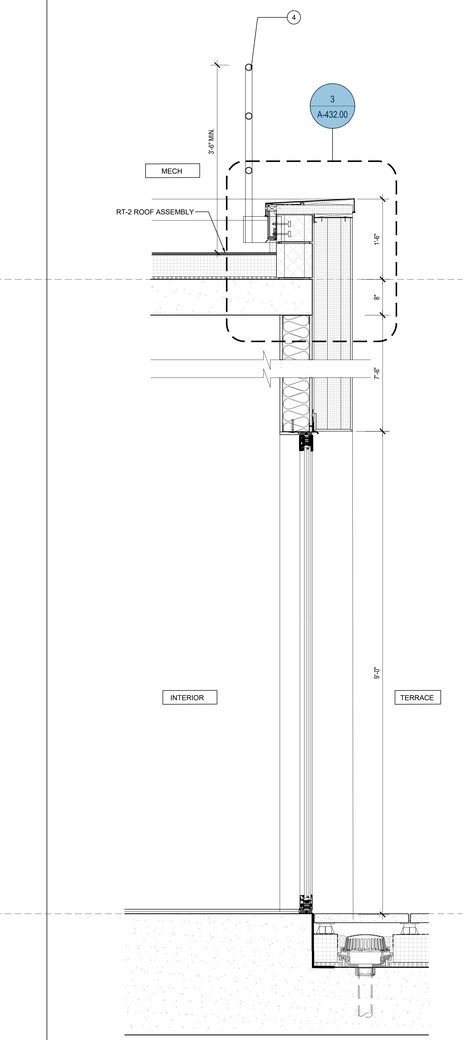
2 ELEVATION AT LOBBY STOREFRONT DOOR

SCALE: 1"=1'-0"



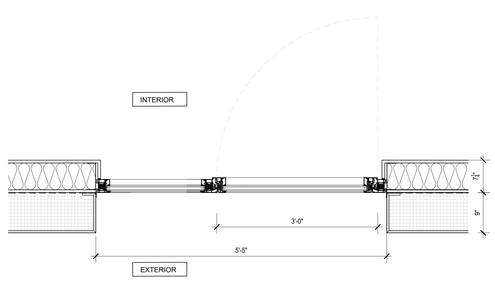
3 SECTION AT ELEVATOR LOBBY STOREFRONT DOOR

SCALE: 1"=1'-0"



4 SECTION AT ELEVATOR LOBBY STOREFRONT

SCALE: 1"=1'-0"



1 PLAN AT LOBBY STOREFRONT DOOR

SCALE: 1"=1'-0"

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BROOKLYN, NY 11217

GEOTECH

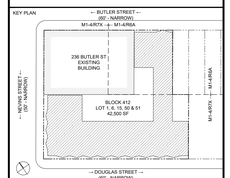
GEOTECHNICAL ENGINEERING SERVICES
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR

WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

ENLARGED BULKHEAD ELEVATION

SEAL & SIGNATURE

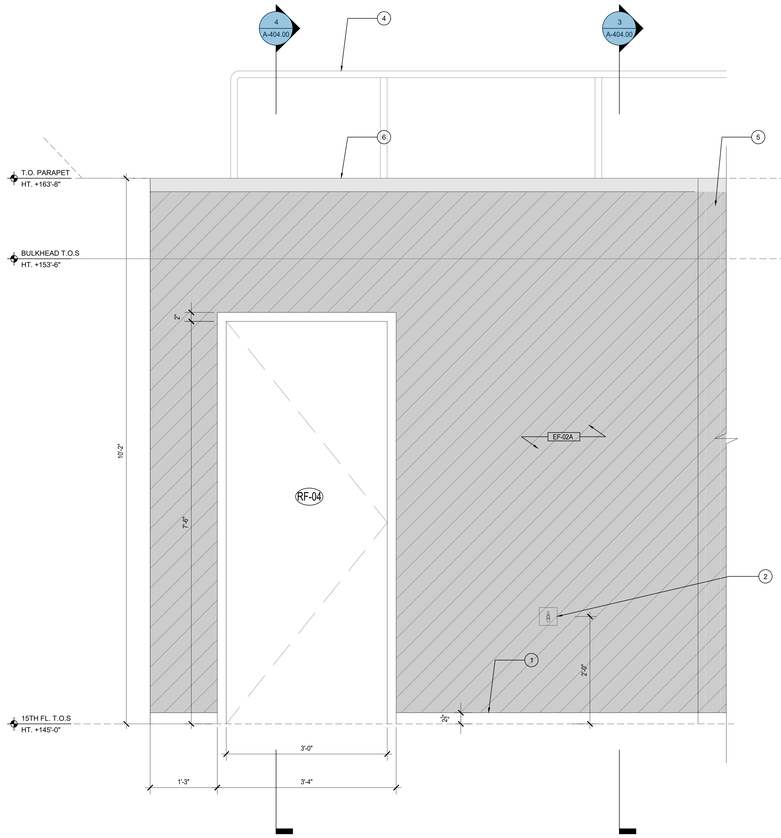
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-418.00

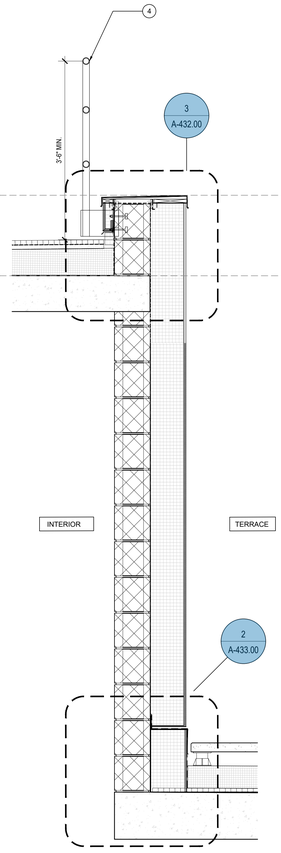
CADD FILE No.:

KEY NOTE LEGEND

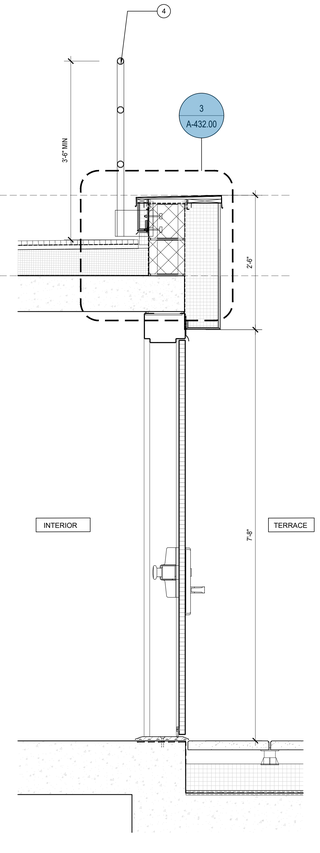
1. 2 1/2" METAL BASE. FINISH TO MATCH EIFS ABOVE.
2. HOSE BIB, SEE PLANS AND PLUMBING DRAWINGS.
3. LAMINATED GLASS RAILING (BIRD FRIENDLY) 3'-6" AFF
4. OSHA RAILING 3'-6" MIN AFF
5. MECHANICAL SCREENING
6. PAINTED METAL COPING AT EIFS
7. SCUPPER, SEE PLUMBING DRAWINGS
8. EIFS JOINT LINES
9. EXTERIOR LIGHTING. SEE RCP'S FOR LOCATION.



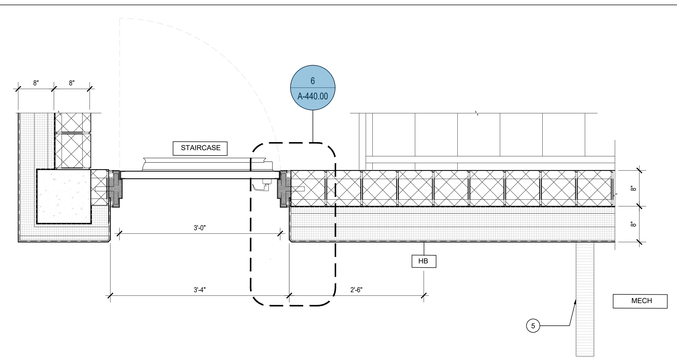
2 ELEVATION AT BULKHEAD
SCALE: 1"=1'-0"



3 SECTION AT BULKHEAD EIFS WALL
SCALE: 1"=1'-0"



4 SECTION AT BULKHEAD METAL DOOR
SCALE: 1"=1'-0"



1 PLAN AT BULKHEAD METAL DOOR
SCALE: 1"=1'-0"

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

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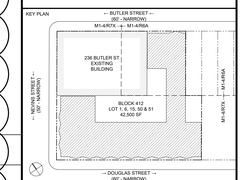

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CADD FILE No.:
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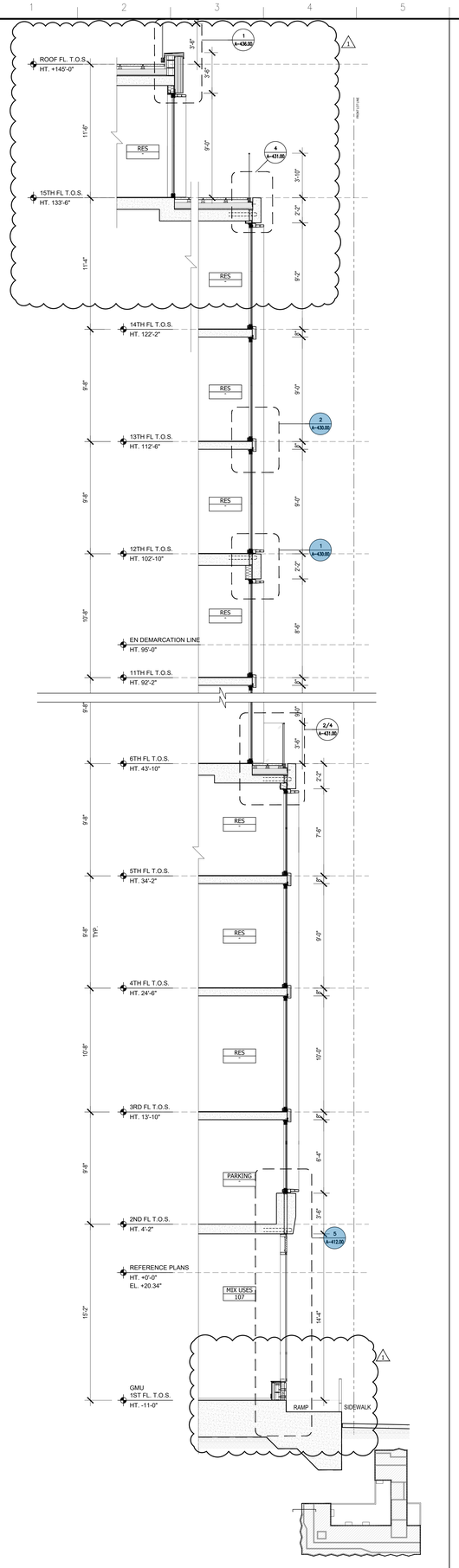
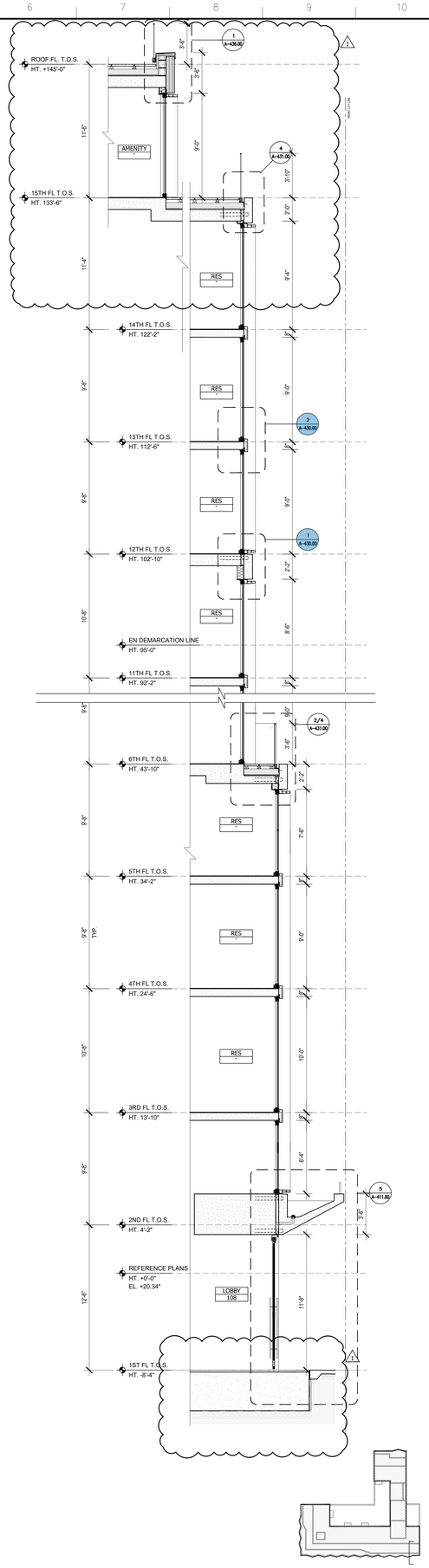
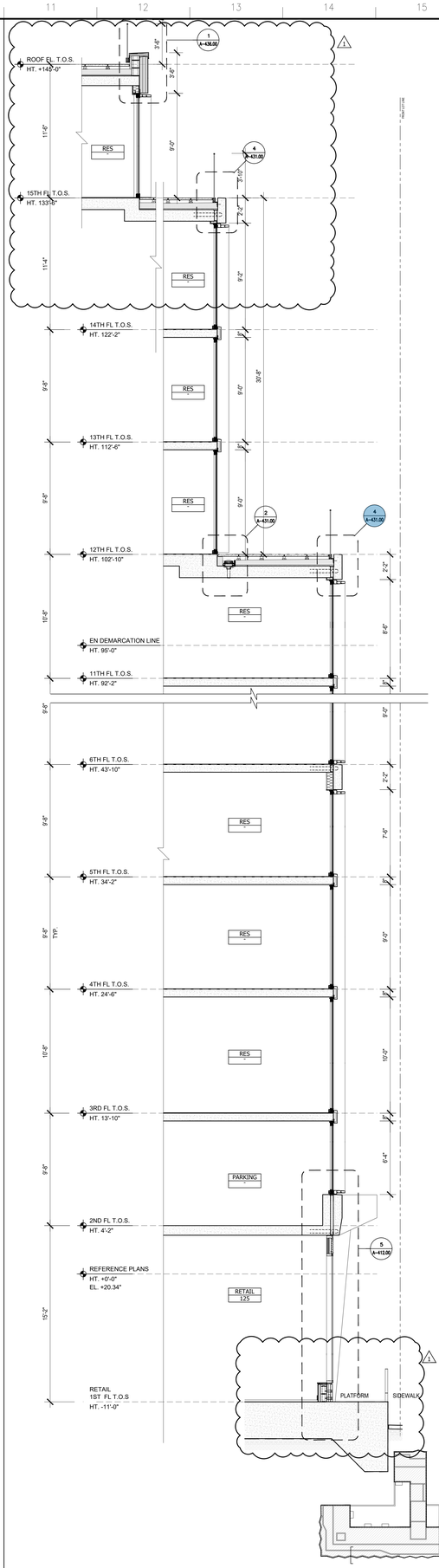


1 WALL SECTION @ COURTYARD
SCALE: 1/4"=1'-0"



2 WALL SECTION @ STREET
SCALE: 1/4"=1'-0"



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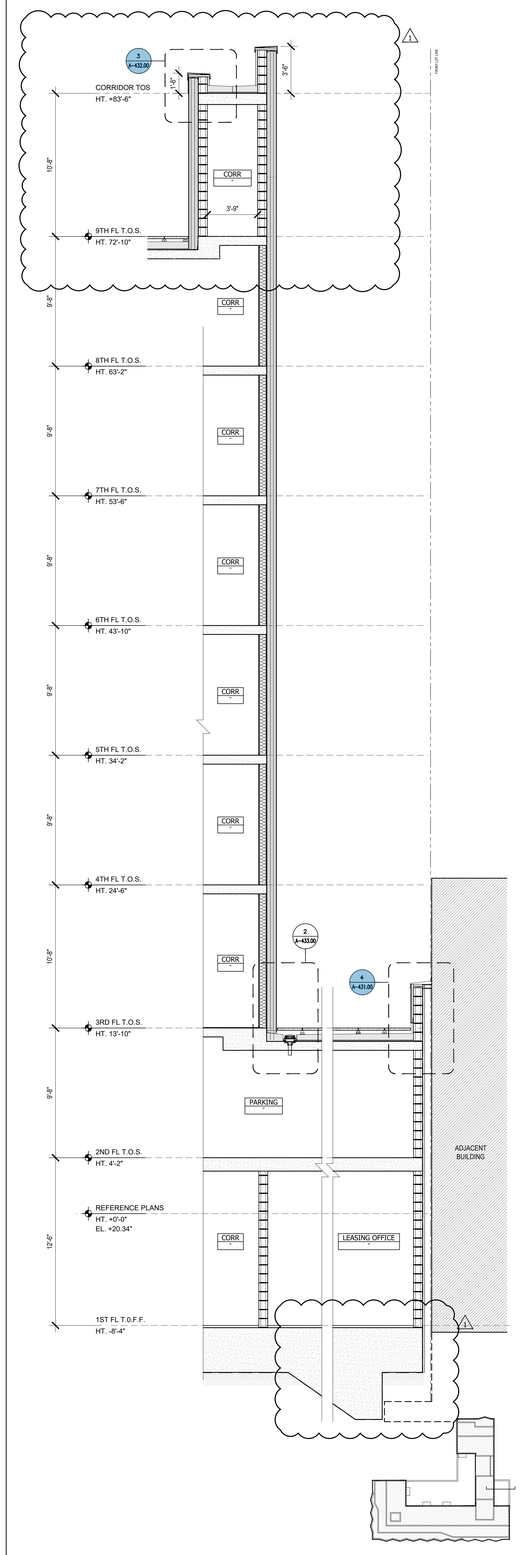

4 WALL SECTION @ ADJACENT BLDG.
SCALE: 1/4"=1'-0"

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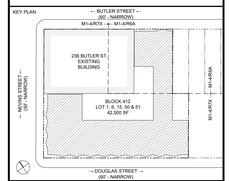

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SEAL & SIGNATURE

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DRAWING BY: FFA
CHK BY: FFA

A-420.00

CADD FILE No.:
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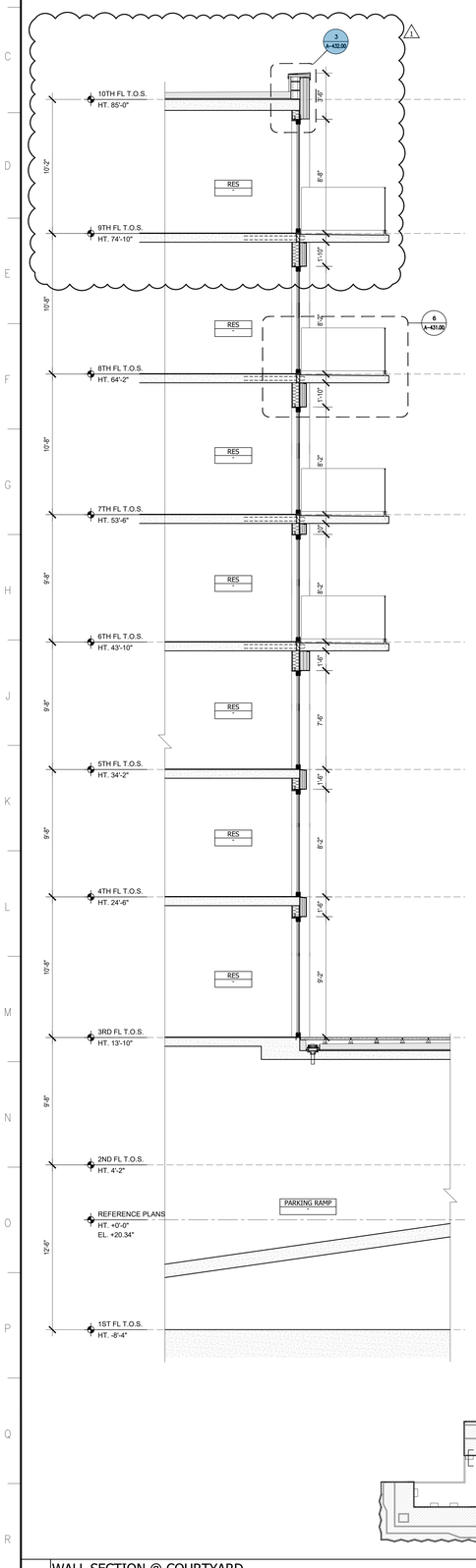

1 WALL SECTION @ COURTYARD
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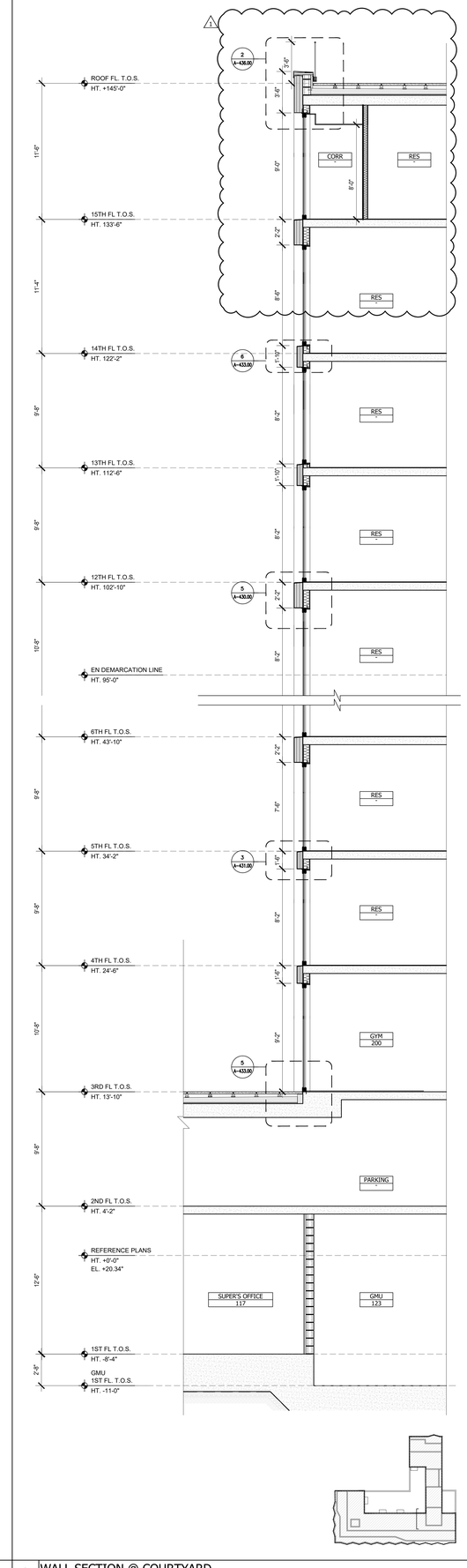

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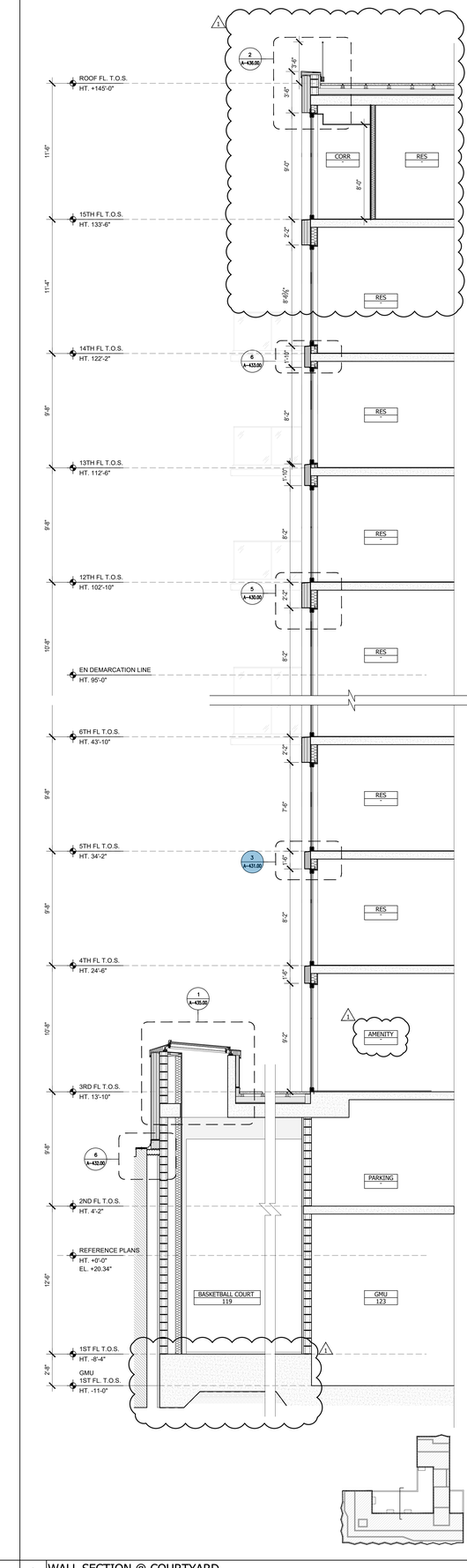

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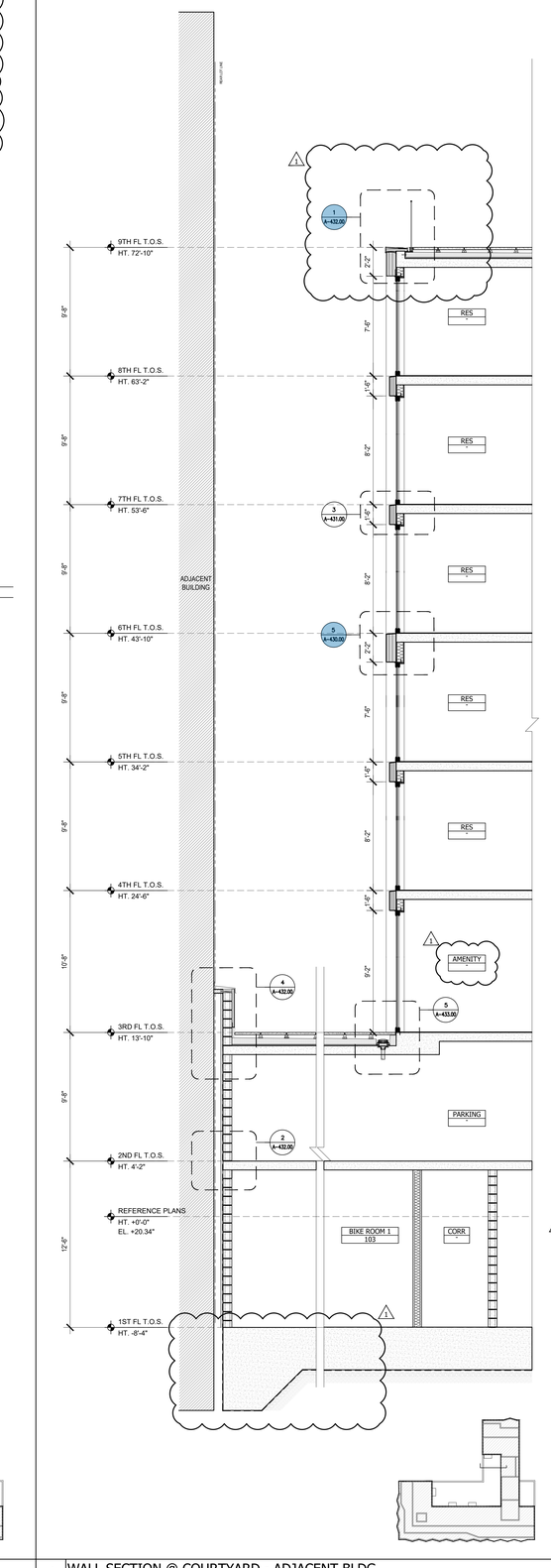

4 WALL SECTION @ COURTYARD - ADJACENT BLDG
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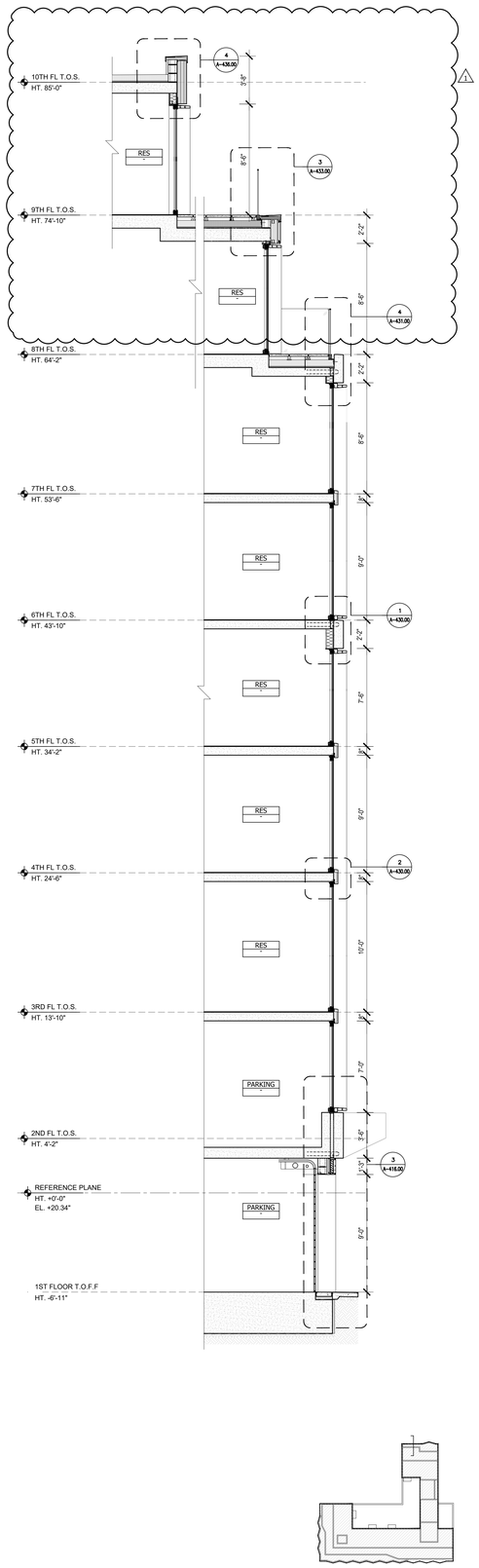
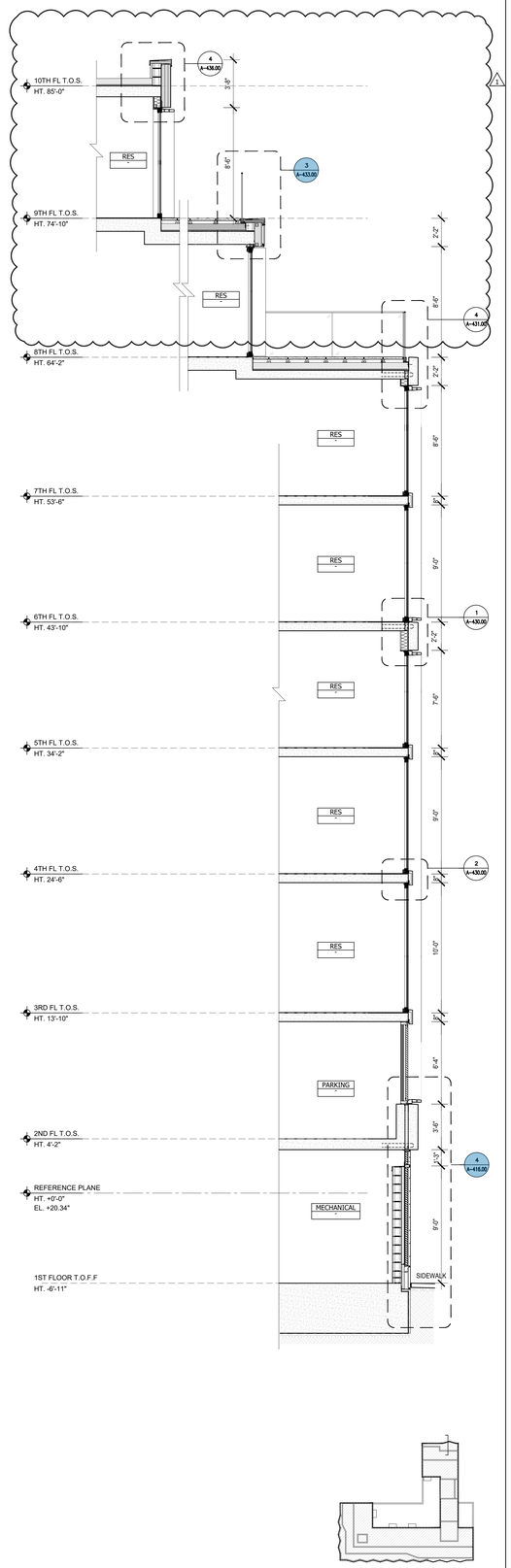
DRAWING BY: FFA
CHK BY: FFA

A-421.00

CADD FILE No.:
126 OF 175



1 WALL SECTION @ BUTLER STREET



2 WALL SECTION @ BUTLER STREET

CLIENT
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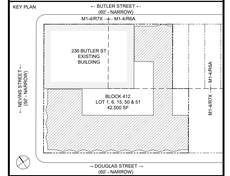

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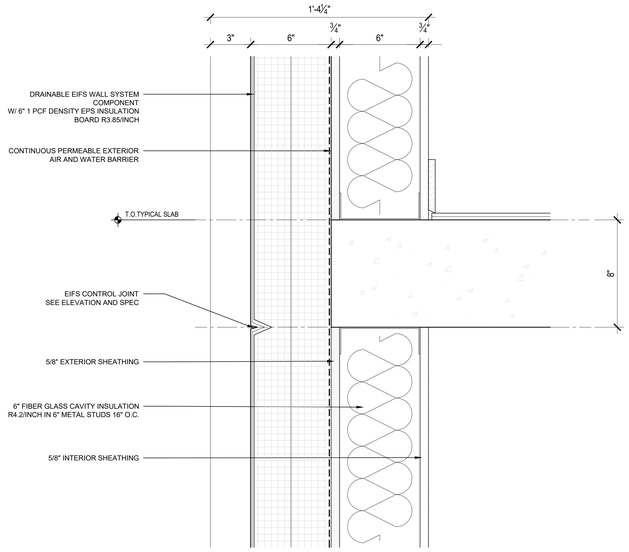
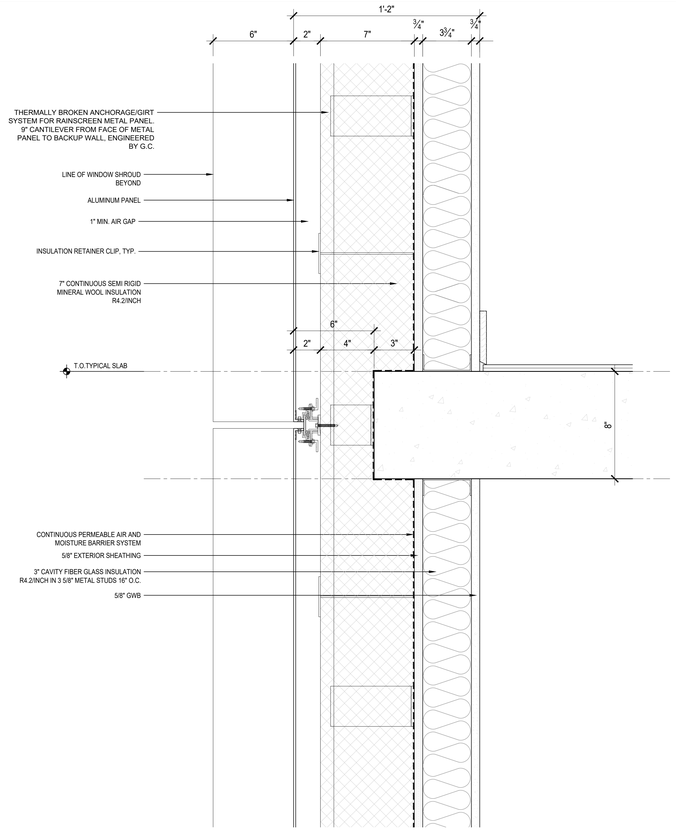


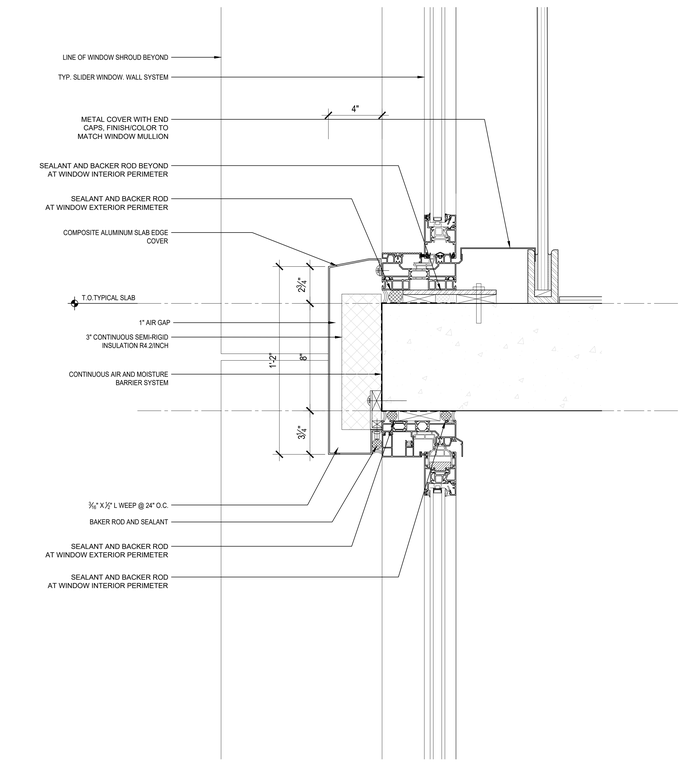
6 WALL TYPE D - TYP EIFS WALL DETAIL, RECESSED

SCALE: 3"=1'-0"



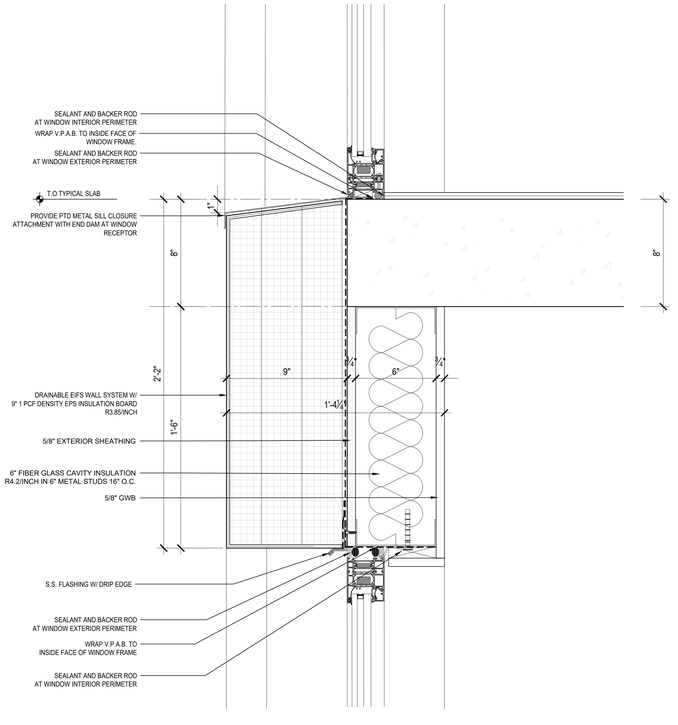
4 WALL TYPE B - METAL PANEL RAINSCREEN DETAIL

SCALE: 3"=1'-0"



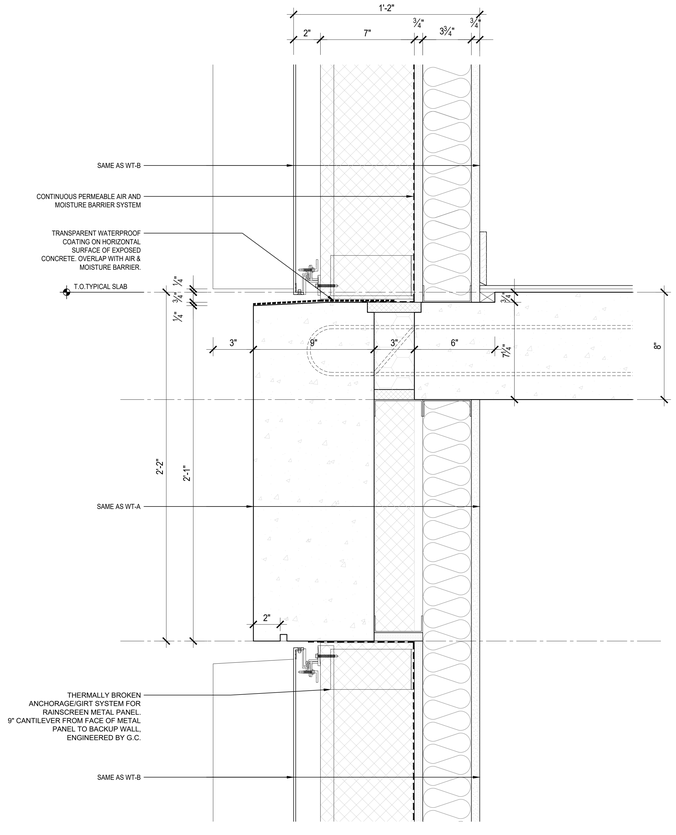
2 SLAB TYPE C - METAL SLAB EDGE COVER

SCALE: 3"=1'-0"



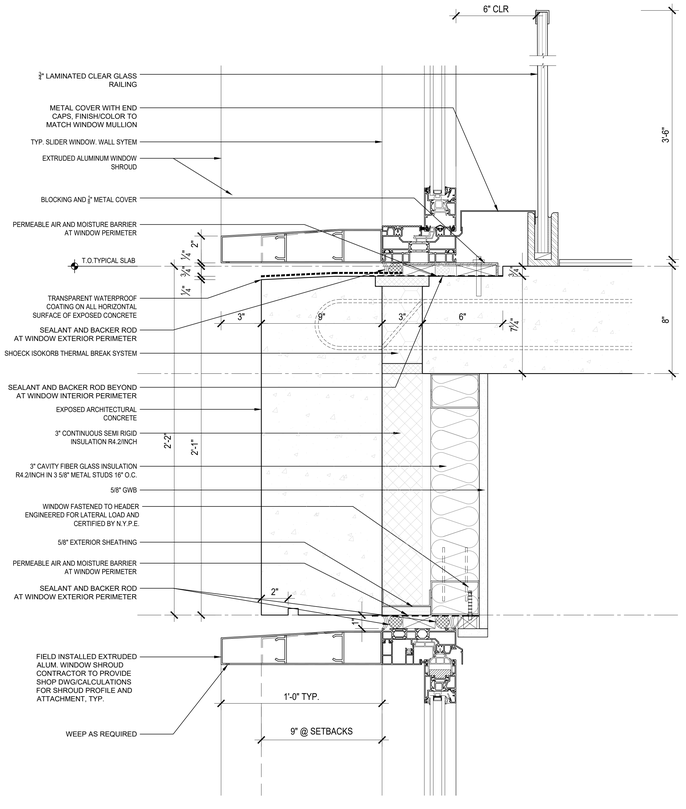
5 WALL TTPE D - TYP EIFS WALL DETAIL

SCALE: 3"=1'-0"



3 WALL TYPE A & B - METAL PANEL & EXPOSED CONCRETE TRANSITION DETAIL

SCALE: 3"=1'-0"



1 WALL TYPE A - EXPOSED CONCRETE DETAIL

SCALE: 3"=1'-0"

CLIENT

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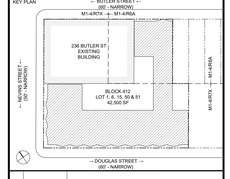

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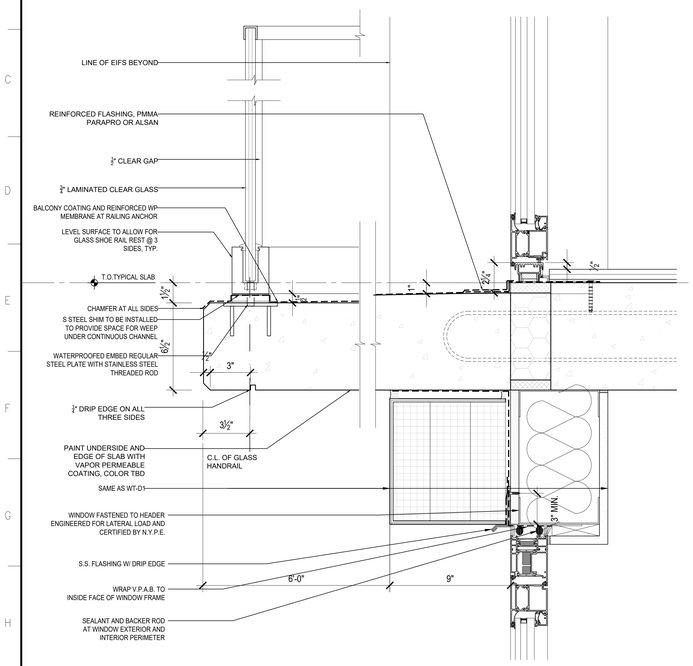
CHK BY:	FFA

A-430.00

CADD FILE No.:

128 OF 175



6 SLAB TYPE H - TYP BALCONY DETAIL
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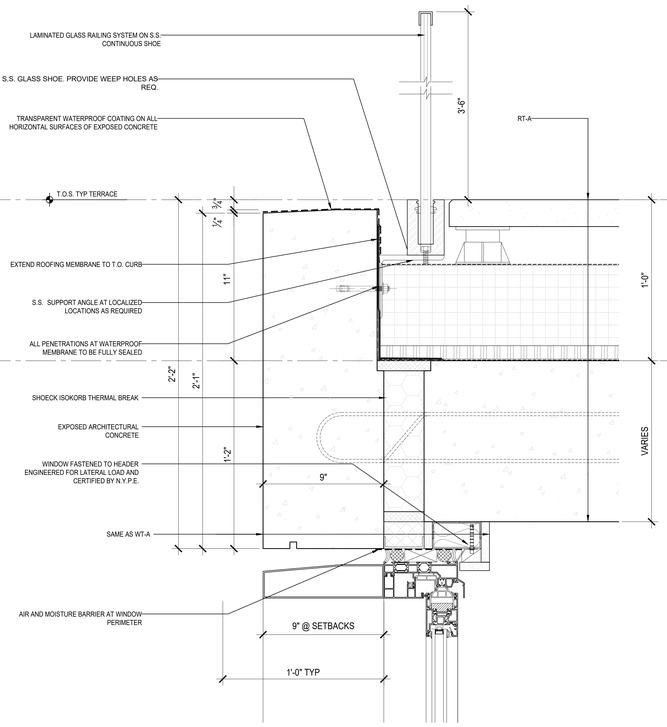

4 TYP PARAPET DETAIL @ IRMA ROOF
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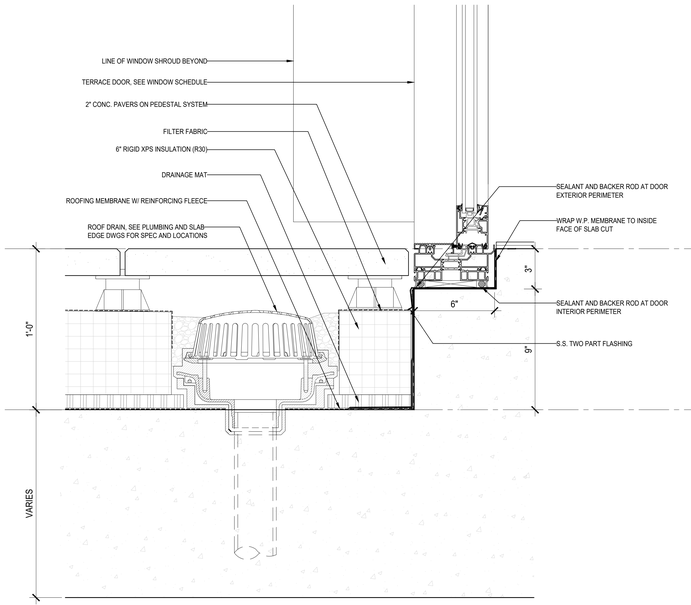

2 ROOF TYPE A - OCCUPANT ROOF(IRMA ROOF) AND TERRACE SLIDING DOOR DETAIL
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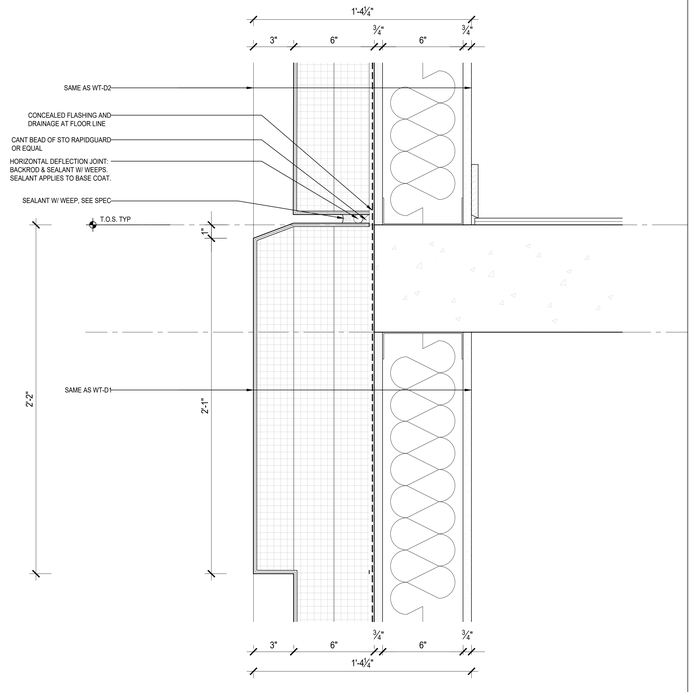

5 WALL TYPE D - TYP EIFS THICKNESS TRANSITION DETAIL (THROUGH SYSTEM WEEP DETAIL)
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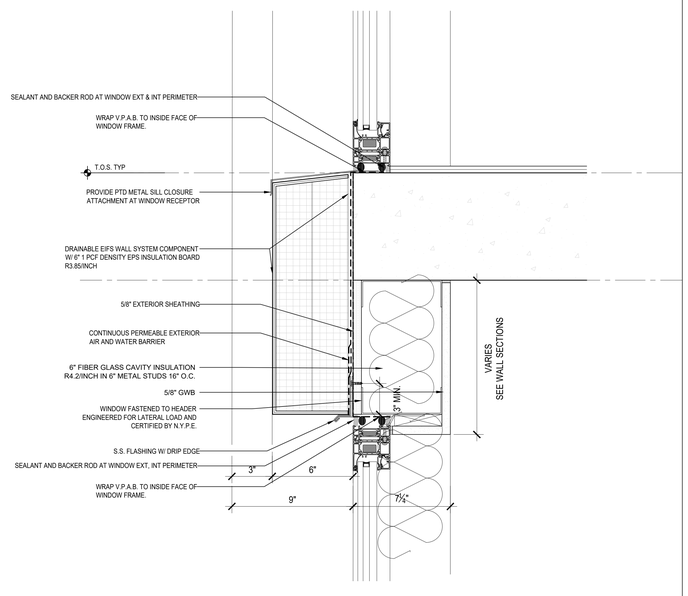
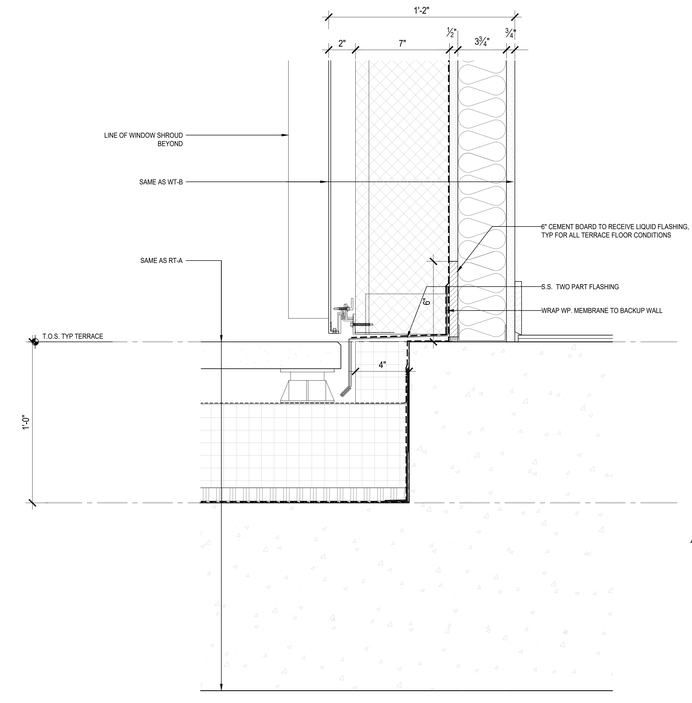


3 WALL TYPE D - TYP EIFS @ WINDOWS
SCALE: 3"=1'-0"



1 TYP METAL PANEL @ TERRACE
SCALE: 3"=1'-0"

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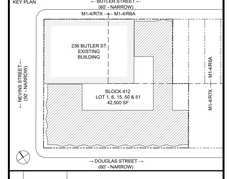
KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
EXTERIOR WALL DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-431.00

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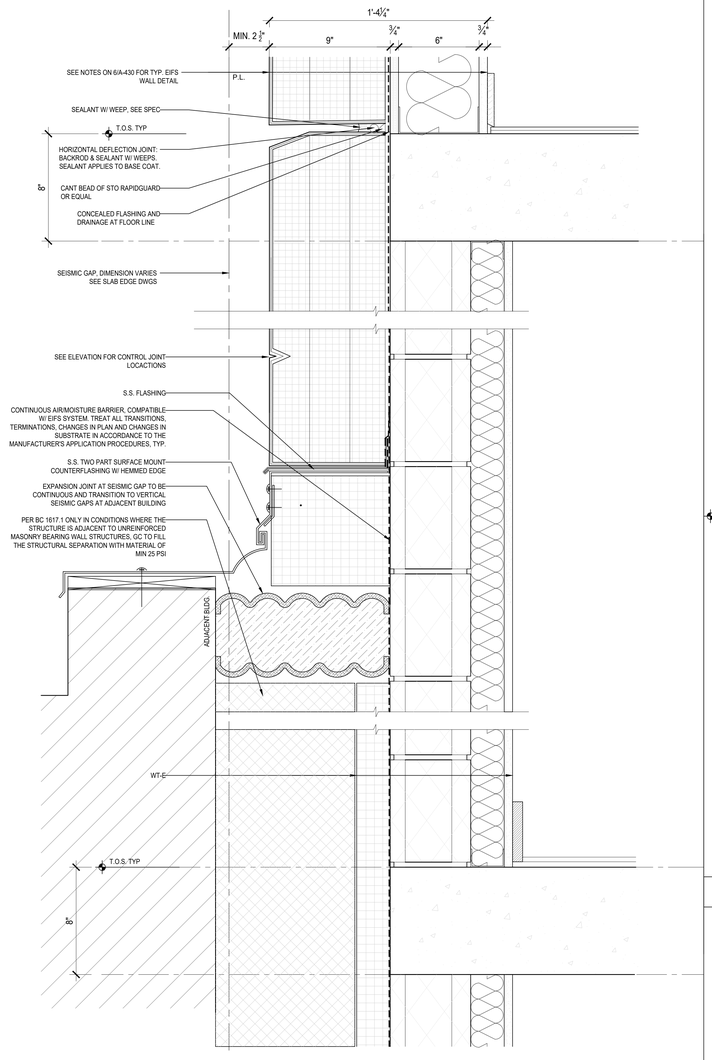
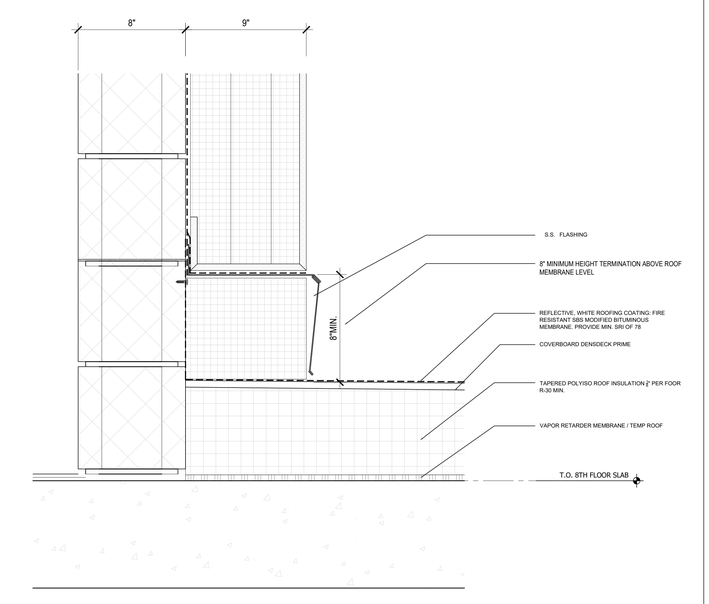
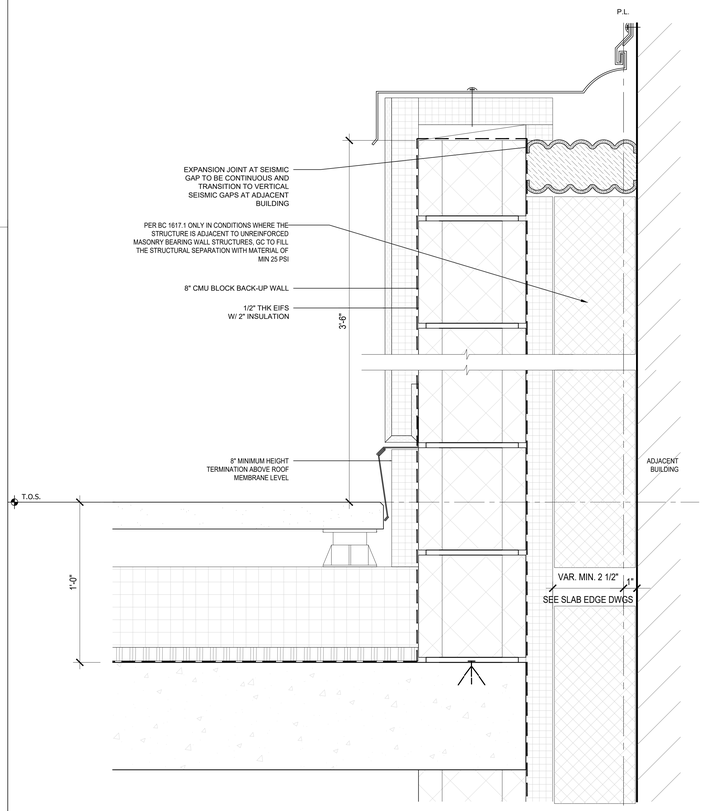


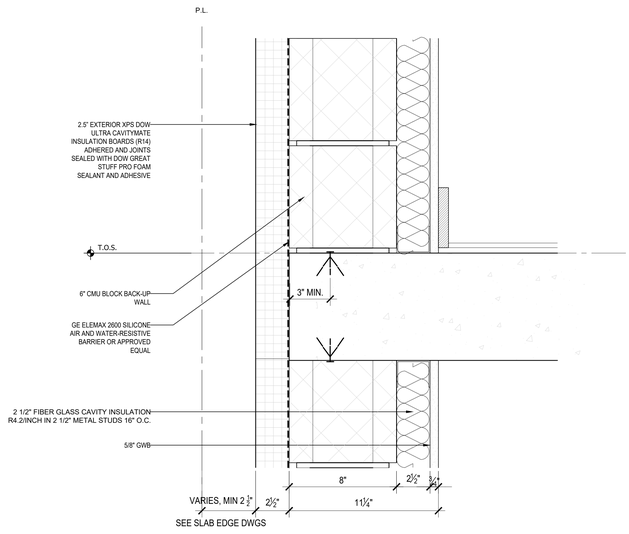
6 TYP. EIFS TERMINATION DETAIL AT CONVENTIONAL ROOF
SCALE: SCALE: 3"=1'-0"



5 RT-2, CONVENTIONAL ROOF DETAIL AND EIFS TERMINATION DETAIL
SCALE: SCALE: 3"=1'-0"



4 TYP LOT LINE PARAPET DETAIL
SCALE: SCALE: 3"=1'-0"



2 WT-E, LOT LINE CONCEALED/EXTERIOR XPS INSULATION DETAIL
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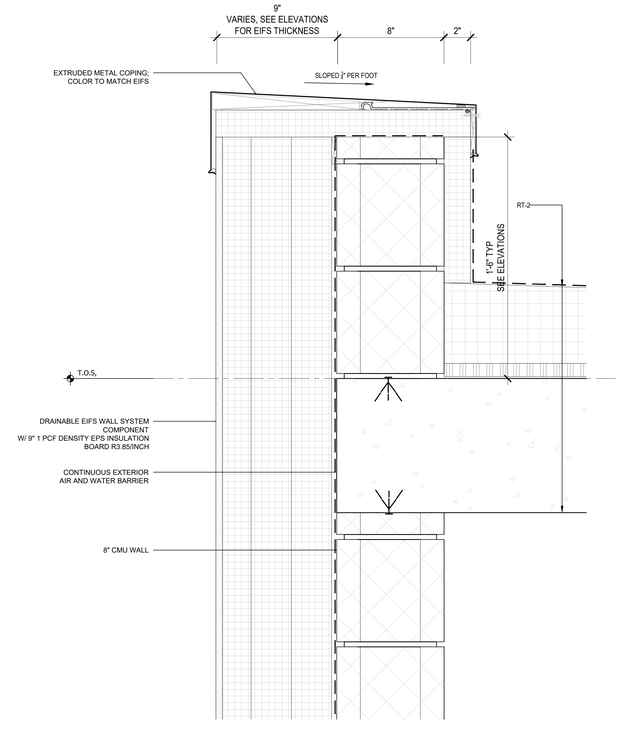
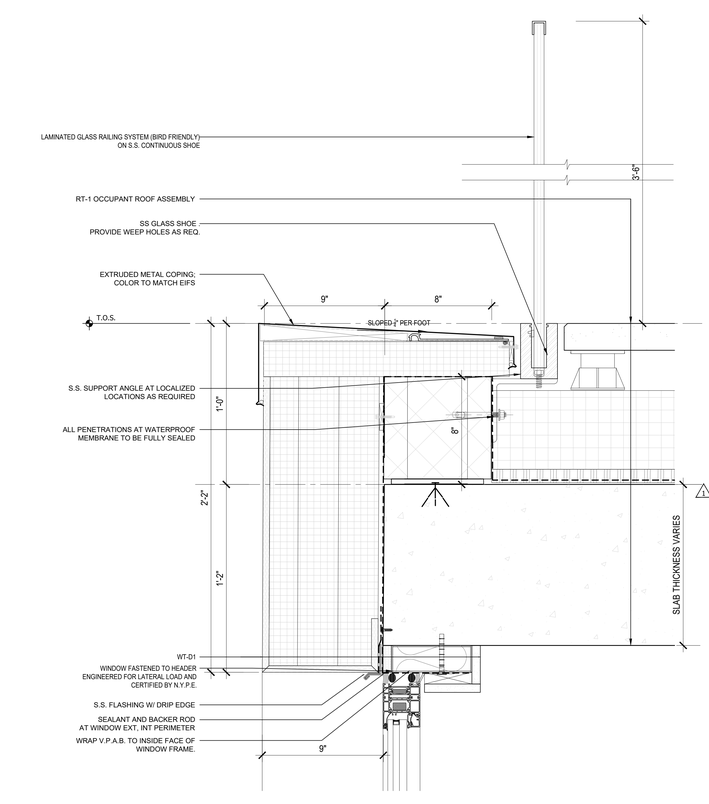


3 TYP CONVENTIOANL ROOF AND EIFS PARAPET DETAIL AT BULKHEAD
SCALE: 3"=1'-0"



1 TYP EIFS PARAPET DETAIL AT IRMA ROOF
SCALE: 3"=1'-0"

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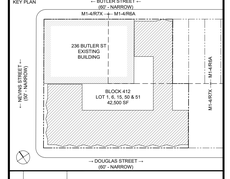

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251 DOUGLASS STREET
BROOKLYN, NY 11217

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EXTERIOR WALL DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
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A-432.00

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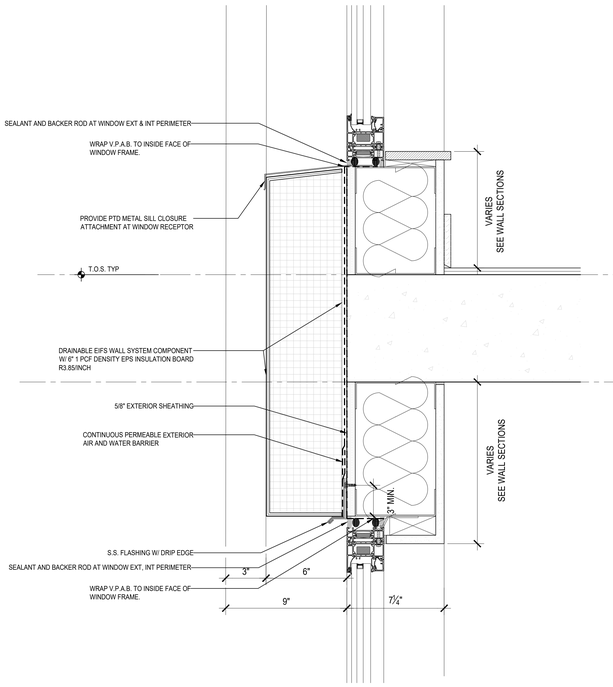

6 TYP EIFS @ WINDOWS
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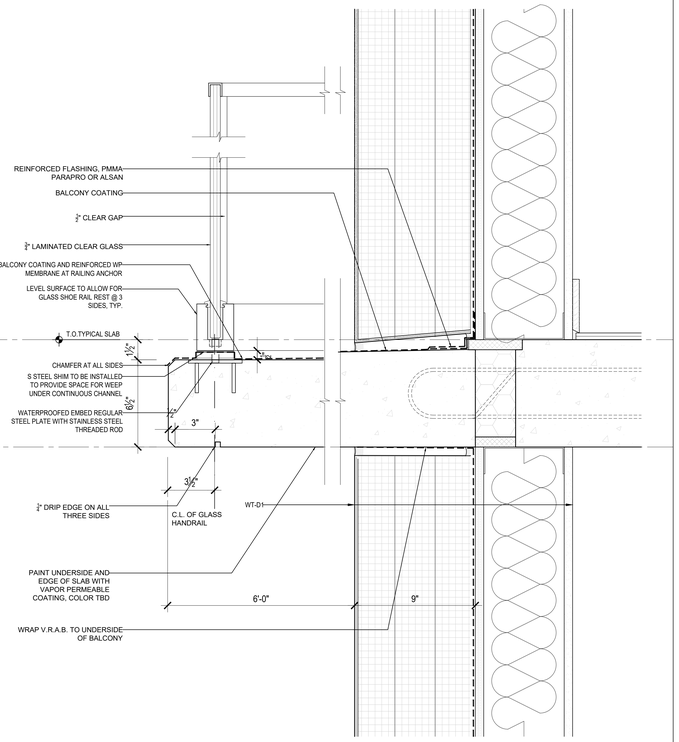

4 TYP BALCONY DETAIL: EIFS TO CONCRETE
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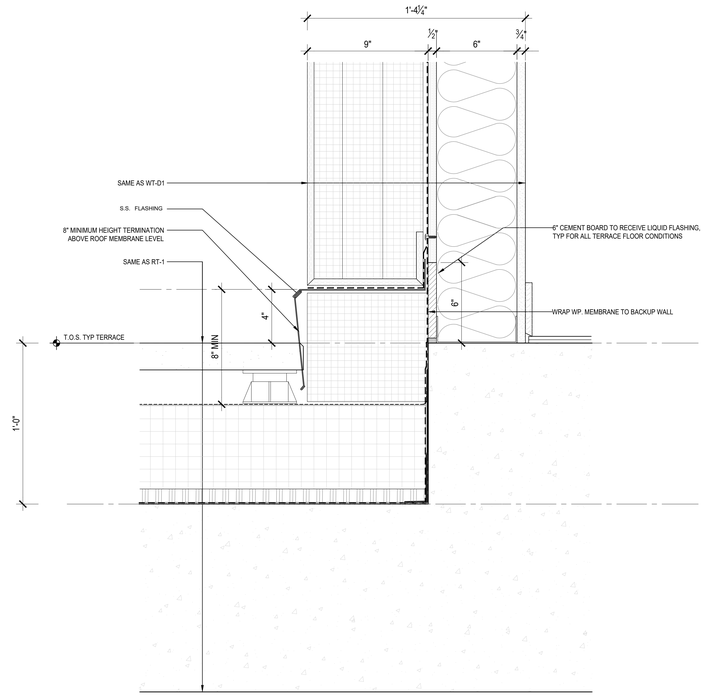

2 TYP EIFS @ TERRACE
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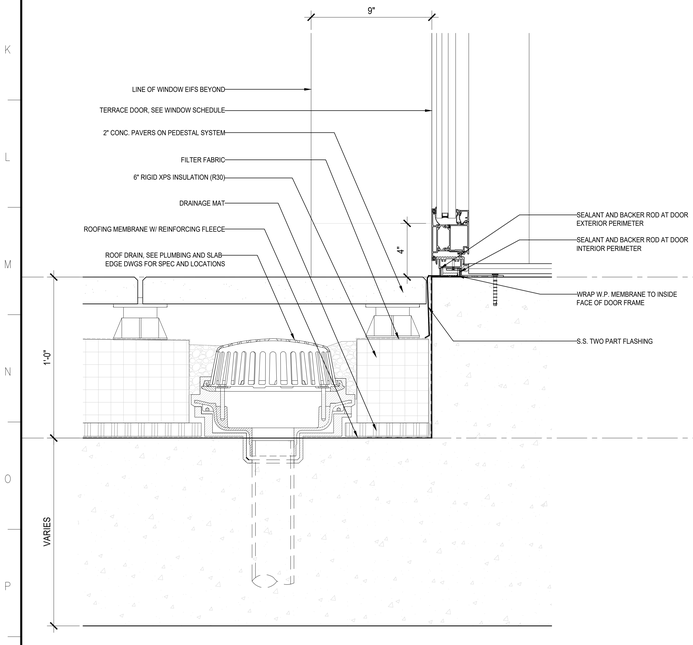

5 TERRACE DOOR DETAIL @ EIFS
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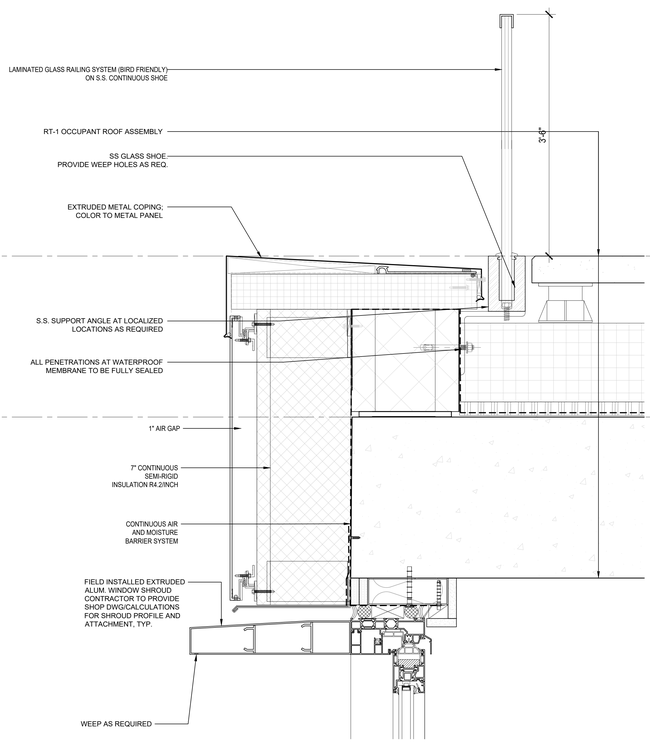

3 METAL PARAPET DETAIL AT IRMA ROOF
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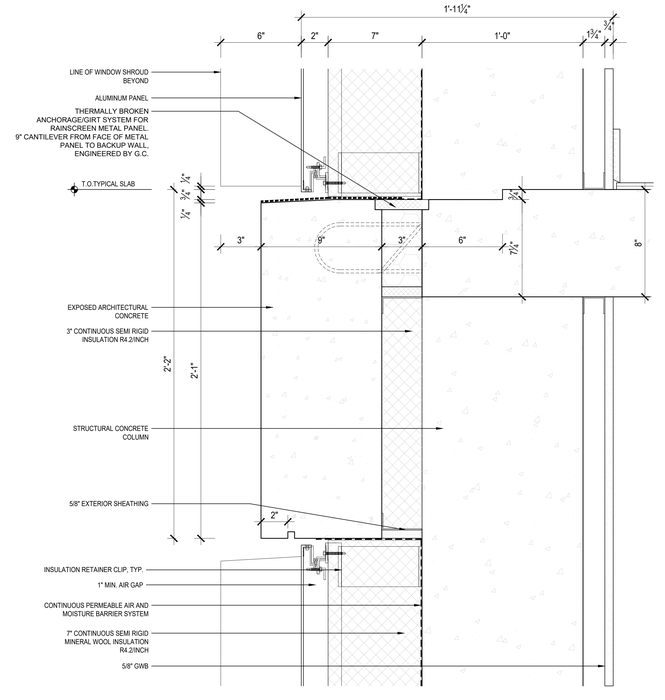

1 METAL PANEL @ CONCRETE COLUMN DETAIL
SCALE: SCALE: 3"=1'-0"

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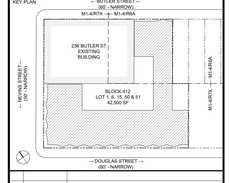

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DRAWING TITLE
EXTERIOR WALL DETAILS

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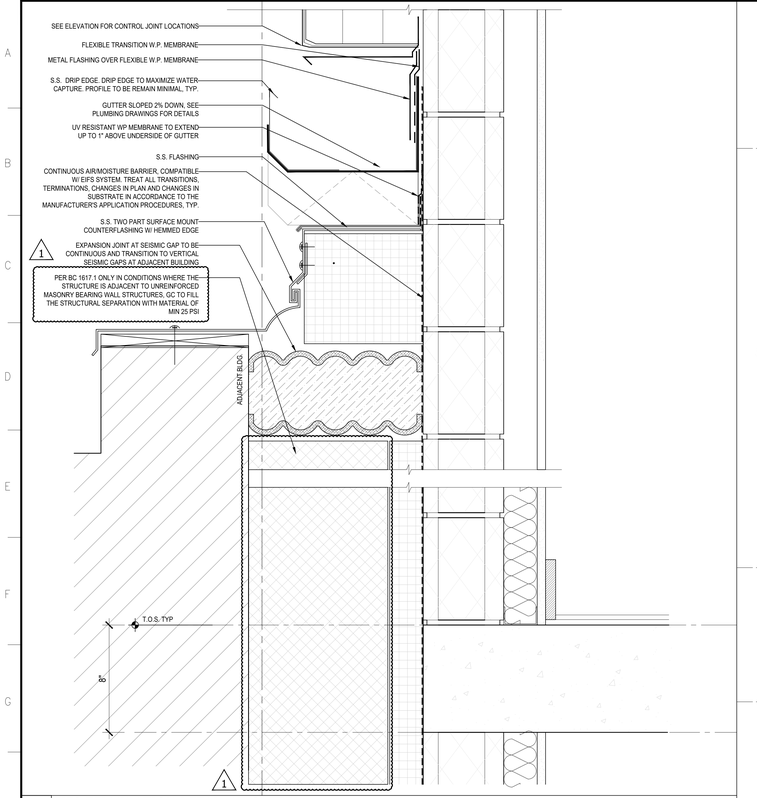
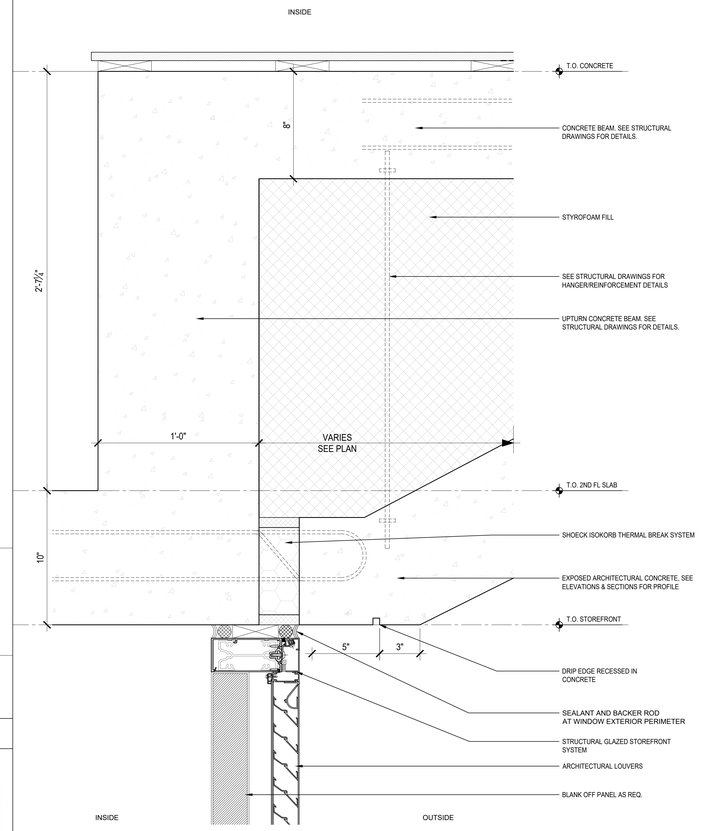
131 OF 175



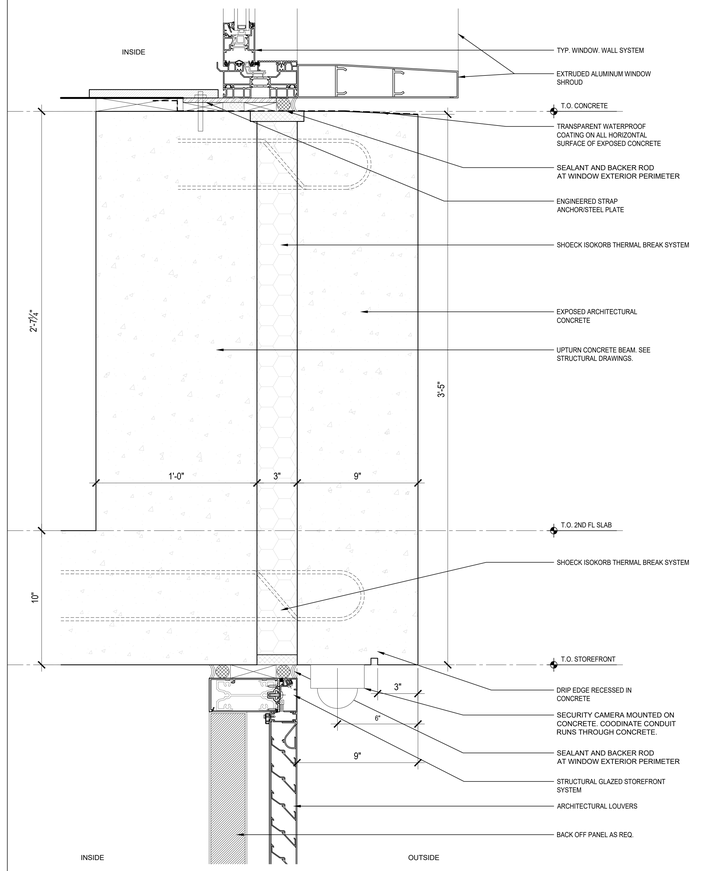
6 EIFS TERMINATION DETAIL AT GUTTER

SCALE: SCALE: 3"=1'-0"



4 TYP. STOREFRONT HEAD @ DOUGLASS

SCALE: 3"=1'-0"



2 TYP. STOREFRONT HEAD @ DOUGLASS

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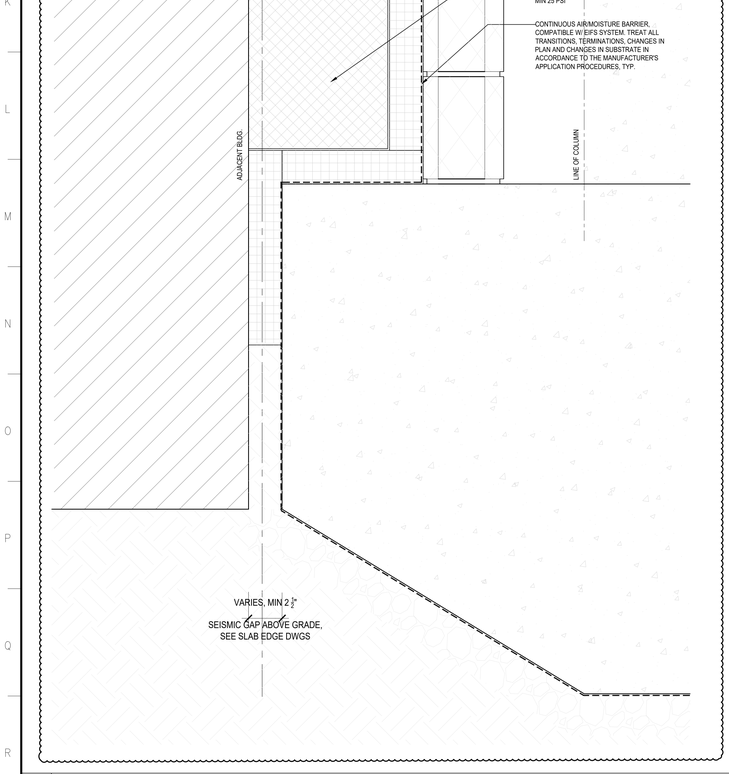

5 SILL DETAIL AT NEIGHBORING BUILDING @ GROUND FLOOR

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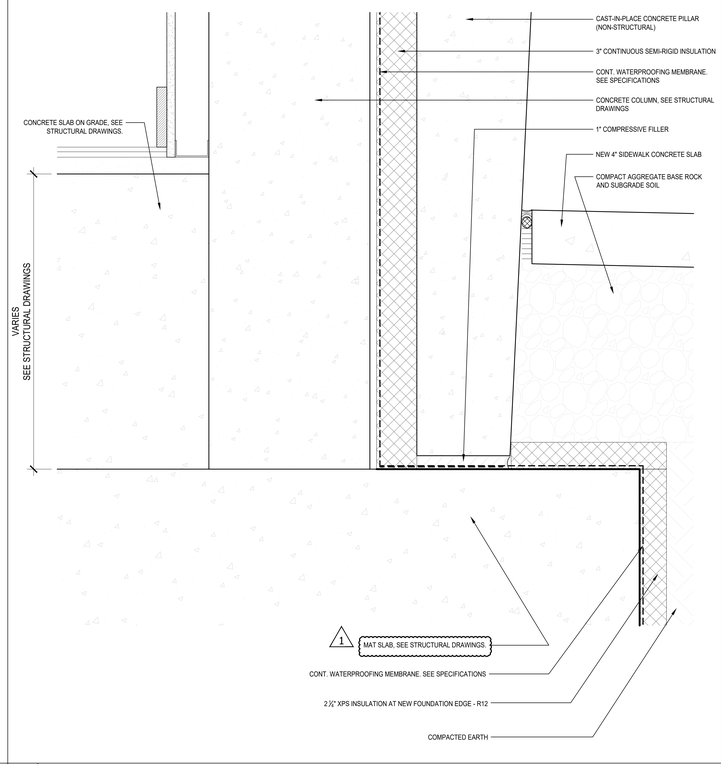

3 CONCRETE PIER SILL DETAIL @ DOUGLASS

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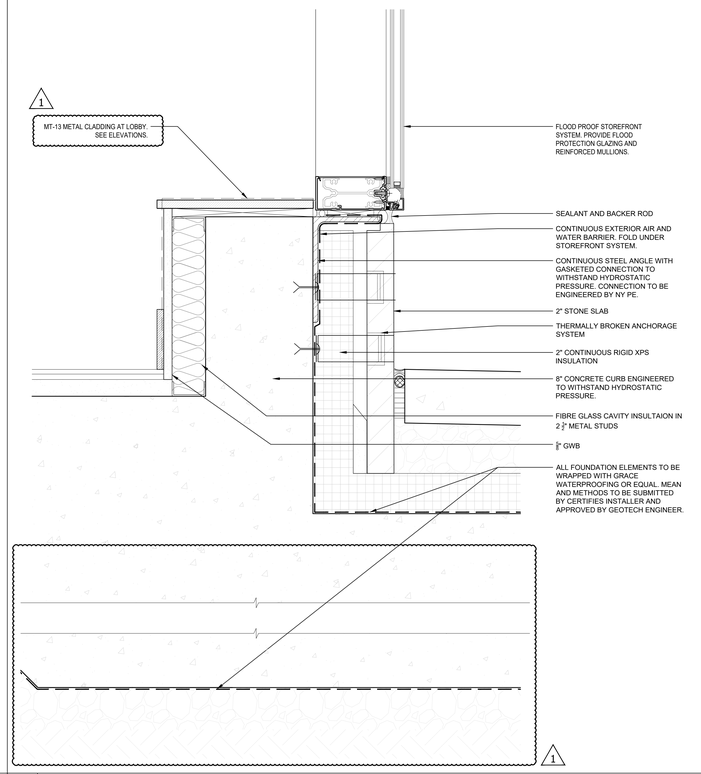

1 TYP STOREFRONT SILL DETAIL

SCALE: 3"=1'-0"

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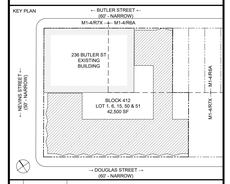

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DRAWING TITLE

EXTERIOR WALL DETAILS - STOREFRONT

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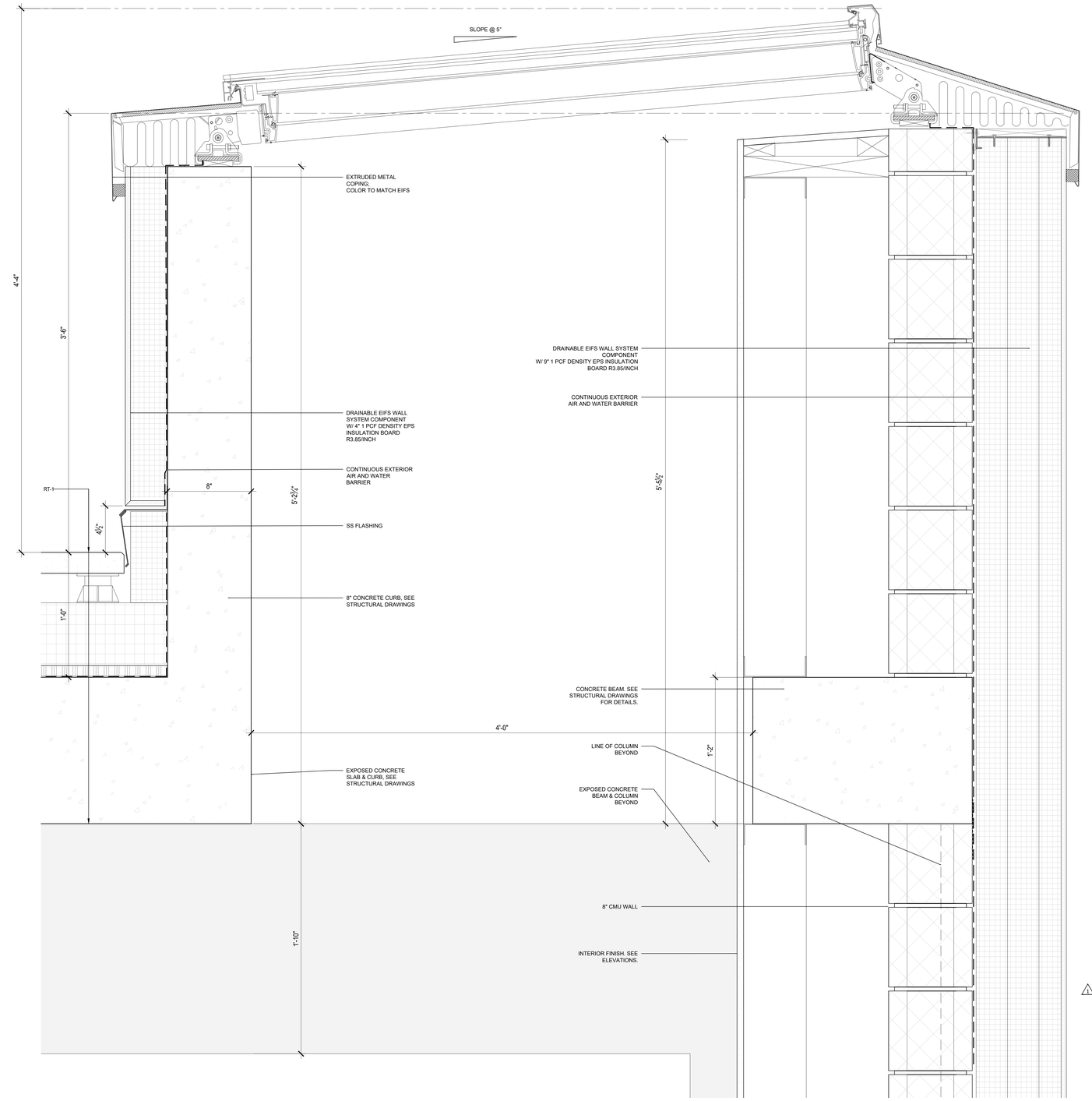

1 SKYLIGHT @ DOUGLASS
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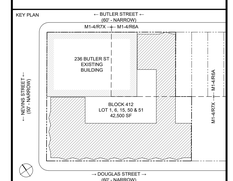
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

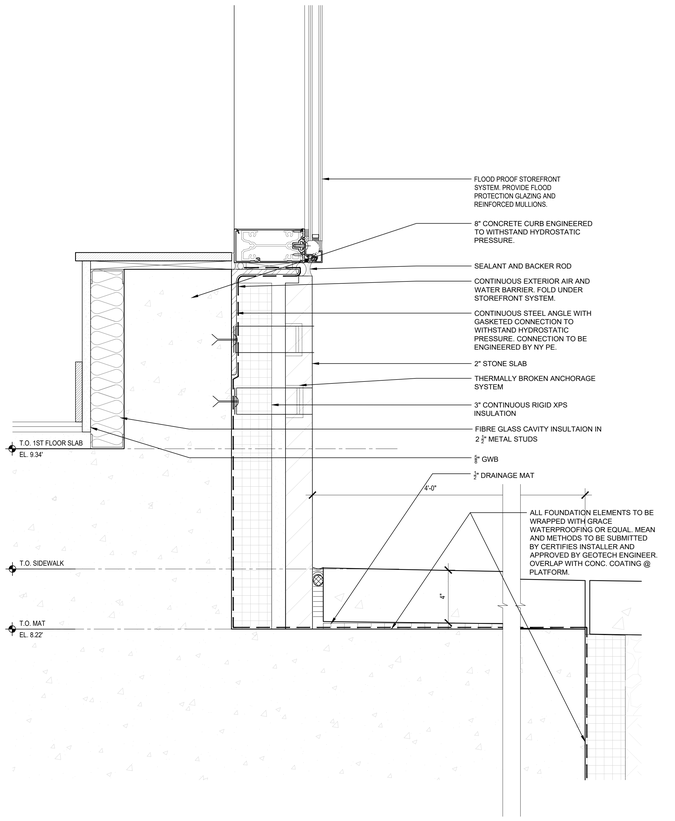
DRAWING TITLE
EXTERIOR WALL DETAILS - SKYLIGHT

SEAL & SIGNATURE

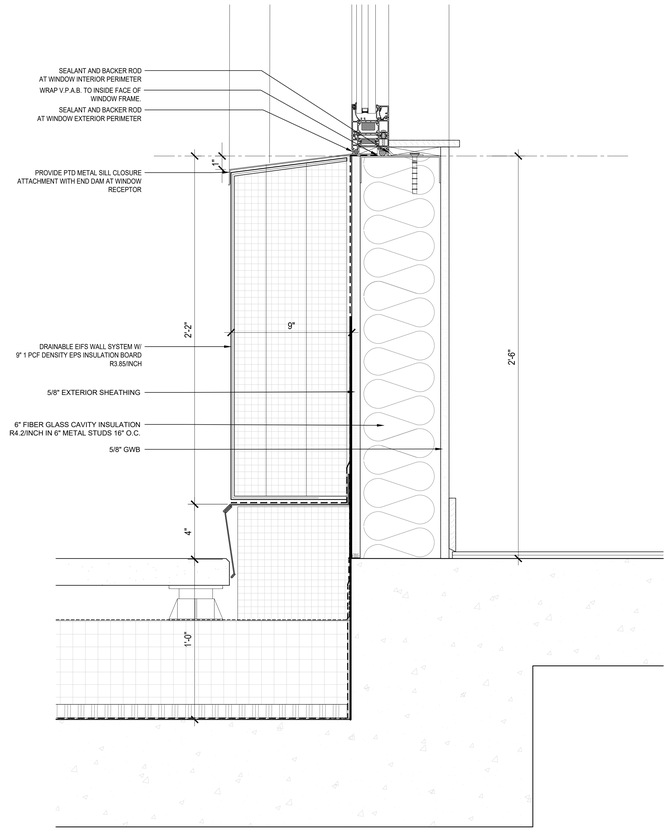
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-435.00

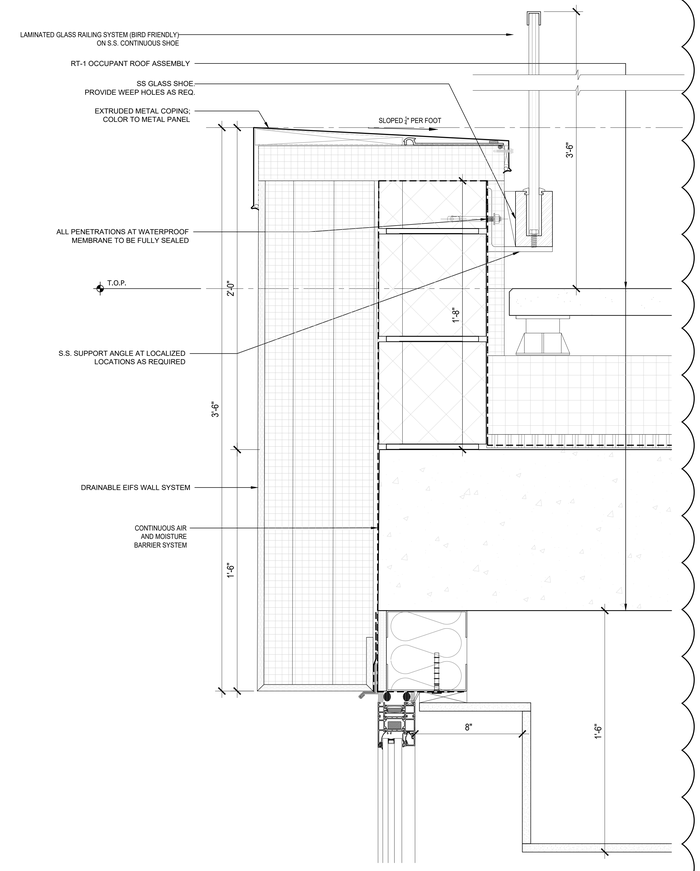
CADD FILE No.:
133 OF 175



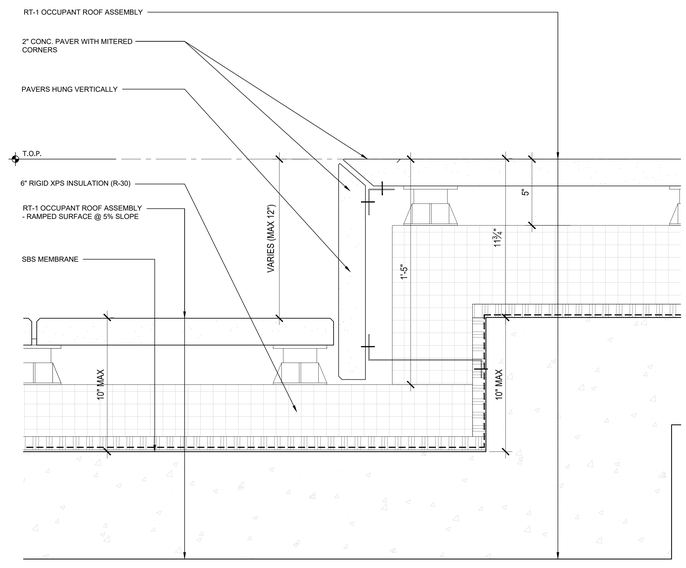
6 STOREFRONT SILL DETAIL @ NEVINS STREET (NORTH CORNER)
SCALE: 3"=1'-0"



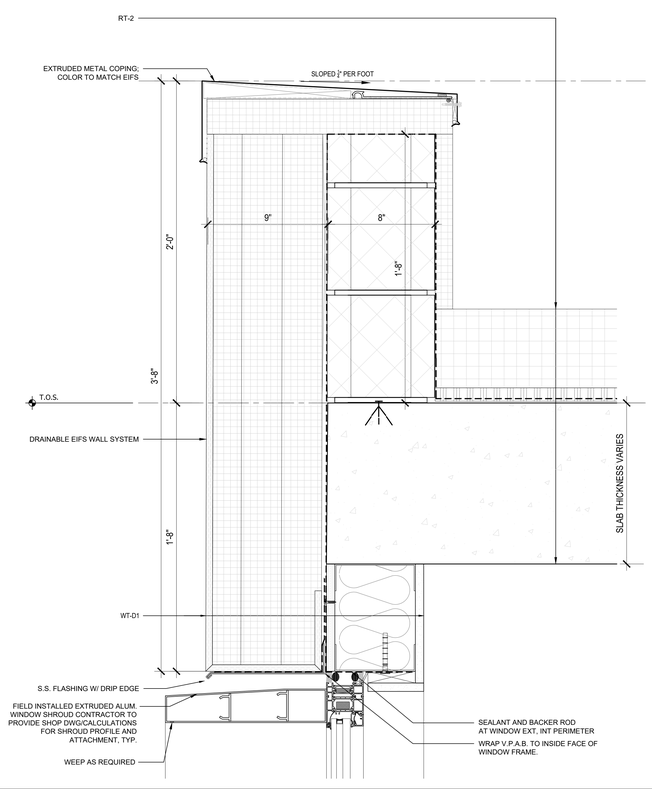
4 TYP. DETAIL AT WINDOW WALL (W-31)
SCALE: 3"=1'-0"



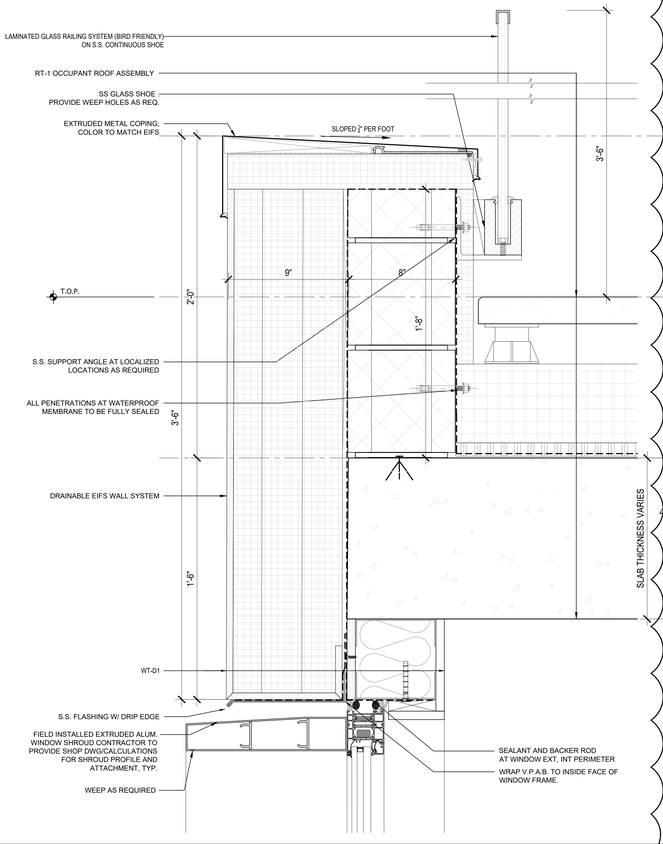
2 TYP. EIFS PARAPET DETAIL AT IRMA ROOF
SCALE: 3"=1'-0"



5 DETAIL AT RAMP ON 10TH FLOOR
SCALE: 3"=1'-0"



3 TYP EIFS PARAPET DETAIL AT RT-2
SCALE: 3"=1'-0"



1 TYP EIFS PARAPET DETAIL AT IRMA ROOF
SCALE: 3"=1'-0"

CLIENT
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5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

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GRAIN COLLECTIVE
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GEOTECHNICAL ENGINEERING SERVICES
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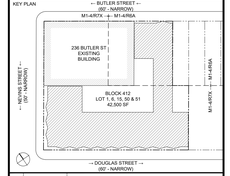
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

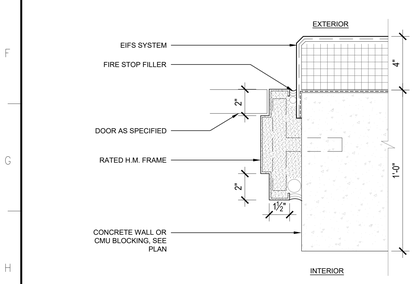
DRAWING TITLE
EXTERIOR WALL DETAILS

SEAL & SIGNATURE

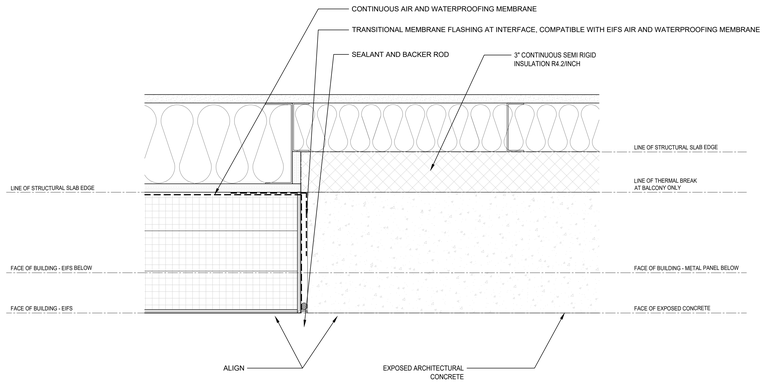
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-436.00

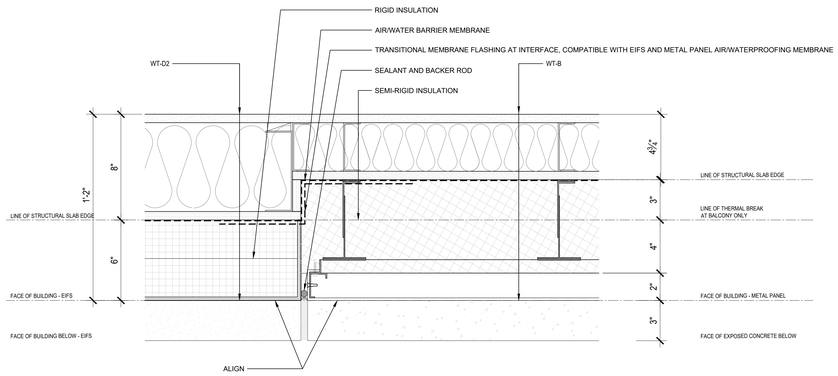
CADD FILE No.:
134 OF 175



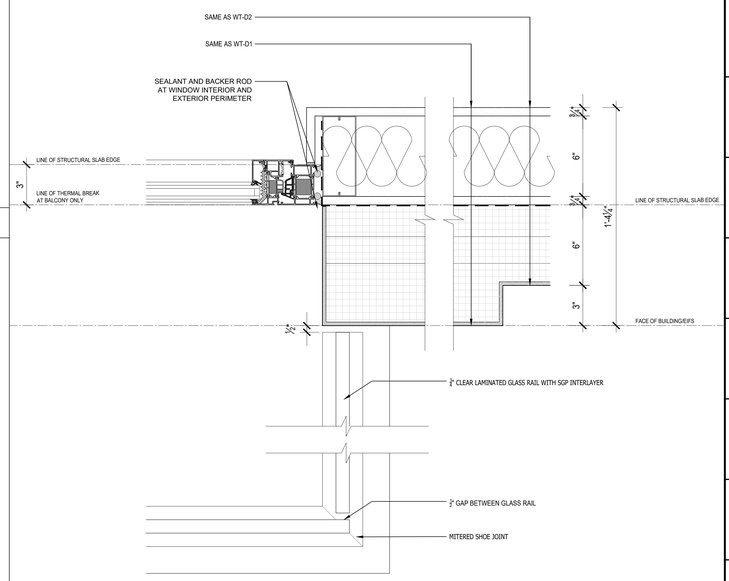
6 HEAD/JAMB DETAIL FOR BULKHEAD DOOR
SCALE: 3"=1'-0"



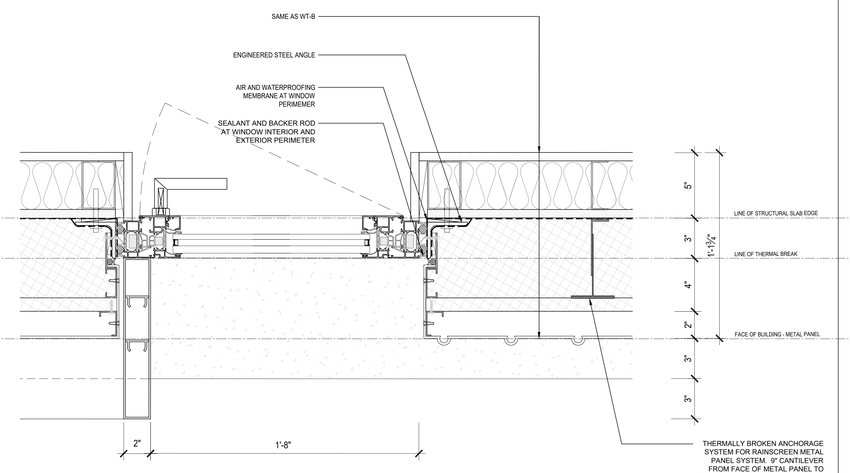
5 TYP EXPOSED CONCRETE & EIFS TRANSTION DETAIL
SCALE: 3"=1'-0"



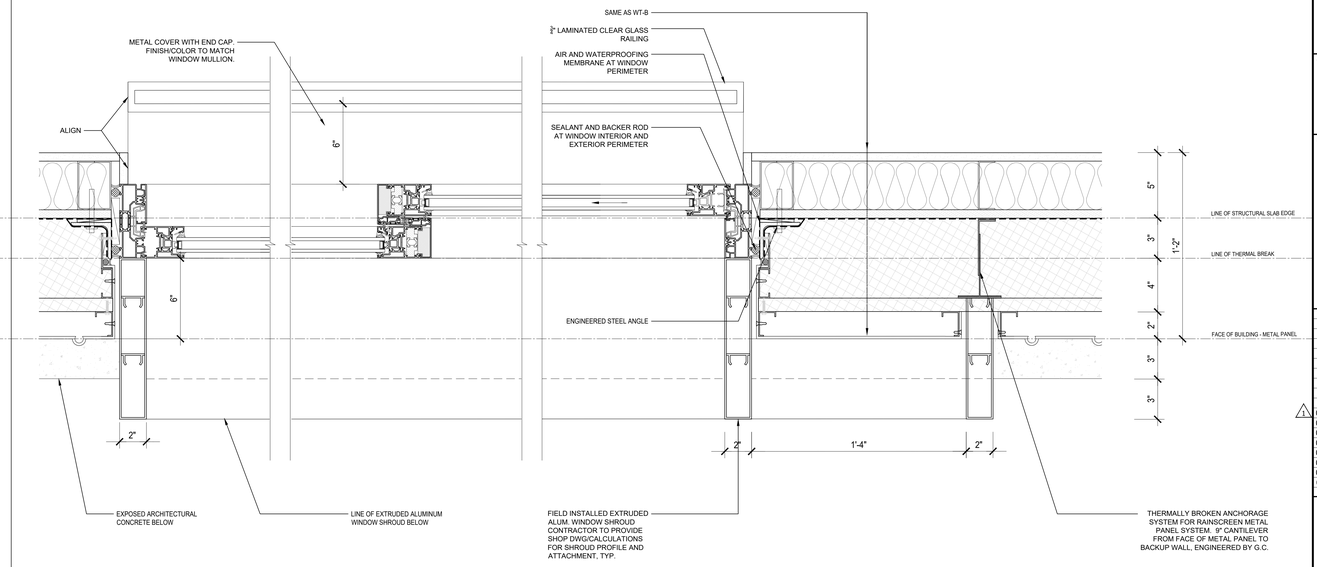
4 TYP METAL PANEL & EIFS TRANSTION DETAIL
SCALE: 3"=1'-0"



3 TYP EIFS PLAN DETAIL
SCALE: 3"=1'-0"



2 TYP METAL PANEL DETAIL AT WINDOW JAMB
SCALE: 3"=1'-0"



1 TYP METAL PANEL DETAIL AT WINDOW JAMB
SCALE: 3"=1'-0"

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

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PHILIP HABIB & ASSOCIATES
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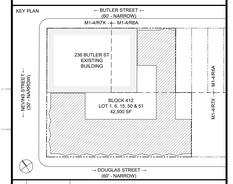
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
EXTERIOR WALL PLAN DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-440.00

CADD FILE No.:

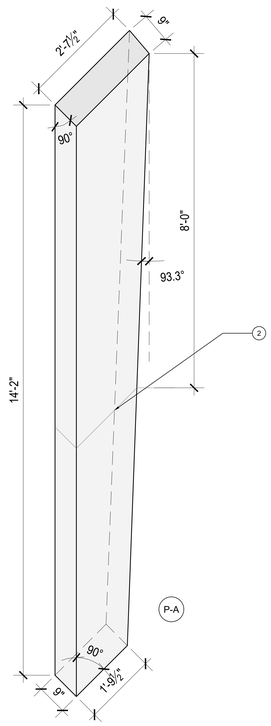
135 OF 175

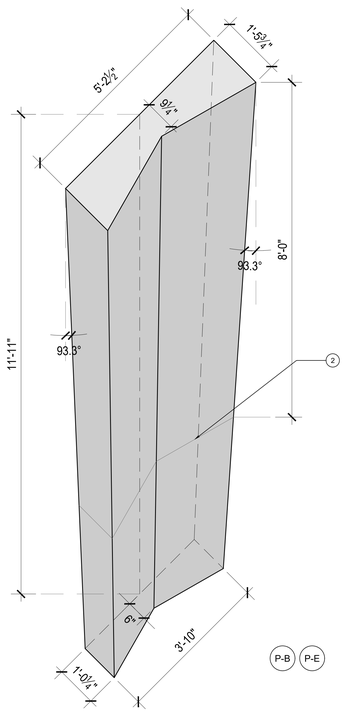
KEY NOTE LEGEND

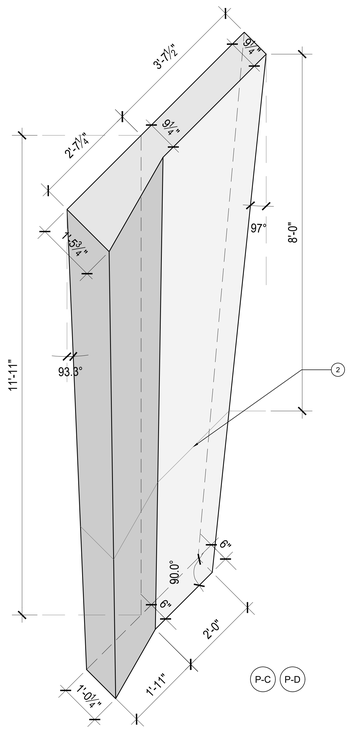
1. SEE A-320 & A-321 GROUND FLOOR ELEVATIONS FOR COMPOSITION OF EXPOSED CONCRETE PIERS AND BEAMS.
2. CONCRETE FORMWORK JOINTS.
3. 1/2" CHAMFER AT ALL EXPOSED PIER EDGES. SEE A-410S FOR DETAILS.
4. 1" JOINT WITH COMPRESSION FILLER BETWEEN PIERS AND BEAMS. SEE A-413 FOR DETAILS.
5. ROOF DRAIN IN CONCRETE CANOPY. COORDINATIVE ROUTING THROUGH CONCRETE.
6. SECURITY CAMERAS MOUNTED TO THE UNDERSIDE OF CONCRETE BEAMS. SEE A-320 & A-320 FOR LOCATION. COORDINATE CONDUIT ROUTES THROUGH CONCRETE.

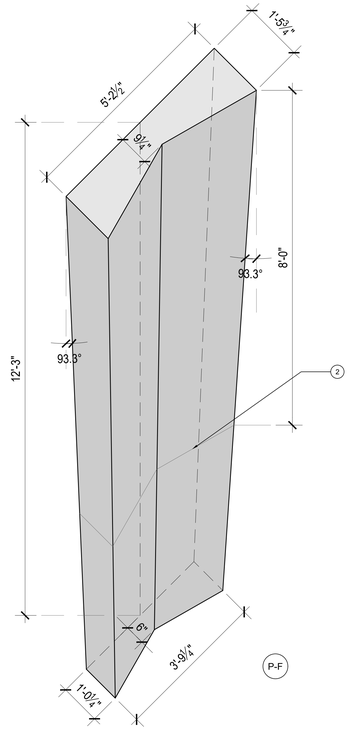
CONCRETE LEGEND

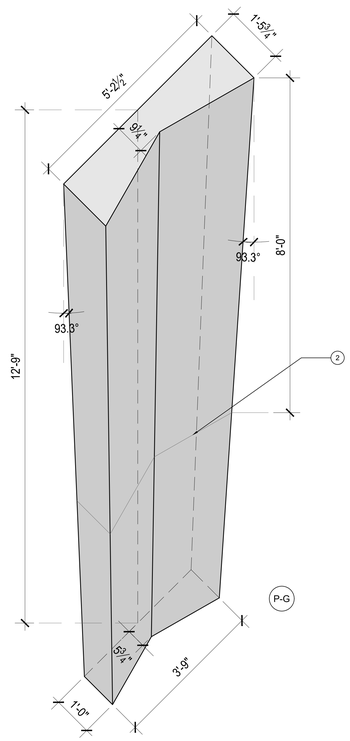
- HORIZONTAL CONCRETE SURFACE
- VERTICAL CONCRETE SURFACE
- ANGLED CONCRETE SURFACE

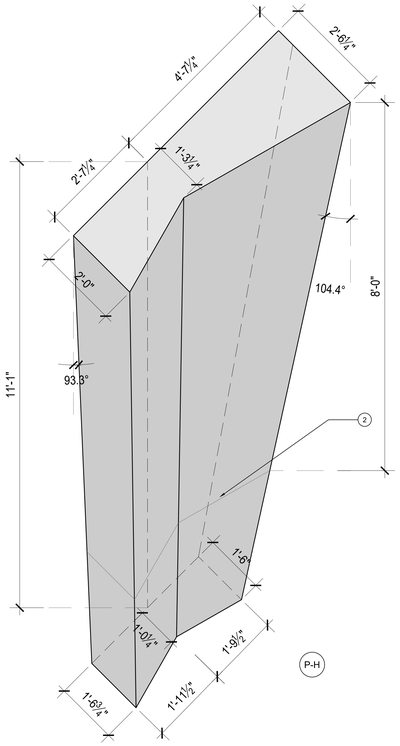


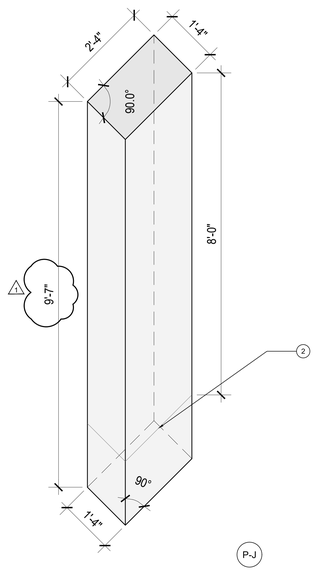












1 EXPOSED ARCHITECTURAL CONCRETE PIER AXONOMETRICS
SCALE: 3/4"=1'-0"

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
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HATFIELD GROUP
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NEW YORK, NY 10013

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BOLD
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NEW YORK, NY 10001

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CODE CONSULTANT / EXPEDITOR
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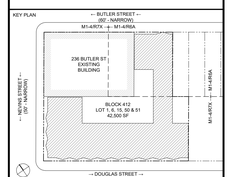
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
EXPOSED ARCHITECTURAL CONCRETE PIERS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-445.00

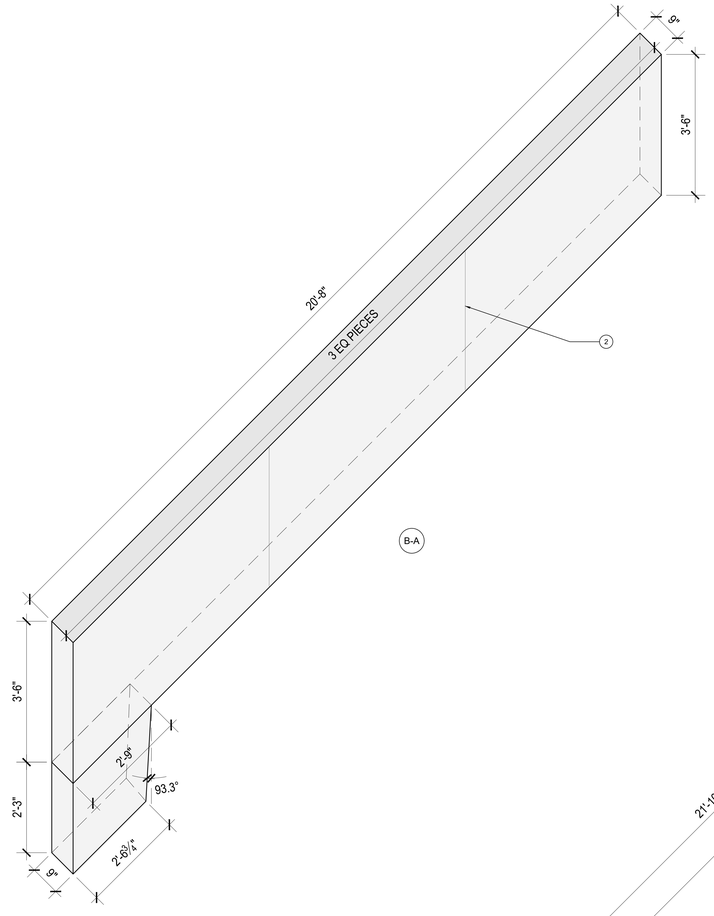
CADD FILE No.:
136 OF 175

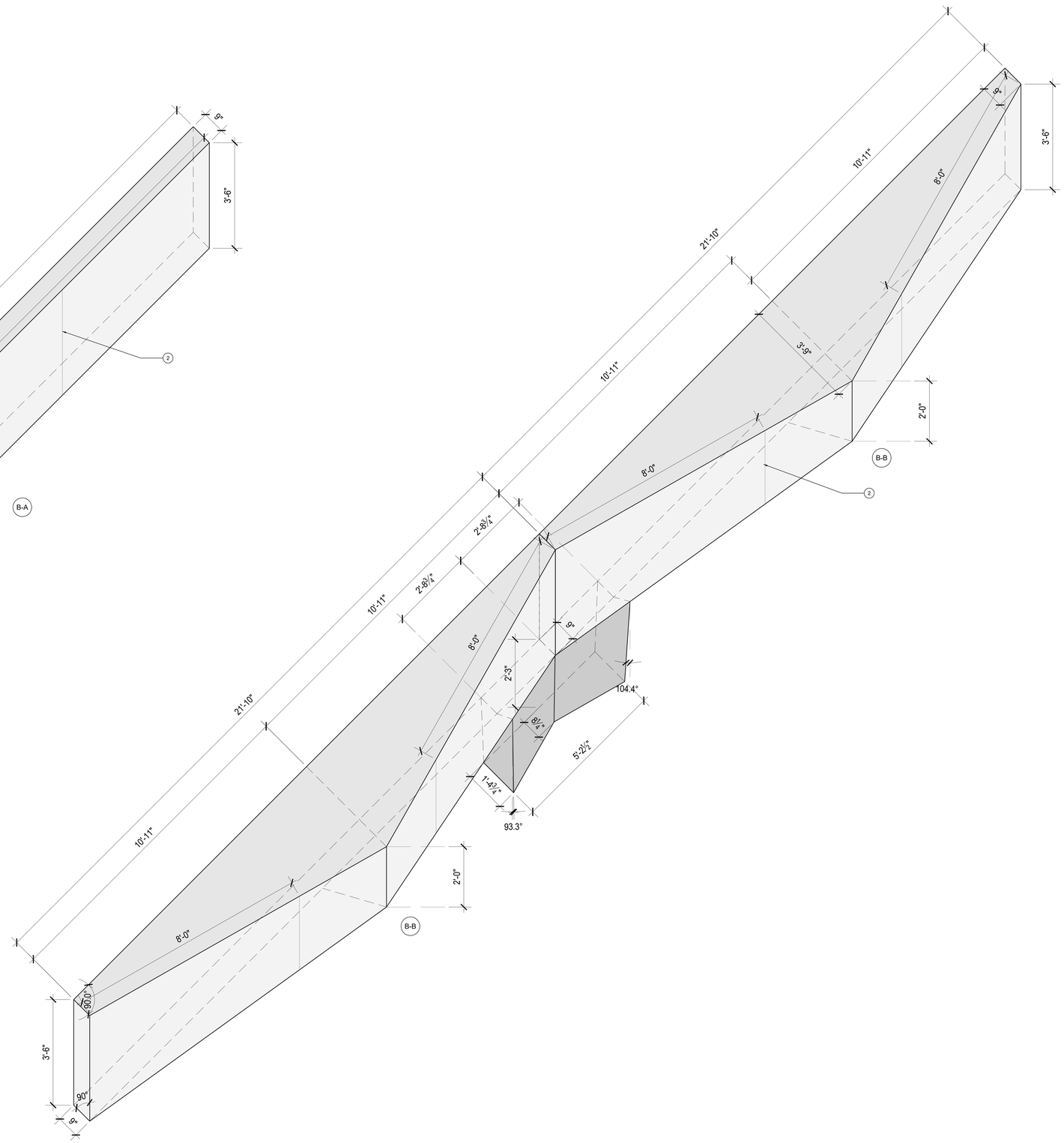
KEY NOTE LEGEND

1. SEE A-320 & A-321 GROUND FLOOR ELEVATIONS FOR COMPOSITION OF EXPOSED CONCRETE PIERS AND BEAMS.
2. CONCRETE FORMWORK JOINTS.
3. 1/2" CHAMFER AT ALL EXPOSED PIER EDGES. SEE A-410S FOR DETAILS.
4. 1" JOINT WITH COMPRESSION FILLER BETWEEN PIERS AND BEAMS. SEE A-413 FOR DETAILS.
5. ROOF DRAIN IN CONCRETE CANOPY. COORDINATIVE ROUTING THROUGH CONCRETE.
6. SECURITY CAMERAS MOUNTED TO THE UNDERSIDE OF CONCRETE BEAMS. SEE A-320 & A-320 FOR LOCATION. COORDINATE CONDUIT ROUTES THROUGH CONCRETE.

CONCRETE LEGEND

- HORIZONTAL CONCRETE SURFACE
- VERTICAL CONCRETE SURFACE
- ANGLED CONCRETE SURFACE





1 EXPOSED ARCHITECTURAL CONCRETE BEAM AXONOMETRICS
SCALE: 3/4"=1'-0"

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
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NEW YORK, NY 10010

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ACOUSTIC

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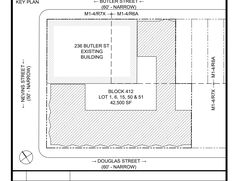

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
EXPOSED ARCHITECTURAL CONCRETE BEAMS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-446.00

CADD FILE No.:

KEY NOTE LEGEND

1. SEE A-320 & A-321 GROUND FLOOR ELEVATIONS FOR COMPOSITION OF EXPOSED CONCRETE PIERS AND BEAMS.
2. CONCRETE FORMWORK JOINTS.
3. 1/2" CHAMFER AT ALL EXPOSED PIER EDGES. SEE A-410S FOR DETAILS.
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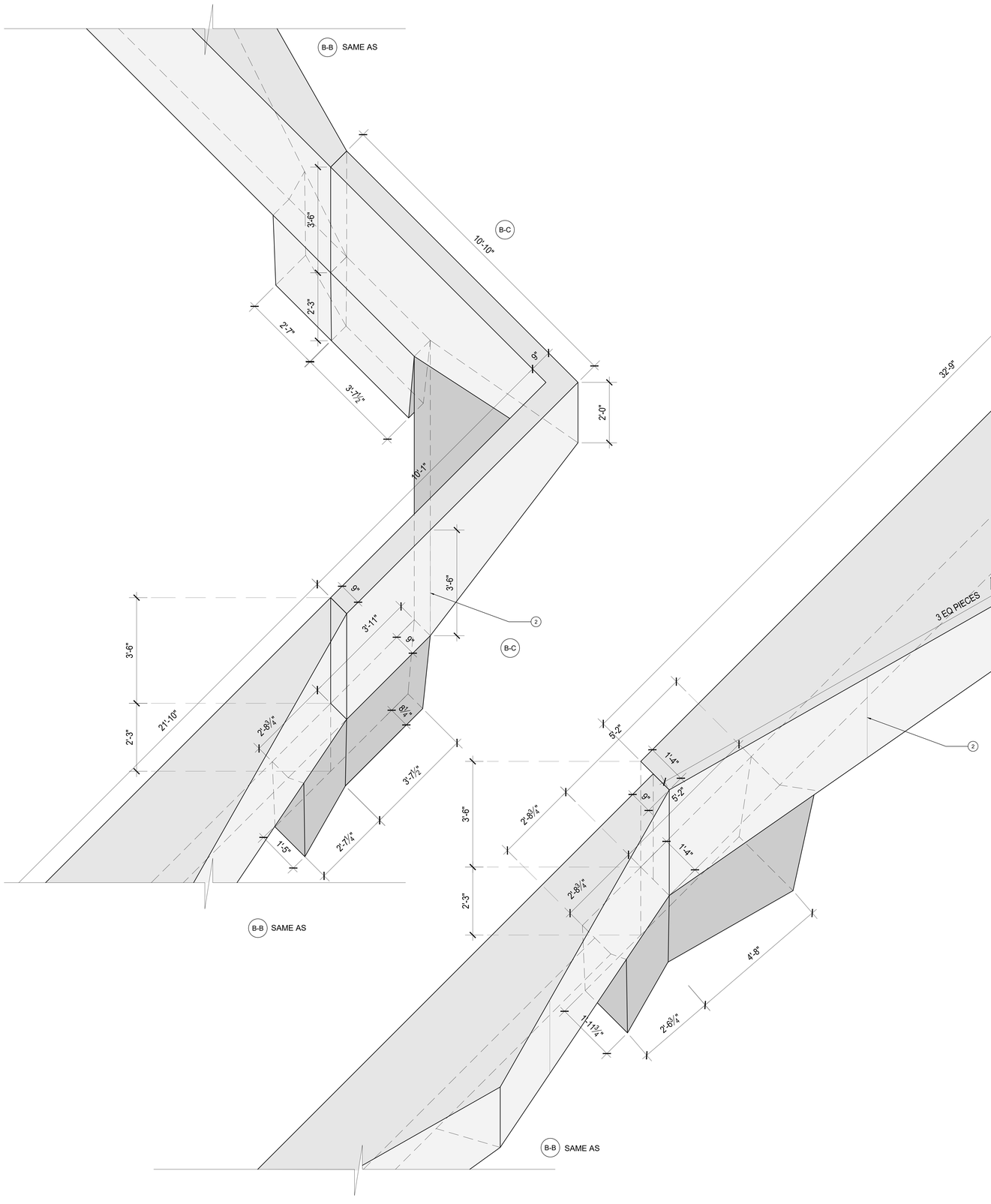
6. SECURITY CAMERAS MOUNTED TO THE UNDERSIDE OF CONCRETE BEAMS. SEE A-320 & A-320 FOR LOCATION. COORDINATE CONDUIT ROUTES THROUGH CONCRETE.

CONCRETE LEGEND

- HORIZONTAL CONCRETE SURFACE
- VERTICAL CONCRETE SURFACE
- ANGLED CONCRETE SURFACE



1 EXPOSED ARCHITECTURAL CONCRETE BEAM AXONOMETRICS
SCALE: 3/4"=1'-0"

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
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ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
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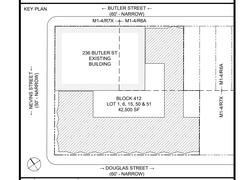
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
EXPOSED ARCHITECTURAL CONCRETE BEAMS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-447.00

CADD FILE No.:
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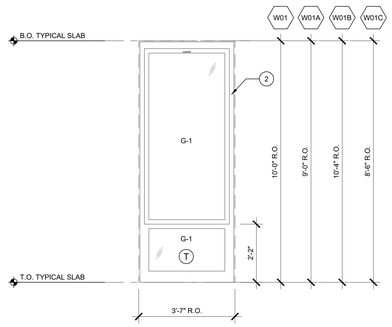
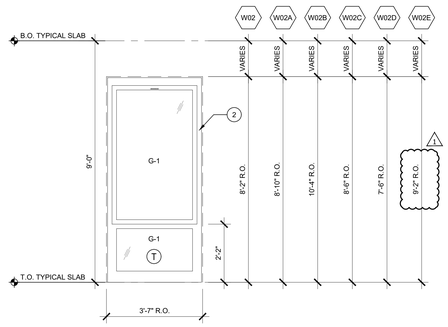
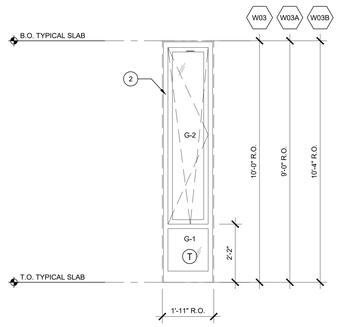
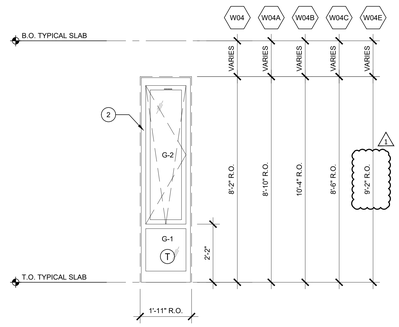
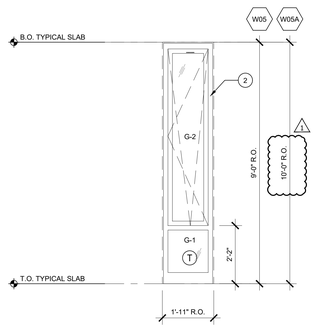
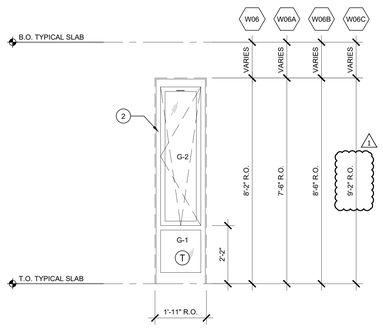


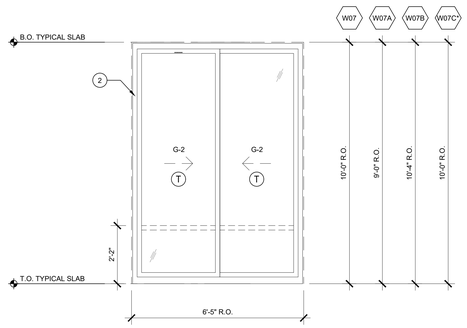




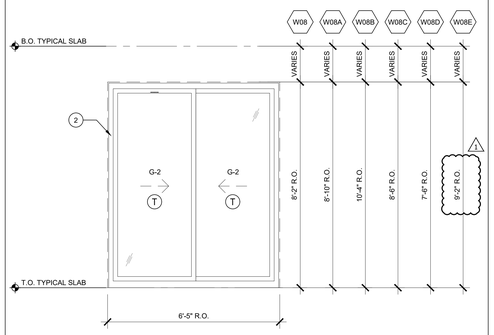


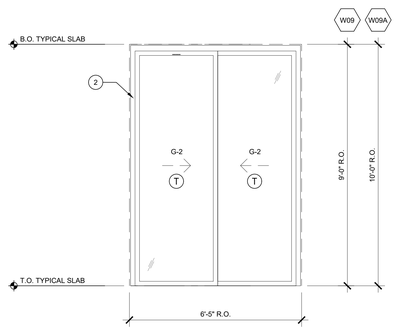


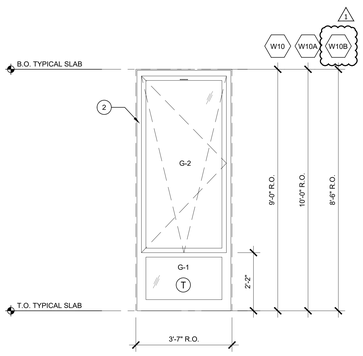


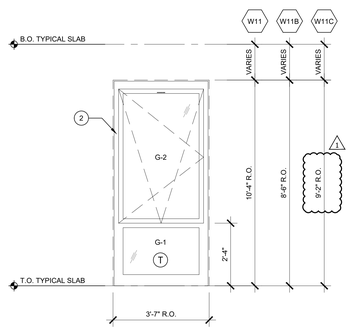


* HORIZONTAL MULLION @ W07D ONLY. SEE ELEVATIONS.



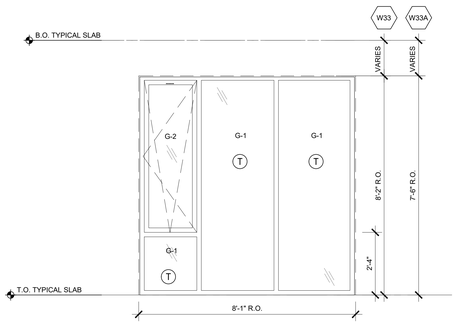


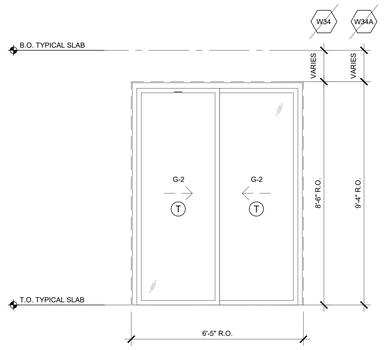


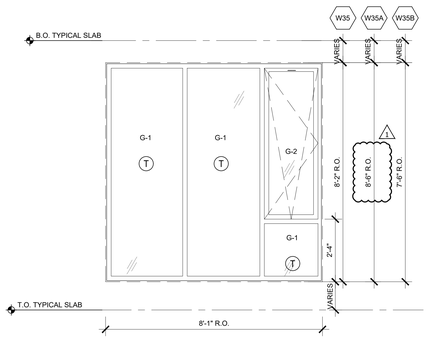


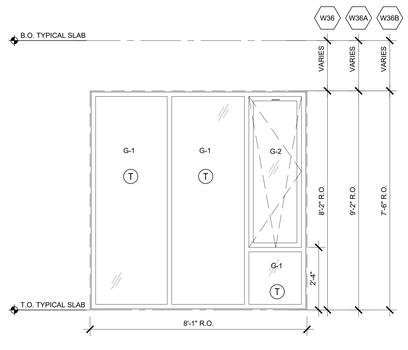
FENESTRATION TYPES	U-FACTOR	SHGC	VT	AIR LEAKAGE RATE (CFM)
G-1, FIXED GLAZING FENESTRATION (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
G-2, OPERABLE GLAZING FENESTRATION (WINDOW SYSTEM)	0.35	0.36	0.6	0.2
G-3, FIXED GLAZING FENESTRATION SPANDREL (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
G-4, FIXED GLAZING FENESTRATION (STOREFRONT SYSTEM)	0.35	0.36	0.6	0.06
G-5, GLASS ENTRANCE DOOR (STOREFRONT SYSTEM)	0.35	0.36	0.6	1
G-6, OPAQUE DOOR (INSULATED SWINGING OPAQUE DOOR)	0.5	NA	NA	0.2
G-7, SKYLIGHT GLAZING	0.48	0.38	NA	0.35

SEE SPECIFICATIONS AND WINDOW TYPES ON A-450S FOR REFERENCES
REFER TO EN SERIES DRAWINGS FOR EXTERIOR WALL ENERGY COMPLIANCE









LEGEND:

- WINDOW TYPE
- FIXED WINDOW
- TILT & TURN OPERABLE WINDOW
- OPERABLE SWING DOOR
- OPERABLE SLIDING DOOR
- FIXED WINDOW WITH SPANDREL
- LOUVER
- (T) TEMPERED GLASS
- (L) LAMINATED GLASS
- TRICKLE VENT

GENERAL NOTES:

A. SEE A-300S FOR EXTERIOR ELEVATIONS.

B. SEE A-400S FOR EXTERIOR WALL TYPES & DETAILS.

C. TEMPERED GLASS FOR ALL SPANDRELS, ALL DOORS AND ALL LITES THAT ARE WITHIN 18" FROM FINISHED FLOOR.

D. ALL SPANDREL GLASS TO BE REPLACEABLE FROM EXTERIOR.

E. DUAL FINISH FOR ALL WINDOW FRAMES EXCEPT STOREFRONT AND AMENITY SPACES. DARK GREY AT EXTERIOR, WHITE AT INTERIOR. (STOREFRONT AND AMENITY WINDOWS DARK GREY AT EXTERIOR AND INTERIOR.)

F. BASIS OF DESIGN FOR WINDOWS:
- SCHUCO AWS 75 SERIES

G. BASIS OF DESIGN FOR STOREFRONT:
- KAWNEER 1600 STOREFRONT SYSTEM

H. WINDOW AND WALL ASSEMBLIES COMPLY WITH CONTINUOUS AIR BARRIER INSTALLATION PER NYC BUILDING CODE

I. SWINGING DOOR AND GATE SURFACES WITHIN 10 INCHES OF THE FINISH FLOOR OR GROUND MEASURED VERTICALLY SHALL HAVE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE DOOR OR GATE. EXCEPTION: TEMPERED GLASS DOORS WITHOUT STILES AND HAVING A BOTTOM RAIL OR SHOE WITH THE TOP LEADING EDGE TAPERED AT 60 DEGREES MINIMUM FROM THE HORIZONTAL SHALL NOT BE REQUIRED TO MEET THE 10 INCH BOTTOM SMOOTH SURFACE HEIGHT REQUIREMENT.

J. ENCLOSURE FRAMES ARE PART OF WINDOW PACKAGE.

K. WINDOW OPENINGS DETERMINED ASSUMING CONCRETE SLAB, BEAM, COLUMN & ENCLOSURE.

L. ALL EXTERIOR LOUVERS TO BE STORM PROOF.

M. ALL GLAZING BELOW 75' TO HAVE A MAXIMUM THREAT FACTOR OF 25 IN COMPLIANCE WITH BC 1403.8 BIRD FRIENDLY MATERIALS.

S. ALL OPERABLE WINDOW & TERRACE DOOR HARDWARE TO BE WITHIN ACCESSIBLE REACH RANGE AND ABLE TO BE OPENED WITHIN 5 LB MAX OPENING FORCE.

1. DESIGN INTENT ASSUMES 1/2" ROUGH OPENINGS (R.O.) ON EITHER SIDE, ACTUAL R.O. TO BE DETERMINED BY WINDOW MANUFACTURER.

GLAZING TYPES

- GL-01 VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
- GL-01BF BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
- GL-02 SPANDREL I.G.U. AT 9TH FL AND ABOVE
- GL-02BF BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
- GL-03 STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
- GL-03BF BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-04 SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
- GL-04BF BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-05BF BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
- GL-06BF BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
- GL-07 LAMINATED GLASS RAILING (BIRD FRIENDLY)

KEY NOTE

1. 12" EXTRUDED ALUMINUM WINDOW SHROUD.
2. SEE ELEVATION FOR EXTRUDED ALUMINUM WINDOW SHROUD LOCATION.

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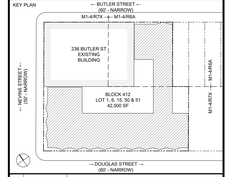

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
WINDOW SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-450.00

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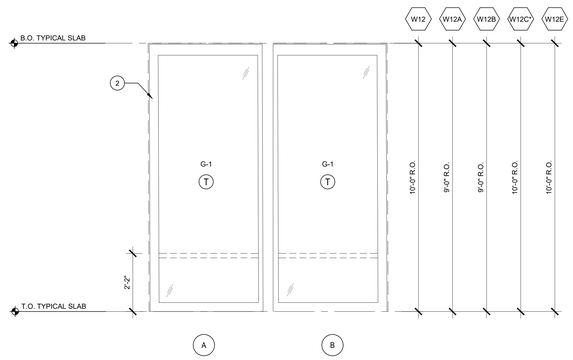

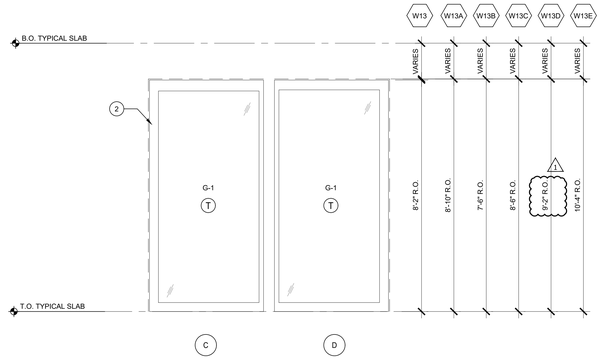

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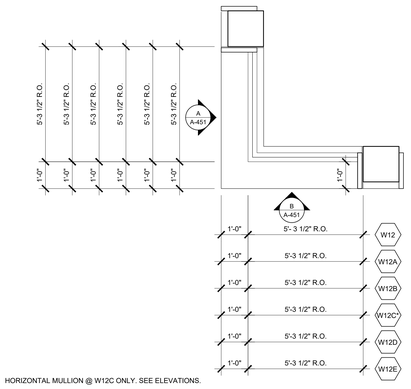

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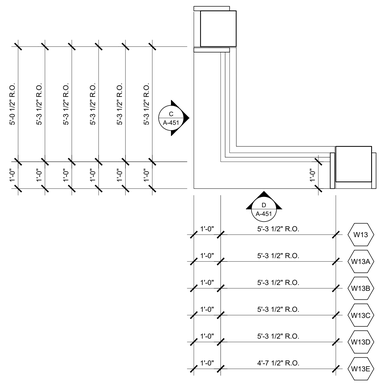

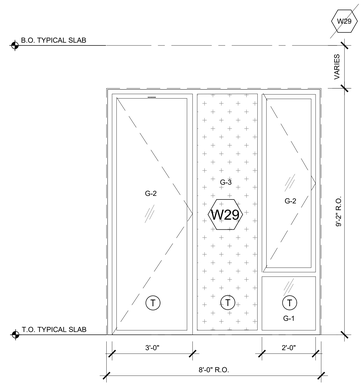

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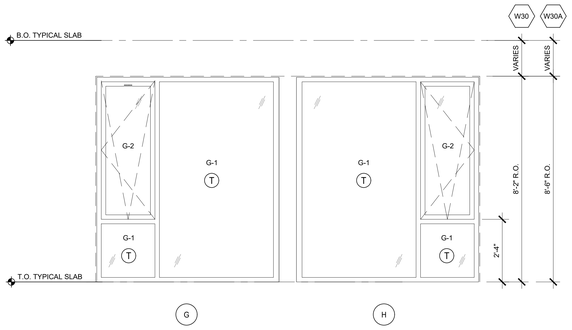

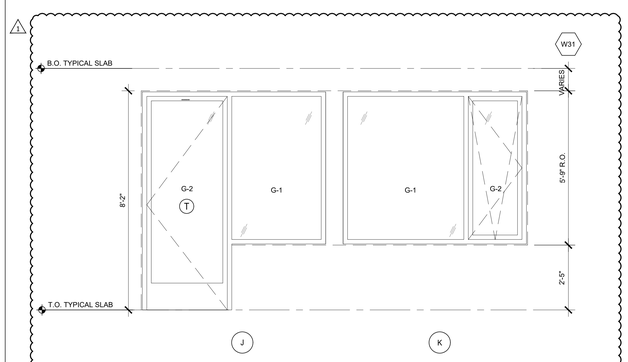

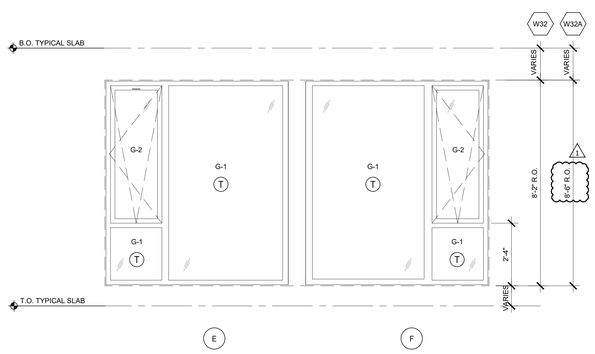

GLAZING TYPES

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- GL-01B BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
- GL-02 SPANDREL I.G.U. AT 9TH FL AND ABOVE
- GL-02B BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
- GL-03 STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
- GL-03B BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-04 SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
- GL-04B BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-05B BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
- GL-06B BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
- GL-07 LAMINATED GLASS RAILING (BIRD FRIENDLY)

KEY NOTE

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NEW YORK, NY 0016

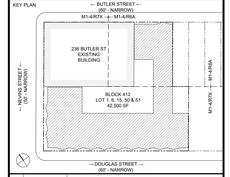
LANDSCAPE
GRAIN COLLECTIVE
339 DOUGLASS STR, SUITE 1
BROOKLYN, NY 11217

GEOTECH
GEOTECHNICAL ENGINEERING SERVICES
6 BAYBERRY ROAD
ELMSFORD, NY 10523

CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
299 BROADWAY, 5TH FLOOR
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



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03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

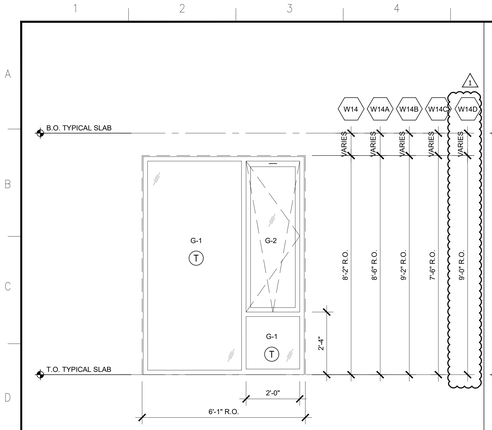
DRAWING TITLE
WINDOW SCHEDULE

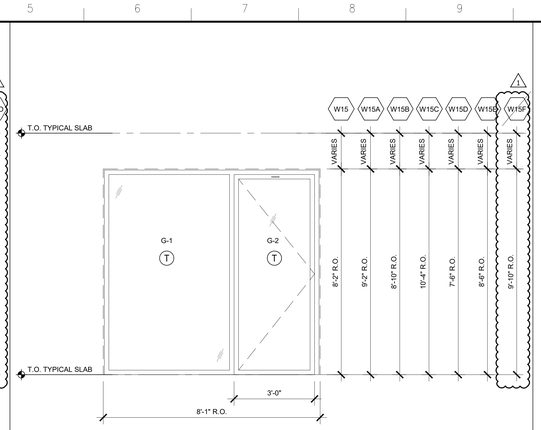
SEAL & SIGNATURE

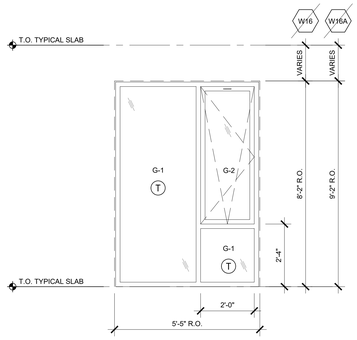
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

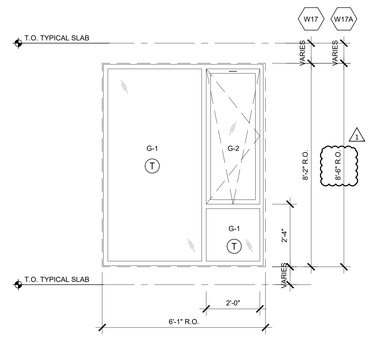
A-451.00

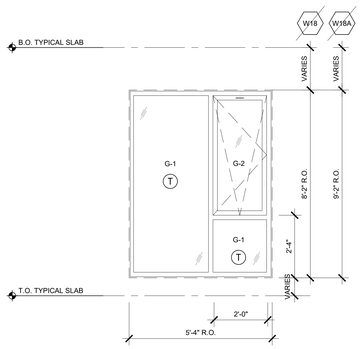
CADD FILE No.:

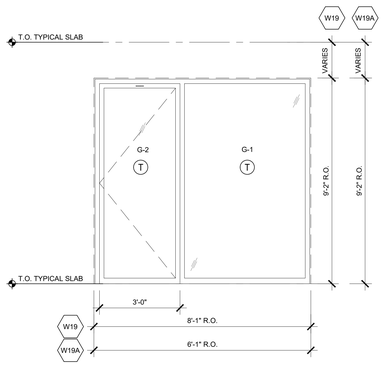


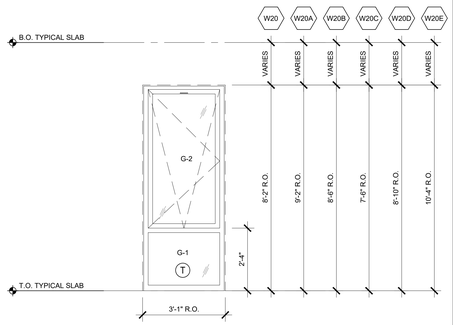


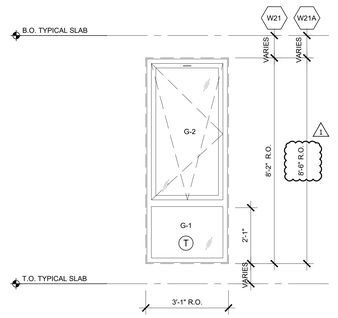


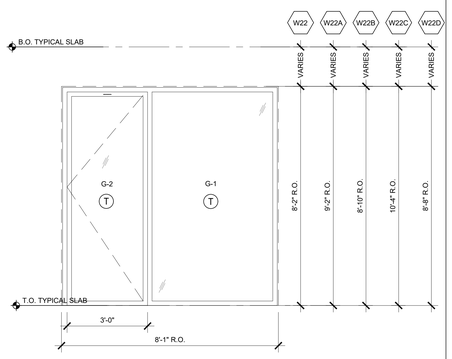


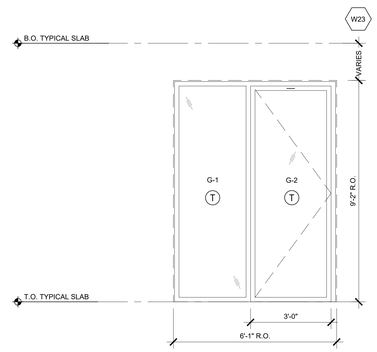


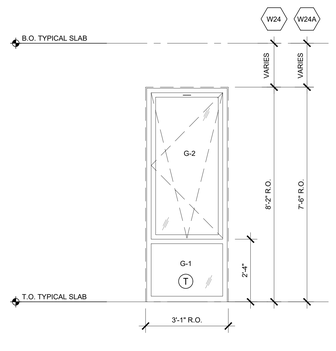


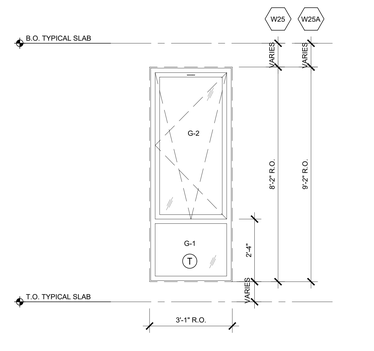


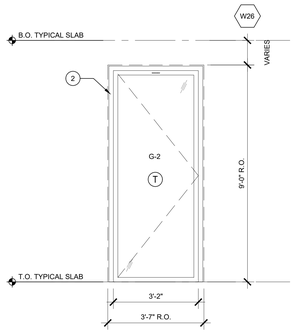


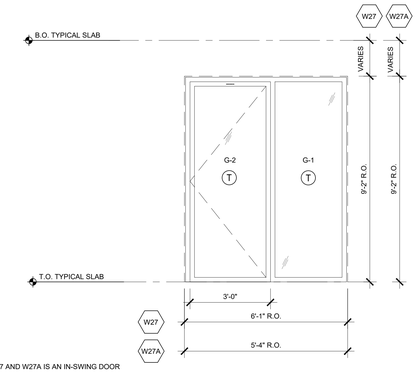




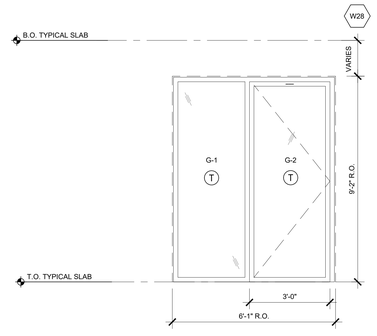








NOTE: W27 AND W27A IS AN IN-SWING DOOR



NOTE: W28 IS AN IN-SWING DOOR

FENESTRATION TYPES	U-FACTOR	SHGC	VT	AIR LEAKAGE RATE (CFM)
G-1, FIXED GLAZING FENESTRATION (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
G-2, OPERABLE GLAZING FENESTRATION (WINDOW SYSTEM)	0.35	0.36	0.6	0.2
G-3, FIXED GLAZING FENESTRATION SPANDREL (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
G-4, FIXED GLAZING FENESTRATION (STOREFRONT SYSTEM)	0.35	0.36	0.6	0.06
G-5, GLASS ENTRANCE DOOR (STOREFRONT SYSTEM)	0.35	0.36	0.6	1
G-6, OPAQUE DOOR (INSULATED SWINGING OPAQUE DOOR)	0.5	NA	NA	0.2
G-7, SKYLIGHT GLAZING	0.48	0.38	NA	0.35

SEE SPECIFICATIONS AND WINDOW TYPES ON A-450S FOR REFERENCES
REFER TO EN SERIES DRAWINGS FOR EXTERIOR WALL ENERGY COMPLIANCE

LEGEND:

- WINDOW TYPE
- FIXED WINDOW
- TILT & TURN OPERABLE WINDOW
- OPERABLE SWING DOOR
- OPERABLE SLIDING DOOR
- FIXED WINDOW WITH SPANDREL
- LOUVER
- (T) TEMPERED GLASS
- (L) LAMINATED GLASS
- TRICKLE VENT

GENERAL NOTES:

A. SEE A-300S FOR EXTERIOR ELEVATIONS.

B. SEE A-400S FOR EXTERIOR WALL TYPES & DETAILS.

C. TEMPERED GLASS FOR ALL SPANDRELS, ALL DOORS AND ALL LITES THAT ARE WITHIN 18" FROM FINISHED FLOOR.

D. ALL SPANDREL GLASS TO BE REPLACEABLE FROM EXTERIOR.

E. DUAL FINISH FOR ALL WINDOW FRAMES EXCEPT STOREFRONT AND AMENITY SPACES. DARK GREY AT EXTERIOR, WHITE AT INTERIOR. (STOREFRONT AND AMENITY WINDOWS DARK GREY AT EXTERIOR AND INTERIOR.)

F. BASIS OF DESIGN FOR WINDOWS:
- SCHUCO AWS 75 SERIES

G. BASIS OF DESIGN FOR STOREFRONT:
- KAWNEER 1600 STOREFRONT SYSTEM

H. WINDOW AND WALL ASSEMBLIES COMPLY WITH CONTINUOUS AIR BARRIER INSTALLATION PER NYC BUILDING CODE

I. SWINGING DOOR AND GATE SURFACES WITHIN 10 INCHES OF THE FINISH FLOOR OR GROUND MEASURED VERTICALLY SHALL HAVE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE DOOR OR GATE, EXCEPTION: TEMPERED GLASS DOORS WITHOUT STILES AND HAVING A BOTTOM RAIL OR SHOE WITH THE TOP LEADING EDGE TAPERED AT 60 DEGREES MINIMUM FROM THE HORIZONTAL SHALL NOT BE REQUIRED TO MEET THE 10 INCH BOTTOM SMOOTH SURFACE HEIGHT REQUIREMENT.

J. ENCLOSURE FRAMES ARE PART OF WINDOW PACKAGE.

K. WINDOW OPENINGS DETERMINED ASSUMING CONCRETE SLAB, BEAM, COLUMN & ENCLOSURE.

L. ALL EXTERIOR LOUVERS TO BE STORM PROOF.

M. ALL GLAZING BELOW 75' TO HAVE A MAXIMUM THREAT FACTOR OF 25 IN COMPLIANCE WITH BC 1403.8 BIRD FRIENDLY MATERIALS.

S. ALL OPERABLE WINDOW & TERRACE DOOR HARDWARE TO BE WITHIN ACCESSIBLE REACH RANGE AND ABLE TO BE OPENED WITHIN 5 LB MAX OPENING FORCE.

1. DESIGN INTENT ASSUMES 1/2" ROUGH OPENINGS (R.O.) ON EITHER SIDE, ACTUAL R.O. TO BE DETERMINED BY WINDOW MANUFACTURER.

GLAZING TYPES

- GL-01 VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
- GL-01BF BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
- GL-02 SPANDREL I.G.U. AT 9TH FL AND ABOVE
- GL-02BF BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
- GL-03 STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
- GL-03BF BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-04 SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
- GL-04BF BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-05BF BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
- GL-06BF BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
- GL-07 LAMINATED GLASS RAILING (BIRD FRIENDLY)

KEY NOTE

1. 12" EXTRUDED ALUMINUM WINDOW SHROUD.
2. SEE ELEVATION FOR EXTRUDED ALUMINUM WINDOW SHROUD LOCATION.

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

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FOGARTY | FINGER architecture | interiors
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t 212 966 7450 f 212 966 7444

STRUCTURAL ENGINEER
TITAN ENGINEERS
1331 STUYVESANT AVE
UNION, NJ 07083

MEP ENGINEER
ETTINGER ENGINEERING ASSOCIATES
505 EIGHTH AVE 24TH FLOOR
NEW YORK, NY 10018

FACADE
HATFIELD GROUP
285 WEST BROADWAY #410
NEW YORK, NY 10013

ELEVATOR
JENKINS HUNTINGTON
5 CLIMAX ROAD
AVON, CT 06001

LIGHTING
BOLD
227 WEST 29TH STREET, 8TH FLOOR
NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
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NEW YORK, NY 0016

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GRAIN COLLECTIVE
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BROOKLYN, NY 11217

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299 BROADWAY, 5TH FLOOR
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ACOUSTIC

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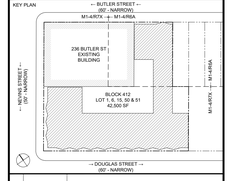

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WINDOW SCHEDULE

SEAL & SIGNATURE

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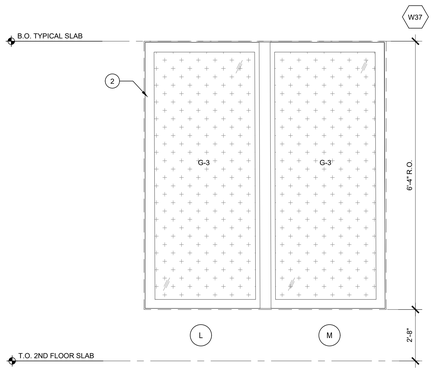
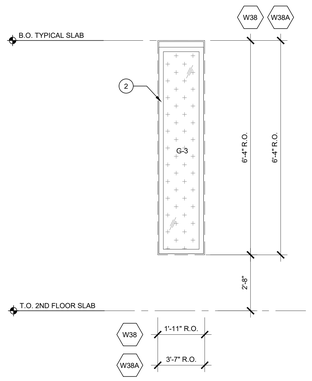
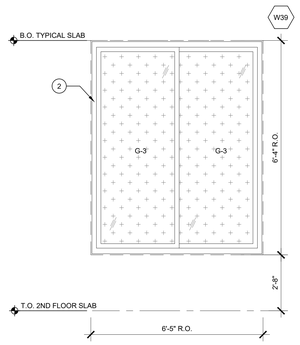
DRAWING BY: FFA
CHK BY: FFA

A-452.00

CADD FILE No.:
141 OF 175







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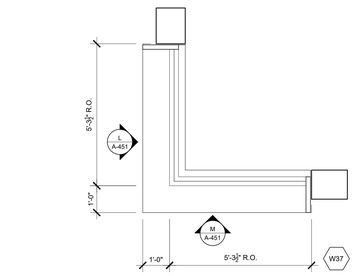

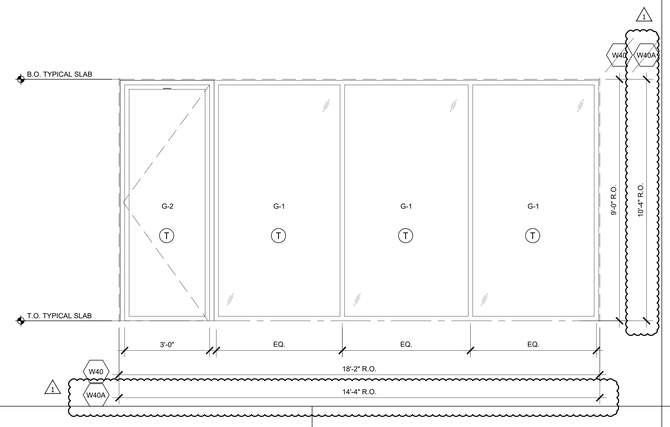

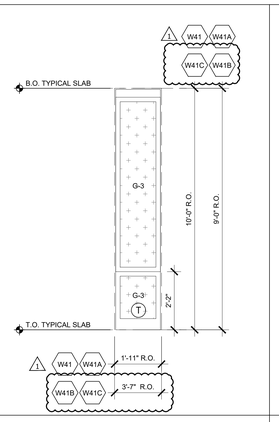

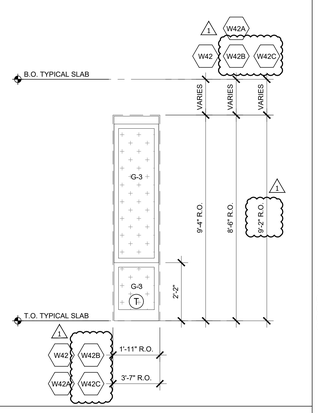

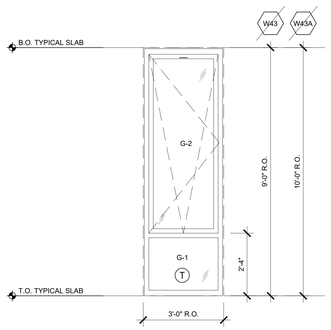

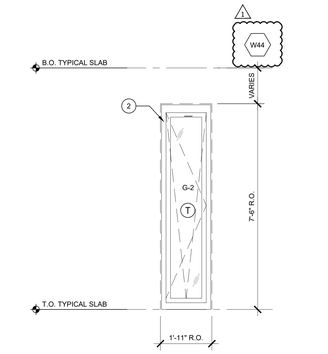

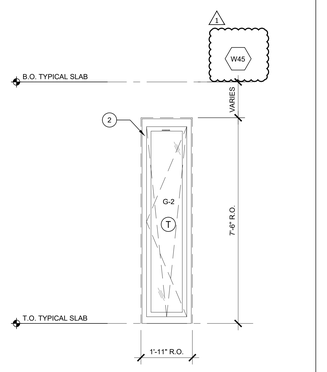

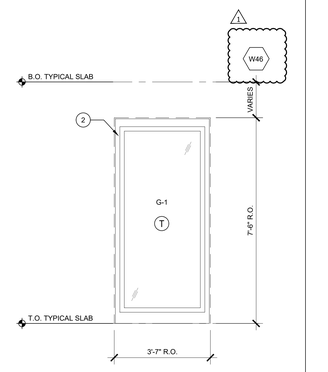

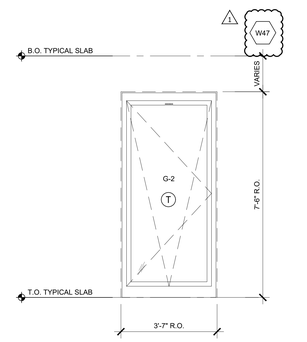

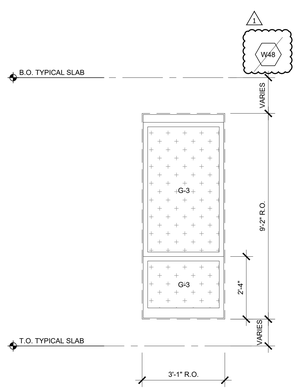

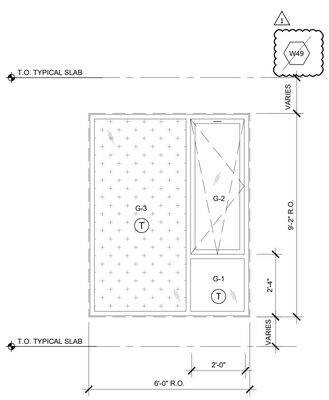

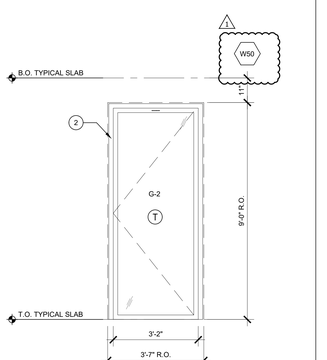

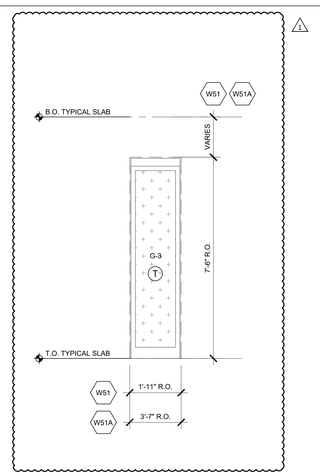

GLAZING TYPES

- GL-01 — VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
- GL-01BF — BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
- GL-02 — SPANDREL I.G.U. AT 9TH FL AND ABOVE
- GL-02BF — BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
- GL-03 — STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
- GL-03BF — BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-04 — SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
- GL-04BF — BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-05BF — BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
- GL-06BF — BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
- GL-07 — LAMINATED GLASS RAILING (BIRD FRIENDLY)

KEY NOTE

1. 12" EXTRUDED ALUMINUM WINDOW SHROUD.
2. SEE ELEVATION FOR EXTRUDED ALUMINUM WINDOW SHROUD LOCATION.

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BOLD
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NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
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LANDSCAPE
GRAIN COLLECTIVE
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BROOKLYN, NY 11217

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GEOTECHNICAL ENGINEERING SERVICES
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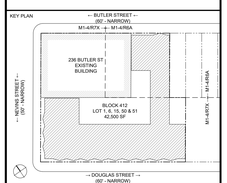
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
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06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

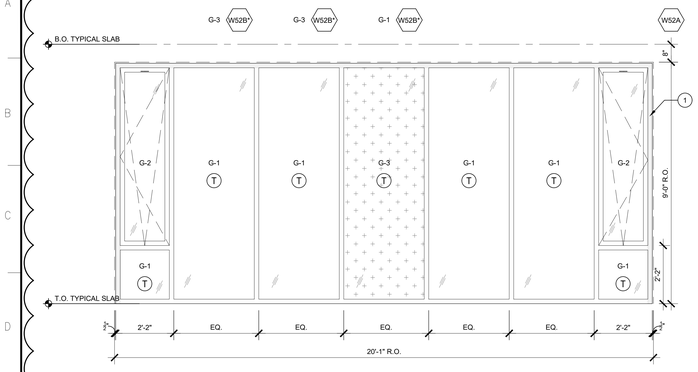
DRAWING TITLE
WINDOW SCHEDULE

SEAL & SIGNATURE

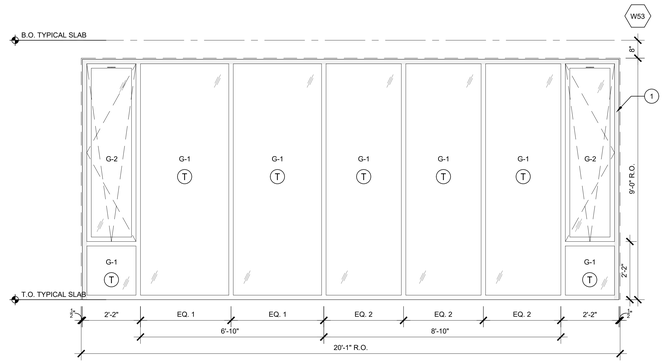
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-453.00

CADD FILE No.:
142 OF 175

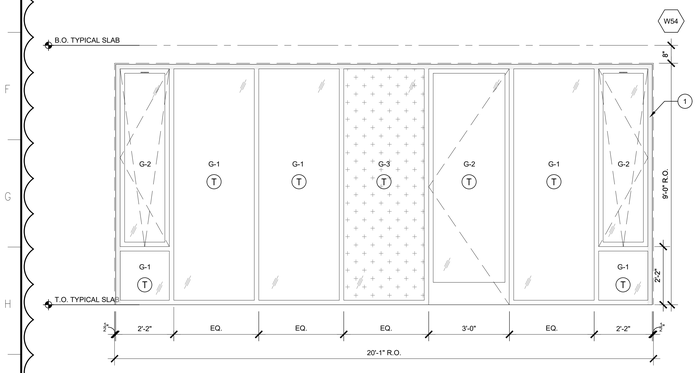


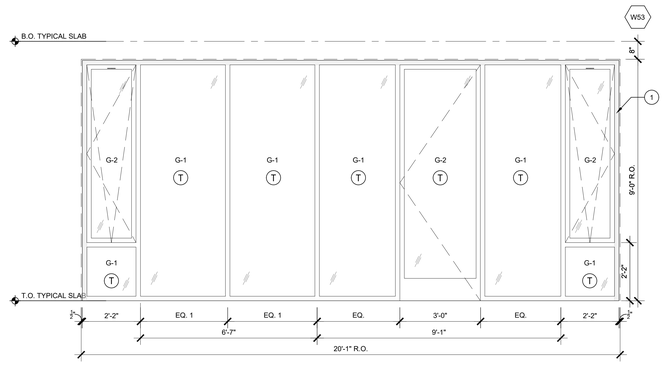
* SEE ELEVATIONS (A-300 & A-301) FOR SPANDREL LOCATIONS

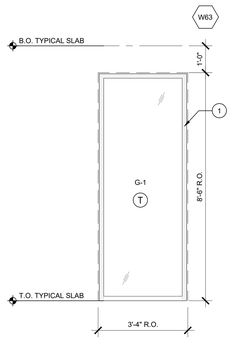


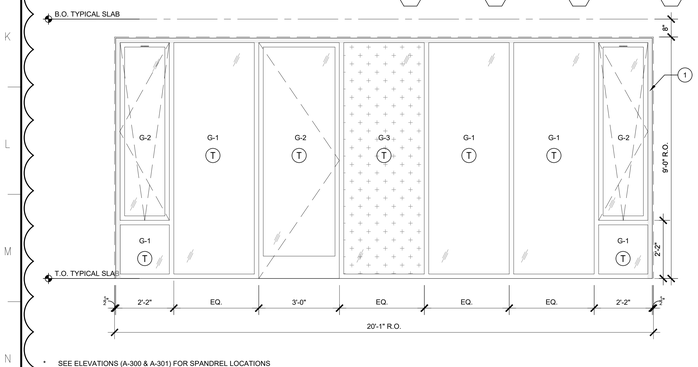
FENESTRATION TYPES	U-FACTOR	SHGC	VT	AIR LEAKAGE RATE (CFM)
G-1, FIXED GLAZING FENESTRATION (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
G-2, OPERABLE GLAZING FENESTRATION (WINDOW SYSTEM)	0.35	0.36	0.6	0.2
G-3, FIXED GLAZING FENESTRATION SPANDREL (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
G-4, FIXED GLAZING FENESTRATION (STOREFRONT SYSTEM)	0.35	0.36	0.6	0.06
G-5, GLASS ENTRANCE DOOR (STOREFRONT SYSTEM)	0.35	0.36	0.6	1
G-6, OPAQUE DOOR (INSULATED SWINGING OPAQUE DOOR)	0.5	NA	NA	0.2
G-7, SKYLIGHT GLAZING	0.48	0.38	NA	0.35

SEE SPECIFICATIONS AND WINDOW TYPES ON A-450S FOR REFERENCES
REFER TO EN SERIES DRAWINGS FOR EXTERIOR WALL ENERGY COMPLIANCE

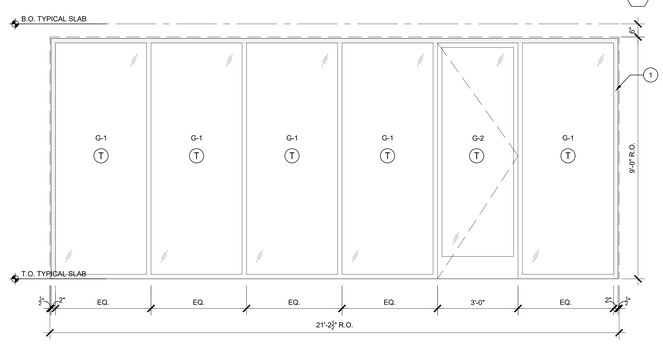


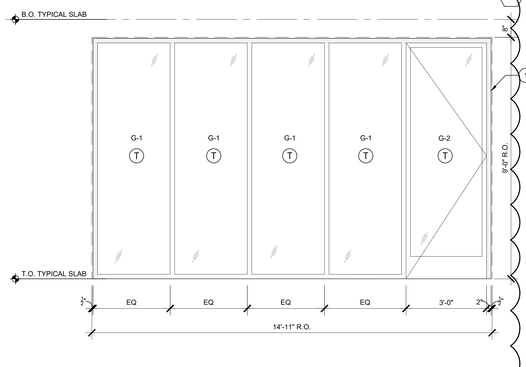


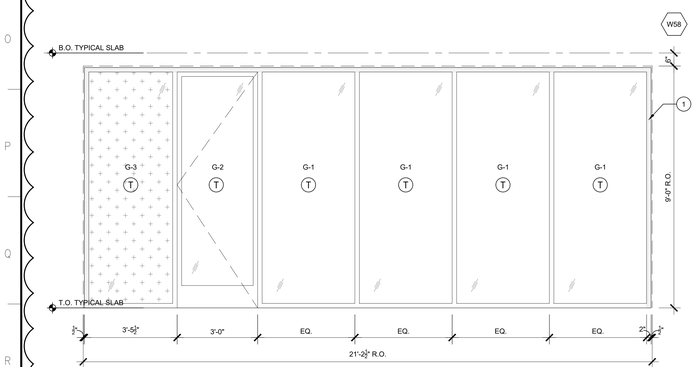


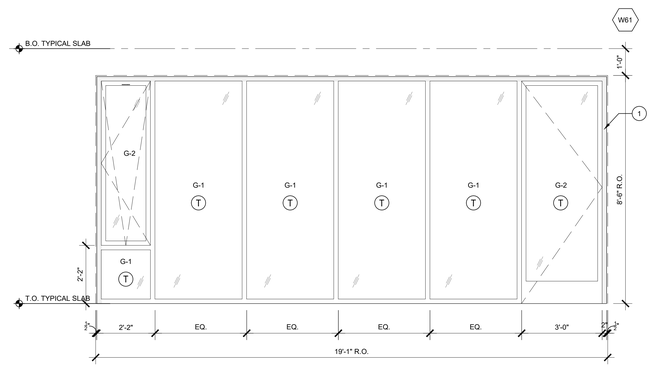


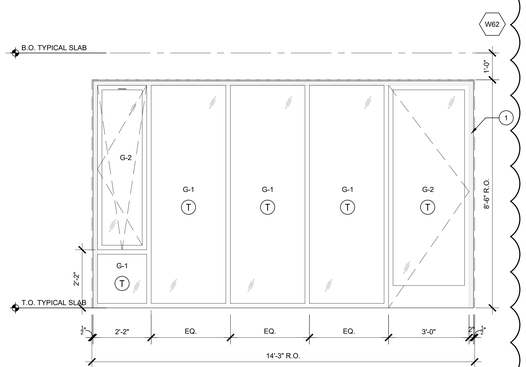
* SEE ELEVATIONS (A-300 & A-301) FOR SPANDREL LOCATIONS











LEGEND:

- WINDOW TYPE
- FIXED WINDOW
- TILT & TURN OPERABLE WINDOW
- OPERABLE SWING DOOR
- OPERABLE SLIDING DOOR
- FIXED WINDOW WITH SPANDREL
- LOUVER
- (T) TEMPERED GLASS
- (L) LAMINATED GLASS
- TRICKLE VENT

GENERAL NOTES:

A. SEE A-300S FOR EXTERIOR ELEVATIONS.

B. SEE A-400S FOR EXTERIOR WALL TYPES & DETAILS.

C. TEMPERED GLASS FOR ALL SPANDRELS, ALL DOORS AND ALL LITES THAT ARE WITHIN 18" FROM FINISHED FLOOR.

D. ALL SPANDREL GLASS TO BE REPLACEABLE FROM EXTERIOR.

E. DUAL FINISH FOR ALL WINDOW FRAMES EXCEPT STOREFRONT AND AMENITY SPACES. DARK GREY AT EXTERIOR, WHITE AT INTERIOR. (STOREFRONT AND AMENITY WINDOWS DARK GREY AT EXTERIOR AND INTERIOR.)

F. BASIS OF DESIGN FOR WINDOWS:
- SCHUCO AWS 75 SERIES

G. BASIS OF DESIGN FOR STOREFRONT:
- KAWNEER 1600 STOREFRONT SYSTEM

H. WINDOW AND WALL ASSEMBLIES COMPLY WITH CONTINUOUS AIR BARRIER INSTALLATION PER NYC BUILDING CODE

I. SWINGING DOOR AND GATE SURFACES WITHIN 10 INCHES OF THE FINISH FLOOR OR GROUND MEASURED VERTICALLY SHALL HAVE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE DOOR OR GATE. EXCEPTION: TEMPERED GLASS DOORS WITHOUT STILES AND HAVING A BOTTOM RAIL OR SHOE WITH THE TOP LEADING EDGE TAPERED AT 60 DEGREES MINIMUM FROM THE HORIZONTAL SHALL NOT BE REQUIRED TO MEET THE 10 INCH BOTTOM SMOOTH SURFACE HEIGHT REQUIREMENT.

J. ENCLOSURE FRAMES ARE PART OF WINDOW PACKAGE.

K. WINDOW OPENINGS DETERMINED ASSUMING CONCRETE SLAB, BEAM, COLUMN & ENCLOSURE.

L. ALL EXTERIOR LOUVERS TO BE STORM PROOF.

M. ALL GLAZING BELOW 75' TO HAVE A MAXIMUM THREAT FACTOR OF 25 IN COMPLIANCE WITH BC 1403.8 BIRD FRIENDLY MATERIALS.

S. ALL OPERABLE WINDOW & TERRACE DOOR HARDWARE TO BE WITHIN ACCESSIBLE REACH RANGE AND ABLE TO BE OPENED WITHIN 5 LB MAX OPENING FORCE.

T. DESIGN INTENT ASSUMES 1/2" ROUGH OPENINGS (R.O.) ON EITHER SIDE, ACTUAL R.O. TO BE DETERMINED BY WINDOW MANUFACTURER.

GLAZING TYPES

	GL-01	VISION I.G.U FOR FIXED AND OPERABLE LITES AT 9TH FL AND ABOVE
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	GL-02BF	BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
	GL-03	STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
	GL-03BF	BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
	GL-04	SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
	GL-04BF	BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
	GL-05BF	BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
	GL-06BF	BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
	GL-07	LAMINATED GLASS RAILING (BIRD FRIENDLY)

KEY NOTE

1. 12" EXTRUDED ALUMINUM WINDOW SHROUD.
2. SEE ELEVATION FOR EXTRUDED ALUMINUM WINDOW SHROUD LOCATION.

CLIENT
CHARNEY COMPANIES
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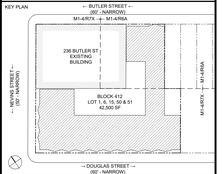
ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
WINDOW SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-454.00

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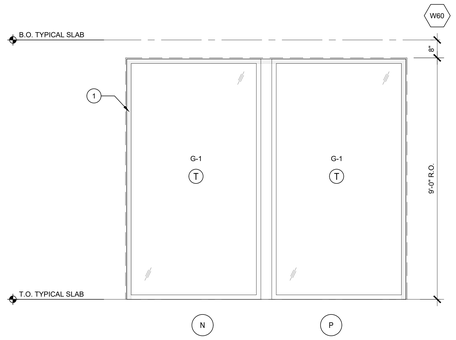

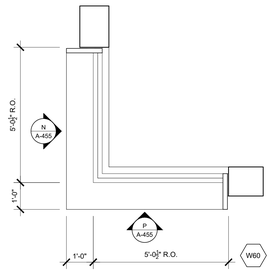

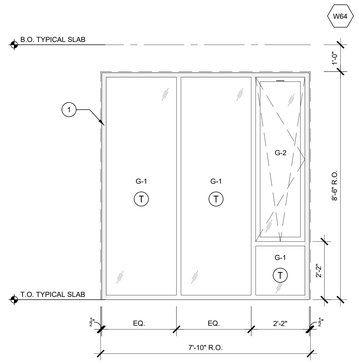

FENESTRATION TYPES	U-FACTOR	SHGC	VT	AIR LEAKAGE RATE (CFM)
G-1, FIXED GLAZING FENESTRATION (WINDOW SYSTEM)	0.28	0.36	0.6	0.06
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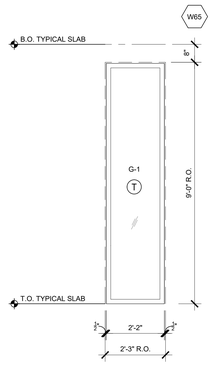
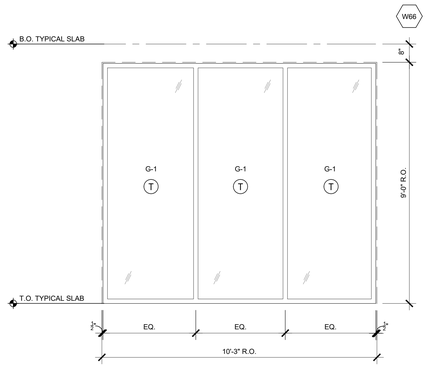
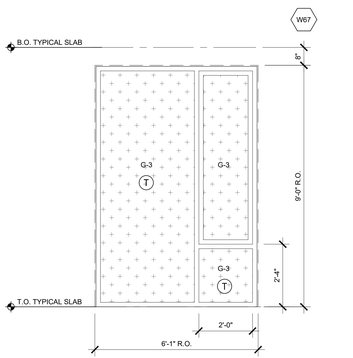
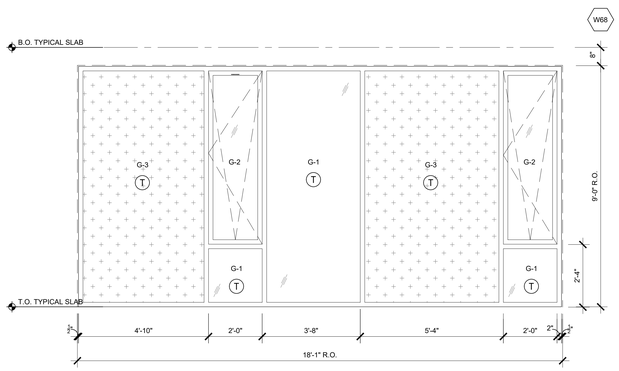
G-4, FIXED GLAZING FENESTRATION (STOREFRONT SYSTEM)	0.35	0.36	0.6	0.06
G-5, GLASS ENTRANCE DOOR (STOREFRONT SYSTEM)	0.35	0.36	0.6	1
G-6, OPAQUE DOOR (INSULATED SWINGING OPAQUE DOOR)	0.5	NA	NA	0.2
G-7, SKYLIGHT GLAZING	0.48	0.38	NA	0.35

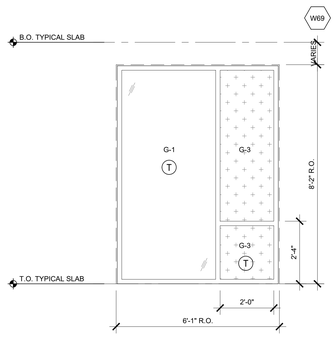
SEE SPECIFICATIONS AND WINDOW TYPES ON A-450S FOR REFERENCES
REFER TO EN SERIES DRAWINGS FOR EXTERIOR WALL ENERGY COMPLIANCE

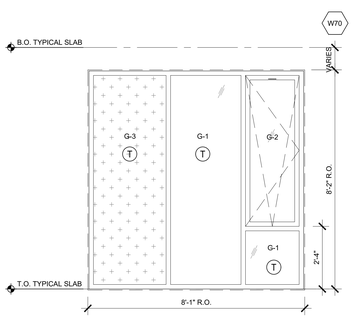


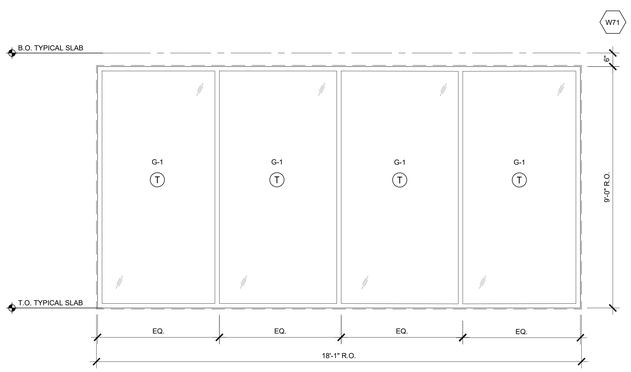












LEGEND:

- WINDOW TYPE
- FIXED WINDOW
- TILT & TURN OPERABLE WINDOW
- OPERABLE SWING DOOR
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GENERAL NOTES:

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- GL-01BF BIRD FRIENDLY VISION I.G.U FOR FIXED AND OPERABLE LITES AT 8TH FL AND BELOW
- GL-02 SPANDREL I.G.U. AT 9TH FL AND ABOVE
- GL-02BF BIRD FRIENDLY SPANDREL I.G.U. AT 8TH FL AND BELOW
- GL-03 STOREFRONT I.G.U AT 9TH FLOOR AND ABOVE
- GL-03BF BIRD FRIENDLY STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-04 SPANDREL STOREFRONT I.G.U AT 9TH FL AND ABOVE
- GL-04BF BIRD FRIENDLY SPANDREL STOREFRONT I.G.U AT 8TH FL AND BELOW
- GL-05BF BIRD FRIENDLY FLOOD PROOF STOREFRONT I.G.U
- GL-06BF BIRD FRIENDLY FLOOD PROOF SPANDREL STOREFRONT I.G.U
- GL-07 LAMINATED GLASS RAILING (BIRD FRIENDLY)

KEY NOTE

1. 12" EXTRUDED ALUMINUM WINDOW SHROUD.
2. SEE ELEVATION FOR EXTRUDED ALUMINUM WINDOW SHROUD LOCATION.

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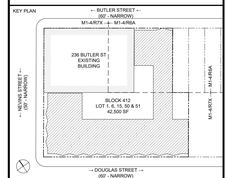
KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

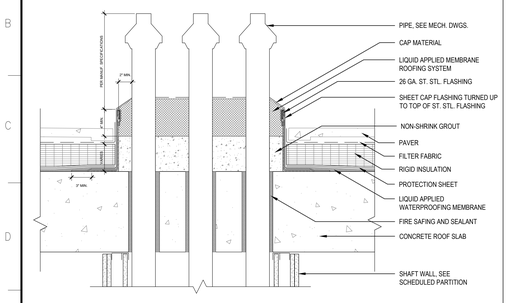
DRAWING TITLE
WINDOW SCHEDULE

SEAL & SIGNATURE

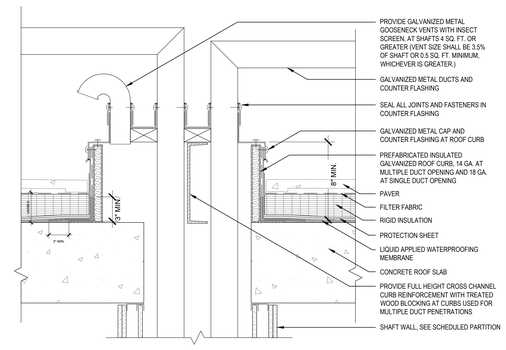
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-455.00

CADD FILE No.:
144 OF 175



14 ROOF CURB DETAIL @ PENETRATIONS & SHAFT
1 1/2" = 1'-0"



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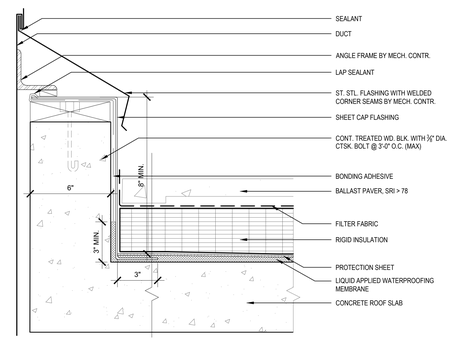
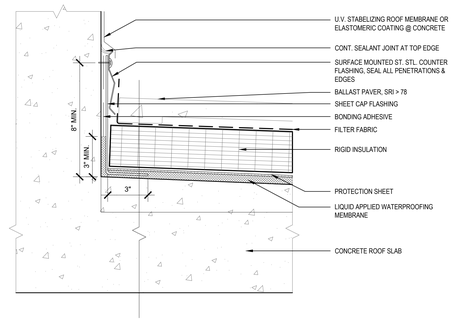
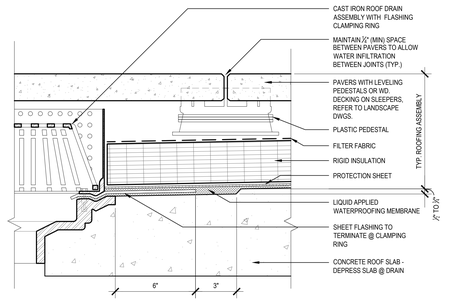


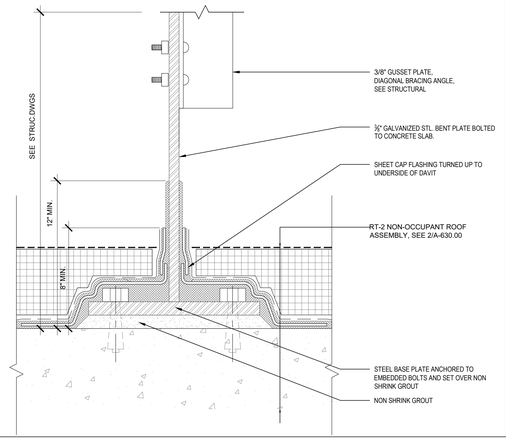
10 ROOF DETAIL @ MECH DUCT PENETRATION
3" = 1'-0"



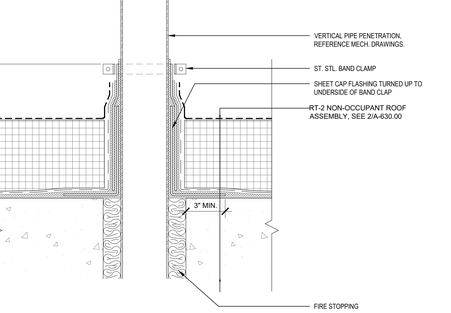
7 ROOF CURB DETAIL
3" = 1'-0"



9 ROOF DRAIN DETAIL @ PRECAST CONCRETE PAVERS
3" = 1'-0"



11 ROOF DETAIL @ MECHANICAL DUCT SUPPORT
3" = 1'-0"



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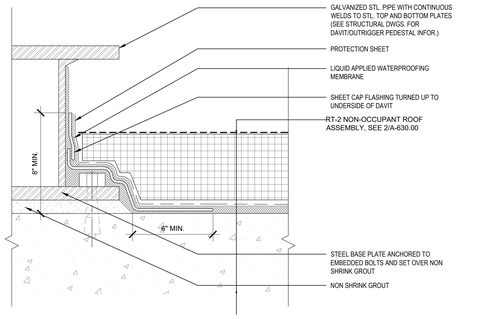

9 DAVIT PEDESTAL DETAIL
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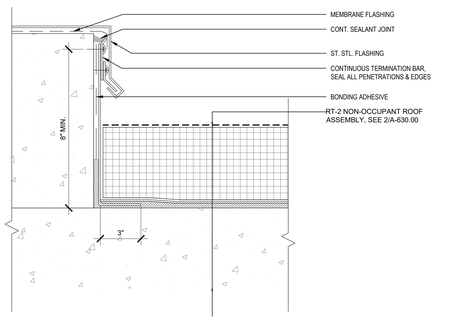

8 ROOF DETAIL @ MECHANICAL EQUIPMENT SUPPORT
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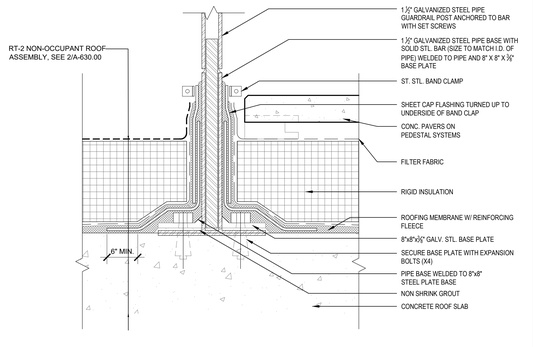
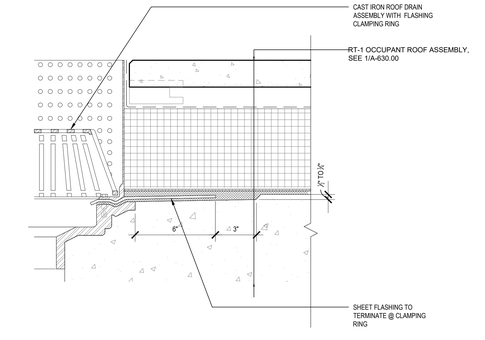
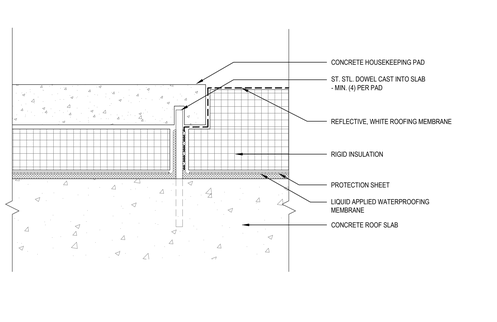


7 GUARDRAIL BASE DETAIL
3" = 1'-0"



6 ROOF DRAIN DETAIL @ CONCRETE PAVER
3" = 1'-0"



5 ROOF HOUSEKEEPING PAD DETAIL
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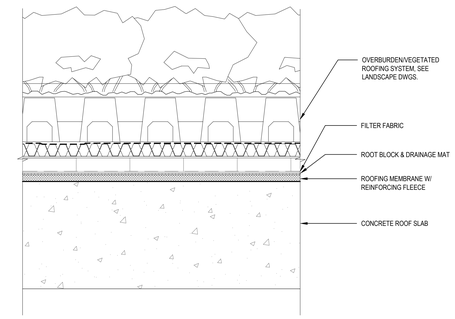
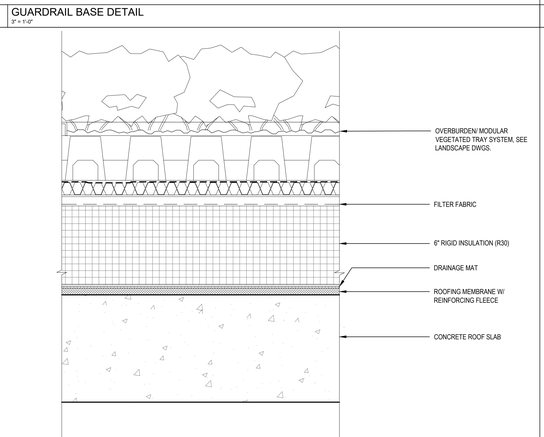
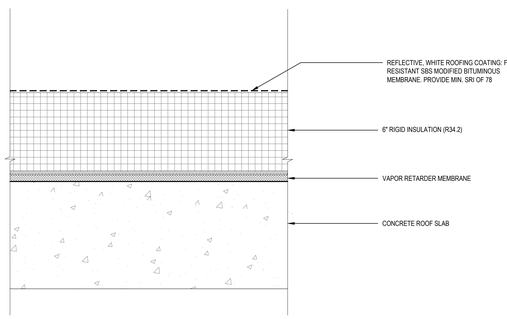


4 RT-4: GREEN ROOFING ASSEMBLY OVER GARAGE
3" = 1'-0"



3 RT-3: GREEN ROOFING ASSEMBLY OVER OCCUPANT SPACE
3" = 1'-0"



2 RT-2: ROOFING ASSEMBLY FOR NON-OCCUPANT ROOF
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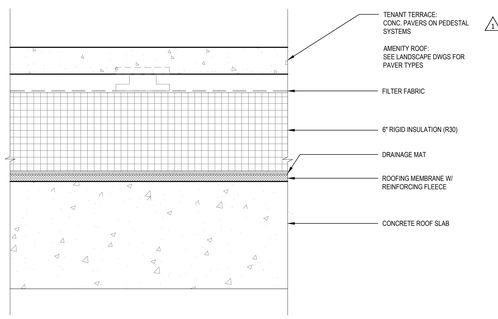

1 RT-1: ROOF ASSEMBLY FOR OCCUPANT ROOF
3" = 1'-0"

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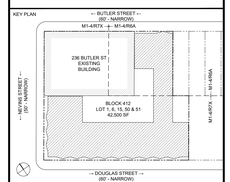

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PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

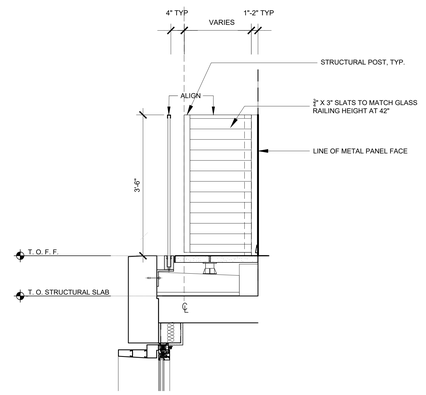
TYPICAL ROOF DETAILS

SEAL & SIGNATURE

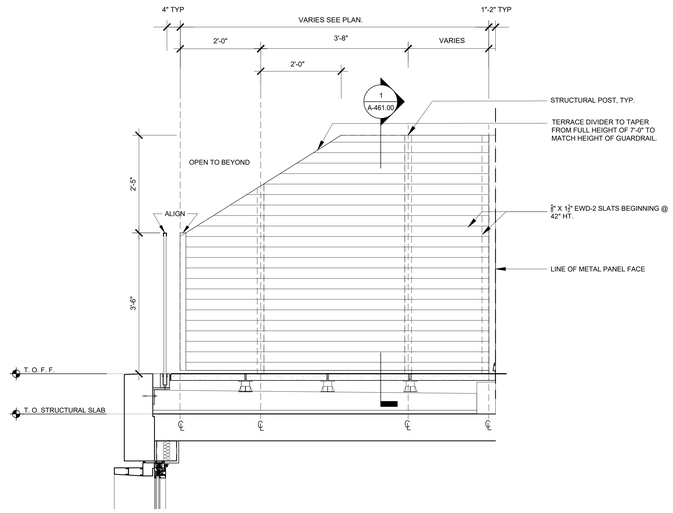
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-460.00

CADD FILE No.:



10 ELEVATION @ SETBACK TERRACES - 6TH FLOOR
SCALE: 3/4"= 1'-0"



9 ELEVATION @ SETBACK TERRACES - 12TH FLOOR
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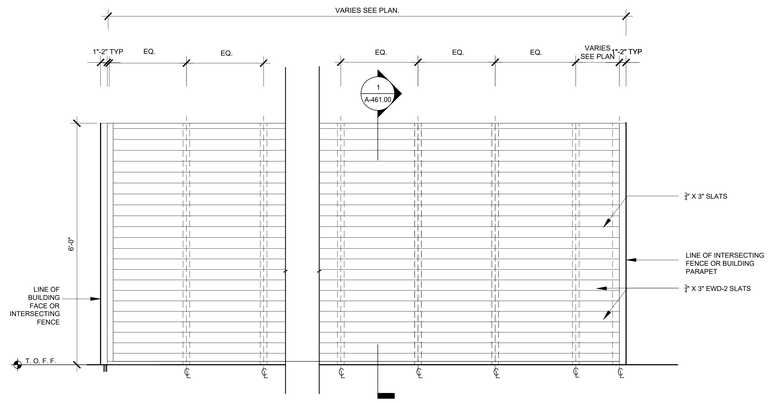
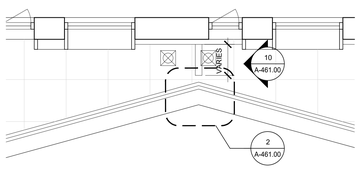
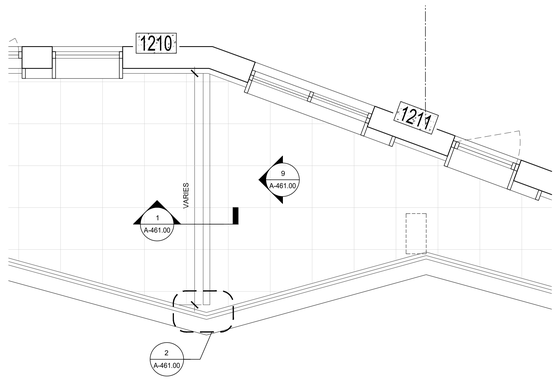


8 ELEVATION @ COURTYARD TERRACES - 3RD FLOOR
SCALE: 3/4"= 1'-0"



7 KEY PLAN @ SETBACK TERRACES - 6TH FLOOR
SCALE: 3/8"= 1'-0"



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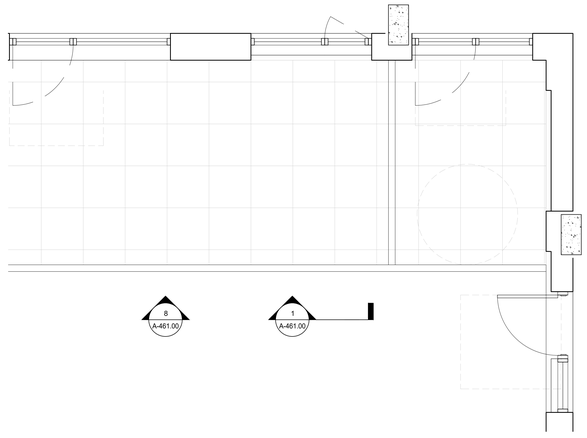
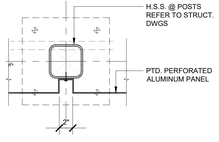


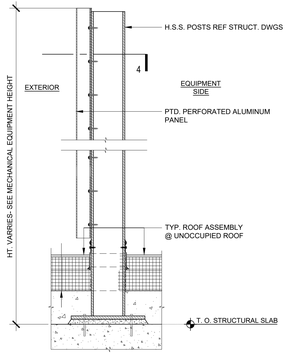
5 KEY PLAN @ COURTYARD TERRAECS - 3RD FLOOR
SCALE: 3/8"= 1'-0"

NOTE: SEE BULKHEAD ELEVATIONS



4 PLAN DTL @ MECHANICAL SCREEN
SCALE: 1 1/2"= 1'-0"

NOTE: SEE BULKHEAD ELEVATIONS



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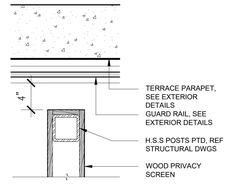
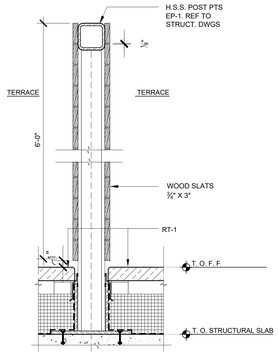


2 PLAN DTL @ PRIVACY SCREEN
SCALE: 1 1/2"= 1'-0"



1 DTL. @ PRIVACY SCREEN
SCALE: 1 1/2"= 1'-0"

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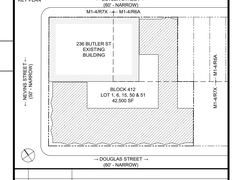

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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
PRIVACY SCREEN DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-461.00

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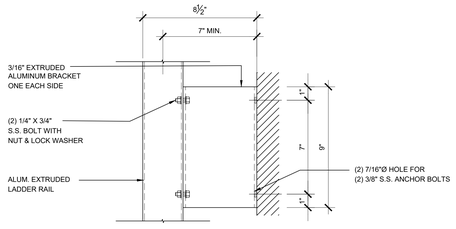

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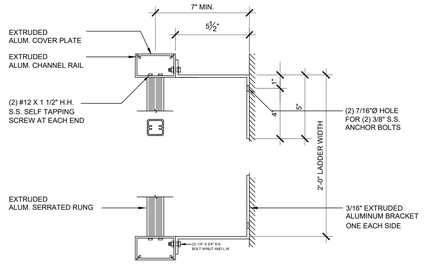
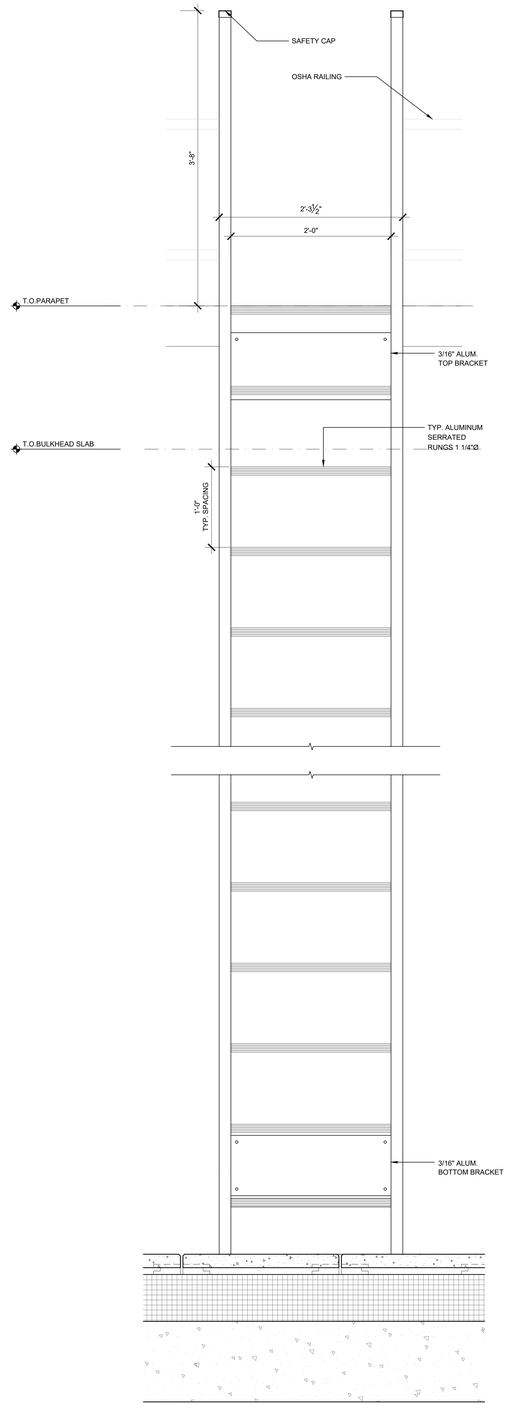


BRACKET DETAIL - PLAN
SCALE: 3" = 1'-0" | 3



ENLARGED LADDER SECTION
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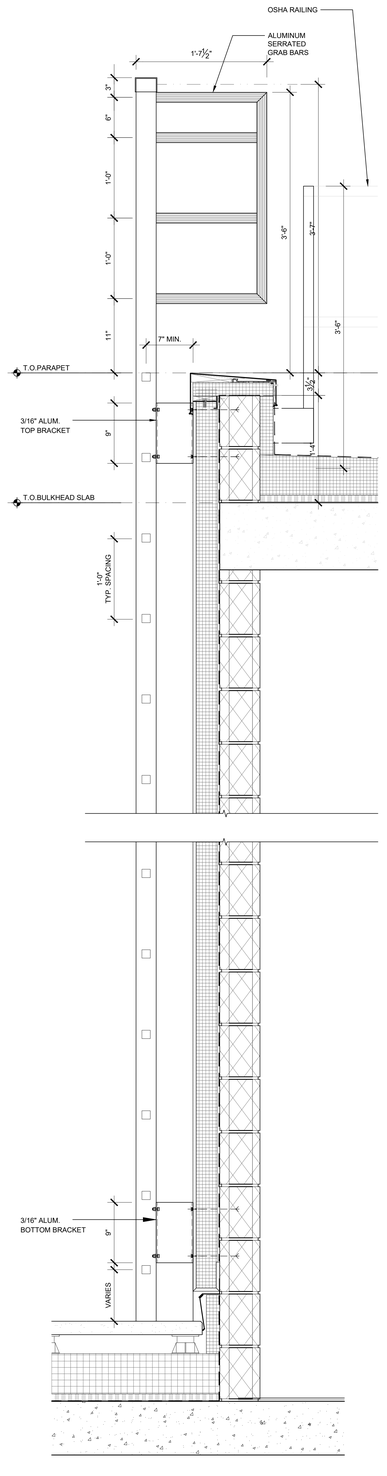

ENLARGED LADDER ELEVATION
SCALE: 1 1/2" = 1'-0" | 1

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BROOKLYN, NY 11217

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CODE CONSULTANT / EXPEDITOR
WILLIAM VITACCO ASSOCIATES
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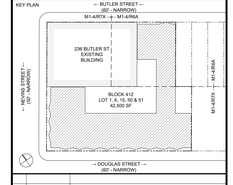
ACOUSTIC

KEY PLAN



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
ROOF DETAILS - LADDER

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-462.00

CADD FILE No.:
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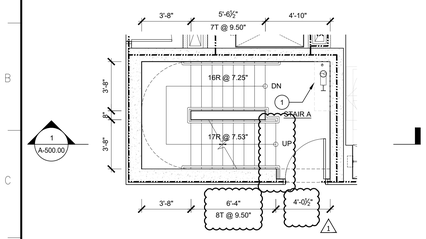
147 OF 175

KEYNOTES:

1. PROVIDE CANE DETECTION AT STANDPIPES
2. SEE A-520 FOR RAILING DETAILS, HEIGHTS, AND DIMENSIONS



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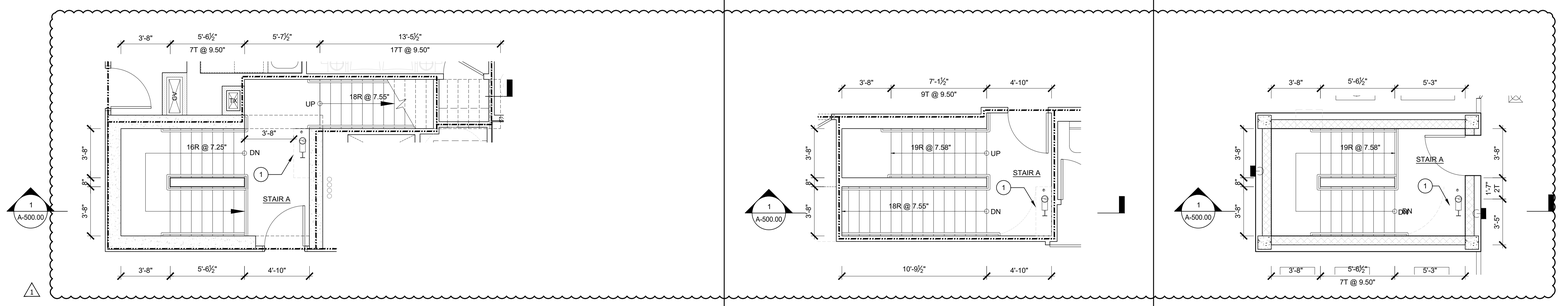
SCALE: 1" = 1'-0"



8 STAIR A PLAN - FLOOR 14
SCALE: 1" = 1'-0"

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SCALE: 1" = 1'-0"

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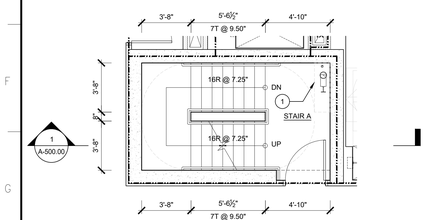
SCALE: 1" = 1'-0"



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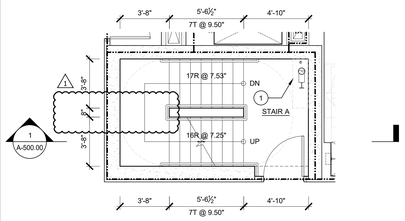

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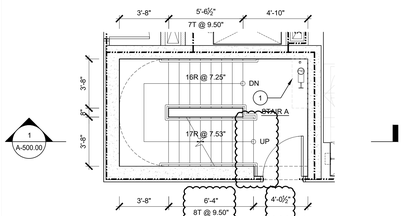

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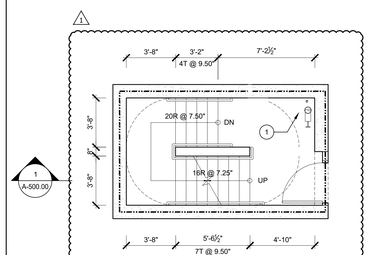

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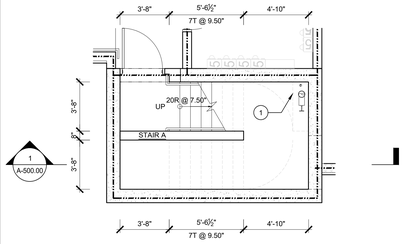

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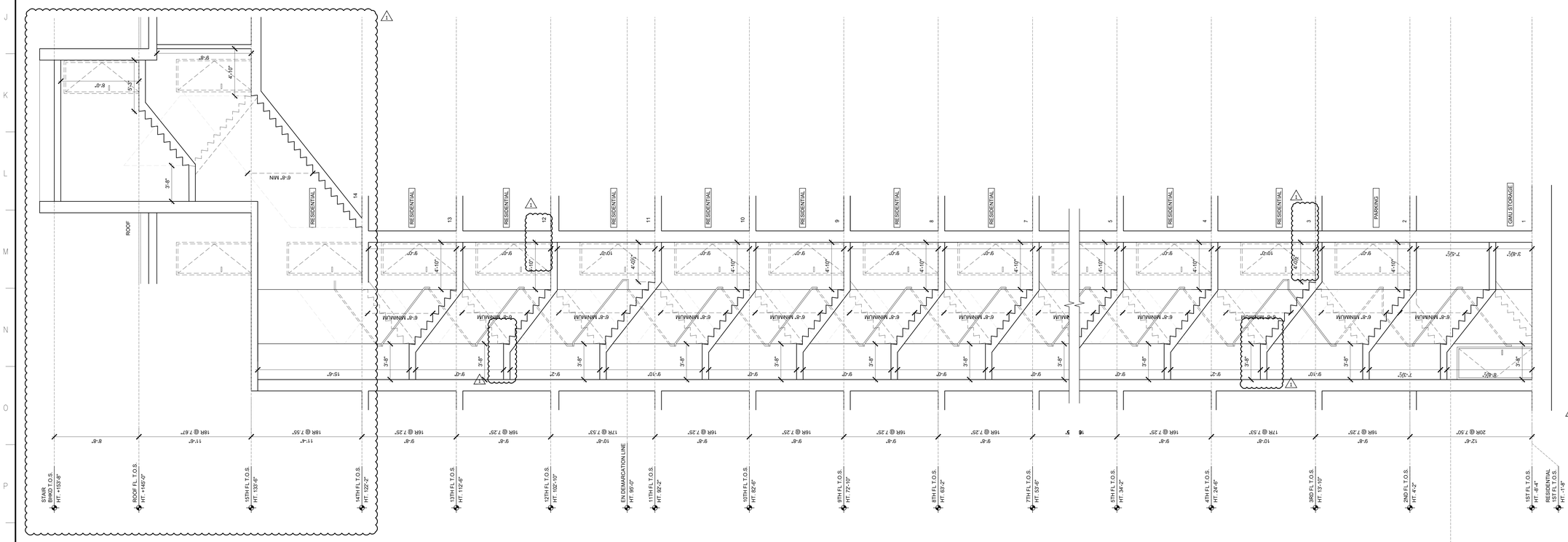

1 STAIR A SECTION
SCALE: 1" = 1'-0"

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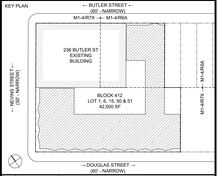

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BROOKLYN, NY 11217

DRAWING TITLE
STAIR PLANS & SECTION

SEAL & SIGNATURE

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DRAWING BY: FFA
CHK BY: FFA

A-500.00

CADD FILE No.:
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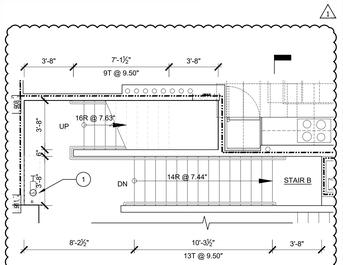

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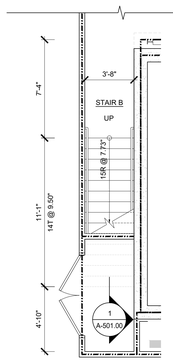

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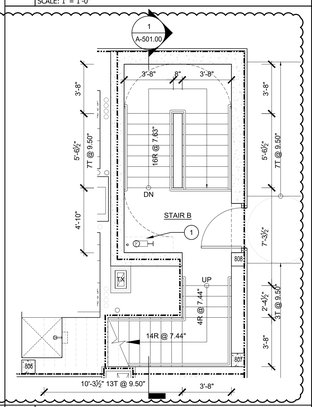

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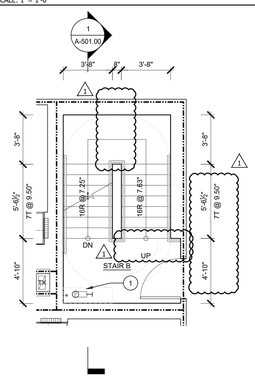

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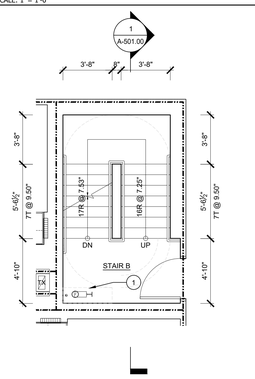

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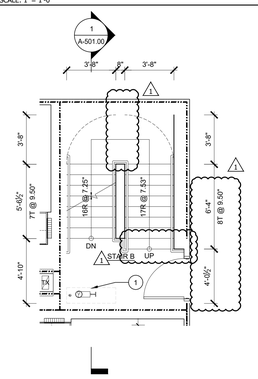

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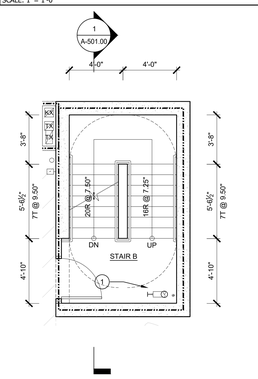

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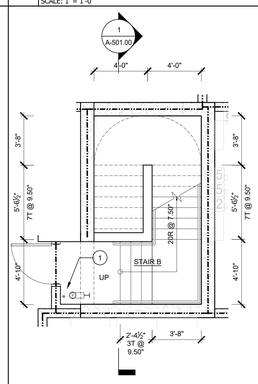

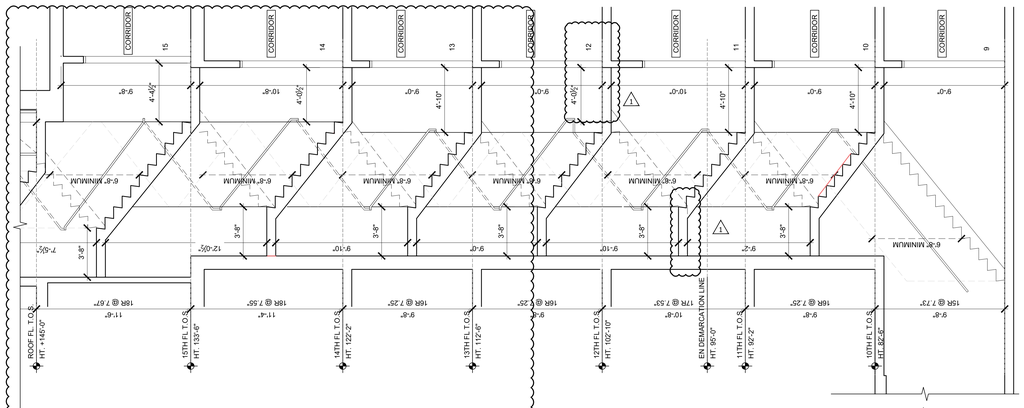

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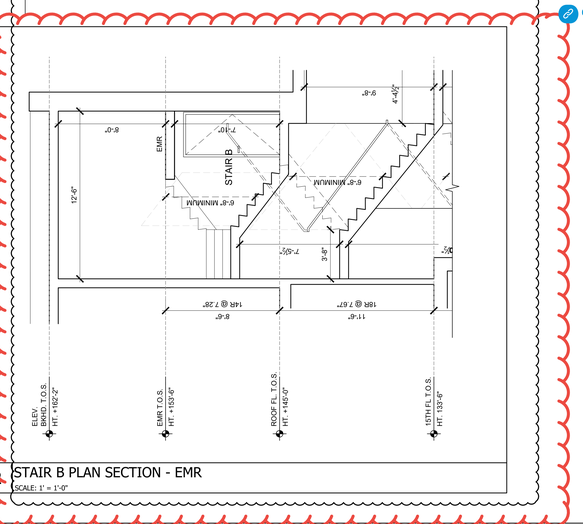

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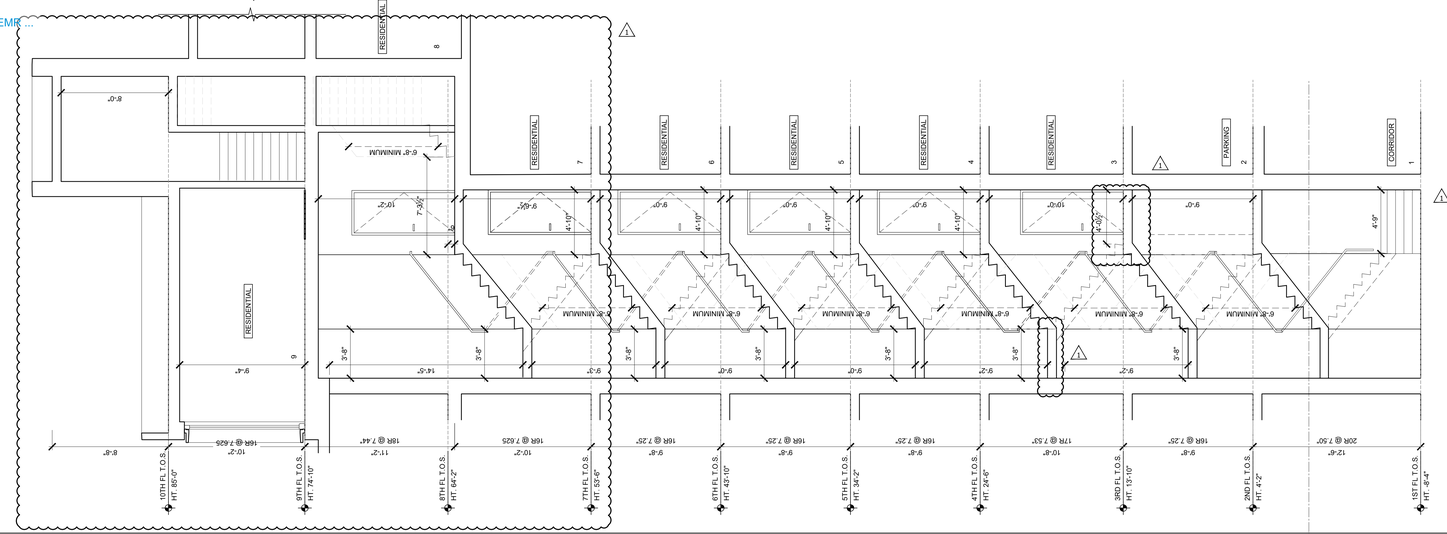

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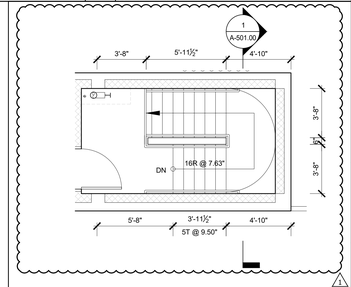

16 STAIR B PLAN - 10TH FLOOR BULKHEAD
SCALE: 1" = 1'-0"

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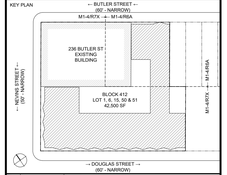

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DRAWING TITLE
STAIR PLANS & SECTION

SEAL & SIGNATURE

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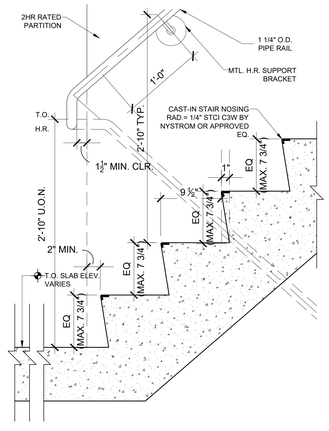
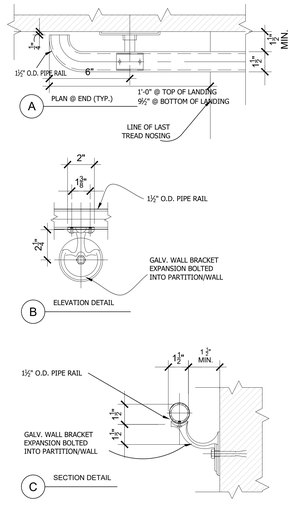
149 OF 175



1 TYP. CONCRETE STAIR DETAIL
SCALE: 1 1/2""=1'-0"



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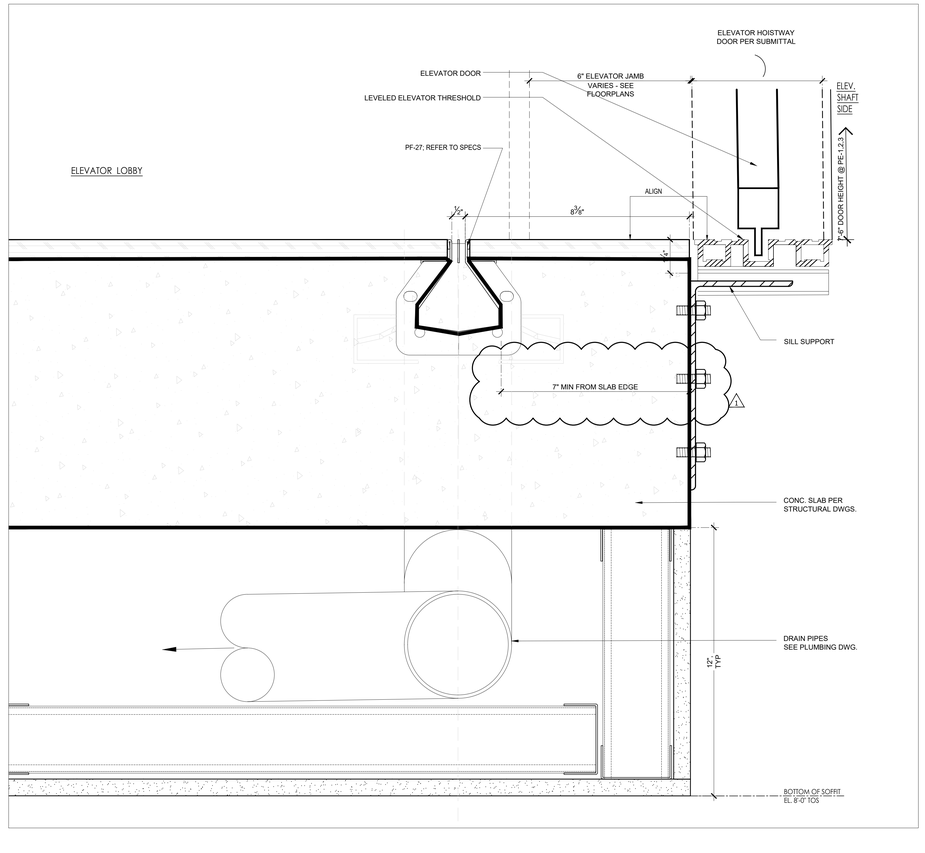

3 DRAIN DETAIL @ ELEVATOR SILL
SCALE: 6"=1'-0"

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STAIR & ELEVATOR DETAILS

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CHK BY: FFA

A-520.00

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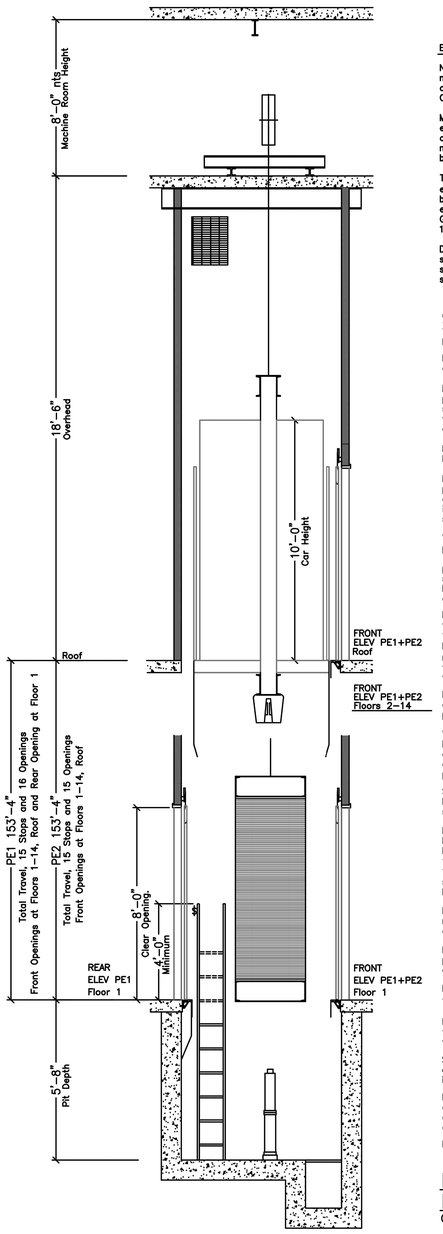


HOISTWAY SECTION
ELEVATORS PE1–PE2
Capacity 3500 LBS, Speed: 350 FPM

ENERGY CODE – NYC 2020

New traction elevators with a rise of 75 feet or more in new buildings shall have a power conversion system that complies with Sections C405.8.1.1.1 through C405.8.1.1.3

MOTOR: Induction motors with a Class IE2 efficiency rating, as defined by IEC EN 60034–30, or alternative technologies, such as permanent magnet synchronous motors that have equal or better efficiency, shall be used.

TRANSMISSION: Transmissions shall not reduce the efficiency of the combined motor/transmission below that shown for the Class IE2 motor for elevators with capacities below 4,000 pounds. Gearless machines shall be assumed to have a 100 percent transmission efficiency.

DRIVE: Potential energy released during motion shall be recovered with a regenerative drive that supplies electrical energy to the building electrical system.

GENERAL NOTES

Top of hoistway shall be enclosed as required by building code.

Hoist beam determined by Structural Engineer capable of supporting 10,000 pounds

Machine and sheave structural beams to be provided by Elevator Contractor – Actual beam support design, and location in plan and section will be determined by Elevator Contractor. Isolate all beams for sound control as specified.

Reaction loads are schematic – Actual loads to be determined by Elevator Contractor.

Block up hoist machine as required to provide proper arc of contact of the hoist ropes on the drive sheave, and to access the deflector sheave in the machine room. Isolate all beams for sound control as specified.

When required by building code hoistway shall be provided with means to prevent accumulation of smoke and hot gases. Minimum 3.0 SF or 3 ½ percent of hoistway area per elevator car of shaft ventilation ducted to exterior – all per local codes and regulations determined by MEP engineer

Hoistway structural support for car and counter–weight guide rails is required in pit, at each floor, within overhead and at intermediate locations where heights exceed 14'–0" for car rails or 16'–0" for counterweight rails or at varying heights determined by nominal guide rail weight or reinforcement of guide rails per code

Mechanical, electrical and plumbing equipment only used directly for operation of the elevator is permitted in hoistway, pit and machine room

Where fire resistive construction is required–hoistway shall be enclosed per current building code requirements. Where non–fire resistive construction is permitted there are limitations per code for openwork enclosure.

Strength of hoistway enclosure shall maintain hoistway entrances and when load bearing support their operating and locking devices.

For drywall construction, hoistway door frames to be erected before front walls are constructed. For poured concrete construction, rough opening for hoistway door frame to be 12 inches greater than door clear opening width, 6 inches each side, and 8" greater than door clear opening height.

Provide permanent protected pit lighting with minimum 10 fc at pit floor and light switch adjacent to pit access door

Provide enclosed stop switch or switches in pit for each elevator located accessible from access door

Provide a steel ladder for pit access – from 48 inches above last floor served to pit floor

Pits extending to ground shall hove noncombustible floors and designed to prevent entry of ground water

Strength of pit floor is per applicable building codes and shall withstand car or counterweight impact load at 125% of rated or striking speed

Provide 2'x2'x2' sump pit with flush secured grating and pump with capacity to remove 3000 gallons per hour per elevator – not directly connected to sewer and per local plumbing codes

No Occupied Space Below Pit

PE1+2 MACHINE ROOM REACTIONS (in lbs.)			
ON MACHINE/MOTOR RAIL			
A	18,500	B	32,500
C	12,400	D	24,600
Dynamic load per ANSI 17.1 Rule 2.9.2			

PE1+2 ELEVATOR REACTIONS (in lbs.)			
	RAIL		IN PIT FLOOR
R1	1,400	W	50,500
R2	700	X	27,800
R3	27,750	Y	42,900
FORCES HAVE BEEN DOUBLED FOR IMPACT			
FORCES W AND X WILL NOT OCCUR SIMULTANEOUSLY			

Energy Code ASHRAE 90.1 – 2016

DESIGN DOCUMENTS: Provide in the shop drawings the use category as defined in ISO 25745–2 between 1 and 6. Provide the energy efficiency classes A through G per ISO 25745–2, Table 7.

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 doors closed for over 15 minutes.

MACHINE ROOM NOTES

Coordinate with electrical and mechanical for HVAC, communication and all electrical devices to determine actual Machine Room layout and dimensions

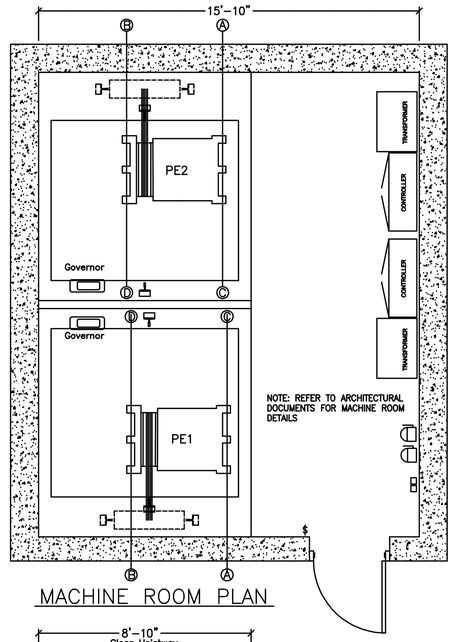
Provide for each elevator a mainline stop switch and fused disconnect for elevator cab lights and fan

Provide permanent natural or mechanical means of HVAC to keep the ambient air temperature and humidity in the range specified by the elevator equipment manufacturer. Provide permanent signage posted in Machine Room with temperature and humidity range

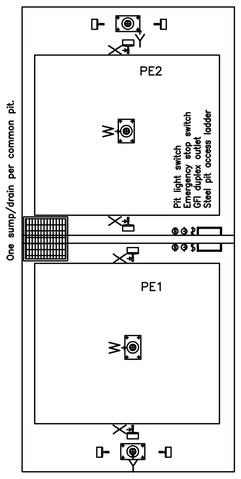
Provide permanent lighting with minimum 19 fc illumination at Machine Room floor level and light switch

Provide permanent means of communication between elevator cab and Machine Room

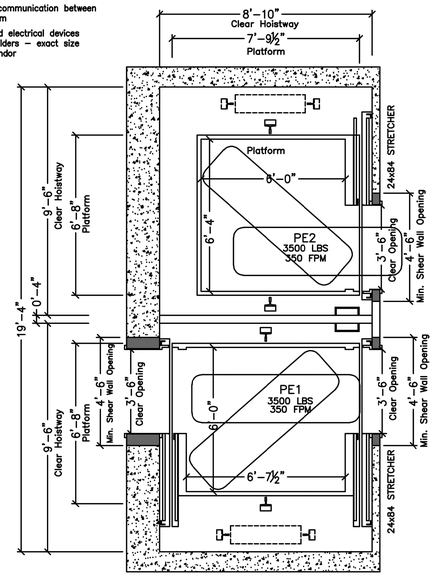
Machine Blocks, Controllers and electrical devices shown are schematic place holders – exact size and placement will vary by vendor



MACHINE ROOM PLAN



PIT PLAN



HOISTWAY+PLATFORM PLAN

GEARLESS TRACTION
PASSENGER/SERVICE CARS
CAPACITY 3500 LBS
SPEED 350 FPM

1 ELEVATOR DETAILS
SCALE: N.T.S.

Jenkins & Huntington, Inc.
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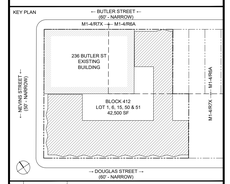
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

Project: 251 Douglass Street
Location: Brooklyn, NY
Description: ELEVATORS PE1–PE2
Drawing Name: PLANS+SECTION
File No.: 1004233–8030
Date: 10 June 2022
Scale: NTS

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

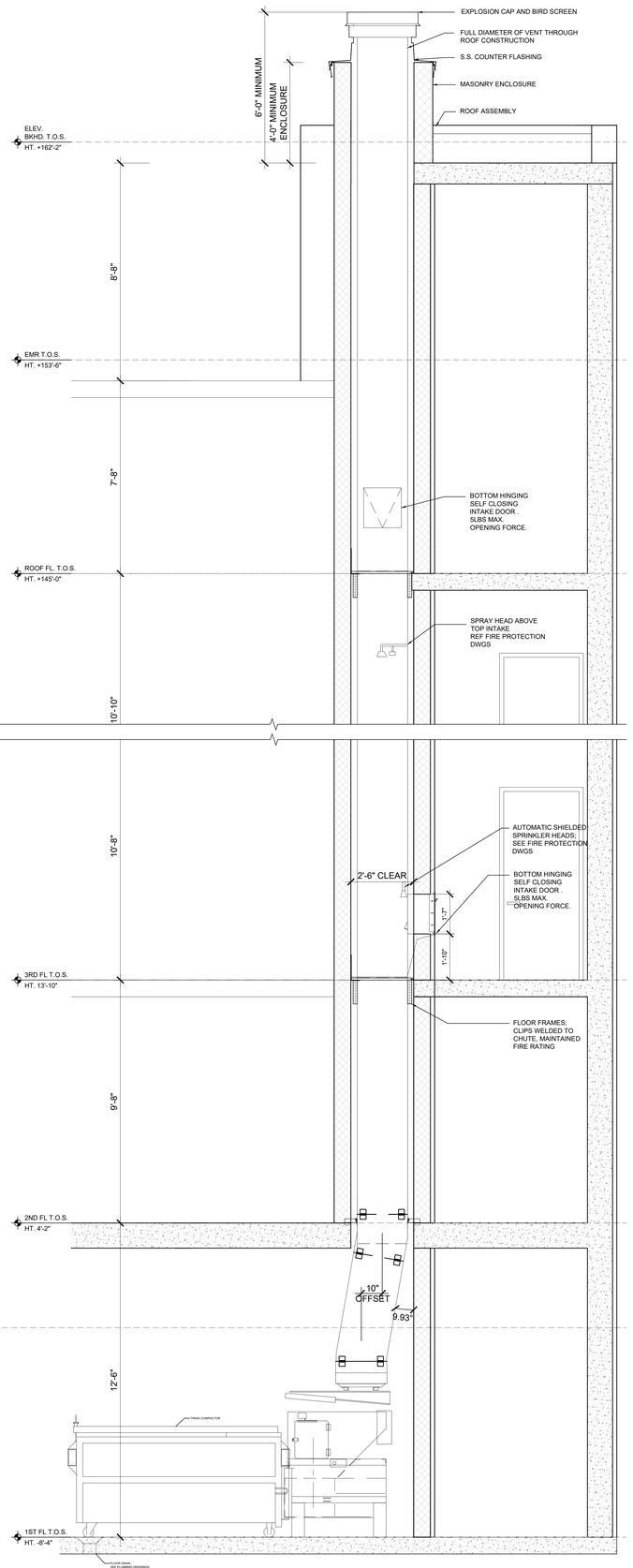
DRAWING TITLE
ELEVATOR DETAILS

SEAL & SIGNATURE

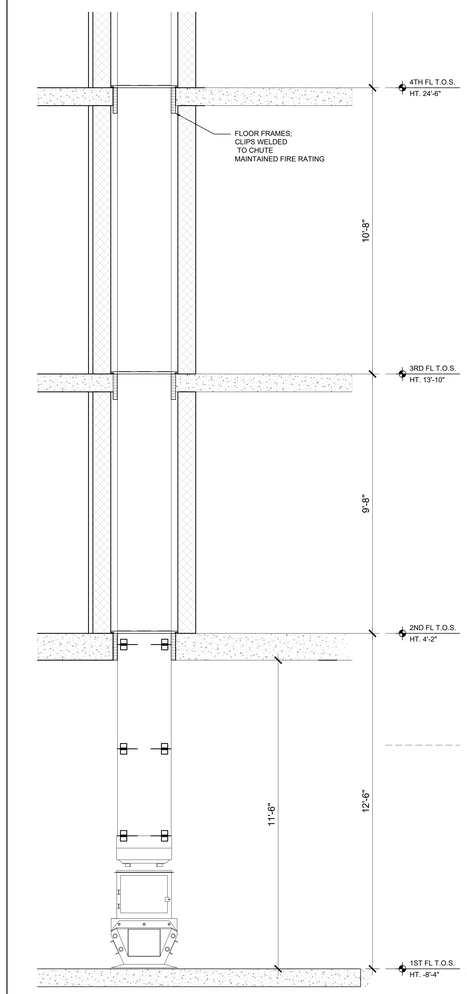
DATE (MM-DD-YY): 2022-10-07
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-521.00

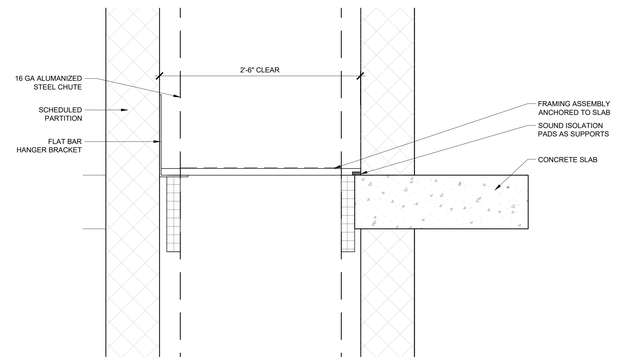
CADD FILE No.: ## OF###



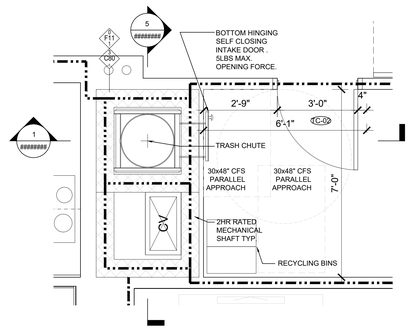
SECTION @ TRASH CHUTE | 1
SCALE: 1/2"=1'-0"



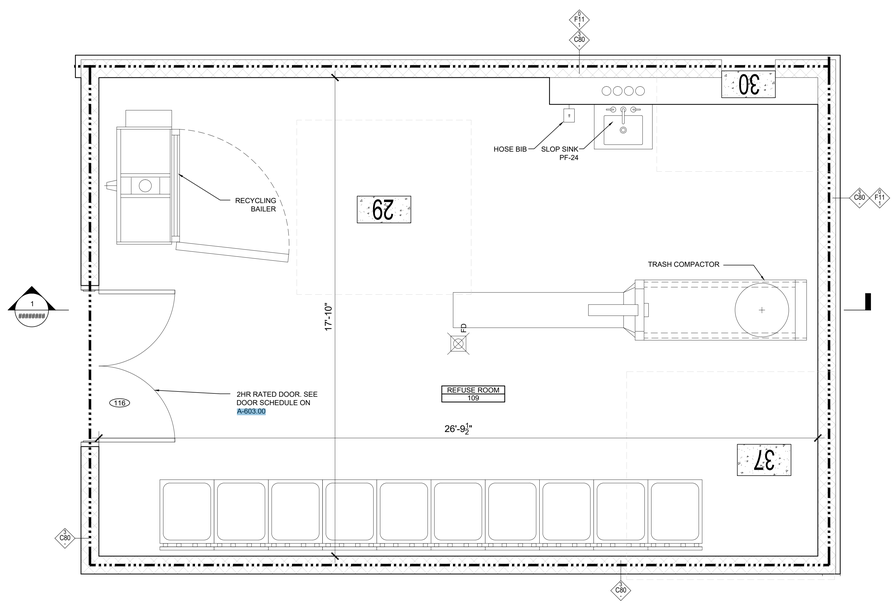
SECTION @ TRASH CHUTE | 2
SCALE: 1/2"=1'-0"



SECTION DETAIL @ TRASH ROOM, TYP FLOOR | 3
SCALE: 1 1/2"=1'-0"



PLAN DETAIL @ TRASH ROOM, TYP FLOOR | 4
SCALE: 1/2"=1'-0"



PLAN DETAIL @ TRASH ROOM, GROUND FLOOR | 5
SCALE: 1/2"=1'-0"

LEGEND

- FD — FLOOR DRAIN
- RD — ROOF DRAIN
- HB — HOSE BIB
- WZ — WALL TAG
- XX — DOOR TAG
- XX — WINDOW TAG
- CMU WALL
- CONCRETE WALL
- NON-STRUCTURAL CONCRETE
- 2 HR RATED SHAFT WALL S22 PROVIDED ON WET RM SIDE
- ELECTRICAL PANEL
- 1 HR FIRE RATED WALL
- 2 HR FIRE RATED WALL
- 3 HR FIRE RATED WALL
- ROOF TYPE 1 (RT-1)
- ROOF TYPE 2 (RT-2)

GENERAL NOTES

1. PROJECT CONSTRUCTION DATUM AND BASE PLANE: HT.+0'-0" = EL: +20.34' NAVD 88
2. ALL PARTITION TYPES TO BE WZ1 U.O.N. CM TO HOLD DEDUCT ALTERNATE WZ2.
3. ALL PARTITIONS ARE MEASURED TO FACE OF FINISH PARTITION.
4. SEE A-600'S FOR PARTITION SCHED & FOR TYP. PARTITION DETAILS.
5. HINGE SIDE OF DOOR TO BE 4" FROM ADJACENT WALL U.O.N.
6. SEE STRUCTURAL DWGS AND EN-FO-001 FOR FOUNDATION DETAILS.
7. SEE EN-008 FOR ROOF DETAILS.
8. ALL ELECTRICAL PANEL COVERS TO HAVE WHITE FINISH, TYP.
9. SEE A-608 FOR EQUIPMENT, PLUMBING FIXTURE, TOILET ACCESSORIES & APPLIANCE SCHEDULES.
10. PROVIDE SEALANT ON ALL DEMISE WALLS WITH BACK TO BACK TOILETS AND ALL TOILET WALLS THAT BUTT UP AGAINST A LIVING/DINING ROOM.
11. AT STANDPIPE DRAINS, PLUMBER TO PROVIDE 8-12" STUB UP AND CAP DURING CONSTRUCTION; STUB UP TO BE CUT DOWN AFTER CONSTRUCTION.
12. ALTERNATIVE MEANS FOR VENTILATION (AMV) WILL BE ACHIEVED THROUGH TRICKLE VENTS IN EACH RESIDENTIAL SPACE. SEE A-450'S FOR WINDOW SCHEDULE
13. ALL CLOSETS 2'-2" DEEP U.O.N.
14. ALL W/D CLOSETS 2'-6" DEEP U.O.N.
15. CLEAR FLOOR SPACE AT ALL WASHER/DRYERS TO COMPLY WITH ICC 117.1 2009 SECTION 611.2 SEE I-630 FOR DETAILS.
16. SEE I-630 FOR CLOSET DETAILS.
17. GC TO ENSURE ALL ROOF SLABS HAVE POSITIVE PITCH TOWARD ROOF DRAINS.

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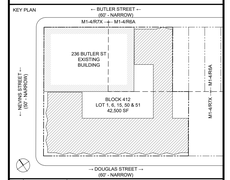


No.	DATE	ISSUE
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	09.13.2024	ULE ENVELOPE PACKAGE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

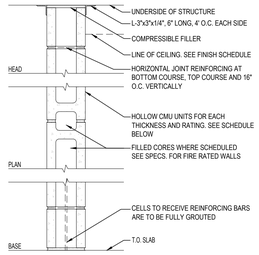
DRAWING TITLE
TRASH ROOM & REFUSE ROOM DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-04
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

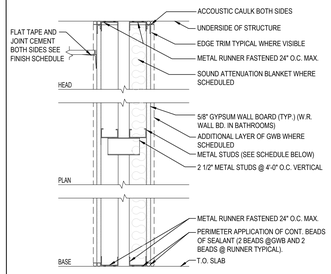
A-522.00

CADD FILE No.: ## OF###



TYPE	NOMINAL SIZE / ACTUAL SIZE	MAX. HEIGHT / GAUGE	REMARKS
	WIDTH		
C40	4" / 3 5/8"	N/A	NON-LOAD BEARING
	3 5/8"		
C60	6" / 5 5/8"	10'-6" / N/A	NON-LOAD BEARING FOR RATED WALL: REFER TO SPECS
	5 5/8"		
C80	8" / 7 5/8"	N/A	NON-LOAD BEARING FOR RATED WALL: REFER TO SPECS
	7 5/8"		
C100	10" / 9 5/8"	20'-6" / N/A	NON-LOAD BEARING FOR RATED WALL: REFER TO SPECS
	9 5/8"		
C120	12" / 11 5/8"	24'-0" / N/A	NON-LOAD BEARING
	11 5/8"		

CMU WALL 1-1/2"=1'-0" C

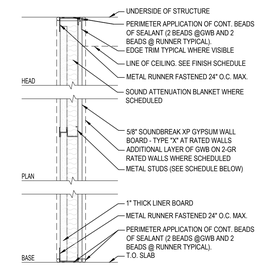


TYPE	STUD SIZE / SPACING	STUD SIZE / SPACING	MAX. HEIGHT / GAUGE	REMARKS
	WIDTH			
P12	3 5/8"	3 5/8"	13'-3" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P14	3 5/8"	3 5/8"	14'-6" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P22	3 5/8"	3 5/8"	17'-6" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P24	3 5/8"	3 5/8"	19'-6" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P32	3 5/8"	3 5/8"	22'-9" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P33	3 5/8"	3 5/8"	22'-9" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P34	3 5/8"	3 5/8"	23'-6" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P65	3 5/8"	6"	23'-6" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			
P66	3 5/8"	6"	23'-6" / 20	--
	16"O.C.	16"O.C.		
	VARIES-24"MAX			

PLUMBING CHASE WALL 1-1/2"=1'-0" P

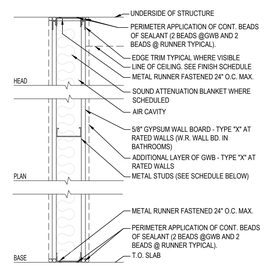
GENERAL PARTITION NOTES

1. TYPICAL STUD DEFLECTION SHALL BE L/240.
2. PARTITIONS SHALL REST DIRECTLY UPON THE CONCRETE FLOOR CONSTRUCTION AND MAY EXTEND TO THE CONCRETE CONSTRUCTION OF THE FLOOR OR ROOF ABOVE.
3. INCREASE GAUGE THICKNESS OR DECREASE STUD SPACING AS REQUIRED TO MEET DEFLECTION CRITERIA AND WHERE LIMITING HEIGHTS ARE EXCEEDED.
4. PARTITIONS THAT RECEIVE TILE, GLASS, OR SUPPORT WALL HUNG EQUIPMENT SHALL HAVE A MAXIMUM DEFLECTION OF L/360.
5. FOR STEEL VERTICAL REINFORCING SPACING SEE STRUCTURAL DRAWINGS.
6. ALL PARTITIONS ARE CONSTRUCTED OF STUDS UNLESS DESIGNATED OTHERWISE.
7. ALL FIRE RATED PARTITIONS SHALL HAVE FIRE RATED TYPE "X" GYP. BD.
8. ALL TOILETS, MECHANICAL ROOMS, WET COLUMNS AND SIMILAR WET AREAS SHALL HAVE WATER RESISTANT GYP. BD.
9. ALL DRYWALL USED ON ALL WALL CONDITIONS SHOULD BE MOISTURE & MOLD RESISTANT BOARD, TYPICAL.
10. PROVIDE CONTINUOUS 2 HOUR RATED SHAFT WALL AT ALL SLAB OPENINGS INCLUDING, BUT NOT LIMITED TO, ELEVATOR SHAFTS, DUCT SHAFTS, OPEN (NON-SLEEVED) PIPE CHASES AND AS INDICATED ON THE FLOOR PLANS.
11. PROVIDE CONTINUOUS 2 HOUR RATED WALL AT ALL STAIRS AND AS INDICATED ON FLOOR PLANS.
12. PROVIDE 2-HOUR HORIZONTAL SHAFT WALL FOR ALL SHAFTS THAT DO NOT CONTINUE TO THE NEXT LOWER LEVEL AND WHERE SHAFT WALL DOES NOT ALIGN FROM FLOOR TO FLOOR.
13. PROVIDE CONTINUOUS 2 HOUR RATED SHAFT WALL AT TRASH CHUTE.
14. ALL WOOD USED IN PARTITIONS SHALL BE FIRE RETARDANT TREATED.
15. FOR STUD SIZES AT EXTERIOR WALLS SEE EXTERIOR WALL SECTIONS AND DETAILS.
16. SEE FIRE SEPARATION & EGRESS PLANS FOR EXTENT OF FIRE RATED PARTITIONS.
17. PROVIDE NECESSARY BACKING FOR ALL WALL MOUNTED ITEMS INDICATED ON FLOOR PLANS, ELEVATIONS AND SPECIFICATIONS.
18. CM TO COORDINATE APPLICATION OF CONTINUOUS INSULATION & VAPOR BARRIER, TYPICAL.
19. VERIFY CONTINUITY OF ALL FIRE RATED ASSEMBLIES.
20. COORDINATE LOCATION OF STUDS W/EXPOSED FASTENERS @ ALL FIBER CEMENT FINISHED PARTITIONS- SEE DETAILS - PROVIDE METAL GROUNDS AS REQUIRED
21. ALL DRYWALL PARTITIONS AND FURRING AND SOFFITS IN AN EXTERIOR ENVIRONMENT SHALL RECEIVE 5/8" DENSE SHIELD FIREGUARD (TYPE 'X', WHERE SCHEDULED), FINISH BOARD, WITH A SUBLAYER OF 5/8" DENSE ARMOR PLUS FIREGUARD C, WHERE REQUIRED TO MEET FIRE RATINGS. SEE PLANS.



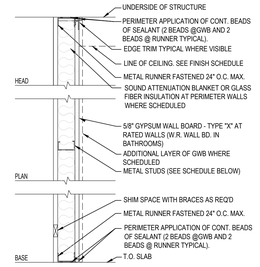
TYPE	STUD SIZE / SPACING	MAX. HEIGHT / GAUGE	FIRE RATING / TEST DESIGN	REMARKS
	WIDTH			
S21	1" 5/8"	14'-0" / 20	1 HOUR / UL U489	REF. FIRE RATING COMPLIANCE TABLE
	24"O.C.			
S22	1" 5/8"	*15'-3" / 20	2 HOUR / UL U438/ U457	*VERIFY AT ELEV. CORES REF. FIRE RATING COMPLIANCE TABLE
	24"O.C.			
S41	1" 4"	17'-6" / 20	1 HOUR / UL U438/ U457	REF. FIRE RATING COMPLIANCE TABLE
	24"O.C.			
S42	1" 4"	*18'-2" / 20	2 HOUR / UL U438/ U457	*VERIFY AT ELEV. CORES REF. FIRE RATING COMPLIANCE TABLE
	24"O.C.			
S62	1" 6"	*25'-1" / 20	2 HOUR	*VERIFY AT ELEV. CORES REF. FIRE RATING COMPLIANCE TABLE
	24"O.C.			

SHAFT WALL 1-1/2"=1'-0" S



TYPE	STUD SIZE / SPACING	MAX. HEIGHT / GAUGE	REMARKS
	WIDTH		
W22	6" 5/8"	12'-6" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W23	6" 5/8"	12'-6" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W24	6" 5/8"	13'-6" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W32	6" 5/8"	16'-6" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W33	6" 5/8"	16'-6" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W34	6" 5/8"	16'-8" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W62	6"	20'-0" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W63	6"	20'-0" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		
W64	6"	20'-0" / 20	FOR RATED WALL: REF. FIRE RATING COMPLIANCE TABLE
	16" O.C.		

STUD WALL 1-1/2"=1'-0" W



TYPE	SHIM SPACE / STUD SIZE / SPACING	MAX. HEIGHT / GAUGE	REMARKS
	WIDTH		
F01	VARIES 5/8"	NA / 20	
	16" O.C.		
F02	VARIES 5/8"	NA / 20	
	16" O.C.		
F11	VARIES 5/8"	8'-3" / 20	
	16" O.C.		
F12	VARIES 5/8"	8'-3" / 20	
	16" O.C.		
F21	VARIES 5/8"	11'-2" / 20	
	16" O.C.		
F22	VARIES 5/8"	11'-2" / 20	
	16" O.C.		
F31	VARIES 5/8"	14'-6" / 20	
	16" O.C.		
F32	VARIES 5/8"	14'-6" / 20	
	16" O.C.		
F61	VARIES 6"	22'-0" / 20	
	16" O.C.		
F62	VARIES 6"	22'-0" / 20	
	16" O.C.		

FURRING WALL 1-1/2"=1'-0" F

LEGEND

MODIFIERS

1. PARTITION INCLUDES 2.9PCF MINERAL WOOL INSULATION, THERMAFIBER/ROXUL OR EQUAL. INSTALL INSULATION BETWEEN STUDS, 2" THICK @ 2-1/2" STUDS, 3" THICK @ 3-5/8" & 6" STUDS.
2. PARTITION INCLUDES THERMAL INSULATION.
3. PARTITION INCLUDES EXTERIOR INSULATION FINISH SYSTEM.
4. USE ½" IMPACT RESISTANT G.W.B (CLASS IIC) ON INSIDE OF ROOM IN LIEU OF ½" TYPE 'X' GYP. BD. STC-50
5. PARTIAL HEIGHT PARTITION REF 3/A-430 FOR DETAILS.
7. USE ½" IMPACT RESISTANT G.W.B (CLASS IIC) ON BOTH SIDES OF WALL IN LIEU OF ½" TYPE 'X' GYP. BD. STC-50
8. INCREASE STUD GAUGE THICKNESS TO MEET DEFLECTION CRITERIA FOR PARTITION HEIGHT TO U.O.S.

PARTITION TABLE

PARTITION TYPE	CERTIFICATION TYPE	COMPLIANCE NUMBER	STC RATING
P11 NON-RATED FURRING WALL	UL #		
	MEA #		
P21 NON-RATED FURRING WALL	UL #		
	MEA #		
P31 NON-RATED FURRING WALL	UL #		
	MEA #		
P32 NON-RATED FURRING WALL	UL #		
	MEA #		
P22 NON-RATED FURRING WALL	UL #		
	MEA #		
P33 NON-RATED FURRING WALL	UL #		
	MEA #		
P61 NON-RATED FURRING WALL	UL #		
	MEA #		
P61 NON-RATED FURRING WALL	UL #		
	MEA #		
W14 1 HOUR STUD WALL	UL #	U 458	
	MEA #		
W22 NON-RATED STUD WALL	UL #		34
	MEA #	81-98-M	
W23 1 HOUR STUD WALL	UL #	U 419	52
	MEA #	81-98-M	
W24 2 HOUR STUD WALL	UL #	U 419	
	MEA #	81-98-M	
W26 2 HOUR STUD WALL	UL #	U 419	52
	MEA #	81-98-M	
W30 NON-RATED STUD WALL	UL #		
	MEA #		
W32 NON-RATED STUD WALL	UL #		47
	MEA #		
W33 1 HOUR STUD WALL	UL #	U 419	
	MEA #	81-98-M	
W34 1 HOUR STUD WALL	UL #	U 419	57
	MEA #	81-98-M	
W36 2 HOUR STUD WALL	UL #	U 419	57
	MEA #	81-98-M	
W54 2 HOUR STUD WALL	UL #	U 419	
	MEA #	81-98-M	
W62 NON-RATED STUD WALL	UL #		53-54
	MEA #		
W63 NON-RATED STUD WALL	UL #		
	MEA #		
W64 NON-RATED STUD WALL	UL #		
	MEA #		
W66 NON-RATED STUD WALL	UL #		53-54
	MEA #		
W66 1 HOUR STUD WALL	UL #	U 419	
	MEA #	81-98-M	
W68 2 HOUR STUD WALL	UL #	U 419	
	MEA #	81-98-M	
W68 2 HOUR STUD WALL	UL #	U 419	53-54
	MEA #	81-98-M	
S22 2 HOUR SHAFT WALL	UL #	U 428	
	MEA #		
S42 2 HOUR SHAFT WALL	UL #	U 428	
	MEA #		
P22 CHASE WALL	UL #		
	MEA #		
P32 CHASE WALL	UL #		55
	MEA #		
P22 1 HOUR CHASE WALL	UL #	U420 or U444	55
	MEA #		
P24 1 HOUR CHASE WALL	UL #	U420 or U444	58-60
	MEA #		
P24 2 HOUR CHASE WALL	UL #	U420 or U444	58-60
	MEA #		
P32 NON-RATED CHASE WALL	UL #		57
	MEA #		
P33 NON-RATED CHASE WALL	UL #		
	MEA #		
P34 2 HOUR CHASE WALL	UL #	U420 or U444	60-62
	MEA #		
C01 NON-RATED CMU WALL	UL #		52
	MEA #		
C60 2 HOUR CMU WALL	UL #	U906	
	MEA #		
C80 2 HOUR CMU WALL	UL #	U905	52
	MEA #	1-74-M	
C81 3 HOUR CMU WALL	UL #	U904	52
	MEA #		
C12 2 HOUR CMU WALL	UL #	U905	
	MEA #		

LEGEND AND MODIFIERS NTS 1

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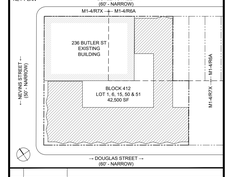
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
07	11.04.2024	BULLETIN #1 - ULE REDESIGN
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04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

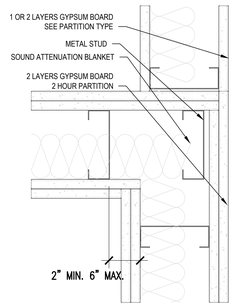
PARTITION SCHEDULE

SEAL & SIGNATURE

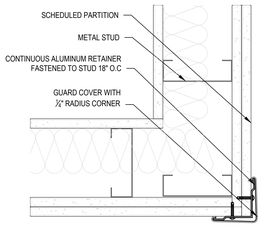
DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-600.00

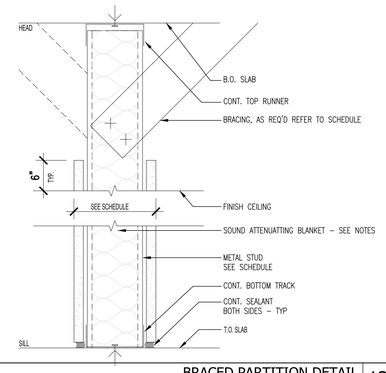
CADD FILE No.:
152 OF 175



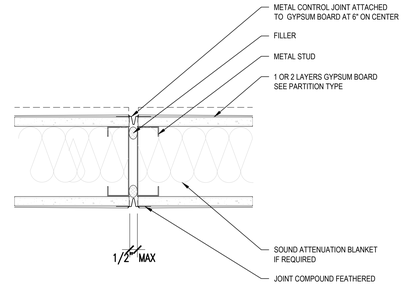
DRYWALL INTERSECTION - 2 HR TO 1HR/NON-RATED 15
3"=1'-0"



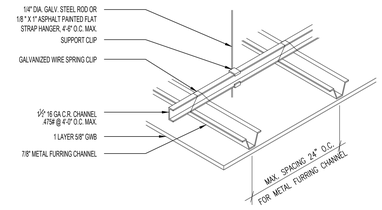
SURFACE MOUNTED CORNER GARD 16
3"=1'-0"



BRACED PARTITION DETAIL 12
3"=1'-0"

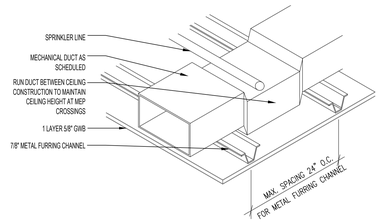


NON-RATED PARTITION CONTROL JOINT DETAIL 8
3"=1'-0"

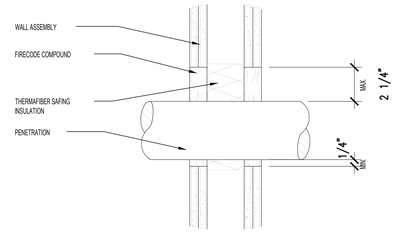


GYPSUM WALLBOARD HUNG CEILING DETAIL 4
NTS

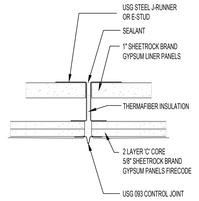
NOT USED 17
NTS



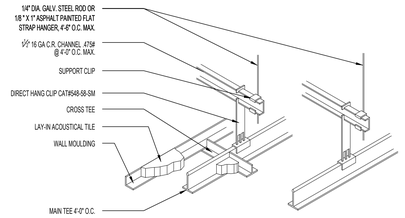
MEP CROSSINGS AT GYP HUNG CEILING 18
NTS



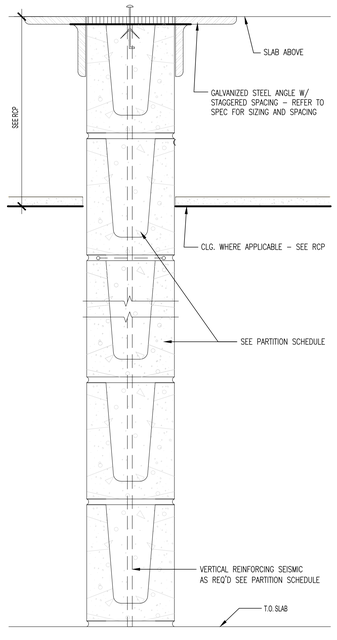
PARTITION PENETRATION DETAIL 11
3"=1'-0"



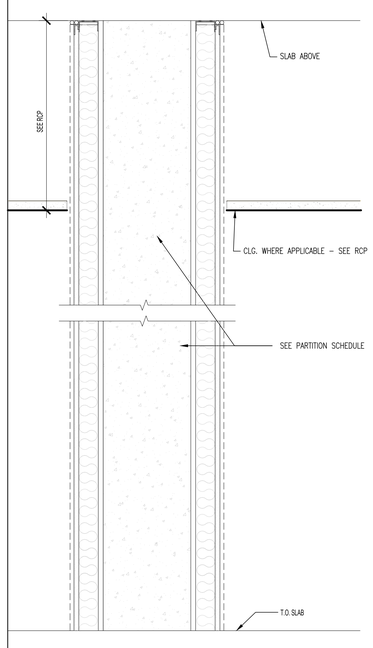
SHAFT WALL CONTROL JOINT DETAIL 7
3"=1'-0"



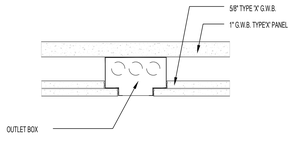
TYP. LAY-IN ACOUSTICAL TILE CEILING DETAIL 3
NTS. SEE FINISH SCHEDULE



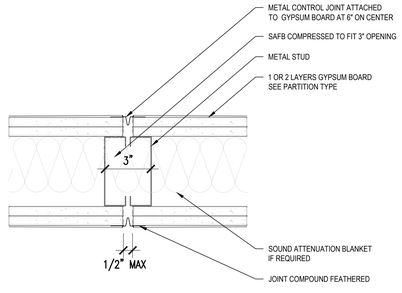
INTERIOR CMU WALL 14
NTS



INTERIOR CONCRETE SHEARWALL 13
NTS



FIRE RATED PARTITION CUT-OUT DETAIL 10
3"=1'-0"



RATED PARTITION CONTROL JOINT DETAIL 9
NTS

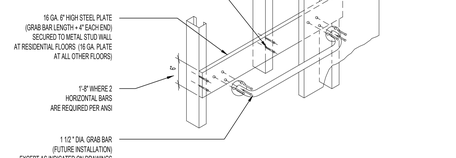
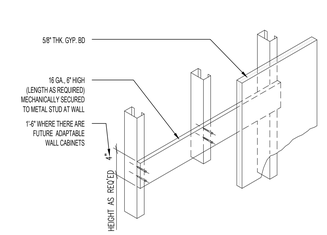
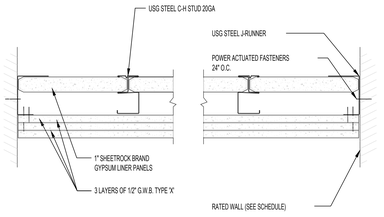


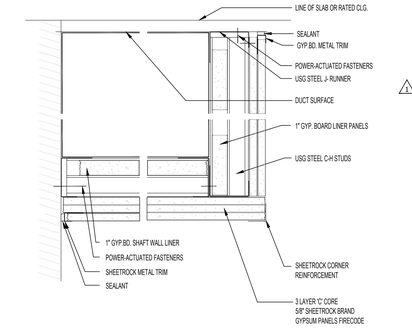
PLATE DTL FUTURE & ACTUAL GRAB BAR INSTAL. @ MTL STUD WALL 6
NTS. SEE BATHROOM ELEVATION FOR LOCATION



TYP. GROUND DTL FOR ITEMS ANCHORED ON DRYWALL PARTITION 5
NTS



RATED CEILING DETAIL 2
3"=1'-0"



SECTION AT HORIZ DUCT FIRE PROTECTION 1
3"=1'-0"

GENERAL NOTE
MAINTAIN MAX. DEFLECTION:
L/240 AT ALL CEILINGS

MAX. ALLOWABLE SPANS
STUD MAX. SPAN
212CH20 8'-3"
400CH20 12'-0"
600CH20 13'-8"

BSSA CAL. No. 277-83-SM
2HR. F.R. CLG ASSEMBLY

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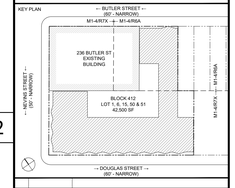
ACOUSTIC



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PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
PARTITION DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-11-05
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-601.00

CADD FILE No.:
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153 OF 175

DOUGLASS DOOR SCHEDULE

	NO	ROOM NAME	FRAME			DETAIL			DOOR					FIRE RATING	HWR SET	HWR SET
			TYPE/ELEV	MATL	WALL TYPE	HEAD	JAMB	SILL	TYPE	WIDTH	HEIGHT	THICK	MATL			
GROUND FLOOR	100A	RESIDENTIAL ENTRY VESTIBULE (EXTERIOR DOOR)	SEE 1/A-300							(2) 2'-8"	9'-5"	-	ALUM/GL	-	11	SLIDING DOORS. CARD READER
	100B	RESIDENTIAL ENTRY VESTIBULE	F6							(2) 2'-8"	9'-5"	-	ALUM/GL	-	11	SLIDING DOORS
	101A	RETAIL (EXTERIOR DOOR)	SEE 1/A-300							(2) 3'-0	8'-2"	-	ALUM/GL	-	10	-
	101B	RETAIL (EXTERIOR DOOR)	SEE 1/A-300							(2) 3'-0	9'-8"	-	ALUM/GL	-	10	-
	101C	RETAIL (EXTERIOR DOOR)	SEE 1/A-300							(2) 3'-0	9'-8"	-	ALUM/GL	-	10	-
	101D	RETAIL (EXTERIOR DOOR)	SEE 1/A-301							(2) 3'-0	9'-8"	-	ALUM/GL	-	10	-
	102	STAIR EGRESS (EXTERIOR DOOR)	SEE 1/A-301							3'-0"	9'-8"	-	HM	-	9A	-
	103	METER BANK	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	-
	104	STAIR A	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	9	-
	105	METER BANK	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	-
	106	LOADING	F6	HM	C80	H4	J4	S23	D2	2(3'-0")	8'-0"	1 3/4"	HM	90 MIN	12	-
	107	LEASING OFFICE	SEE 7/A-300	ALUM/GL	-	SEE 2/A-401	SEE 3/A-401	S27	D1	SEE 7/A-300	SEE 7/A-300	1 3/4"	ALUM/GL	-	TBD	-
	108A	BIKE ROOM 3	F2	HM	W34	H2	J2	S27	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	E2B	CARD READER
	108B	BIKE ROOM 3	F6	HM	C80	H4	J4	S12	D2	2(2'-6")	8'-0"	1 3/4"	HM	90 MIN	E3	CARD READER
	108C	*NOT IN USE*														
	109	CORRIDOR - BOH	F6	HM	C80	H4	J4	S23	D2	2'-10" & 1'-10"	8'-0"	1 3/4"	HM	90 MIN	12	-
	110A	EXERCISE ROOM	SEE 8/I-300	ALUM/GL	-	SEE 2/I-401	SEE 3/I-401	S26	D5	(2) 2'-10"	8'-0"	-	ALUM/GL	45 MIN	E6A	CARD READER
	110B	EXERCISE ROOM	SEE 2/I-301	HM	C80	SEE 6/I-402	SEE 8/I-402	S10	D6	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	CARD READER. GB DOOR
	111	PACKAGE ROOM	F6	HM	C80	H4	J4	S23	D2	3'-0"	8'-0"	1 3/4"	HM	-	E3	CARD READER
	112A	W.C.	F2	HM	C80	H4	J4	S27	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	7B	
	112B	*NOT IN USE*														-
	113	SUPER'S OFFICE	F2	HM	C80	H4	J4	S4	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	3A	-
	114	*NOT IN USE*														
	115	BIKE ROOM 1	F6	HM	C80	H4	J4	S4	D2	2(2'-6")	8'-0"	1 3/4"	HM	90 MIN	E3	CARD READER
	116	REFUSE ROOM	F6	HM	C80	H5	J5	S4	D2	(2) 2'-10"	8'-0"	1 3/4"	HM	120 MIN	4B	-
	117	MDF	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	-
	118A	ELECTRIC ROOM	F2	HM	C80	H4	J4	S4	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	9	-
	118B	ELECTRIC ROOM	F6	HM	C80	H4	J4	S4	D2	(2) 2'-10"	8'-0"	1 3/4"	HM	90 MIN	13	-
	118C	ELECTRIC ROOM	F2	HM	C80	H4	J4	S4	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	3A	-
	119	FIRE PUMP	F2	HM	C80	H4	J4	S4	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	3A	-
	120	METER BANK	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	-
	121	STAIR B	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	9	-
	122	MECH CLOSET	F6	HM	C80	H4	J4	S4	D2	2(2'-6")	8'-0"	1 3/4"	HM	90 MIN	4	-
	123	ATS	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	-
	124	ARCS	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3A	-
	125	GAS GEN	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	90 MIN	3	-
	126	GAS	F2	HM	C80	H4	J4	S4	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	3A	-
	127	WATER	F2	HM	C80	H4	J4	S4	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	3A	-
	128	EXIT (EXTERIOR)	SEE 1/A-302	-	-	-	-	S4	D1	3'-0"	8'-6"	1 3/4"	HM	-	E1	CARD READER
	129	GOWANUS MIXED USE GALLERY	F2	HM	W34	H2	J2	TBD	D1	3'-0	8'-0"	1 3/4"	HM	90 MIN	3A	-
	130A	W.C. - RETAIL	F2	HM	W32	H1	J1	TBD	D1	3'-0"	8'-0"	1 3/4"	HM	-	7B	-
	130B	W.C. - RETAIL	F2	HM	W32	H1	J1	TBD	D1	3'-0"	8'-0"	1 3/4"	HM	-	7B	-
2ND FLOOR	200	PARKING OFFICE	F2	HM	C80	H4	J4	S4	D1	3'-0"	8'-0"	1 3/4"	HM	-	3	-
	201	ELEVATOR LOBBY	F6	HM	C80	H4	J4	S4	D2	2(2'-6")	8'-0"	1 3/4"	HM	90 MIN	12A	-
	202	STAIR DOOR	F2	HM	W24	H2	J2	S4	D1	3'-0"	7'-6"	1 3/4"	HM	90 MIN	2	-
	203	STAIR DOOR	F2	HM	W24	H2	J2	S4	D1	3'-0"	7'-6"	1 3/4"	HM	90 MIN	2	-
	204	W.C.	F2	HM	W32	H1	J1	S12	D1	3'-0"	7'-6"	1 3/4"	HM	-	7B	-
	205	MECHANICAL	F2	HM	C80	H4	J4	S4	D1	3'-0"	7'-6"	1 3/4"	HM	-	3	-
3RD FLOOR	300	AMENITY- EXERCISE ROOM	SEE 7/I-302	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S29	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	E2A***	CARD READER
	301	AMENITY- EXERCISE ROOM	SEE 1/I-302	ALUM/GL	W24	SEE 4/I-403	SEE 5/I-403	S29	D5	(2)2'-10"	7'-10"	-	ALUM/GL	90 MIN	E6A	CARD READER
	302	KIDS ROOM	SEE 9/I-304	EZYJAMB*	W24	SEE 6/I-403	SEE 3/I-403	S31	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	E2A***	CARD READER
	303	LOUNGE	SEE 8/I-304	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S2	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	E2A***	CARD READER
	304	LOUNGE	SEE 8/I-302	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S2	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	E2A***	CARD READER
	305	CLOSET	F6	HM	W24	H2	J2	S9	D5	(2)1'-8"	7'-6"	1 3/4"	HM	90 MIN	1B	
	306	MECH AREA (EXTERIOR DOOR)	F6	-	-	-	-	-	D5	(2)2'-8"	9'-6"	-	HM	-	4C	-
	307	W.C.- AMENITY	SEE 3/I-302	WOOD	W32	H1	J1	S30	D1	3'-0"	7'6"	1 3/4"	WOOD	-	7B	-
	308	AMENITY MECH CLOSET	SEE 2/I-302	WOOD	W32			S9	SEE 2/I-302	(2)2'-8"	7'6"	3/4"	WOOD	-		MILLWORK DOOR
	309	W.C.- AMENITY	SEE 10/I-304	HM	W24	H1	J1	S8	D1	3'-0"	7'6"	1 3/4"	HM	90 MIN	7B	-
	310	CO-WORK ROOMS	SEE 4/I-303	ALUM/GL	-	SEE 6/I-403	SEE 9/I-403	S2	D6	2'-8"	6'-2"	-	ALUM/GL	-		STOREFRONT SYSTEM TO BE PROVIDED BY GLASBILT OR SIM.
	311	AMENITY MECH CLOSET	SEE 1/I-303	WOOD	W22			-	SEE 1/I-303	(2)2'-3"	7'-6"	3/4"	WOOD	-		MILLWORK DOOR
	312	AMENITY MECH CLOSET	SEE 10/I-302	WOOD	W22			-	SEE 10/I-302	2'-8"	7'-6"	3/4"	WOOD	-		MILLWORK DOOR
	313	AMENITY TERRACE FROM YOGA (EXTERIOR DOOR)	SEE 2/A-340	-	-	-	-	-	D1	3'-0"	8'-0"	-	ALUM/GL	-	10	CARD READER
	314	AMENITY TERRACE FROM GYM (EXTERIOR DOOR)	SEE 2/A-340	-	-	-	-	-	D1	3'-0"	8'-0"	-	ALUM/GL	-	10	CARD READER
	315	AMENITY TERRACE FORM CORR (EXTERIOR DOOR)	SEE 1/A-340	-	-	-	-	-	D1	3'-0"	8'-0"	-	ALUM/GL	-	10	CARD READER
	316	AMENITY TERRACE FROM KIDS ROOM (EXTERIOR DOOR)	SEE 1/A-340	-	-	-	-	-	D1	3'-0"	8'-0"	-	ALUM/GL	-	10	CARD READER
	317	AMENITY TERRACE FROM LOUNGE (EXTERIOR DOOR)	SEE 1/A-340	-	-	-	-	-	D1	3'-0"	8'-0"	-	ALUM/GL	-	10	CARD READER
	1001	STAIR B (EXTERIOR DOOR)	F2	-	-	-	-	-	D1	3'-0"	8-0"	1 3/4"	HM	-	E5B	
15TH FLOOR	1501	AMENITY ENTRANCE	SEE 2/I-305	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403		D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	E2A	CARD READER
	1502	W.C.- AMENITY	SEE 12/I-305	HM	W22	H1	J1	-	D1	3'-0"	7'-6"	1 3/4"	HM	-	7B	-
	1503	CLOSET	SEE 7/I-305	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S9	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	3A***	-
	1504	REFUSE ROOM	SEE 7/I-305	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S9	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	2***	-
	1505	STAIR DOOR	SEE 5/I-305	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S9	D1	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	2***	-
	1506	AMENITY MECH CLOSET	SEE 5/I-305	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S9	D2	(2)3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	4***	-
	1507	MECH CLOSET	SEE 5/I-305	EZYJAMB*	W24	SEE 6/I-403	SEE 7/I-403	S9	D2	3'-0"	7'-6"	-	FIRE RATED MINERAL	90 MIN	4***	-
	1508	MECH CLOSET	SEE 16/I-305	WOOD				S9		(2)3'-0"	8'-0"	3/4"	WOOD	-		MILLWORK DOOR
ROOF	RF-01	STAIR B (EXTERIOR DOOR)	F2 SEE 1/A-330.00	HM					D1	3'-0"	7'-6"	1 3/4"	HM	-	E5B	-
	RF-02	ELEVATOR LOBBY (EXTERIOR DOOR)	F2 SEE 1/A-330.00	ALUM/GL					D1	3'-0	9'-0"	-	ALUM/GL	-	E13	-
	RF-03	MECHANICAL ROOM (EXTERIOR DOOR)	F2 SEE 5/A-330.00	HM					D1	3'-0"	7'-6"	1 3/4"	HM	-	E5A	-
	RF-04	STAIR A (EXTERIOR DOOR)	F2 SEE 1/A-300.00	HM	-	-	-	-	D1	3'-0"	7'-6"	1 3/4"	HM	-	E5B	-
	RF-05	STAIR B	F2	HM	W34	H2	J2	S9	D1	3'-0"	7'-6"	1 3/4"	HM	-	2	-
	RF-06	AMENITY BATH	F2	HM	W34	H1	J1	S27	D1	3'-0"	7'-6"	1 3/4"	HM	-	7B	-

TYPICAL RESIDENTIAL INTERIOR DOOR SCHEDULE

	T-01	APT ENTRY	F2	WOOD	W24	H2	J2	S25	D1	3'-0"	7'-6"	1 3/4"	WOOD	90 MIN	1	HM DOOR AS ALTERNATE
	T-02	BEDROOM	F1	WOOD	W22	H11	J11	S4	D1	3'-0"	7'-6"	1 3/4"	WOOD	-	1A	-
	T-02A	BEDROOM	F1	WOOD	W22	H11	J11	S4	D1	3'-0"	7'-6"	1 3/4"	WOOD	-	1A	-
	T-03	BATHROOM	F1	WOOD	W22	H11	J11	S24	D1	3'-0"	7'-6"	1 3/4"	WOOD	-	1A	-
	T-04	CLOSET	F1	WOOD	W22	H11	J11	S4	D1	3'-0"	7'-6"	1 3/4"	WOOD	-	1B	-
	T-05	CLOSET	F1	WOOD	W22	H11	J11	S4	D1	2'-0"	7'-6"	1 3/4"	WOOD	-	1B	-
	T-06	BATH / CLOSET	F1	WOOD	W22	H13	J13	S24	D9	2'-10"	7'-6"	1 3/4"	WOOD	-	14	SLIDING DOOR INSTALLED IN POCKET DOOR KIT
	T-07	BATH / CLOSET	F1	WOOD	W22	H13	J13	S24	D9	2'-10"	7'-6"	1 3/4"	WOOD	-	15	SLIDING DOOR INSTALLED IN POCKET DOOR KIT

TYPICAL RESIDENTIAL PUBLIC COORIDOR DOOR SCHEDULE

	TC-01	STAIR DOOR	F2	HM	W24	H2	J2	S9	D1	3'-0"	7'-6"	1 3/4"	HM	90 MIN	2	-
	TC-02	REFUSE ROOM	F2	HM	W24	H2	J2	S9	D1	3'-0"	7'-6"	1 3/4"	HM	90 MIN	2	-
	TC-03	STORAGE	F2	HM	W24	H2	J2	S9	D1	3'-0"	7'-6"	1 3/4"	HM	90 MIN	3A	-
	TC-04	ELECTRICAL	F6	HM	W24	H2	J2	S9	D5	(2)3'-0"	7'-6"	1 3/4"	HM	90 MIN	4	-

NOTE:

* EZYJAMB SRC SINGLE RABBET DOOR FRAME - 90 MIN FIRE RATED
** 90 MIN RATED MINERAL CORE DOOR - CENDURA™ SERIES | MOHAWK® (MODEL NUMBER : C-MC-8-FR90) OR SIMILAR. CUSTOM STAIN FINISH.
*** HARDWARE SCHEDULE TO INCLUDE EZYJAMB (FRAMELESS) WITH MINERAL CORE WOOD DOOR. SEE INTERIOR EEVATIONS

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

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NEW YORK, NY 10010

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ACOUSTIC

FFA 04/16/2025
ASK - 009.00

LOBBY AND GROUND FLOOR AMENITY REDESIGN

No.	DATE	ISSUE
07	12.13.2024	PAA ISSUANCE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
DOOR SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2025-04-16
PROJECT No.: B00621061-I1
DRAWING BY: FFA
CHK BY: FFA

A-603.00

CADD FILE No.:
154 OF 235

3.4 HARDWARE SETS

A. The following is a general listing of hardware requirements and is not intended for use as a final hardware schedule. Any items of hardware required by established standards or practices, or to meet state and local codes or proper door operation shall be furnished whether specifically called out in the following listed groups.

HARDWARE SET #1
Each to have:

	Spring Hinges	Stanley 2060 (see description) x 630
1	Electronic Lock	Salto A Element x 630
1	Masterkeyed Cylinder	Dorma (to suit) x 619
1	Temporary Core	Dorma (to suit) x 619
1	Permanent Core	Dorma (to suit) x 619
1	Door Guard	Trimco 4017 x 619
1	Chime Viewer	Auth Florence 685101
1	Door Stop	Trimco 7280 x 630
1	Overhead Stop	Dorma 710S series x 626
1	set Sound Seals	(by door manufacturer)
1	Door Bottom	(by door manufacturer)

Note:
Omit door stop and furnish overhead stop at doors that swing against another door at 90 degrees.

HARDWARE SET #1A
Each to have:

	Hinges	Stanley (see description) x 630
1	Tubular Privacy Set	Dorma T940-L110B x 630
1	Door Stop	Trimco 7280 x 630
3	Silencers	Trimco 1229B

Note:
Omit stops at doors that do not swing against a wall at 90 degrees.

HARDWARE SET #1B
Each to have:

	Hinges	Stanley (see description) x 630
1	Tubular Passage Set	Dorma T910-L110B x 630
1	Door Stop	Trimco 7280 x 630
3	Silencers	Trimco 1229B

Note:
Omit stops at doors that do not swing against a wall at 90 degrees.

HARDWARE SET #2
Each to have:

	Hinges	Stanley (see description) x 619
1	Passage Set	Dorma M9010-L110B x 630
1	Closer	Dorma 8616-AF-FC x 689
1	Door Stop	Trimco W1211 x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head

HARDWARE SET #3
Each to have:

	Hinges	Stanley (see description) x 619
1	Storeroom Lock	Dorma M9080-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-IS-FC x 689
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head

HARDWARE SET #3A
Each to have:

	Hinges	Stanley (see description) x 619
1	Storeroom Lock	Dorma M9080-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer	Dorma 8616-AF-FC x 689
1	Door Stop	Trimco W1211 x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head

HARDWARE SET #4
Each to have:

	Hinges	Stanley (see description) x 619
2	Flush Bolts	Trimco W3917 x 626
1	Dustproof Strike	Trimco 3910 x 630
1	Storeroom Lock	Dorma M9080-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-DS-FC x 689
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584CA

HARDWARE SET #4A
Each to have:

	Hinges	Stanley (see description) x 630
2	Flush Bolts	Trimco W3917 x 630
1	Dustproof Strike	Trimco 3910 x 630
1	Storeroom Lock	Dorma M9080-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-IS-FC x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584CA

HARDWARE SET #4B
Each to have:

2	Continuous Hinge	Stanley 661HD
2	Flush Bolts	Trimco W3917 x 630
1	Dustproof Strike	Trimco 3910 x 630
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-IS-FC x 689
2	Armor Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5883S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584MA

HARDWARE SET #4C
Each to have:

2	Continuous Hinge	Stanley 661HD
2	Flush Bolts	Trimco W3917 x 630
1	Dustproof Strike	Trimco 3910 x 630
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
2	Closer/Stops	Dorma 8916-SDS x 689
1	set Weatherstripping	Legacy Mfg. 5924MA @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584MA
2	Door Bottoms	Legacy Mfg. 7823CA
1	Saddle	Legacy Mfg. (as detailed)

HARDWARE SET #5
Each to have:

1	Floor Closer	Dorma BTS80 series
1	Bottom Rail Deadlock	Adams Rite MS1861 x 4066
1	Cylinder	Dorma (to suit)
1	Temporary Core	Dorma (to suit)
1	Permanent Core	Dorma (to suit)
1	set Push Pull	Trimco AP411- 48" OA x BTB
1	Overhead Stop	Dorma 910S series
1	Saddle	Legacy Mfg. (as detailed)

Note: Finish of hardware to match finish of door.

HARDWARE SET #6
Each to have:

	Hinges	Stanley (see description) x 630
1	Office Lock	Dorma M9050-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer	Dorma 8616-AF-FC x 630
1	Door Stop	Trimco W1211 x 630
1	set Smoke Seals	Legacy Mfg. 5885S-BK @ jambs/head

HARDWARE SET #7
Each to have:

	Hinges	Stanley (see description) x 630
1	Privacy Set	Dorma M9046-L110B x 630
1	Closer	Dorma 8616-AF-FC x 689
1	Door Stop	Trimco W1211 x 630
1	Kick Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head

HARDWARE SET #7A
Each to have:

NOT USED

HARDWARE SET #7B
Each to have:

	Hinges	Stanley (see description) x 630
1	Privacy Set	Dorma M9046-L110B x 630
1	Closer	Dorma 8616-AF-FC x 689
1	Door Stop	Trimco W1211 x 630
3	Silencers	Trimco 1229A

HARDWARE SET #8
Each to have:

	Hinges	Stanley (see description) x 630
1	Classroom Lock	Dorma M9070-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-DS-FC x 689
1	Kick Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head

HARDWARE SET #9
Each to have:

	Hinges	Stanley (see description) x 630
1	Exit Device	Dorma F9300-YL110-08-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-DS-FC x 689
1	Kick Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head

HARDWARE SET #9A
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Exit Device	Dorma 9300 x 630
1	Closer	Dorma 8916-AF x 689
1	Stop	Trimco 1270WV x 630
1	set Weatherstripping	Legacy Mfg. 5823CA jambs/head
1	Door Bottom	Legacy Mfg. 7553MA
1	Saddle	Legacy Mfg. (as detailed)

HARDWARE SET #9B
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Exit Device	Dorma 9300 x L110-23 x 630
1	Closer/Stop	Dorma 8916-SDS x 689
1	set Weatherstripping	Legacy Mfg. 5924MA jambs/head
1	Door Bottom	Legacy Mfg. 7553MA
1	Saddle	Legacy Mfg. (as detailed)

HARDWARE SET #10
Each to have:

2	Floor Closers	Dorma BTS80 series
2	Bottom Rail Deadlock	Adams Rite MS1861 x 4066
2	Cylinder	Dorma (to suit)
2	Temporary Core	Dorma (to suit)
2	Permanent Core	Dorma (to suit)
2	set Push Pull	Trimco AP411- 48" OA x BTB
2	Overhead Stop	Dorma 910S series
1	Saddle	Legacy Mfg. (as detailed)

Note: Finish of hardware to match finish of door.

HARDWARE SET #10A
Each to have:

2	Floor Closers	Dorma BTS80 series
2	set Push Pull	Trimco AP411- 48" OA x BTB
2	Overhead Stop	Dorma 910S series
1	Saddle	Legacy Mfg. (as detailed)

Note: Finish of hardware to match finish of door.

HARDWARE SET #11
Each to have:

The door manufacturer will furnish all hardware.

HARDWARE SET #12
Each to have:

2	Continuous Hinge	Stanley 661HD x 689
1	set Automatic Flush Bolts	Trimco 3810 x 3810 x 626
1	Dustproof Strike	Trimco 3910 x 630
1	Passage Set	Dorma M9010-L110B-T x 630
1	Coordinating Closer	Dorma TS93GSR x 689
2	Armor Plates	Trimco (see description) x 630
1	Stop	Trimco 1270WV x 630
1	set Smoke Seals	Legacy Mfg. 5883S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584MA

HARDWARE SET #12A
Each to have:

	Hinges	Stanley (see description) x 630
1	set Automatic Flush Bolts	Trimco 3810 x 3810 x 630
1	Dustproof Strike	Trimco 3910 x 630
1	Passage Set	Dorma M9010-L110B-T x 630
1	Coordinating Closer	Dorma TS93GSR x 689
1	set Smoke Seals	Legacy Mfg. 5883S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584MA

HARDWARE SET #13
Each to have:

	Hinges	Stanley (see description) x 630
1	Exit Device	Dorma F9400 x 630
1	Exit Device	Dorma F9400-YL110-08-T x 630
1	Permanent Core	Dorma (to suit) x 619
2	Closer/Stop	Dorma 8616-DS-FC x 689
2	Kick Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584MA

B. The following hardware sets contain electronic hardware and need to be coordinated with the electrical and security drawings.

HARDWARE SET #E1
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Exit Device	Dorma 9300-PTT03-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8916-DS x 689
1	set Weatherstripping	Legacy Mfg. 5924MA jambs/head
1	Door Bottom	Legacy Mfg. 7553MA
1	Saddle	Legacy Mfg. (as detailed)
1	Electric Strike	Dorma ES62 series x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E2
Each to have:

	Hinges	Stanley (see description) x 630
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer	Dorma 8616-AF-FC x 689
1	Door Stop	Trimco W1211 x 630
1	Kick Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
1	Electric Strike	Von Duprin 6211 FSE series x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E2A
Each to have:

	Hinges	Stanley (see description) x 630
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-DS-FC x 689
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
1	Electric Strike	Von Duprin 6211 FSE series x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E2B
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer	Dorma 8616-AF-FC x 689
1	Door Stop	Trimco W1211 x 630
1	Armor Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
1	Electric Strike	Von Duprin 6211 FSE series x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E2C
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8616-IS-FC x 689
1	Armor Plate	Trimco (see description) x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
1	Electric Strike	Von Duprin 6211 FSE series x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E3
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Continuous Hinge	Stanley 661HD-CE12EA
1	set Automatic Flush Bolts	Trimco 3810 x 3810 x 630
1	Dustproof Strike	Trimco 3910 x 630
1	Storeroom Lock	Dorma M9080-L110B-T x 630
1	Permanent Core	Dorma (to suit) x 619
1	Coordinating Closer	Dorma TS93GSR x 689
2	Armor Plate	Trimco (see description) x 630
2	set Smoke Seals	Legacy Mfg. 5883S-BK @ jambs/head
2	Astragal Seals	Legacy Mfg. 5584MA
1	Electric Strike	Von Duprin 6223 FSE series x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
2	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E4
Each to have:
NOT USED

HARDWARE SET #E5
Each to have:

	Hinges	Stanley (see description) x 630
1	Storeroom Lock	Dorma M9080-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8916-SDS x 689
1	set Weatherstripping	Legacy Mfg. 5823CA @ jambs/head
1	Door Bottom	Legacy Mfg. 7553MA
1	Saddle	Legacy Mfg. (as detailed)
1	Door Contact	(by security vendor)

HARDWARE SET #E5A
Each to have:

	Hinges	Stanley (see description) x 630
1	Storeroom Lock	Dorma M9080-T-L110B x 630
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	Dorma 8916-IS x 689
1	set Weatherstripping	Legacy Mfg. 5823CA @ jambs/head
1	Door Bottom	Legacy 7553MA
1	Saddle	Legacy Mfg. (as detailed)
1	Door Contact	(by security vendor)

HARDWARE SET #E5B
Each to have:

1	Continuous Hinge	Stanley 661HD
1	Passage Set	Dorma M9010-T-L110B x 630
1	Closer	Dorma 8916-AF x 689
1	Stop	Trimco 1270WV x 630
1	set Weatherstripping	Legacy Mfg. 5823CA @ jambs/head
1	Door Bottom	Legacy 7553MA
1	Saddle	Legacy Mfg. (as detailed)
1	Door Contact	(by security vendor)

HARDWARE SET #E5C
Each to have:

	Hinges	Stanley (see description) x 630
1	Passage Set	Dorma M9010-L110B x 630
1	Closer	Dorma 8616-AF-FC x 630
1	Door Stop	Trimco W1211 x 630
1	set Smoke Seals	Legacy Mfg. 5884S-BK @ jambs/head
1	Door Contact	(by security vendor)

HARDWARE SET #E6
Each to have:

	Hinges	(by door manufacturer) x 630
1	Exit Device	(by door manufacturer) x 630
1	Cylinder	Dorma (to suit) x 619
1	Temporary Core	Dorma (to suit) x 619
1	Permanent Core	Dorma (to suit) x 619
1	Closer/Stop	(by door manufacturer) x 689
1	set Smoke Seals	(by door manufacturer)
1	Electric Strike	(by door manufacturer) x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E6A
Each to have:

	Hinges	(by door manufacturer) x 630
2	Electric Exit Device	(by door manufacturer) x 630
2	Cylinder	Dorma (to suit) x 619
2	Temporary Core	Dorma (to suit) x 619
2	Permanent Core	Dorma (to suit) x 619
2	Closer/Stop	(by door manufacturer) x 689
1	set Smoke Seals	(by door manufacturer)
1	Power Supply	(by security vendor)
2	Power Transfers	(by door manufacturer)
2	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E6B
Each to have:

	Hinges	(by door manufacturer) x 630
1	Lockset	(by door manufacturer)
1	Cylinder	Dorma (to suit) x 619
1	Temporary Core	Dorma (to suit) x 619
1	Permanent Core	Dorma (to suit) x 619
1	Closer	(by door manufacturer) x 689
1	Stop	Trimco W1211 x 630
1	set Smoke Seals	(by door manufacturer)
1	Electric Strike	(by door manufacturer) x 630
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
1	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks electric strike. Free egress on the secure side of the door.

HARDWARE SET #E7
Each to have:
NOT USED

HARDWARE SET #E8
Each to have:

1	Floor Closers	Dorma BTS80 series
1	Bottom Rail Deadlock	Adams Rite MS1861 x 4066
1	Cylinder	Dorma (to suit)
1	Temporary Core	Dorma (to suit)
1	Permanent Core	Dorma (to suit)
1	set Push Pull	Trimco AP411- 48" OA x BTB
1	Overhead Stop	Dorma 910S series
1	Saddle	Legacy Mfg. (as detailed)
1	Door Contact	(by security vendor)

Note: Finish of hardware to match finish of door.

HARDWARE SET #E9
Each to have:
NOT USED

HARDWARE SET #E10
Each to have:

1	Floor Closers	Dorma BTS80 series x 626
2	Exit Devices	Blumeraft H100-F x 630
2	Cylinder	Dorma (to suit) x 619
2	Temporary Core	Dorma (to suit) x 619
2	Permanent Core	Dorma (to suit) x 619
2	Overhead Stop	Dorma 910S series x 626
1	Saddle	Legacy Mfg. (as detailed)
2	Door Contact	(by security vendor)

HARDWARE SET #E11
Each to have:
NOT USED

HARDWARE SET # E12
Each to have:
NOT USED

HARDWARE SET #E13
Each to have:

2	Floor Closers	Dorma BTS80 series x 626
2	set Push Pull	Trimco AP411- 48" OA x BTB
2	Overhead Stop	Dorma 910S series x 626
1	Saddle	Legacy Mfg. (as detailed)
2	Magnetic Locks	Dorma EML310 series
1	Power Supply	(by security vendor)
1	RX switch	(by security vendor)
2	Door Contact	(by security vendor)
1	Card Reader	(by security vendor)

Operation:
Card reader on non-secure side of door unlocks magnetic lock. Free egress on the secure side of the door. When signaled from the fire alarm system or loss of power, magnetic lock unlocks automatically

HARDWARE SET #14
Each to have:

1	Top Track	Coburn C1-12 (size to suit)
1	Component Pack	Coburn C100-010
1	Soft Close	Coburn C30-613
1	Door Bottom	Coburn C44-371
1	Privacy Lock	Accurate Lock 2001ADAP-5 x US32D

HARDWARE SET #15
Each to have:

1	Top Track	Coburn C1-12 (size to suit)
1	Component Pack	Coburn C100-010
1	Soft Close	Coburn C30-613
1	Door Bottom	Coburn C44-371
1	set Pulls	Accurate Lock 7200-P x US32D

2

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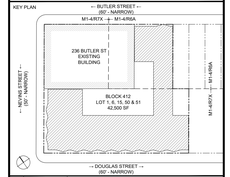
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
2	09 12.13.2024	ULE REDESIGN - INTERIORS CD
	08 11.04.2024	BULLETIN #1 - ULE REDESIGN
	07 03.01.2023	100% INTERIOR CD ISSUANCE
	06 10.07.2022	100% CD ISSUANCE
	05 08.05.2022	80% CD ISSUANCE
	04 06.17.2022	50% CD ISSUANCE
	03 03.18.2022	DD ISSUANCE
	02 10.29.2021	ISSUED TO DOB
	01 07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

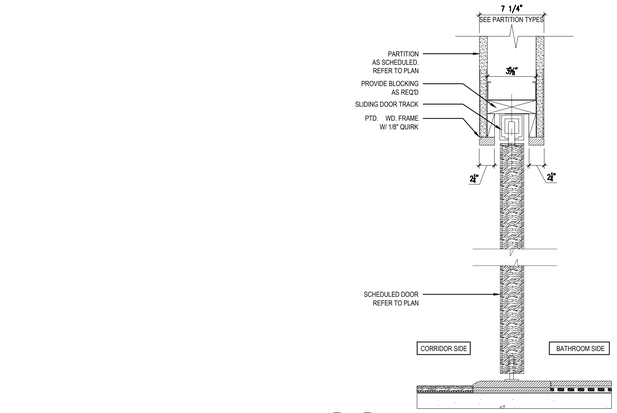
DRAWING TITLE
HARDWARE SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

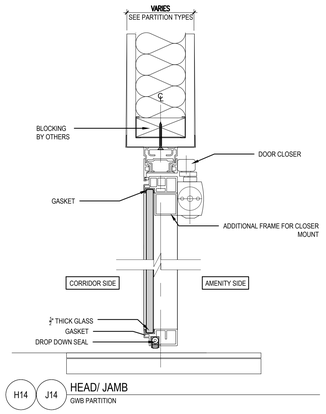
A-604.00

CADD FILE No.:
155 OF 235

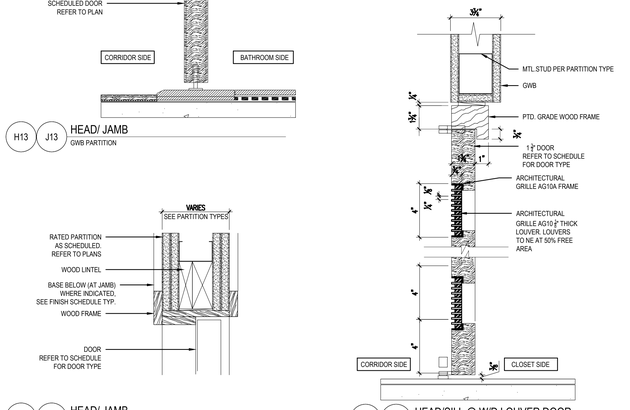


H13 J13 HEAD/ JAMB
GWB PARTITION

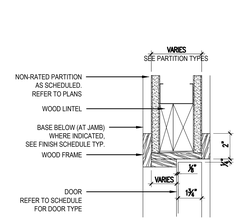
H12 J12 HEAD/ JAMB
GWB PARTITION



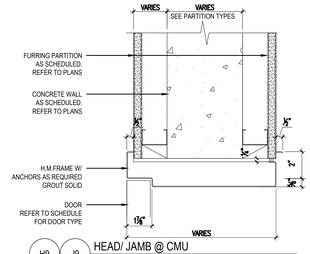
H14 J14 HEAD/ JAMB
GWB PARTITION



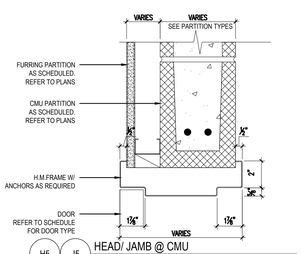
H10 S10 HEAD/SILL @ W/D LOUVER DOOR
GWB PARTITION-NON RATED



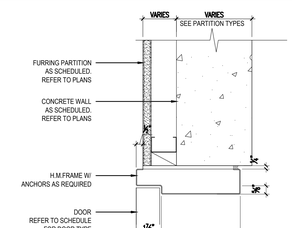
H11 J11 HEAD/ JAMB
GWB PARTITION



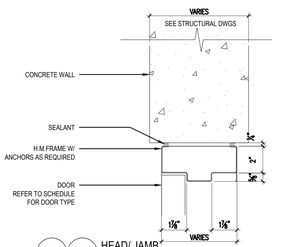
H9 J9 HEAD/ JAMB @ CMU
GWB PARTITION



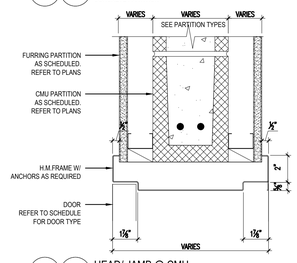
H5 J5 HEAD/ JAMB @ CMU
GWB PARTITION



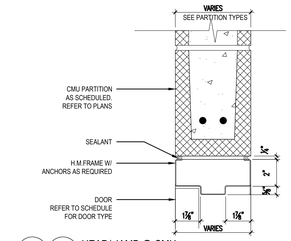
H8 J8 HEAD/ JAMB
FURRING AT SHEAR WALL



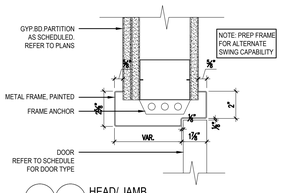
H7 J7 HEAD/ JAMB
CONCRETE PARTITION



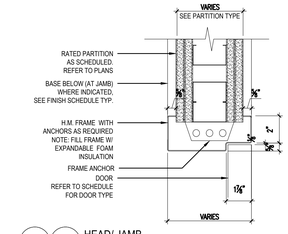
H6 J6 HEAD/ JAMB @ CMU
GWB PARTITION



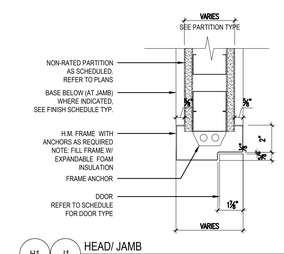
H4 J4 HEAD/ JAMB @ CMU
GWB PARTITION



H3 J3 HEAD/ JAMB
GWB PARTITION -NON RATED

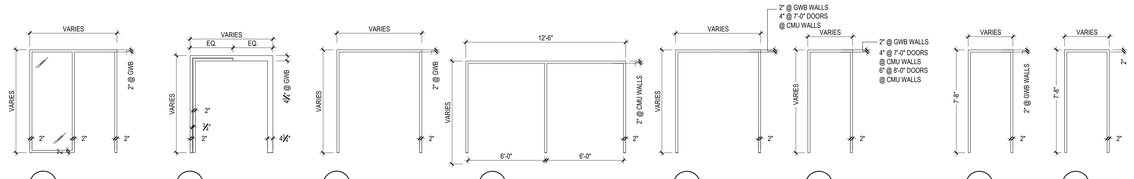


H2 J2 HEAD/ JAMB
GWB PARTITION



H1 J1 HEAD/ JAMB
GWB PARTITION

3 HEAD AND JAMB DETAILS
SCALE: 3"=1'-0"



F8 SINGLE RABBETED WELDED METAL DOOR FRAME FOR SINGLE DOOR LEAF W/ SIDELIGHT.

F7 SINGLE RABBETED WELDED METAL DOOR FRAME FOR PAIR OF DOORS.

F6 SINGLE RABBETED WELDED METAL DOOR FRAME FOR PAIR OF DOORS.

F5 DOUBLE RABBETED WELDED METAL DOOR FRAME FOR 3 DOOR PANELS.

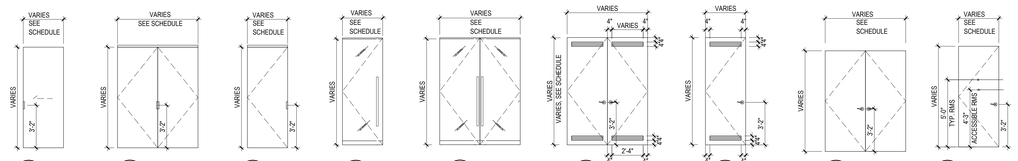
F4 DOUBLE RABBETED WELDED METAL DOOR FRAME FOR PAIR OF DOORS.

F3 DOUBLE RABBETED WELDED METAL DOOR FRAME FOR SINGLE DOOR LEAF

F2 SINGLE RABBETED WELDED METAL DOOR FRAME FOR SINGLE DOOR LEAF

F1 WOOD FRAME FOR SINGLE OR DOUBLE LEAF, SINGLE OR DOUBLE POCKET DOORS

2 DOOR FRAMES
SCALE: 1/4"=1'-0"



D9 SINGLE 1 3/4" THICK SOLID WOOD; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D8 DOUBLE 1 3/4" THICK SOLID WOOD DOOR; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D7 SINGLE 1 3/4" THICK SOLID WOOD; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D6 SINGLE 1/2" TEMPERED FRAMELESS GLASS DOOR; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D5 PAIR 1/2" TEMPERED GLASS DOORS; SEE DOOR SCHEDULE SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D4 DOUBLE 1 3/4" THICK DOOR WITH LOUVERS; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D3 SINGLE 1 3/4" THICK DOOR WITH LOUVERS; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D2 PAIR 1 3/4" THICK DOORS; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

D1 SINGLE 1 3/4" THICK DOOR; SEE DOOR SCHEDULE FOR MATERIAL, SIZE AND RATING

1 DOOR TYPES
SCALE: 1/4"=1'-0"

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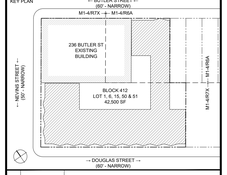
ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
07	11.04.2024	BULLETIN #1 - ULE REDESIGN
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

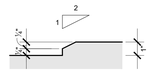
DRAWING TITLE
DOOR DETAILS

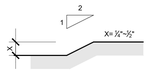
SEAL & SIGNATURE

DATE (MM-DD-YY):	2024-11-05
PROJECT No.:	TAV_251 DOUGLASS ST
DRAWING BY:	FFA
CHK BY:	FFA

A-605.00

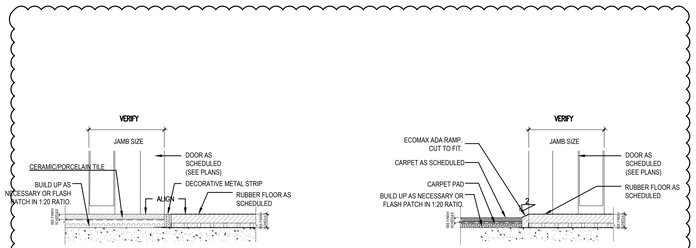
CADD FILE No.:
156 OF 175





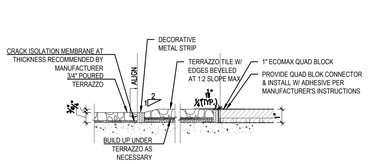
1. VERTICAL CHANGE IN LEVEL OF ¼" MAX. IN HEIGHT SHALL BE PERMITTED TO BE VERTICAL
2. BEVELED CHANGE IN LEVEL GREATER THAN ¼" IN HEIGHT AND NOT MORE THAN ½" MAXIMUM IN HEIGHT SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2
3. RAMPED CHANGES IN LEVEL GREATER THAN ½" IN HEIGHT SHALL BE RAMPED AND SHALL HAVE SLOPE OF 1:12 U.O.N.

2 LEVEL CHANGE DIAGRAM
SCALE: 3"=1'-0"

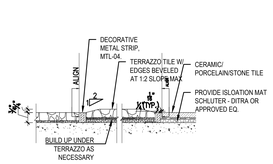


S30 SILL DETAIL: TILE / RUBBER
SCALE: 3"=1'-0"

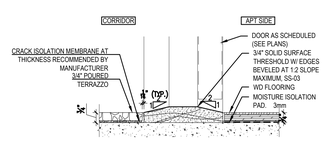
S29 SILL DETAIL: CARPET / RUBBER
SCALE: 3"=1'-0"



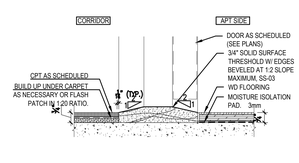
S28 SILL DETAIL: TERRAZZO / RUBBER
SCALE: 3"=1'-0"



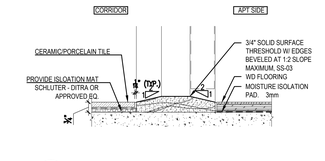
S27 SILL DETAIL: TERRAZZO / TILE
SCALE: 3"=1'-0"



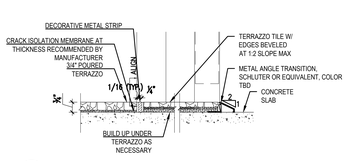
S26 SILL DETAIL: TERRAZZO / WOOD
SCALE: 3"=1'-0"



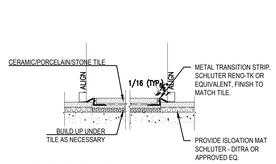
S25 SILL DETAIL: CARPET / WOOD
SCALE: 3"=1'-0"



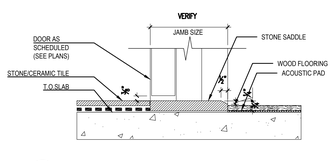
S24 SILL DETAIL: TILE / WOOD
SCALE: 3"=1'-0"



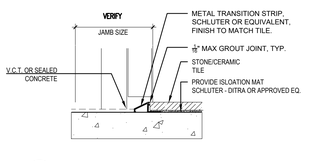
S23 SILL DETAIL: TERRAZZO / CONCRETE
SCALE: 3"=1'-0"



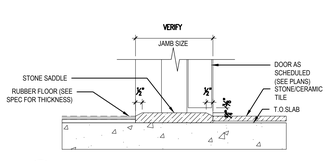
S22 SILL DETAIL: TILE / TILE
SCALE: 3"=1'-0"



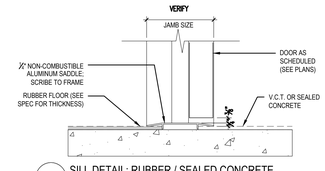
S21 SILL DETAIL: WOOD / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



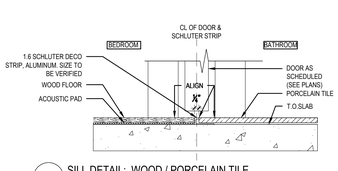
S20 SILL DETAIL: CONCRETE / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



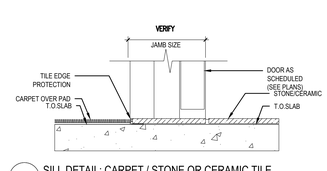
S19 SILL DETAIL: RUBBER / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



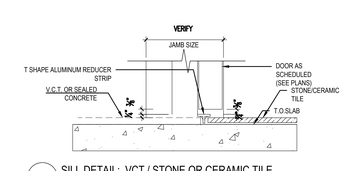
S18 SILL DETAIL: RUBBER / SEALED CONCRETE
SCALE: 3"=1'-0"



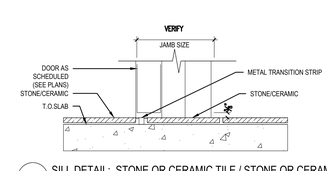
S17 SILL DETAIL: WOOD / PORCELAIN TILE
SCALE: 3"=1'-0"



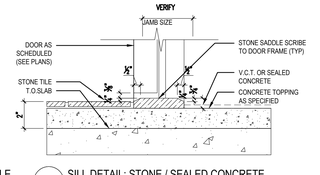
S16 SILL DETAIL: CARPET / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



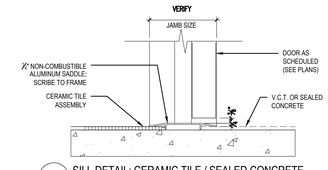
S15 SILL DETAIL: VCT / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



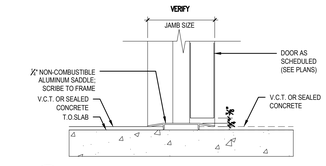
S14 SILL DETAIL: STONE OR CERAMIC TILE / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



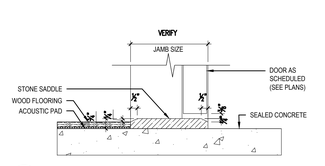
S13 SILL DETAIL: STONE / SEALED CONCRETE
SCALE: 3"=1'-0"



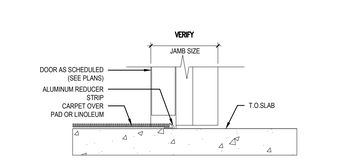
S12 SILL DETAIL: CERAMIC TILE / SEALED CONCRETE
SCALE: 3"=1'-0"



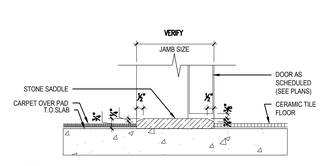
S11 SILL DETAIL: V.C.T. / V.C.T. OR SEALED CONCRETE
SCALE: 3"=1'-0"



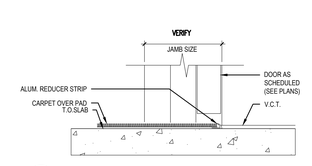
S10 SILL DETAIL: WOOD / CONCRETE
SCALE: 3"=1'-0"



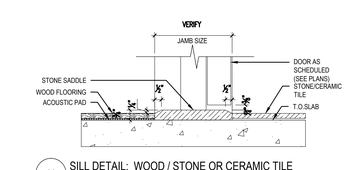
S9 SILL DETAIL: CARPET /CONCRETE
SCALE: 3"=1'-0"



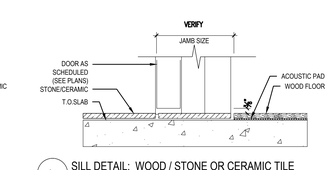
S8 SILL DETAIL: CARPET / CERAMIC TILE
SCALE: 3"=1'-0"



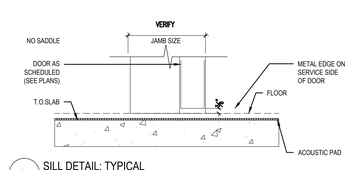
S7 SILL DETAIL: CARPET / VCT
SCALE: 3"=1'-0"



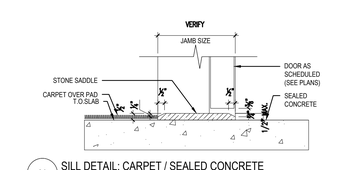
S6 SILL DETAIL: WOOD / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



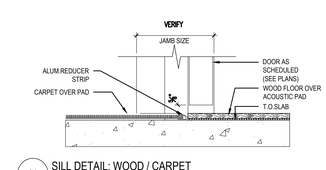
S5 SILL DETAIL: WOOD / STONE OR CERAMIC TILE
SCALE: 3"=1'-0"



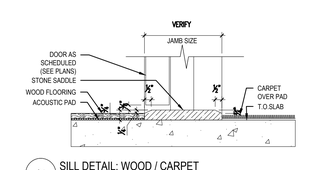
S4 SILL DETAIL: TYPICAL
SCALE: 3"=1'-0"



S3 SILL DETAIL: CARPET / SEALED CONCRETE
SCALE: 3"=1'-0"



S2 SILL DETAIL: WOOD / CARPET
SCALE: 3"=1'-0"



S1 SILL DETAIL: WOOD / CARPET
SCALE: 3"=1'-0"

1 DOOR SILLS
SCALE: 3"=1'-0"

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

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GRAIN COLLECTIVE
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ELMSFORD, NY 10523

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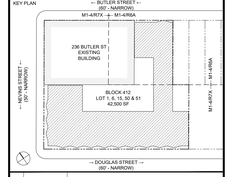
NEW YORK, NY 10007

ACOUSTIC

KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	03.01.2023	100% INTERIOR CD ISSUANCE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
DOOR SILL DETAILS

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-606.00

CADD FILE No.:
157 OF 235

DIV / NOTES	IMAGE	CODE	DESCRIPTION	LOCATION	MANUFACTURER	MODEL NO./STYLE	COLOR/FINISH	SIZE	REMARKS	CONTACT
APARTMENTS										
ALL MATERIALS TO BE SUBMITTED FOR FINAL INTERIOR DESIGNER APPROVAL.										
APARTMENTS										
01 - GLASS										
		GL-01	MIRROR	TYP. VANITY MIRRORS	CAVART (OR APPROVED EQUAL)	01 CORE	01 PURE COLOR /R REFLECTIVE LOW-E	1/4" (THK)	PROVIDE SAMPLE FOR FFA APPROVAL SEE ELEVATIONS FOR LOCATION AND DETAILS FOR THICKNESS	Christine Mekhitarian christine@a-metro.com 773-425-2330
		GL-02	FRAMELESS DOOR AND PANEL SHOWER ENCLOSURES	TYP. APT SHOWER	CLEAR GLASS: 3/8" THK TEMPERED STARPHIRE GLASS HARDWARE: CLX SERIES FRAMELESS HARDWARE	GENEVA STYLE DOOR HINGE AND CLAMP HARDWARE	BRUSHED SS	3/8" THK GLASS SEE ELEVATIONS FOR GLASS EXTENTS	PROVIDE SAMPLE FOR FFA APPROVAL SEE ELEVATIONS FOR LOCATION AND DETAILS FOR THICKNESS	
GR - GROUT										
		GR-01	GROUT		LATICRETE	-	TBD		SUBMIT SAMPLE TO FFA FOR APPROVAL.	
		GL-02	GROUT		LATICRETE	-	TBD		SUBMIT SAMPLE TO FFA FOR APPROVAL.	
MT - METAL										
		MT-01	METAL TUBE STOCK	TYP. BATHROOM VANITY LEGS	CUSTOM		BRUSHED SS	1 1/2"X1 1/2"	SUBMIT SAMPLE TO FFA FOR APPROVAL.	-
		MT-02	N.I.U.		-	-	-	-	-	-
		MT-03	SCHLUTER EDGE PROFILE	BATHROOM TILE EDGE	SCHLUTER	SCHIENE	BRUSHED SS	ADJUST PER TILE SPEC	SEE DETAILS FOR INSTALLATION	
PL - PLASTIC										
		PL-01	PLASTIC LAMINATE	TYP. KITCHEN MILLWORK	WILSONART	7850-60	BEIGEWOOD MATTE FINISH		SUBMIT SAMPLE TO FFA FOR APPROVAL.	Kyle Suplevy Kyle.Suplevy@Wilsonart.com 516-355-6580
		PL-02	PLASTIC LAMINATE	TYP. KITCHEN MILLWORK	PIONITE	SG254	ASH GREY SUEDE		SUBMIT SAMPLE TO FFA FOR APPROVAL.	
		PL-03	PLASTIC LAMINATE	TYP. VANITY MILLWORK	TBD	TBD	TBD		TBD	
		PL-04	PLASTIC LAMINATE	DPR_619(GEN) MELAMINE (MAT)	5% MAPEI PS-40				SUBMIT SAMPLE TO FFA FOR APPROVAL.	
PT - PAINT										
FINISH: EGGSHELL FOR WALLS, FLAT FOR CEILING; SATIN FOR DOORS AND TRIM										
		PT-01	PAINT	TYP APT WALLS, BASE, DOOR, AND TRIM	SHERWIN WILLIAMS	SW 7006	EXTRA WHITE		SUBMIT SAMPLE TO FFA FOR APPROVAL.	
		PT-02	PAINT	TYP. APT WINDOWS-INTERIOR SIDE FINISH	SHERWIN WILLIAMS	SW 7006	EXTRA WHITE		SUBMIT SAMPLE TO FFA FOR APPROVAL.	
SS - SOLID										
		SS-01	CAESARSTONE	TYP. KITCHEN COUNTERTOP	CAESARSTONE	4001	FRESH CONCRETE	2 CM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Renee Pecquex Renee.Pecquex@caesarstoneus.com 917.459.0397
		SS-02	CORIAN	TYP. BATHROOM VANITY COUNTERTOP & INTEGRATED SINK	CORIAN		CAMEO WHITE			
		SS-03	CAESARSTONE	TYP. APARTMENT ENTRY SADDLE	CAESARSTONE	4030	PEBBLE GREY	2 CM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Renee Pecquex Renee.Pecquex@caesarstoneus.com 917.459.0397
		SS-04	CAESARSTONE	TYP. APARTMENT BATHROOM ENTRY SADDLE	CAESARSTONE	4004	RAW CONCRETE	2 CM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Renee Pecquex Renee.Pecquex@caesarstoneus.com 917.459.0397
		SS-05	CAESARSTONE	TYP. SHOWER SADDLE	CAESARSTONE	4004	RAW CONCRETE	2 CM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Renee Pecquex Renee.Pecquex@caesarstoneus.com 917.459.0397
DIV / NOTES	IMAGE	CODE	DESCRIPTION	LOCATION	MANUFACTURER	MODEL NO./STYLE	COLOR/FINISH	SIZE	REMARKS	CONTACT
TL - TILE										
		TL-01	PORCELAIN TILE	TYP. KITCHEN BACKSPLASH	TILEBAR	CLAY	CALM MATTE PORCELAIN	12"X24" 10 MM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Steve Gewirtz steve@tilebar.com 212-256-1540
		TL-02	PORCELAIN TILE	TYP. BATHROOM FLOOR	TILEBAR	GALAXY	GRAY SOFT	12"X24" 10 MM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Steve Gewirtz steve@tilebar.com 212-256-1540
		TL-03	PORCELAIN TILE	TYP. BATHROOM WALL	TILEBAR	GALAXY	WHITE SOFT	12"X24" 9 MM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Steve Gewirtz steve@tilebar.com 212-256-1540
		TL-04	PORCELAIN TILE	TYP. BATHROOM FEATURE WALL	TILEBAR	GALAXY	WHITE SOFT	3"X6" 9MM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Steve Gewirtz steve@tilebar.com 212-256-1540
		TL-05	PORCELAIN TILE	TYP. SHOWER FLOOR	TILEBAR	GALAXY	GRAY SOFT	12"X24" 10 MM THK	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Steve Gewirtz steve@tilebar.com 212-256-1540
WB - WOOD										
		WB-01	HARDWOOD BASE	TYP. APARTMENT BASE	CUSTOM		PT-01	4 IN (H) X 0.3 IN (TH)	SEE ELEVATION FOR LOCATION, AND DETAILS FOR THICKNESS	
WD - SOLID WOOD										
		WD-01	HARDWOOD MIRROR FRAME	TYP. VANITY MIRROR FRAME	CUSTOM		WHITE OAK STAINED TO MATCH PL-01	1 IN X 3 IN	SUBMIT SAMPLE TO FFA FOR APPROVAL.	Derrick Shaoulpour Derrick@Mikogaltic.com 646-703-0404 x 205
WF - WOOD										
		WF-01	AQUASENSE FLOORING	TYP APT LIVING, KITCHEN, CLOSET, BEDROOMS	HF DESIGN	AQUASENSE GENERATION 2	MONTAUK	7"X48"		Derrick Shaoulpour Derrick@Mikogaltic.com 646-703-0404 x 205
WT - WINDOW TREATMENT										
		WT-01	WINDOW TREATMENT	TYP, UPGRADED AND PENTHOUSE APT BEDROOMS	SWFCONTRACT	SELECTWEAVE SOLAR FABRIC EROSHATCH 8100 5% OPENNESS	C7912 ISSOSHELL / FOG WHITE FASCIA		PROVIDE SAMPLE FOR FFA APPROVAL. SEE BASE BUILDING DRAWINGS LOCATION AND DETAILS	

1 APARTMENTS FINISH SCHEDULE
SCALE: NTS

AMENITIES	IMAGE	CODE	DESCRIPTION	LOCATION	MANUFACTURER	MODEL NO./STYLE	COLOR/FINISH	SIZE	REMARKS	CONTACT
ALL MATERIALS TO BE SUBMITTED FOR FINAL INTERIOR DESIGNER APPROVAL.										
AMENITY										
CLG - CEILING										
		CLG-10	WOOD SLAT CEILING	GROUND FLOOR RESIDENTIAL LOBBY, ALL RESIDENTIAL AND AMENITY ELEVATOR LOBBIES	BLUSON INTERNATIONAL	PANEL GRILLE S-21-STOW	WHITE/RED OAK STAINED TO MATCH PL-11 CONTROL SAMPLE		SEE RCP FOR LOCATIONS AND EXTENTS	
		CLG-10 ALT	WOOD SLAT CEILING	GROUND FLOOR RESIDENTIAL LOBBY, ALL RESIDENTIAL AND AMENITY ELEVATOR LOBBIES	CEILINGS PLUS	BAAZ CUSTOM SIZING	SARANITE VENEER, GOLDEN OAK S-31		SEE RCP FOR LOCATIONS AND EXTENTS	CEILING REQUIRES A 5-6 MO. LEAD TIME FROM DATE OF ORDER SEE ALTERNATE SPEC CLG-10 ALT FOR COMPARABLE ALUMINUM CEILING SYSTEM
		CLG-11	FABRIC WRAPPED CEILING SYSTEM	3RD FLOOR COWORK LOUNGE	NOVASPAN		1 IN SQUARE EDGE SYSTEM WITH CONCEALED EDGE		SEE RCP FOR LOCATION AND SIZING.	SEE FA-13 FOR FABRIC SPEC INCLUDE ACOUSTICAL CORE: KNAUF ACOUSTICAL SMOOTH BOARD, 1" X 18 DENSITY FIBERGLASS WITH ECOSE TECHNOLOGY
CG - CORNER GUARDS										
		CG-10	CORNER GUARDS	3RD FL KIDS ROOM	KNUFFI	60-6910-1	BLACK	1"		
CPT - CARPET										
		CPT-11	INSET BROADLOOM	TYP CORRIDORS	MILLIKEN CARPETS	BROADLOOM INHERIT CUSTOM	SDN119307	SEE FINISH PLAN FOR EXTENT	SEE FINISH PLAN FOR EXTENT	PER UNION CA APPROVAL	KANE MICHAEL WRIGHT (800) 528 8453
		CPT-12	INSET CARPET TILE	3RD FLOOR COWORK LOUNGE PODS	INTERFACE AMERICAS	538	SILVER BIRCH	ROLL	SEE FINISH PLAN FOR EXTENT	
		CPT-14	INSET CARPET TILE	LEASING OFFICE	TRETFORD AMERICAS	538	SILVER BIRCH	ROLL	SEE FINISH PLAN FOR EXTENT	
		CPT-16	INSET CARPET TILE	3RD FLOOR KIDS ROOM INSET	TRETFORD AMERICAS	530	HEATHER	ROLL	SEE FINISH PLAN FOR EXTENT	
		CPT-17	INSET CARPET TILE	3RD FLOOR KIDS ROOM PERIMETER	TRETFORD AMERICAS	538	SILVER BIRCH	ROLL	SEE FINISH PLAN FOR EXTENT	
FA - FABRIC										
PKV 113/11/2013		FA-12	UPHOLSTERY	3RD FLOOR COWORK LOUNGE BANQUETTE	LAB ANTONTZ	GALICHO VOL. 2-1 1311-074	SEE MILLWORK DRAWINGS		ADD ALLOWANCE	KANE MICHAEL WRIGHT (800) 528 8453
		FA-13	FABRIC WRAPPED PANELS	3RD FLOOR COWORK LOUNGE CEILING	DESIGNTEX	KEEPNEAR 3742-[XX]	[XX]MOCA		SEE RCP FOR LOCATION AND SIZING.	FA-16 FABRIC WRAPPED ACOUSTICAL CLG-11 NOVASPAN CEILING SYSTEM CLASS A FIRED PVC VINYL COATING
		FA-14	POLY-VINYL CUSHION SAFETY MAT BACKSTOP	BASKETBALL COURT	GREATMATS		PADS: GYM WALL PADS 2" ASTM RATED IMPACT FOAM CORE UPHOLSTERY: DESIGNTEX SYNERGY MOCA		SEE MILLWORK DRAWINGS AND ELEVATIONS FOR PANEL SIZES	DESIGNTEX SUGONE NAPA 3156-702
FL - FILM										
		FL-10	GLASS FILM	3RD FL COWORK PODS	DECORATIVE FILMS	SA-1254	FROSTED GLASS 1/2"-13"		TO FIT INTERIOR STOREFRONT	SUBMIT SAMPLE TO FFA FOR APPROVAL. SEE ELEVATIONS FOR LOCATIONS	BRAYANA MANONAT Brayana@decorativefilms.com
GR - GROUT										
		GR-10	TILE GROUT AT TERRAZZO	TERRAZZO TILE THROUGHOUT	LATICRETE		TBD	TBD	1/16"	
GL - GLASS										
		GL-11	MIRROR	ELEVATOR CAB, 3RD FLOOR FITNESS	CARVART (OR APPROVED EQUAL)	01 CORE	01 PURE COLOR/R REFLECTIVE LOW-E	1/4" (THK) X CUSTOM		
		GL-12	MIRROR	3RD & 15 FLOOR AMENITY BATH MIRROR	GORILLA GLASS (OR APPROVED EQUAL)		01 PURE COLOR/R REFLECTIVE LOW-E	1/4" (THK) X CUSTOM		
		GL-13	MIRROR	ELEVATOR CAB	GORILLA GLASS (OR APPROVED EQUAL)		01 PURE COLOR/R REFLECTIVE LOW-E	1/4" (THK) X CUSTOM		
IG - INTERIOR										
		IG-10	STOREFRONT SYSTEM	3RD FLOOR COWORK LOUNGE	GLASSBILT		TBD	GLASS: STARFIRE EQUIVALENT LOW-IRON GLASS MULLION: DARK BRONZE ANODIZED ALU	SEE ELEVATIONS FOR SIZING AND CONFIGURATION	
MG - METAL GRATE										
		MG-10	N.I.U.	-	-	-	-	-	-	
MT - METAL										
		MT-11	METAL BASE AND FRAME	METAL BASE AT LOBBY TRAVERTINE	CUSTOM	-	BRUSHED MUNTZ, MATCH CONTROL SAMPLE	1" X 1" L ANGLE		
		MT-12	METAL INLAY	METAL TILE INLAY AT TERRAZZO THROUGHOUT	MANHATTAN AMERICAN	HEAVY TOP L ANGLE	BRUSHED BRASS	1/4"W X FLOOR HEIGHT		
		MT-13	SHEET METAL CLADDING	GROUND FLOOR LOBBY VESTIBULE AND LOBBY WALL CLADDING AT STOREFRONT	CUSTOM	-	BLACK METAL TO MATCH EXTERIOR STOREFRONT MULLIONS		SEE ELEVATIONS FOR EXTENTS	
		MT-14	SHEET METAL CLADDING	MAILROOM FILLER PANEL AND TRASH PANEL FACES	CUSTOM		POWDER COAT TO MATCH PT-11 MANUFACTURER STANDARD		SEE ELEVATIONS FOR LOCATIONS AND SIZING	
		MT-15	METAL LEGS	MAILROOM MAILBOX PODIUM LEGS	CUSTOM		BRUSHED MUNTZ, MATCH CONTROL SAMPLE	1" X 1" EASED EDGE SQUARE TUBE		
		MT-16	METAL BASE	ELEVATOR CABS	CUSTOM	-	BRUSHED MUNTZ, MATCH CONTROL SAMPLE	1" X 1" L ANGLE		
		MT-17	METAL MIRROR FRAME	3RD FLOOR FITNESS	CUSTOM	-	BRUSHED STAINLESS STEEL	1/2" X 1/2" L ANGLE MIRROR EDGE		
		MT-18	METAL HANDRAIL	ELEVATOR CABS	CUSTOM	-	BRUSHED MUNTZ, MATCH CONTROL SAMPLE	2" DIAMETER HANDRAIL TUBE WITH BLACK METAL SLEEVE/BRACKETS	SEE ELEVATOR CAB ELEVATIONS FOR SIZES	
		MT-19	METAL L ANGLE	GROUND FLOOR AND AMENITY ELEVATOR LOBBIES	CUSTOM	-	BRUSHED MUNTZ, MATCH CONTROL SAMPLE	1" X 2" L ANGLE		
		MT-20	N.I.U.	-	-	-	-	-	-	
		MT-21	METAL SHEET	GROUND FLOOR LOBBY ELEVATOR PORTAL FRAMES, ELEVATOR CAB FILLERS	CUSTOM	-	BRUSHED MUNTZ, MATCH CONTROL SAMPLE	1/4" THK SEE ELEVATIONS AND DETAILS FOR LENGTHS		
		MT-22	METAL SIGNAGE	TYP CORRIDORS	TBD	PER MANUFACTURER	DARK BRONZE ANODIZED, TO MATCH KI-10 SAMPLE			COORDINATE WITH OWNER APPROVED SIGNAGE VENDOR
		MT-23	KNIFE EDGE HARDWARE	3RD FLOOR COWORK LOUNGE CEILING	FRY REGLET	DC-12 3D DEGREE ANGLE TRIM OR APPROVED EQUIVALENT	PAINT TO MATCH ADJACENT CEILING	SEE DETAIL FOR SIZE		TAPED IN KNIFE EDGE DRYWALL SOFFIT TRIM
		MT-24	TILE TO CONCRETE FLOOR TRANSITION	FLOOR TRANSITIONS THROUGHOUT	SCHLUTER	RENDI-U	TBD	-		
		MT-25	TILE TO CARPET/RUBBER	FLOOR TRANSITIONS THROUGHOUT	SCHLUTER	SCHIENE	TBD	VERIFY TILE HEIGHT	SEE FINISH PLANS FOR LOCATION	
		MT-26	THRESHOLD TRANSITION	ALUMINUM SADDLE AT BASKETBALL COURT	PEMKO	2716	TBD	SEE FLOOR DETAILS FOR FLOORING THICKNESSES		
		MT-27	WOOD TO CARPET FLOOR TRANSITION	FLOOR TRANSITIONS THROUGHOUT	SCHLUTER	RENO-TK	TBD	VERIFY TILE AND CARPET HEIGHT	SEE FINISH PLANS FOR LOCATION CENTER OF TRANSITION TO ALIGN WITH CENTER OF DOOR WHERE APPLICABLE	
		MT-28	SHEET METAL CLADDING	ROOF MILLWORK PLANTER LINER	CUSTOM	-	DARK BRONZE	SEE DETAILS FOR		
		MT-29	METAL FRAME	ROOFTOP FIREBOX FRAME	CUSTOM	-	DARK BRONZE ANODIZED, TO MATCH KI-10 MILLWORK	1X1 L-ANGLE		
PL - LAMINATES										
		PL-10	PLASTIC LAMINATE	LOBBY RECEPTION DESK INTERIOR	FENIX NTM COLOR CORE	U029	BIANCO MALE	SEE DETAIL FOR EXTENTS		
		PL-11	NOT IN USE							
		PL-12	PLASTIC LAMINATE	BASKETBALL COURT	SURFACE MATERIALS, INC	LAMITECH NEUTRAL OAK	-	SEE ELEVATIONS AND DETAILS FOR EXTENTS AND THICKNESS		Megan Richard <megan@surfacematerials.com>
		PL-13	PLASTIC LAMINATE	ELEVATOR CAB WALLS	SURFACE MATERIALS, INC	LAMITECH NEUTRAL OAK	-	SEE ELEVATIONS FOR EXTENTS		Megan Richard <meagan@surfacematerials.com>
		PL-14	PLASTIC LAMINATE	ELEVATOR CAB CEILING	CHEMETAL	203	BRUSHED MIRO/SIMI BRONZE ALUM	SEE REF FOR EXTENTS		
		PL-15	PLASTIC LAMINATE	NOT IN USE						
PRIMER										
FINISH: EGGSHELL FOR WALLS, FLAT FOR CEILING; SATIN FOR DOORS AND TRIM										
		PT-10	CEILING AND WALL PAINT	MAILROOM, PACKAGE ROOM, LOBBY LIGHT WELL	SHERWIN WILLIAMS	SW 9166	DRIFT OF MIST		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-11	MANUFACTURER FINISH	MAILROOM MAILBOXES	MANUFACTURER POWDER COAT		ANTIQUE BRONZE	PANTONE 8022C	SEE ELEVATIONS & RCP FOR EXTENTS	FINISH APPLIED BY MAILBOX MANUFACTURER
		PT-12	DOOR AND FRAME PAINT	BOH DOORS IN ELEVATOR LOBBIES & AMENITY CORRIDORS	SHERWIN WILLIAMS	SW 7051	ANALYTICAL GRAY		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-13	N.I.U.							
		PT-14	CEILING PAINT	TYP CORRIDORS	SHERWIN WILLIAMS	SW 7006	EXTRA WHITE		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-15	RUBBER FLOOR PRIMER	3RD FLOOR FITNESS	ENDURA PAINT	PRIMELOCK	-		SAMPLE TO BE PROVIDED TO FFA FOR APPROVAL. REFER TO MANUFACTURER'S APPLICATION PROCEDURES TO APPLY PRIMER, BARRIER, & PAINT TO RUBBER FLOOR. VENDOR RECOMMENDS USING 3M 233+ TAPE OR OTHER	CANAAN COATINGS TOM WHITELOCK TOMW@CANAANCOATINGS.COM (613)937-0430
			BARRIER CLEAR	3RD FLOOR FITNESS	ENDURA PAINT	BARRIER CLEAR				
			WHITE RUBBER FLOOR PAINT	3RD FLOOR FITNESS	ENDURA PAINT	SW 7006 EX-3C TOPCOAT SAMELINE COATING	EXTRA WHITE			
		PT-16	RUBBER FLOOR PRIMER	3RD FLOOR FITNESS	ENDURA PAINT	PRIMELOCK	-		SAMPLE TO BE PROVIDED TO FFA FOR APPROVAL. REFER TO MANUFACTURER'S APPLICATION PROCEDURES TO APPLY PRIMER, BARRIER, & PAINT TO RUBBER FLOOR. VENDOR RECOMMENDS USING 3M 233+ TAPE OR OTHER	CANAAN COATINGS TOM WHITELOCK TOMW@CANAANCOATINGS.COM (613)937-0430
			BARRIER CLEAR	3RD FLOOR FITNESS	ENDURA PAINT	BARRIER CLEAR				
			RED RUBBER FLOOR PRIMER	3RD FLOOR FITNESS	ENDURA PAINT	SW 7098 EX-2C TOPCOAT SAMELINE COATING	SIERRA REDWOOD			
		PT-17	CEILING, WALL ABOVE PANELING AND DUCT PAINT	3RD FLOOR FITNESS	SHERWIN WILLIAMS	SW 7069	IRON ORE		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-18	CEILING PAINT	3RD FLOOR COWORK LOUNGE & PODS KIDS ROOM, 3RD AND 15TH FL TYP MEN/WO CORRIDOR	SHERWIN WILLIAMS	SW 9166	DRIFT OF MIST		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-19	WALL PAINT	3RD FLOOR COWORK LOUNGE/PODS	SHERWIN WILLIAMS	SW 9165	GOSSAMER VEIL		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-20	CEILING PAINT	3RD FLOOR ACTIVE FLEX ROOM	SHERWIN WILLIAMS	SW 9165	GOSSAMER VEIL		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-21	CEILING PAINT	15TH FLOOR SPEAKEASY LOUNGE	SHERWIN WILLIAMS	SW 9168	ELEPHANT EAR		SEE ELEVATIONS & RCP FOR EXTENTS	EGSHELL, LEVEL 5 FINISH
		PT-22	PAINT	TYPICAL RESIDENTIAL ELEVATOR LOBBY FRAMES AND DOORS		SCUFF MASTER	GDH 12595799 SOLID METAL		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-23	DOOR AND FRAME PAINT	3RD FLOOR COWORK LOUNGE 3RD FL ACTIVE FLEX AND KIDS ROOM TV MOVIE FRAME AND WALL	SHERWIN WILLIAMS	SW 7051	ANALYTICAL GRAY		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-25	DOOR AND FRAME PAINT	GROUND FLOOR CORRIDOR	SHERWIN WILLIAMS	SW 9166	DRIFT OF MIST		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-26	BASE PAINT	3RD FLOOR KIDS RM	SHERWIN WILLIAMS	TBD	TBD		SEE ELEVATIONS & RCP FOR EXTENTS	TBD BASED ON REVIEW OF WC-10
		PT-27	CEILING AND WALL PAINT	GROUND FLOOR LOBBY SERVICE CORRIDOR	SHERWIN WILLIAMS	SW 9166	DRIFT OF MIST		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-28	N.I.C							
		PT-29	CEILING PAINT	AMENITY BATHROOMS	SHERWIN WILLIAMS	SW 7006	EXTRA WHITE		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-30	WALL PAINT	AMENITY BATHROOMS	SHERWIN WILLIAMS	SW 9165	ANALYTICAL GRAY		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-31	DOOR PAINT	TYPICAL ELEVATOR LOBBY	-	SCUFF MASTER	GDH 12595799 SOLID METAL		SEE ELEVATIONS & RCP FOR EXTENTS	
		PT-32	DOOR FRAME PAINT	TYP CORRIDORS APARTMENT ENTRIES	SHERWIN WILLIAMS	SW 7606	LOGIA		SEE ELEVATIONS & RCP FOR EXTENTS	PER UNION CA APPROVAL
		PT-33	WALL PAINT	3RD FLOOR PLAYHOUSE WALL	SHERWIN WILLIAMS	SW 6053	REDDENED EARTH		SEE MILLWORK DRAWINGS AND ELEVATIONS FOR EXTENTS	
		PT-34	ISLAND COUNTER PAINT	15TH FL SPEAKEASY LOUNGE	BENJAMIN MOORE	1267	RUBY DUSK		SEE DRAWINGS.	HIGH GLOSS, LEVEL 5 FINISH
		PT-35	BASE PAINT AND P TRAP FASCIA PAINT	TYP. AMENITY BATHROOMS	SHERWIN WILLIAMS	SW 0007	OCCIDIUS AMBER		SEE DRAWINGS.	
		PT-36	WALL PAINT	GROUND FLOOR BASKETBALL COURT	SHERWIN WILLIAMS	SW 6061	TANBARK		SEE ELEVATIONS & RCP FOR EXTENTS	
PS - PLASTER										
		PS-10	PLASTER	LOBBY	PER MANUFACTURER	PER MANUFACTURER	10TH MATCH CONCRETE FINISH AT RESIDENTIAL FLOOR ON 15TH		SEE ELEVATIONS & RCP FOR EXTENTS	
RF - RUBBER FLOORING										
		RF-10	RUBBER FLOORING	3RD FLOOR FITNESS	ECORE	ULTRA-TEK	FINAL CUT 1216	TILE SIZE: 24 IN (W) X 24 IN (L) X 3 IN (H) SEE FINISH PLAN FOR EXTENTS	NON-STANDARD FINISH AVAILABLE THROUGH SPARTAN VIA ECOMAX	THOMAS LORENZANO TLORENZANO@ECOREINTL.COM 646.523.0421
		RF-11	RUBBER FLOORING	3RD FLOOR YOGA	ECORE	EB8 MOTIVATE-(12)	ALABASTER	6MM X 72IN ROLL		THOMAS LORENZANO TLORENZANO@ECOREINTL.COM 646.523.0421
SEAL - SEALANT										
		SEAL-10	EXPOSED CONCRETE SEALANT	TYP CORRIDORS	GHOSTSHIELD	SILOXA-TEK	8505	-	TYP. APPLIED AT EXPOSED CONCRETE COLUMNS IN CORRIDORS AND AMENITY SPACES	
SF - SPECIALTY FINISHES										
		SF-10	GEOMETRIC WOOD WALL (PLYWOO	3RD FLOOR COWORK LOUNGE MILLWORK WALL	PLYBOO	FRACTAL	WOOD FINISH PAINTED TO MATCH PL-1	SEE ELEVATIONS FOR SIZING		ROBIN REIGI ROBIN@ROBINREIGI.COM 212.504.5500
		SF-11	FIBER ROPE	3RD FLOOR KIDS ROOM PLAYHOUSE	TBD	TBD	TBD	SEE DETAILS FOR SIZE		
		SF-12	COCOA MAT	ENTRY VESTIBULE	AMERICAN FLOOR MATS	NATURAL FIBER	CHARCOAL	SEE FINISH PLAN FOR		

2 AMENITY FINISH SCHEDULE
SCALE: NTS

ST - STONE										
		ST-10	STONE PANELS	LOBBY		ABC STONE	-	TRAVERTINO BIANCO SANTA CATERINA, HONED	LARGE FORMAT, 3/4" THK	
		ST-11	RECEPTION DESK STONE	LOBBY		ABC STONE	-	TRAVERTINO BIANCO SANTA CATERINA, HONED	3/4" THK	
		MT-12	METAL	METAL		METAL TILE	-			
		ST-13	KITCHEN & ISLAND COUNTERTOP SEE ALTERNATE SPEC ELE-10 ALT FOR COMPARABLE ALUMINUM CEILING SYSTEM	3RD FLOOR COWORK LOUNGE		STONE SOURCE	-	CALACATTA GOLD, HONED	1 1/4" THK	LAURA MASTRI lmastri@stonesource.com
		ST-14	STONE PANELS	LOBBY, AMENITY ELEVATOR LOBBIES		NEMO TILE	-		LARGE FORMAT, 1 1/4" THK	PER UNION CA APPROVAL
		ST-15	KITCHEN/ISLAND COUNTERTOP, BANQUETTE, LEDGE, SHELF, BOOKSHELF BACK WALL	15TH FLOOR SPEAKEASY LOUNGE		STONE SOURCE	-	ROSSO LEVANTO, HONED	1 1/4" THK AND 3/4" THK	SEE MILLWORK DETAILS FOR SIZES AND EXTENTS. LAURA MASTRI lmastri@stonesource.com
TL - TILE										
		TL-10	STONE LOOK PORCELAIN WALL TILE	RESIDENTIAL ELEVATOR LOBBIES, AMENITY ELEVATOR LOBBIES, AMENITY CORRIDORS		GREEN GLOBAL INC	ECO STONE	FOG VEIN CUT	MMM THICK, HF 'A 110", SEE ELEVATIONS FOR EXTENTS.	PER UNION CA APPROVAL
		TL-11	FITNESS BACKSPLASH	2ND FLOOR GYM		TILE BAR (OR APPROVED EQUIVALENT)	CLAY	SHY MATTE PORCELAIN	12IN X 4 IN, SEE ELEVATIONS FOR EXTENTS.	-
		TL-12	KITCHEN BACKSPLASH	3RD FLOOR COWORK LOUNGE		STONE SOURCE (OR APPROVED BAR EQUIVALENT)	-	STONE SOURCE FOR APPROVED TILE	VARIES	RED ITSAKOS-2 SMALL MATTE
		TL-13	N.I.U.	-		-	-	-	-	-
		TL-14	FLOOR TILE	SMART PACKAGE ROOM		TILE BAR	CLAY	CALM MATTE PORCELAIN	24IN X 24IN, SEE FINISH PLANS FOR EXTENTS.	
		TL-15	N.I.U.	-		-	-	-	-	-
		TL-16	FLOOR TILE	AMENITY RESTROOMS		CONCRETE COLLABORATIVE	VENICE	ALABASTER LPC	24IN X 24IN, SEE FINISH PLANS FOR EXTENTS.	
		TL-17	WALL TILE	AMENITY RESTROOMS		NEMO	FUJUTI	ORANGE FS ST 2D, MATTE	24 X 48X X 2.25&RN THK SEE ELEVATIONS FOR EXTENTS.	
TER - TERRAZZO										
		TER-10	POURED TERRAZZO FLOORING	GROUND FLOOR LOBBY		CONCRETE COLLABORATIVE	VENICE COLLECTION	ALABASTER LPC	SEE FINISH PLANS FOR LOCATIONS, EXTENTS, AND CONTROL JOINT IS 20 FT	SAMPLE TO BE APPROVED BY FFA SAM GERZACK SAM@CONCRETE-COLLABORATIVE.COM (855) 268-0800
		TER-11	TERRAZZO TILE FLOORING	AMENITY ELEVATOR LOBBIES & CORRIDORS ELEVATOR CABS, AMENITY BATHROOMS, WALL BASE		CONCRETE COLLABORATIVE	VENICE COLLECTION	ALABASTER LPC	24 IN (W) X 24 IN (L) X 3/4 IN (H)	SAMPLE TO BE APPROVED BY FFA SAM GERZACK SAM@CONCRETE-COLLABORATIVE.COM (855) 268-0800
WB - WALL BASE										
		WB-10	FLUSH SOLID WOOD BASE	LOBBY		-	-	TO MATCH WF-10	1/2" THK X 4" H	INSTALL FLUSH TO ADJACENT WV-10 MILLWORK
		WB-11	SOLID WOOD BASE	TYP CORRIDORS		-	-	TO MATCH WF-10	1/2" THK X 4" H	
		WB-12	SOLID WOOD BASE	3RD FLOOR & 15TH FLOOR AMENITY		-	-	TO MATCH WF-10 AND WV-13	1/2" THK X 4" H	INSTALL FLUSH TO ADJACENT WV-13 MILLWORK
		WB-13	SOLID WOOD BASE	3RD FLOOR KIDS ROOM		-	-	PAINTED PT-26	1/2" THK X 4" H	

TYPE		DESCRIPTION		LOCATION	NOTES
**AP	APARTMENT** APPLIANCES				
AP-01A		Product:	30" Refrigerator	Typical Apartments	GC to coordinate door open position
		Mfr:	Blomberg		
		Model#:	BRF81960FBI		
		Finish:	Panel Ready		
		Size:	29-3/4"W x 83-1/2"H x 23-9/16"D		
		Color:	--		
AP-01B		Product:	22" Refrigerator	Studio Apartments	GC to coordinate door open position
		Mfr:	Blomberg		
		Model#:	BRF81051FBIN		
		Finish:	Panel Ready		
		Size:	21-7/8"W x 69-7/8"H x 21-5/8"D		
		Color:	--		
AP-02		Product:	24" Dishwasher	Typical Apartments	
		Mfr:	Blomberg		
		Model#:	WTI51600FBI		
		Finish:	Panel Ready		
		Size:	23-9/16"W x 33-7/8"H x 22-7/16"D		
		Color:	--		
AP-03A		Product:	30" Single Electric Wall Oven	Typical Apartments	Front Controls
		Mfr:	Blomberg		
		Model#:	BWOS30200SS		
		Finish:	Stainless Steel		
		Size:	08-1/4"H x 28-1/2"W x 24"D		
		Color:	--		
AP-03B		Product:	24" Single Electric Built-in Oven	Typical Apartments	Front Controls
		Mfr:	Blomberg		
		Model#:	BWOS24112SS		
		Finish:	Stainless Steel		
		Size:	23-7/32"H x 23-3/8"W x 21-1/2"D		
		Color:	--		
AP-05A		Product:	30" Over Range Microwave	1 BR+ Apartments	1.5 cu ft. capactiy 1,000 watt cooking power Provide Recirculation Kit.
		Mfr:	Blomberg		
		Model#:	BOTR30100SS		
		Finish:	Stainless Steel		
		Size:	30"W x 16 1/2"H x 15"D		
		Color:	--		
AP-05B		Product:	24" Over Range Microwave	Studio Apartments	1,000 watt cooking power Provide Recirculation Kit.
		Mfr:	Haier		
		Model#:	HMV1472BHS		
		Finish:	Stainless Steel		
		Size:	23 3/4"W x 17"H x 16 1/4"D		
		Color:	--		
AP-06		Product:	24" FRONT LOAD WASHER	Typical Apartments	
		Mfr:	Blomberg		
		Model#:	WM98200SX2		
		Finish:			
		Size:	33 1/8"H x 23 5/8"W x 25 3/8"D		
		Color:	White		
AP-07		Product:	24" VENTLESS HEAT PUMP DRYER	Typical Apartments	
		Mfr:	Blomberg		
		Model#:	DHP2440W		
		Finish:	--		
		Size:	33 5/16"H x 23 3/8"W x 26 9/16"D		
		Color:	White		
AP-08A		Product:	30" Touch Control Electric Cooktop	Typical Apartments	
		Mfr:	Blomberg		
		Model#:	CTE30410		
		Finish:	BLACK		
		Size:	2-5/8"H x 23-15/16"W x 20-11/16"D		
		Color:	--		
AP-08B		Product:	24" Touch Control Electric Cooktop	Typical Apartments	
		Mfr:	Blomberg		
		Model#:	CTE24410		
		Finish:	BLACK		
		Size:	2-1/4"H x 22-3/4"W x 20"D		
		Color:	--		
**KA	KITCHEN ACCESSORIES**				
KA-01		Product:	Appliance Pull	Typical for AP-01A Refrigerator Typical for AP-01B Refrigerator	
		Mfr:	Schwinn Design (Or Approved Equal)		
		Model#:	44587		
		Finish:	Brushed Stainless Steel		
		Size:	28.97"L		
		Color:	--		
KA-02		Product:	Appliance Pull	Typical for AP-01A Freezer Drawer Typical for AP-01B Freezer Drawer	
		Mfr:	Schwinn Design (Or Approved Equal)		
		Model#:	44587		
		Finish:	Brushed Stainless Steel		
		Size:	18.90"L		
		Color:	--		

6 APPLIANCE SCHEDULE
SCALE: NTS

TYPE		DESCRIPTION		LOCATION	NOTES
**UAP	UFAS APARTMENT** APPLIANCES				
UAP-01A		Product:	30" Refrigerator	UFAS Apartments	
		Mfr:	GE		
		Model#:	GTE18ISHSS		
		Finish:	Stainless Steel		
		Size:	29 1/2"W x 60 5/8"H x 34 1/2"D		
		Color:	--		
UAP-01B		Product:	24" Refrigerator	UFAS Apartments	
		Mfr:	GE		
		Model#:	GPE12FSKSB		
		Finish:	Stainless Steel		
		Size:	24"W x 59 7/8"H x 28 5/8"D		
		Color:	--		
AP-02A		Product:	24" Dishwasher	UFAS Apartments	
		Mfr:	Blomberg		
		Model#:	DWT55502FBI		
		Finish:	Panel Ready		
		Size:	23-9/16"W x 32-1/4"H x 22-1/2"D		
		Color:	--		
UAP-04		Product:	Microwave (Countertop)	UFAS Apartments	0.7 cu.ft. capactiy 700 watt cooking power
		Mfr:	GE		
		Model#:	JES1072SHSS		
		Finish:	Stainless Steel		
		Size:	17 1/4"W x 10-1/4"H x 12-3/4"D		
		Color:	--		
UAP-05A		Product:	30" Pisa Under-Cabinet Hood	UFAS Apartments	Blower CFM (Min.-Max.): 180-290
		Mfr:	Zephyr		
		Model#:	ZPI-E30AG290		
		Finish:	Stainless Steel Trim w/ Glass		
		Size:	5-3/16"H x 29-7/8"W x 9-9/16"D		
		Color:	--		
UAP-05B		Product:	24" Pisa Under-Cabinet Hood	UFAS Apartments	Blower CFM (Min.-Max.): 180-290
		Mfr:	Zephyr		
		Model#:	ZPI-E24BG290		
		Finish:	Stainless Steel Trim w/ Glass		
		Size:	2 3/16"H x 23 7/8"W x 9-9/16"D		
		Color:	--		
UAP-06		Product:	Washer/Dryer Combo	UFAS Apartments	1.96 cu.ft. capactiy
		Mfr:	Blomberg		
		Model#:	WMD24400W		
		Finish:	--		
		Size:	23-3/4"W x 33"H x 23-1/4"D		
		Color:	White		

5 UFAS APPLIANCE SCHEDULE
SCALE: NTS

TYPE		DESCRIPTION		LOCATION	NOTES
**AP	AMENITY** APPLIANCES				
AP-10		Product:	24" Undercounter Refrigerator	Coworking	Build-in, provide custom panel. See millwork drawings for hands of doors and panel finish.
		Mfr:	Summit		
		Model#:	ALS4F		
		Finish:	Panel Ready - Custom Panels		
AP-11		--	N.I.U.	--	--
AP-12		Product:	15" UC Ice Maker	Coworking & Speakeasy	Built-in, provide custom panel. See millwork drawings for hands of doors and panel finish.
		Mfr:	Summit		
		Model#:	BIM44GFADA		
		Finish:	Panel Ready - Custom Panels		
AP-13		Product:	30" Wall Mounted Convection Microwave Oven	Coworking & Speakeasy	
		Mfr:	Wolf		
		Model#:	SPO30PE/S/PH		
		Finish:			
AP-14		Product:	30" Wall Mounted Warming Drawer	Coworking & Speakeasy	Built-in, provide custom panel. See millwork drawings for hands of doors and panel finish.
		Mfr:	Wolf		
		Model#:	WWD30 Integrated		
		Finish:	Panel Ready - Custom Panel		
AP-15		Product:	30" 2 Drawer Built In Undercounter Refrigerator	Speakeasy	Built-in, provide custom panel. See millwork drawings for hands of doors and panel finish.
		Mfr:	Summit		
		Model#:	SPR3032DADA		
		Finish:	Panel Ready - Custom Panels		
AP-16		--	N.I.U.	--	--
AP-17		Product:	Starbucks Serenade Coffee Machine	Coworking	Plumbed in countertop applance.
		Mfr:	Starbucks Branded Solutions		
		Model#:	Serenade		
		Finish:	N/A		

4 AMENITY APPLIANCE SCHEDULE
SCALE: NTS

UP	UFAS APARTMENT PLUMBING FIXTURE				
UP-01		Product:	Sink	Residential Kitchens	ADA Compliant
		Mfr:	BLANCO		
		Model#:	QUATRUS R0 ADA		
		Finish:	Satin Finish		
		Size:	24 15/16" x 17 15/16" x 5 1/2"		
		Color:	--		
UP-02		Product:	Shower Bar	Residential Bathrooms	
		Mfr:	Grohe		
		Model#:	Tempesta 27522000		
		Finish:	Chrome		
		Size:	--		
		Color:	StarLight Chrome		
		Product:	Hand Shower	Residential Bathrooms	Provide Grohe Shower Outlet Elbow (28 672 000), Grohe Hand Shower Holder (28 605 000) and Grohe Metal Shower Hose (28 025 000)
		Mfr:	Grohe		
		Model#:	Euphoria Cosmopolitan 26466000		
		Finish:	Chrome		
		Size:	--		
		Color:	StarLight Chrome		
		Product:	Volumn Control	Residential Bathrooms	Add to Hand Shower for ADA Compliance
		Mfr:	Grohe		
		Model#:	Concetto 29106001		
		Finish:	Chrome		
		Size:	--		
		Color:	StarLight Chrome		
		Product:	Pressure Balance Valve	Residential Bathrooms	
		Mfr:	Grohe		
		Model#:	Essence 19347001		
		Finish:	Chrome		
		Size:	--		
		Color:	StarLight Chrome		
		Product:	3-Way Diverter	Residential Bathrooms	
		Mfr:	Grohe		
		Model#:	Concetto 29106001		
		Finish:	Chrome		
		Size:	--		
		Color:	StarLight Chrome		

3 UFAS PLUMBING FIXTURES SCHEDULE
SCALE: NTS

TYPE		DESCRIPTION		LOCATION	NOTES
**TA	TOILET ACCESSORY**				
TA-01		Product:	Glam Traditional Tissue Holder	Apartment bathrooms	
		Mfr:	Gatco		
		Model#:	#4633B		
		Finish:	Chrome		
TA-02		Product:	18" Glam Towel Bar	Apartment bathrooms	
		Mfr:	Gatco		
		Model#:	#4630		
		Finish:	Chrome		
TA-03		Product:	Gatco Glam Double Robe Hook	Apartment bathrooms	
		Mfr:	Gatco		
		Model#:	4535A		
		Finish:	Chrome		
TA-04		Product:	Shower Curtain Rod	Apartment bathrooms w/ tubs	
		Mfr:	Ginger		
		Model#:	1139R-5		
		Finish:	PC. Polished Chrome		
		Size HxWxD:	5'		
		Color:	--		
		Product:	Shower Rod Brackets		
		Mfr:	Ginger		
		Model#:	Kubic, 4039B		
		Finish:	Polished Chrome		
TA-05		Product:	Shower Bar	Apartment bathrooms w/ Showers	
		Mfr:	Grohe		
		Model#:	Tempesta 27522000		
		Finish:	Chrome		
		Size HxWxD:	--		
		Color:	StarLight Chrome		
		Product:	Hand Shower		
		Mfr:	Grohe		
		Model#:	Euphoria Cosmopolitan 26466000		
		Finish:	Chrome		
		Size HxWxD:	--		
		Color:	StarLight Chrome		
TA-06		Product:	Medicine Cabinet	Apartment bathrooms	
		Mfr:	Ketcham		
		Model#:	180PE		
		Finish:	Painted to match PT-01		
		Size:	12"x60"		
TA-07		Product:	Medicine Cabinet	Apartment bathrooms	
		Mfr:	Ketcham		
		Model#:	170PE		
		Finish:	Painted to match PT-01		
		Size:	12"x36"		
TA-20		Product:	Glam Grab Bar	For future installation in apartment bathrooms	
		Mfr:	Gatco		
		Model#:	960, 964, 968		
		Finish:	Chrome		
		Size:	12", 24", 42"		
TA-21		Product:	Portable Tub Seat	UFAS Bathrooms	Seat height 17-19" AFF
		Mfr:	Seachrome		
		Model#:	STPD-265160-PWS		
		Finish:	White		
		Size:	26 1/2" x 16"		
TA-22		Product:	Wall Mount Shower Seat	For future installation in apartment bathrooms	Seat height 17-19" AFF
		Mfr:	Seachrome		
		Model#:	SSB-280150		
		Finish:	White		
		Size:	28" X15"		
**TA	AMENITY/BOH TOILET ACCESSORIES**				
TA-08		Product:	RECESSED PAPER TOWEL DISPENSER AND WASTE RECEPTACLE	Common bathrooms	
		Mfr:	BOBRICK		
		Model #:	B-3803		
		Finish:	STAINLESS STEEL		
TA-09		Product:	RECESSED TOILET TISSUE DISPENSER	Common bathrooms	
		Mfr:	BOBRICK		
		Model #:	B-3574		
		Finish:	STAINLESS STEEL		
TA-10		Product:	ROBE HOOK	Common bathrooms	
		Mfr:	Gatco		
		Model #:	#4685		
		Finish:	Chrome		
TA-11		Product:	GRAB BAR 36"	Common bathrooms	
		Mfr:	BOBRICK		
		Model #:	B-5806-36		
		Finish:	SATIN STAINLESS STEEL		
		Size:	1 1/4" DIA X 36" L		
TA-12		Product:	GRAB BAR 42"	Common bathrooms	
		Mfr:	BOBRICK		
		Model #:	B-5806-42		
		Finish:	SATIN STAINLESS STEEL		
		Size:	1 1/4" DIA X 42" L		
TA-13		Product:	BABY CHANGING STATION	Common bathrooms	
		Mfr:	KOALA KARE		
		Model #:	K-B110-SSRE		
		Finish:	SATIN STAINLESS STEEL		
		Size:	37"W x 4"D x 23"H		
TA-14		Product:	COSMOPOLITAN SOAP DISPENSER	Amenity Bathrooms, BOH Bathrooms	
		Mfr:	GROHE		
		Model #:	40535000		
		Finish:	CHROME		
TA-15		Product:	MIRROR W/SHELF	BOH Bathrooms	CHANNEL FRAME MIRROR WITH SHELF, SURFACE MOUNTED
		Mfr:	AMERICAN SPECIALTIES		
		Model #:	0625.1624		
		Finish:	SATIN STAINLESS STEEL		
		Size:	16"W X 30"H		
TA-16		Product:	SOAP DISPENSER	BOH Bathrooms	
		Mfr:	BOBRICK		
		Model #:	B-4112		
		Finish:	SATIN STAINLESS STEEL		
		Size:	--		
TA-17		Product:	SURFACE MOUNTED PAPER TOWEL DISPENSER AND WASTE RECEPTACLE	Amenity Bathrooms, BOH Bathrooms	
		Mfr:	BOBRICK		
		Model #:	TW-3FS		
		Finish:	STAINLESS STEEL		

2 TOILET ACCESSORIES SCHEDULE (RESIDENTIAL UNITS)
SCALE: NTS

TYPE		DESCRIPTION		LOCATION	NOTES
**PF	APARTMENT** PLUMBING FIXTURE				
PF-01		Product:	Parma Cafe Single Handle Pull-Down Kitchen Faucet	Typical apartment kitchens	ADA Compliant
		Mfr:	Gerber		
		Model#:	D454058		
		Finish:	Chrome		
PF-02		Product	Sink	Typical apartment kitchens	ADA Compliant
		Mfr:	BLANCO		
		Model#:	QUATRUS R0 ADA		
		Finish:	Satin Finish		
			24 15/16" x 17 15/16" x 5 1/2"		
PF-02B					TYPE NOT USED
PF-03		Product	"Drake II" Toilet	All apartment bathrooms	
		Mfr:	Toto		
		Model#:	CST454CEFG		
		Finish:	--		
		Size:	28-1/2"L x 16-1/2"W x 30" H		
		Color:	#01 Cotton		
PF-04		Product	Custom Solid Surface Vanity Top with Integrated Sink	All apartment bathrooms	ADA Compliant
		Mfr:	Amberleaf		
		Model#:	--		
		Finish:	SS-02		
		Dimensions:	See Bathroom Details		
PF-05		Product:	Bathtub	Apartment bathroom w/ bathtub	
		Mfr:	Kaldewei		
		Model#:	CAYONO 5f		
		Finish:	--		
		Size:	30" x 60"		
		Color:	White		
PF-06		Product:	Parma Two Handle Widespread Lavatory Faucet	All apartment bathrooms	
		Mfr:	Gerber		
		Model#:	D3030658		
		Finish:	Chrome		
PF-07		Product:	Parma Shower Only Trim Kit	Apartment bathroom w/ shower	
		Mfr:	Gerber		
		Model#:	D51158TC / D512558TC		
		Finish:	Chrome		
		Product:	Clearflo Square Tile-In Shower Drain		
		Mfr:	Kohler		
		Model#:	K-9136-CP		
		Finish:	Polished Chrome		
PF-08		Product:	Parma Tub & Shower Trim Kit	Apartment bathroom w/ bathtub	
		Mfr:	Gerber		
		Model#:	D511058TC / D512058TC		
		Finish:	Chrome		
**PF	AMENITY/BOH** PLUMBING FIXTURES				
PF-09		Product:	Quatrus R0 ADA Undermount Sink	3rd FL Coworking Lounge	ADA Compliant
		Mfr:	Blanco		
		Model #:	442079		
		Finish:	Stainless Steel		
PF-10		Product:	Cora Pulldown Kitchen Faucet	3rd FL Coworking Lounge 15th FL Sky lounge	
		Mfr:	Houzer Inc		
		Model #:	CORPD-569-OB		
		Finish:	Oil Rubbed Bronze		
PF-11A		Product:	Vero Furniture Washbasin	3rd FL Fitness Bathroom	ADA Compliant
		Mfr:	Duravit		
		Model #:	032912		
		Finish:	White		
PF-11B		Product:	Vero Furniture Washbasin	Amenity Bathrooms	ADA Compliant
		Mfr:	Duravit		
		Model #:	045470		
		Finish:	White		
PF-11C		Product:	Vero Furniture Washbasin	1st FL and Roof FL Amenity Bathrooms	ADA Compliant
		Mfr:	Duravit		
		Model #:	045470, 19 5/8" x 18 1/2"		
		Finish:	White		
PF-12		Product:	FAUCET	Amenity Bathrooms, BOH Bathrooms	infra-red electronic basin mixer with hidden mixing device and adjustable temperature meter.
		Mfr:	GROHE		
		Model #:	EUROSMART COSMOPOLITAN E		
		Finish:	36329000 STAINLESS STEEL		
TYPE		DESCRIPTION		LOCATION	NOTES
PF-13		Product:	Wall mounted toilet	Amenity Bathrooms	Provide Geberit Concealed Tank w/ Sigma 10 Single Flush Actuator
		Mfr:	Duravit		
		Model #:	222509		
		Finish:	White		
		Product:	Toilet seat		
		Mfr:	Duravit		
		Model #:	006389		
		Finish:	white		
		Product:	Dual-Flush Hands-Free Actuator		
		Mfr:	Geberit		
		Model #:	115.907.1 Sigma10		
		Finish:	Matte Chrome/ Polished Chrome		
PF-18		Product:	15" Undermount Bar Sink	15th FL Speakeasy Lounge	
		Mfr:	Kohler		
		Model #:	K-8223-CM7		
		Finish:	Matte Graphite		
**PF	BOH** PLUMBING FIXTURES				
PF-14		Product:	ADA BOTTLE FILLING STATION AND WATER FOUNTAIN	Fitness Center	WATER TO BE FILTERED AND REFRIGERATED
		Mfr:	ELKAY		
		Model #:	LZWS-LRPBM28K		
		Finish:	STAINLESS STEEL		
PF-15		Product:	SINK	Amenity Roof Bathrooms, BOH Bathrooms	ADA COMPLIANT, WALL-HUNG
		Mfr:	AMERICAN STANDARD		
		Model #:	"LUCERNE" 0356.041		
		Finish:	VITREOUS CHINA, WHITE		
		Size:	15"W x 10"L x 6-1/2"D		
PF-16		Product:	JANITOR'S SINK	Janitor's Closet	SINGLE COMPARTMENT, FLOOR MOUNTED
		Mfr:	ELKAY		
		Model #:	RIGIDBILT RNSF81182		
		Finish:	STAINLESS STEEL		
		Size:	27" x 29-3/4" x 12-3/4"		
PF-17		Product:	JANITOR'S SINK FAUCET	Janitor's Closet	COMMERICAL SERVICE/UTILITY WALL MOUNT FAUCET W/BUCKET HOOK
		Mfr:	ELKAY		
		Model #:	LK99401C		
		Finish:	ROUGH CHROME		

1 PLUMBING FIXTURES SCHEDULE
SCALE: NTS

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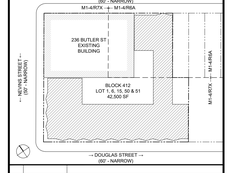
KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	11.04.2024	100% INTERIOR CD ISSUANCE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT

251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE

PLUMBING & APPLIANCE SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-13
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-608.00

CADD FILE No.:
159 OF 235

TYPE		DESCRIPTION		LOCATION	NOTES
**EQ	INTERIOR EQUIPMENT**				
EQ-01		Product: Mfr: Model#: Finish: Size: Color:	9 Unit Mailbox Florence Corporation 4CADD-09 / Recessed Mount Powder Coat - PT-11	Mailroom	GC to ensure mailboxes are installed to meet ADA and USPS requirements.
EQ-02		Product: Mfr: Model#: Finish: Size: Color:	Smart Package Room Access System Position Imaging - TBD TBD TBD	Package Room & Package Room Entry	GC to provide power and data as needed. System to be installed per manufacturer guidelines. Control access panel to be mounted at ADA permissable height
EQ-03	N.I.U	Product: Mfr: Model#: Finish: Size: Color:	NOT IN USED	–	–
EQ-04	N.I.U	Product: Mfr: Model#: Finish: Size: Color:	NOT IN USED	–	–
EQ-05	N.I.U	Product: Mfr: Model#: Finish: Size: Color:	NOT IN USED	–	–
EQ-06		Product: Mfr: Model#: Finish: Size: Color:	Basketball Hoop and Backboard Draper Inc Custom Assembly TBD Rectangular 72" x 42" Backboard TBD	Basketball Court	GC to coordinate mounting system and blocking support requirements with manufacturer.
EQ-07		Product: Mfr: Model#: Finish: Size: Color:	Gym Fitness Equipment - - - - Black	3rd Floor Fitness	To be provided by Fitness Consultant. See spec for blocking, power & data requirements.
EQ-08	N.I.U	Product: Mfr: Model#: Finish: Size: Color:	NOT IN USED	–	–
EQ-09A		Product: Mfr: Model#: Finish: Size: Color:	Ballet Barre Custom Barres WD_ASH1.6_06 Clear Finish 1 5/8" (DIA) 15'-0" (L) -	3rd Floor Active Flexible Room	No Bevels
EQ-09B		Product: Mfr: Model#: Finish: Size: Color:	Floor Mounted Barre Bar Custom Barres SFM-KIT-12FT-5BKTS Black - Circule base plate, Slim Saddle Frappe Floor Brackets, 1 5/8" (DIA) Oak Wood Barres and Black Metal	3rd Floor Active Flexible Room	Provide Blocking and Spacing as required.
EQ-10		Product: Mfr: Model#: Finish: Size: Color:	Wall Mounted TV TBD by Ownership - Black		FFA Recommends 75" Size. Provide Blocking and Spacing as required.
EQ-11		Product: Mfr: Model#: Finish: Size: Color:	Mechanical Shades TBD by Ownership -	3rd Floor Kids Room & Cowork Lounge	Provide Blocking and Spacing as required.
EQ-12		Product: Mfr: Model#: Finish: Size: Color:	Manual Decorative Drapes	15th Floor Speakeasy Lounge	Provide Blocking and Spacing as required.

1 INTERIOR EQUIPMENT SCHEDULE
SCALE: NTS

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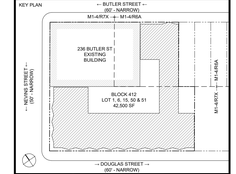
ACOUSTIC

KEY PLAN



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02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
INTERIOR EQUIPMENT SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-11
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-609.00

CADD FILE No.:

TYPE	DESCRIPTION	CAD SYMBOL	LUMINAIRE MANUF.	LUMINAIRE PART NUMBER	TOTAL WATTS	VOLTS	TRANSFORMER/ DRIVER	LAMP MANUFACTURER	LAMP INFO	# LAMPS	LAMP WATTS	CONTROL TYPE	MOUNTING	LOCATION	NOTES
LA-105	CEILING RECESSED DUAL ADJUSTABLE DOWNLIGHT 40° BEAM SPREAD		TECH LIGHTING	E6R-L-LO-WD-40-DA-I (HOUSING TO BE CONFIRMED BY GC)-DRIVER +TRIM-E3R-L-B-0-W (ID TO VERIFY) +140MR16SF+353E4LEDCOPT-60	24 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	24 W	0-10V	RECESSED	PUBLIC SPACES THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY CEILING DEPTH AND TYPE PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING
LA-106A	RECESSED IN NICHE MILLWORK ADJUSTABLE ACCENT LIGHT 36° BEAM SPREAD		ZANIBONI	D1-LUN10-07-27-B-3-X-WS (ID TO VERIFY)-Z-RM (GC TO VERIFY FOR MILLWORK INSTALL)-O	7 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	7 W	0-10V	RECESSED	GROUND FLOOR LOBBY @ ART NICHE	GC TO VERIFY MILLWORK CEILING DEPTH AND TYPE WITH HOUSING SUGGESTED FOR PROPER CEILING CONDITIONS EE TO VERIFY VOLTAGE GC TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR LOW END FLICKER FREE DIMMING ID TO VERIFY FINISH
LA-106B	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40° BEAM SPREAD		TECH LIGHTING	E3R-L-LH-WD-40-A-I (HOUSING TO BE CONFIRMED BY GC)-DRIVER +TRIM-E3R-L-B-0-W (ID TO VERIFY) +140MR16SF+353E4LEDCOPT-60	17 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	17 W	0-10V	CEILING RECESSED	PUBLIC SPACES THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING
LA-106C	CONCRETE RECESSED DOWNLIGHT / PINHOLE TRIM 40° BEAM SPREAD		DMF LIGHTING	HOUSING-DRDH-N-JC (CONCRETE HOUSING TO BE CONFIRMED BY GC)-INTEGRATED MODULE-DRDM -10-3-3W-FL-D (0-10V), TRIM-DRD27-R-JD-P-WH-DRD2X-SF SOFT FOCUS LENS	12.5 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	12.5 W	0-10V	RECESSED	PUBLIC SPACES THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY CEILING DEPTH AND TYPE PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING FIXTURE INTENDED TO BE EMBEDDED IN CONCRETE - COORDINATION REQUIRED AMONGST TRADES
LA-106D	WOOD CEILING RECESSED ADJUSTABLE DOWNLIGHT 40° BEAM SPREAD		TECH LIGHTING	E3R-L-LH-WD-40-A-I (HOUSING TO BE CONFIRMED BY GC)-DRIVER +TRIM-E3R-L-B-0-W (ID TO VERIFY) +140MR16SF+353E4LEDCOPT-60	17 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	17 W	0-10V	CEILING RECESSED	PUBLIC SPACES THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING
LA-101	RECESSED ADJUSTABLE DOWNLIGHT 40° BEAM SPREAD		ELEMENT LIGHTING	E2R-T-LH-9WD-30-A-I-INTEGRATED DRIVERS (0-10V)-E2R-F (TRIM EXTENDERS AS REQUIRED BASED ON COFFER CEILING THICKNESS)-B-L-FINISH PER ID	0 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	W	0-10V	RECESSED	PUBLIC SPACES THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY CEILING DEPTH AND TYPE PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING
LA-102	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC		I2SYSTEMS	CS-12W-18K-40K-H-FC-V-SQ/RECTANGLE PER FIELD DIMENSIONS-MOUNTING CLIPS AS REQUIRED PER LENGTHS	12 W/ft.	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	12 W/ft.	0-10V (2 ZONES)	SURFACE MOUNTED	INDIRECT LIGHT DETAIL ON TOP OF WALL @ DOUGLASS ST	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FINISH DIMENSIONS FOR LENGTHS AND CONFIGURATION EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING FIXTURE REQUIRES 2 ZONES OF 0-10V WIRING FOR CONTROL OF INTENSITY AND COLOR
LA-102A	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC		I2SYSTEMS	CS-08W-27K-H-FX-V-SQ/RECTANGLE PER FIELD DIMENSIONS-MOUNTING CLIPS AS REQUIRED PER LENGTHS	8 W/ft.	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8 W/ft.	0-10V	SURFACE MOUNTED	COVE DETAILS THROUGHOUT 5T.S DOUGLASS ST	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FIELD DIMENSIONS FOR LENGTHS AND CONFIGURATION EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING PROVIDE 0-10V WIRING
LA-102C	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		LUMINII	KSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-SM-KITTED-WITH ID-27K-FINISH PER ID-PSB-OUTPUT PER EE AND CONNECTION POINTS IN CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POCO-CHOKER HDI ED20C BASED ON LENGTHS AND LOCATIONS-24	7.5 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	7.5 W/ft.	0-10V	SURFACE MOUNTED	COVE DETAIL THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED

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LA-117M	TRACK MOUNTED ADJUSTABLE ACCENT LIGHT 37° BEAM SPREAD		JUNIPER	RAS-0111-FINISH (ID TO VERIFY CUSTOM FINISHES)-080-27-M-RAS -0215 HEXCELL AND SOLITE	10 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	10 W	0-10V	TRACK MOUNTED	LOUNGE	ID TO VERIFY CUSTOM FINISHES GC TO VERIFY CEILING CONDITIONS AS NOTED IN SPEC REMOTE POWER SUPPLY IN ACCESSIBLE AND VENTILATED LOCATION
LA-117T	SURFACE MOUNTED TRACK		JUNIPER	MULTIVERSE - CUSTOM COLOR PER LOUNGE LOCATION - LENGTHS AS PER LAYOUTS TO BE VERIFIED WITH FIELD DIMENSIONS AND RCP- CONNECTORS/JOINERS/FEEDS/ET C-AS REQUIRED - REMOTE POWER	0 W/ft.	PER EE	REMOTE ELECT	N/A	N/A	N/A	N/A	0-10V (2 ZONES)	SURFACE MOUNTED	LOUNGE	GC TO VERIFY CEILING CONDITION FOR MOUNTING EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY POWER SUPPLIES SIZE AND QUANTITIES AS REQUIRED ID TO VERIFY FINISH
LA-118	RECESSED PUCKLIGHT		MP LIGHTING	L52-F-2-W27H-N-WA-BZ (ID TO VERIFY)-0-10V DIMMING DRIVER TO 1% - ELDOLED ECODRIVE	2.5 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.5 W	0-10V	RECESSED	LOUNGE MILLWORK	GC TO VERIFY WITH MILLWORK LOCATIONS AND CONDITIONS EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING ID TO VERIFY FINISH REMOTE DIMMABLE POWER SUPPLIES IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED PROVIDE 0-10V WIRING
LA-201	CEILING RECESSED FIXED DOWNLIGHT 40° BEAM SPREAD		ELEMENT	HOUSING-ENCL2R-F-L12-I (GC TO CONFIRM)+TRIM-ENCL2R-F-D-927-W (ID TO VERIFY)-W (ID TO VERIFY)-MOC-SF	12 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	12 W	TRIAC	RECESSED	RESIDENTIAL CORRIDORS THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE WITH CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL
LA-202	RECESSED ADJUSTABLE ACCENT LIGHT		ZANIBONI	D1-LUN10-07-27-B-3-X-WH (ID TO VERIFY)-Z-DD (GC TO VERIFY FOR WOOD CEILING INSTALL)-O	9 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	9 W	0-10V	RECESSED	ELEVATOR LOBBIES (THROUGHOUT)	GC TO VERIFY ELEVATOR CEILING DEPTH AND TYPE WITH HOUSING SUGGESTED FOR PROPER CEILING CONDITIONS EE TO VERIFY VOLTAGE GC TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR LOW END FLICKER FREE DIMMING ID TO VERIFY FINISH PROVIDE 0-10V WIRING
LA-203	CEILING RECESSED FIXED DOWNLIGHT 40° BEAM SPREAD		ELEMENT	HOUSING-ENCL2R-F-L12-I (GC TO CONFIRM)-TRIM-ENCL2R-F-D-927-W-W-MOC-SF	12 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	12 W	TRIAC	RECESSED	RESIDENTIAL UNITS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY CEILING DEPTH AND TYPE WITH HOUSING SUGGESTED GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL
LA-204	CEILING RECESSED DOWNLIGHT - WET RATED 40° BEAM SPREAD		ELEMENT	HOUSING-ENCL2R-F-L12-I (GC TO CONFIRM), TRIM-ENCL2R-F-D-927-W-W-MOC-SF	12 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	12 W	TRIAC	RECESSED	RESIDENTIAL UNITS BATHROOMS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE WITH CEILING CONDITIONS GC TO VERIFY ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL
LA-205	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		DIODE LED	OI-24V-BLBG2-27K-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-SURFACE MOUNTING WITH CABINETBLU-X FACTORY CONNECTORS AND ACCESSORIES AS REQUIRED (CNDI1VE VI ROLLS FOR CURVE SURFACE APPLICATIONS) (ACTUAL LENGTH OF LEDS ON 24V "X" STRIP LENGTH) - CONNECTORS/FEEDS AS REQUIRED	3 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3 W/ft.	ELV	SURFACE MOUNTED	RESIDENTIAL UNITS EXPOSED CEILING KITCHEN UNDERCABINET	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LA-206R	TRACK MOUNTED ADJUSTABLE ACCENT LIGHT WIDE OPTIC 60°		ELCO LIGHTING	E2S-T-W-11-27-W	12.5 W	PER EE	INTEGRAL ELECT	N/A	INTEGRATED LED	1	12.5 W	TRIAC	TRACK MOUNTED	RESIDENTIAL UNITS EXPOSED CEILING KITCHEN	FIXTURE TO BE MOUNTED TO TRACK EE TO VERIFY COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY VOLTAGE
LA-206T	SURFACE MOUNTED SINGLE CIRCUIT TRACK		ELCO LIGHTING	EPD6W-WHITE-KITED PER ED-VOLTAGE PER EELENGTHS AS PER DWGS-FIELD CONDITIONS-GC TO CONFIRM ADDITIONAL JUMPERS, FEEDS, ETC. AS REQUIRED-ADDITIONAL AS REQUIRED FOR PROPER SYSTEM INSTALLATION	0 -	PER EE	INTEGRAL ELECT	N/A	INTEGRATED LED/N/A	1	- -	TRIAC	SURFACE MOUNTED	RESIDENTIAL UNITS EXPOSED CEILING KITCHEN	GC TO VERIFY CEILING CONDITIONS FOR FIXTURE MOUNTING LENGTHS TO BE CONFIRMED BY GC PER FIELD CONDITIONS AND MILLWORK. GC TO COORDINATE MOUNTING + ELECTRICAL HARDWARE AS REQUIRED PROVIDE ALL COMPONENTS/CONNECTORS AS REQUIRED FOR TRACK SOLUTION

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LA-103	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		LUMINII	KSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-SM-KITTED-WITH ID-27K-FINISH PER ID-PSB-OUTPUT PER EE AND CONNECTION POINTS IN CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POCO-CHOKER HDI ED20C BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 W/ft.	0-10V	SURFACE MOUNTED	GROUND FLOOR LOBBY RECEPTION TOE KICK	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LA-103C	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		LUMINII	KSL-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-SM-KITTED-WITH ID-27K-FINISH PER EC BASED ON POWER FEEDS AND CONNECTION POINTS IN CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POCO-CHOKER HDI ED20C BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 W/ft.	0-10V	SURFACE MOUNTED	SHELVING DETAIL	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM GC TO VERIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LA-103D	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		LUMINII	KSL-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-SM-KITTED-WITH ID-27K-FINISH PER EC BASED ON POWER FEEDS AND CONNECTION POINTS IN CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POCO-CHOKER HDI ED20C BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 W/ft.	0-10V	SURFACE MOUNTED	CONVENIENCE STAIR LIGHT DETAIL @ UNION ST	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM GC TO VERIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LA-104	WALL MOUNTED PICTURE LIGHT 72" LENGHT		JUNIPER	PW-7W-2R-14-OVERALL LENGTHS AS PER PICTURE LENGTHS - TO BE COORDINATED WITH ID-27K-FINISH PER ID-PSB-OUTPUT PER EE AND SIZE OF FIXTURE-010-24VDC-0-10V DIMMING	9.6 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	9.6 W/ft.	0-10V	WALL MOUNTED	THROUGHOUT @ ART LOCATIONS	ID TO VERIFY SIZING OF ART PIECES FOR FINAL PICTURE LIGHT LENGTHS FIXTURE TO HAVE MULTIPLE MOUNTING POINTS ON WALL BASED ON LENGTHS GC TO VERIFY PLACEMENT ON WALL WITH ART AND SI PRIOR TO INSTALL OF BACKBOXES PROVIDE 0-10V WIRING
LA-104A	WALL MOUNTED PICTURE LIGHT 36"- LENGHT		JUNIPER	PW-7W-2R-14-OVERALL LENGTHS AS PER PICTURE LENGTHS - TO BE COORDINATED WITH ID-27K-FINISH PER ID-PSB-OUTPUT PER EE AND SIZE OF FIXTURE-010-24VDC-0-10V DIMMING	9.6 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	9.6 W/ft.	0-10V	WALL MOUNTED	THROUGHOUT @ ART LOCATIONS	ID TO VERIFY SIZING OF ART PIECES FOR FINAL PICTURE LIGHT LENGTHS FIXTURE TO HAVE MULTIPLE MOUNTING POINTS ON WALL BASED ON LENGTHS GC TO VERIFY PLACEMENT ON WALL WITH ART AND SI PRIOR TO INSTALL OF BACKBOXES PROVIDE 0-10V WIRING
LA-105	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 25° BEAM SPREAD		MODULAR LIGHTING INSTRUMENTS	MINUDE 1.8-T48V-2L-27K-LM-DY-0 -10V-1-ACHA (ID TO VERIFY)	19.5 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	19.5 W	0-10V	TRACK MOUNTED	WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC.	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING ID TO VERIFY FINISH
LA-105A	PENDANT ACCENT LIGHT 30° BEAM SPREAD		MODULAR LIGHTING INSTRUMENTS	MINUD-SP-1.8-1X-27-M-DP-DE-FINISH (ID TO VERIFY)+NON-IC-RD-DP-010P-350-8+COVER PLATE FOR J-BOX(GC TO CONFIRM PER FIELD CONDITIONS)	8.5 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8.5 W	0-10V	SUSPENDED	TYPICAL ELEVATOR LOBBY @ WOOD SLAT CEILINGS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH PROVIDE 0-10V WIRING
LA-105T	LOW VOLTAGE SUSPENDED TRACK SYSTEM		MODULAR LIGHTING INSTRUMENTS	PISTA-TABU PROF-RFL-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-ASWC1 - CONNECTORS AND FEEDS AS REQUIRED FOR PROPER SYSTEM AND FINISHING COVER FOR AREAS NOT ACCESSIBLE TO CEILING - GC TO VERIFY LOCATIONS/PLY CUTOUT PER EE) + PISTA-TABU CABLE-ED-PN-S (GC TO VERIFY PER FIELD CONDITIONS)	0 W/ft.	PER EE	REMOTE ELECT	N/A	N/A	N/A	0 W/ft.	0-10V	SUSPENDED	WOOD SLAT CEILINGS THROUGHOUT	PROVIDE ALL MOUNTING AND ELECTRICAL HARDWARE AS REQUIRED FOR FULLY FUNCTIONING SYSTEM EE TO VERIFY VOLTAGE GC TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR LOW END FLICKER FREE DIMMING ID TO VERIFY FINISH
LA-106	RECESSED INGRADE UPLIGHT		IGUZZINI	ILUF-50-BLD-827-MH-REM-BRONZE (ID TO VERIFY)-DRIVER XN 1812/350D SNCP/BCX VPD-ADDRESSABLE-DALI-2 (GC TO VERIFY FOR REQUIRED CONNECTIONS AS REQUIRED)-XN 1812/350D SNCP/BCX VPD-ADDRESSABLE-DALI-2 CONNECTION BOX AS REQUIRED - SIZE AND QUANTITY PER EE/GC	3.8 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3.8 W	0-10V	RECESSED IN-GRADE	UNION ST / FITNESS CENTER	GC TO VERIFY FLOOR CONDITIONS FOR PROPER INSTALLATION OF INGRADE FIXTURE EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING ID TO VERIFY FINISH PROVIDE 0-10V WIRING
LA-107	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH ASYMMETRIC		I2 SYSTEMS	C-08-27K-H-V-LENGTHS PER FIELD DIMENSIONS-AW (GC/ID TO VERIFY FINAL CEILING MATERIAL FOR MOUNTING CHANNEL AND ATTACHMENT)	8 W/ft.	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8 W/ft.	0-10V	SURFACE MOUNTED	THROUGHOUT @ WOOD SLATS CEILING COVE DETAIL	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY DIMENSIONS FOR LENGTHS AND CONFIGURATION EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING PROVIDE 0-10V WIRING

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LA-108	CEILING RECESSED DOWNLIGHT 40° BEAM SPREAD		DMF LIGHTING	HOUSING-DRDH-N-JD (HOUSING TO BE CONFIRMED BY GC)-INTEGRATED MODULE-DRDM -10-3-27-FL-D (0-10V), TRIM-DRD2T-R-JD-S-WHGC TO VERIFY)-DRD2X-SF SOFT FOCUS LENS	12.5 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	12.5 W	0-10V	RECESSED	THROUGHOUT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING
LA-109	CEILING RECESSED FIXED ACCENT LIGHT 26° BEAM SPREAD		IGUZZINI	ILAS38 R T IC-HO-927-A MD-REM-02 (ID TO VERIFY)+BI-LAS38 R T-IC(GC TO VERIFY FOR ELEVATOR CAB INSTALL)	6.5 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	6.5 W	0-10V	RECESSED	TYPICAL ELEVATOR CAB	GC TO VERIFY ELEVATOR CEILING DEPTH AND TYPE WITH HOUSING SUGGESTED FOR PROPER CEILING CONDITIONS EE TO VERIFY VOLTAGE GC TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEMFOR LOW END FLICKER FREE DIMMING ID TO VERIFY FINISH PROVIDE 0-10V WIRING
LA-110	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		LUMINII	KSJ-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-SM-KITTED-WITH ID-27K-FINISH PER EC BASED ON POWER FEEDS AND CONNECTION POINTS IN CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER ED20C BASED ON LENGTHS AND LOCATIONS-24	3.2 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3.2 W/ft.	0-10V	SURFACE MOUNTED	ELEVATOR CAB VERTICAL LIGHT DETAIL	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LA-111	CEILING RECESSED LINEAR LED FIXTURE		XAL	BASO 2.5-RTR-WH (ID TO VERIFY)-OP-30K-C80-UNV-010V-0750LF-SINGLE CIRCUIT-LINEAR - LENGTHS AS PER DWGS-MOUNTING AND ELECTRICAL HARDWARE AS REQUIRED	7 W/ft.	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	7 W/ft.	0-10V	CEILING RECESSED	GROUND FLOOR - BIKE ROOM. SUPER OFFICE. MANAGERS OFFICE.	EE TO VERIFY CEILING DEPTH AND TYPE WITH HOUSING PRIOR TO RELEASE FOR COMPATIBILITY EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING PROVIDE 0-10V WIRING
LA-111A	SUSPENDED LINEAR LED FIXTURE		XAL	BASO 2.5-PDT-WH (ID TO VERIFY)-OP-30K-C80-UNV-010V-0750LF-SINGLE CIRCUIT-LINEAR - LENGTHS AS PER DWGS-MOUNTING AND ELECTRICAL HARDWARE AS REQUIRED	7 W/ft.	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	7 W/ft.	0-10V	SUSPENDED	GROUND FLOOR - BIKE ROOM. SUPER OFFICE	GC TO VERIFY CEILING TYPE FOR COMPATIBILITY WITH SUSPENDING EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING PROVIDE 0-10V WIRING
LA-112	SURFACE MOUNTED LINEAR LED FIXTURE		FLUXWERX	PF6-A-B-D-93-W (ID TO VERIFY)-LENGTHS AS PER DRGS-FIELD DIMENSIONS-S (GC TO VERIFY)-H1-M-00-MOUNTING AND ELECTRICAL HARDWARE AS REQUIRED	9 W/ft.	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	9 W/ft.	0-10V	SURFACE MOUNTED	GROUND FLOOR @ BASKETBALL COURT	GC TO VERIFY CEILING TYPE FOR COMPATIBILITY WITH SUSPENDING EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING ID TO VERIFY FINISH PROVIDE 0-10V WIRING
LA-113	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE		LUMINII	KSJ-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-2700-27K-F-XX-SM-KITTED-WITH ID-27K-FINISH PER EC BASED ON POWER FEEDS AND CONNECTION POINTS IN CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POCO-CHOKER HDI ED20C BASED ON LENGTHS AND LOCATIONS-24	4.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	4.8 W/ft.	0-10V	SURFACE MOUNTED	VERTICAL L

TYPE	DESCRIPTION	CAD SYMBOL	LUMINAIRE MANUF.	LUMINAIRE PART NUMBER	TOTAL WATTS	VOLTS	TRANSFORMER/ DRIVER	LAMP MANUFACTURER	LAMP INFO	# LAMPS	LAMP WATTS	CONTROL TYPE	MOUNTING	LOCATION	NOTES
LD-113	DECORATIVE CUSTOM PENDANT		LUKE LAMP CO	TL-CC-LOOP SIZE AND LENGTHS TBD 299-27-LINK-SP-S-CONNECTION POINTS-CONNECTORS AND MOUNTING CUPS AS REQUIRED PER DETAILS-FINISH OPTIONS PER ESDC BASED ON LUMEN/FIN AND LOCATIONS-LR	3.7 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3.7 Wft.	0-10V	CEILING SUSPENDED	UNION ST @ ROOF	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LD-115	DECORATIVE PENDANT		RBW	GALA PENDANT-BULB SIZE TBD BY ID-FINISH BY ID	9 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	9 W	TRIAC	SUSPENDED	DOUGLASS ST @ 15TH FLOOR AMENITIES	GC TO VERIFY CEILING TYPE FOR COMPATIBILITY WITH SUSPENSION KIT EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING
LD-201	WALL MOUNTED DECORATIVE SCONCE		RICH BRILLIANT WILLING	PAS-D-FINISH PER ID - ALLOW FOR DIFFERENT LENGTHS PER FIELD DIMENSIONS AND TO ALLOW FOR PROPER CUSTOM LIT FITTING FLIP-UP NUMBERING (ID TO VERIFY)	7.5 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	7.5 Wft.	TRIAC	SURFACE MOUNTED	TYPICAL GUESTROOM CORRIDORS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL GC TO VERIFY WALL CONDITIONS FOR MOUNTING
LD-202	LINEAR VANITY SCONCE		SONNEMAN LIGHTING	3774.21-LENGTHS AS PER DWGS AND FIELD DIMENSIONS-SEE ELEVATIONS TO VERIFY MOUNTING CONDITION WITH WALL	22 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	22 W	ELV	WALL MOUNTED	RESIDENTIAL UNITS BATHROOM	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL GC TO VERIFY WALL CONDITIONS FOR MOUNTING
LX-100	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - TOE KICK DETAILS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-101	STAKE MOUNTED ADJUSTABLE UPLIGHT		HEVILITE	HL-360-BK (ID TO VERIFY)-8LED-E-NF-12-GL-11-LA-1 (HEXCELL LOUVER)-LA-4/SOFT FOCUS LENS)-GM-1-N + HLT-SIZE PER EE-VOLT PER EE	8 W	PER EE	REMOTE MAG	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8 W	MLV	STAKE MOUNTED	EXTERIOR AMENITIES - TREE LOCATIONS	LANDSCAPE AND GC TO VERIFY ALL LOCATIONS ARE SUITABLE FOR STAKE MOUNT FIXTURE WITH PLANTER DEPTHS AND GROUND CONDITION EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING REMOTE POWER SUPPLY TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED PROVIDE EXTRA WIRE FOR MOVEMENT OF FIXTURE
LX-102	RECESSED IN WALL STEPLIGHT		HUNZA	SLS/L-S-E/8Z (ID TO VERIFY)-25-27-DKCAN/SLCAN/CANSS (GC TO VERIFY BASED ON MOUNTING CONDITION) + ROSCO 114 CTO GLASS FILTER FOR 2400K APPEARANCE-REMOTE 0-10V DIMMING DRIVER FROM	6 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	6 W	0-10V	RECESSED IN WALL	EXTERIOR AMENITY - PLANTERS THROUGHOUT	VERIFY PLACEMENT IN PLANTER AND MATERIAL OF INSTALLATION PRIOR TO ORDER FOR PROPER DEPTH EE TO VERIFY POWER SUPPLY IS ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING
LX-103	SUSPENDED DECORATIVE PENDANT		TBD	TBD PER ID/BOLD	25 W	120V	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	25 W	LINE	SUSPENDED	EXTERIOR AMENITY	ALLOW FOR 25W AND DIMMING AS PER SPEC
LX-104	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - TOE KICK DETAILS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-105	SURFACE MOUNTED DECORATIVE SCONCE		TBD	TBD PER ID/BOLD	25 W	120V	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	25 W	LINE	SURFACE MOUNTED	EXTERIOR AMENITY - SCONCES	ALLOW FOR 25W AND DIMMING AS PER SPEC

TYPE	DESCRIPTION	CAD SYMBOL	LUMINAIRE MANUF.	LUMINAIRE PART NUMBER	TOTAL WATTS	VOLTS	TRANSFORMER/ DRIVER	LAMP MANUFACTURER	LAMP INFO	# LAMPS	LAMP WATTS	CONTROL TYPE	MOUNTING	LOCATION	NOTES
LX-115	SURFACE MOUNTED DECORATIVE EXTERIOR FLOOR LIGHT		TBD	TBD PER ID/BOLD	25 W	120V	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	25 W	LINE	GROUND MOUNTED	EXTERIOR AMENITY - THROUGHOUT	ALLOW FOR 25W AND DIMMING AS PER SPEC
LX-116	SURFACE MOUNTED ADJUSTABLE ACCENT LIGHTS		HEVILITE	HL-360-BK (ID TO VERIFY)-8LED-E-NF-12-GL-11-LA-1 (HEXCELL LOUVER)-LA-4/SOFT FOCUS LENS)-WM-1-BK (ID TO VERIFY) + HLT-SIZE PER EE-VOLT PER EE	8 W	PER EE	REMOTE MAG	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8 W	MLV	SURFACE MOUNTED	EXTERIOR AMENITIES - TRELLIS MOUNTED LIGHT	GC TO VERIFY ALL LOCATIONS ARE SUITABLE FOR MOUNTING WITH TRELLIS STRUCTURE AND WIRING. EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING REMOTE POWER SUPPLY TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-117	SUSPENDED DECORATIVE PENDANT		TBD	TBD PER ID/BOLD	25 W	120V	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	25 W	LINE	SUSPENDED	EXTERIOR AMENITY - TRELLIS OVER CO-WORKING AREA	ALLOW FOR 25W AND DIMMING AS PER SPEC
LX-118	SURFACE MOUNTED CURVABLE LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	830MLF-IX-24K-STARTEND FEEDS AS PER FIELD CONDITION &SN-POWER FEED LOCATIONS - CONNECTORS AS REQUIRED PER DIMENSIONS-CONNECTORS AND MOUNTING CLIPS 1800 MAY HOST 5M 48"-60"-80"-96"-NOW AVAILABLE IN 120" LENGTHS-LENGTHS AND QUANTITY PER FEEDS- LOCATIONS-24	3.66 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3.66 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - CURVABLE TOE KICK DETAILS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-119	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - STRUCTURE ROOF UPLIGHTING	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-120	POLE OR TREE MOUNTED STRINGLIGHTS		PRIMUS	DSW-18-120-LAMP PER SPEC-TERMINATION KITS AS REQUIRED - LENGTHS AS PER FIELD DIMENSIONS AND TO ALLOW FOR PROPER SWAG	1 W/ft.	120V	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	S14-24-150	1	1 Wft.	ELV	SUSPENDED	EXTERIOR AMENITIES SPACE - STRINGLIGHTS	PROVIDE PROPER MOUNTING HARDWARE AND TERMINATION KITS FOR FULLY FUNCTIONING STRING LIGHT ASSEMBLY GC TO VERIFY MOUNTING LOCATIONS WITH TREES AND POLES IF REQUIRED EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING
LX-121	WALL MOUNTED DUAL HEAD ADJUSTABLE FLOOD LIGHT 40° BEAM SPREAD		ECOSENSE	F170-2V-HO-27-9-40-Z (ID TO VERIFY FINISH)-F-C +RISE-MULTI-SMP-Z (GC TO VERIFY MOUNTING CONDITION WITH WALL) (ID TO VERIFY FINISH)	78 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	78 W	ELV	SURFACE MOUNTED	EXTERIOR AMENITY - TENNIS COURT	GC TO VERIFY WALL CONDITION FOR PROPER MOUNTING EE TO VERIFY VOLTAGE AND DIMMING COMPATIBILITY WITH CONTROL SYSTEM
LX-122	STAKE MOUNTED ADJUSTABLE UPLIGHT		HEVILITE	HL-360-BK (ID TO VERIFY)-8LED-E-NF-12-GL-11-LA-1 (HEXCELL LOUVER)-LA-4/SOFT FOCUS LENS)-GM-1-N + HLT-SIZE PER EE-VOLT PER EE	8 W	PER EE	REMOTE MAG	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8 W	MLV	STAKE MOUNTED	EXTERIOR AMENITIES - POLE STRUCTURE AT YOGA	LANDSCAPE AND GC TO VERIFY ALL LOCATIONS ARE SUITABLE FOR STAKE MOUNT FIXTURE WITH PLANTER DEPTHS AND GROUND CONDITION EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING REMOTE POWER SUPPLY TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED PROVIDE EXTRA WIRE FOR MOVEMENT OF FIXTURE
LX-123	RECESSED INGRADE UPLIGHTS		IGUZZINI	ILUF-50-8O-827-MH-RSM-15-049D-XX (ID TO VERIFY FLOOR TYPE PRIOR TO RELEASE) CONNECTORS AS REQUIRED-EL TO EXCEED 15 UNMKV DRIVER-CONNECTION BOX AS REQUIRED - SIZE AND QUANTITY PER ESDC	3.8 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3.8 W	0-10V	RECESSED IN-GRADE	EXTERIOR CANOPY UPLIGHTING GROUND FLOOR ENTRY	GC TO VERIFY FLOOR CONDITIONS FOR PROPER INSTALLATION OF IN-GRADE FIXTURE EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING EL TO VERIFY FINISH PROVIDE 0-10V WIRING
LX-125	WALL MOUNTED DECORATIVE SCONCE		SONNEMAN LIGHTING	SNNS26343	13 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	13 W	ELV	SURFACE MOUNTED	TYPICAL GUESTROOM CORRIDORS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL GC TO VERIFY WALL CONDITIONS FOR MOUNTING

TYPE	DESCRIPTION	CAD SYMBOL	LUMINAIRE MANUF.	LUMINAIRE PART NUMBER	TOTAL WATTS	VOLTS	TRANSFORMER/ DRIVER	LAMP MANUFACTURER	LAMP INFO	# LAMPS	LAMP WATTS	CONTROL TYPE	MOUNTING	LOCATION	NOTES
LX-106	WALL MOUNTED ADJUSTABLE ACCENT LIGHT 40° BEAM SPREAD		ECOSENSE	F080-1R-HO-27-8-40-Z (ID TO VERIFY)-H-C (GC TO VERIFY MOUNTING CONDITION WITH WALL) +RISE-CANOPY-04-Z (ID TO VERIFY FINISH)	11.5 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	11.5 W	ELV	SURFACE MOUNTED	EXTERIOR AMENITY - WALL MOUNTED ACCENTS	GC TO VERIFY WALL CONDITION FOR PROPER MOUNTING EE TO VERIFY VOLTAGE AND DIMMING COMPATIBILITY WITH CONTROL SYSTEM
LX-106A	TREE MOUNTED ADJUSTABLE FLOOD LIGHT 40° BEAM SPREAD		ECOSENSE	F080-1R-HO-27-8-40-Z (ID TO VERIFY)-H-B+RISE-TMS-TB-V653 (GC/ LANDSCAPE ARCHITECT TO VERIFY MOUNTING CONDITIONS WITH TREES	11.5 W	PER EE	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	11.5 W	ELV	TREE MOUNTED	EXTERIOR AMENITY - WALL MOUNTED ACCENTS	GC/ LANDSCAPE ARCHITECT TO VERIFY TREES CONDITIONS FOR PROPER MOUNTING EE TO VERIFY VOLTAGE AND DIMMING COMPATIBILITY WITH CONTROL SYSTEM
LX-107	STAKE MOUNTED ADJUSTABLE PATHLIGHTS		SPJ LIGHTING	SPJ18-16-F/INISH PER ID-3W-WIDE ANGLE FLOOD-350-2700K-8-15V-REMOTE DIMMABLE POWER SUPPLY (PHASE DIMMING REQUIRED)	3 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3 W	PHASE	STAKE MOUNTED	EXTERIOR AMENITY - PATHLIGHTS	LANDSCAPE AND GC TO VERIFY ALL LOCATIONS ARE SUITABLE FOR STAKE MOUNT FIXTURE WITH PLANTER DEPTHS AND GROUND CONDITION REMOTE POWER SUPPLY TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED PROVIDE EXTRA WIRE FOR MOVEMENT OF FIXTURE
LX-108	SURFACE MOUNTED DECORATIVE EXTERIOR FLOOR LIGHT		TBD	TBD PER ID/BOLD	25 W	120V	INTEGRAL ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	25 W	LINE	GROUND MOUNTED	EXTERIOR AMENITY - PLANTERS	ALLOW FOR 25W AND DIMMING AS PER SPEC
LX-109	SURFACE MOUNTED ADJUSTABLE LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	4.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	4.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - LINEAR PLANT UPLIGHTS	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-110	SURFACE MOUNTED ADJUSTABLE LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - TASK LIGHT AT BAR	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-111	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - BAR DIE WALL LIGHT	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-112	RECESSED INGRADE UPLIGHTS		IGUZZINI	ILUF-50-8O-827-MH-RSM-BRONZE (ID TO VERIFY FINISH) (ID TO VERIFY FLOOR TYPE PRIOR TO RELEASE) CONNECTORS AS REQUIRED-EL TO EXCEED 15 UNMKV DRIVER-CONNECTION BOX AS REQUIRED - SIZE AND QUANTITY PER ESDC	3.8 W	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	3.8 W	0-10V	RECESSED IN-GRADE	EXTERIOR AMENITY - ROOFTOP	GC TO VERIFY FLOOR CONDITIONS FOR PROPER INSTALLATION OF IN-GRADE FIXTURE EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING EL TO VERIFY FINISH PROVIDE 0-10V WIRING
LX-113	SURFACE MOUNTED ADJUSTABLE ACCENT LIGHTS		HEVILITE	HL-360-BK (ID TO VERIFY)-8LED-E-NF-12-GL-11-LA-1 (HEXCELL LOUVER)-LA-4/SOFT FOCUS LENS)-WM-1-BK (ID TO VERIFY) + HLT-SIZE PER EE-VOLT PER EE	8 W	PER EE	REMOTE MAG	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	8 W	MLV	SURFACE MOUNTED	EXTERIOR AMENITIES - TRELLIS MOUNTED LIGHT	GC TO VERIFY ALL LOCATIONS ARE SUITABLE FOR MOUNTING WITH TRELLIS STRUCTURE AND WIRING. EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING REMOTE POWER SUPPLY TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED
LX-114	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE - WET LOCATION RATED		LUMINII	*SSN-LENGTHS AS PER DWGS AND FIELD DIMENSIONS (TECH-F-FLOATED) ADDITION PER EC BASED ON POWER FEEDS AND CONNECTION POINTS-NON-CONNECTORS AND MOUNTING CLIPS AS REQUIRED PER DETAIL-POLICY-POWER DOC ESDC BASED ON LENGTHS AND LOCATIONS-24	2.8 W/ft.	PER EE	REMOTE ELECT	PER FIXTURE MANUFACTURER	INTEGRATED LED	1	2.8 Wft.	0-10V	SURFACE MOUNTED	EXTERIOR AMENITIES - TOE KICK AT PARAPET WALL	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE GC TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS

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GENERAL NOTES

1. Electrical Contractor responsible for verification of all run length configurations and quantities. All continuous run lengths must be continuously illuminated,hairline seams only, unless otherwise noted.
2. Electrical Contractor to verify all voltages, lamp types, field measurements, etc as required.
3. Electrical Contractor to field verify all mounting conditions and provide all hardware necessary to complete installation for full system operation.
4. Electrical Contractor shall verify the type of ceiling, coordinated with architectural and/or electrical drawings prior to purchase of fixtures.
5. Electrical Contractor must comply with maximum do not exceed remote distance of power supplies per manufacturers recommendation.
6. By bidding on this lighting design package, the Contractor acknowledges that lead times for fixtures can range from 2-8 weeks. BOLD will not approve or accept substitutions resulting from the Electrical Contractor's failure to account for lead times.
7. All remote transformers shall be located at an accessible, sound attenuated, ventilated location where indicated on the electrical drawings.
8. The client shall not hold consultant liable for re-design services due to cost overruns if they choose not to define targeted budgets.
9. Manufacturer must provide shop drawings for all continuously illuminated run lengths or custom sized panels, to be coordinated with architectural and/or electrical drawings.
10. Distributors must provide anticipated ship dates upon return of approved lighting fixture submittals.
11. Distributors must provide manufacturer-verified lead times based on fixture quantities.
12. Distributors must provide broken down unit prices by type. Bids that do not include-unit pricing will be rejected as incomplete.
13. All emergency related electrical characteristics must be verified by the Electrical Engineer or Electrical Contractor.
14. All LED Retrofit lamps on dimming system must be for 120v only. For high-voltage applications, Electrical Contractor must verify with manufacturer prior to specification and purchase of system.
15. See architectural and/or electrical drawings for fixture locations, quantities and/or run length configurations. BOLD is not responsible for final locations, quantities and/or run length configurations.
16. Manufacturer labels shall be turned away from public view. No construction notations shall be visible in areas exposed to public view.
17. All lighting fixtures shall be supplied with lamps, color filters and accessories as specified.
18. Electrical Contractor to replace all lamps with new lamps at the end of construction phase prior to commissioning phase and owner occupancy or project opening.
19. All measurements indicated in BOLD lighting plans are approximate. Electrical contractor is required to make field measurements based on actual site conditions to develop complete orders and install systems per drawings and specifications.
20. Electrical Engineer must provide required compatibility interfaces, if required, for compatibility to selected lighting control system.
21. All lighting fixtures installed in architectural details and/or millwork details must be confirmed and installed per BOLD recommended criteria (ie. aperture opening, visual cutoff angles, aiming angles, etc.).
22. All lighting fixture finishes to be reviewed and approved by Architect and/or Interior Designer prior to purchase.

ABBREVIATED TERMS

LINE - LINE VOLTAGE DIMMABLE
ELV- REVERSE-PHASE ELECTRONIC LOW VOLTAGE DIMMING
FWD ELV- FORWARD-PHASE ELECTRONIC LOW VOLTAGE DIMMING
MLV- MAGNETIC LOW VOLTAGE (FORWARD PHASE) DIMMING
DMX- DMX512 CONTROL
DALI- DALI CONTROL
2-WIRE- LUTRON 2-WIRE DIMMING
3-WIRE- LUTRON 3-WIRE DIMMING
ECO- LUTRON ECOSYSTEM
NON-DIM- NON-DIMMING or SWITCHED
0-10V- 0-10V DIMMING
VIF- VERIFY IN FIELD
TBD- TO BE DETERMINED
TBC- TO BE CONFIRMED

1 LIGHTING SCHEDULE
SCALE: N/A

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
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MEP ENGINEER
ETTINGER ENGINEERING ASSOCIATES
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FACADE
HATFIELD GROUP
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NEW YORK, NY 10013

ELEVATOR
JENKINS HUNTINGTON
5 CLIMAX ROAD
AVON, CT 06001

LIGHTING
BOLD
227 WEST 29TH STREET, 8TH FLOOR
NEW YORK, NY 10001

CIVIL ENGINEER
PHILIP HABIB & ASSOCIATES
102 MADISON AVE #11
NEW YORK, NY 0016

LANDSCAPE
GRAIN COLLECTIVE
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ELMSFORD, NY 10523

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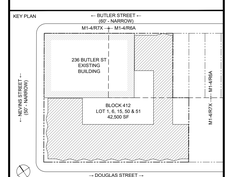
NEW YORK, NY 10007

ACOUSTIC:

KEY PLAN



No.	DATE	ISSUE
09	12.13.2024	ULE REDESIGN - INTERIORS CD
08	11.04.2024	BULLETIN #1 - ULE REDESIGN
07	11.04.2024	100% INTERIOR CD ISSUANCE
06	10.07.2022	100% CD ISSUANCE
05	08.05.2022	80% CD ISSUANCE
04	06.17.2022	50% CD ISSUANCE
03	03.18.2022	DD ISSUANCE
02	10.29.2021	ISSUED TO DOB
01	07.23.2021	SD ISSUANCE

PROJECT
251 DOUGLASS STREET
BROOKLYN, NY 11217

DRAWING TITLE
LIGHTING SCHEDULE

SEAL & SIGNATURE

DATE (MM-DD-YY): 2024-12-13
PROJECT No.: TAV_251 DOUGLASS ST
DRAWING BY: FFA
CHK BY: FFA

A-611.00

CADD FILE No.:
162 OF 235

BOLD

ZONE SCHEDULE
251 DOUGLASS STREET
12/04/2024

LOCATION	ZONE	DESCRIPTION	FIXTURE TYPE	LAMP/ SOURCE TYPE	LOAD TYPE	DRIVER TYPE	DIMMING	FIXTURE WATTS	QTY.	TOTAL WATTS	NOTES	REV.
3RD FLOOR												
FITNESS (301)												
3RD FLOOR @ EXERCISE ROOM	**301-01**	SUSPENDED CIRCULAR DRUM LED FIXTURE	LA-114	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	34.0w	18	612.0w	GC TO VERIFY CEILING TYPE FOR COMPATIBILITY WITH SUSPENSION KIT. EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING. ID TO VERIFY FINISH PROVIDE 0-10V WIRING	
VERTICAL LIGHT DETAIL @ BASKETBALL COURT / EXERCISE ROOM	**301-02**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-113	INTEGRATED LED	0-10V	REMOTE ELECT	D	4.8 w/ft.	208	998.4 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
PUBLIC SPACES THROUGHOUT	**301-03**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	2	34.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
FITNESS RESTROOM												
PUBLIC SPACES THROUGHOUT	**301-04**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	1	17.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC	**301-05**	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 26] BEAM SPREAD	LA-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	19.5w	2	39.0w	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING. ID TO VERIFY FINISH	
									TOTAL WATTAGE:	**1,700.4w**		
YOGA (302)												
INDIRECT LIGHT DETAIL ON TOP OF WALL @ DOUGLASS ST	**302-01**	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC OPTIC	LA-102	INTEGRATED LED	0-10V (2 ZONES)	INTEGRAL ELECT	D	12.0 w/ft.	69.2	830.4 w/ft.	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FIELD DIMENSIONS FOR LENGTHS AND CORNERS EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING FIXTURE REQUIRES 2 ZONES OF 0-10V WIRING FOR CONTROLS OF INTENSITY AND COLOR	
PUBLIC SPACES THROUGHOUT	**302-02**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	12	204.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
									TOTAL WATTAGE:	**1,034.4w**		
CORRIDOR (C03)												
WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC	**C03-01**	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 26] BEAM SPREAD	LA-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	19.5w	25	487.5w	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING. ID TO VERIFY FINISH	
TYPICAL CORRIDOR @ VERTICAL LIGHT DETAIL	**C03-04**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-209	INTEGRATED LED	0-10V	REMOTE ELECT	D	3.2 w/ft.	48	153.6w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC	**C03-05**	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 26] BEAM SPREAD	LA-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	19.5 w/ft.	4	78.0w	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING. ID TO VERIFY FINISH	
CORRIDOR RESTROOM												
PUBLIC SPACES THROUGHOUT	**C03-02**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	1	17.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
DOUGLASS & UNION ST @ AMENITY RESTROOMS	**C03-03**	WALL MOUNTED VANITY SCONCE	LD-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	6.8w	1	6.8w	GC TO VERIFY WALL CONDITIONS FOR MOUNTING EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING PROVIDE 0-10V WIRING	
									TOTAL WATTAGE:	**742.9w**		
KIDS (303)												
DOUGLASS ST @ FAMILY ROOM	**303-01**	DECORATIVE SURFACE MOUNT	LD-104	G16 G-SHAPED LED - TBD	TRIAC	INTEGRAL ELECT	D	15.0w	6	90.0w	ID TO VERIFY FINISH EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING	
PUBLIC SPACES THROUGHOUT	**303-02**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	6	102.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
SHELVING DETAIL	**303-03**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	20.2	56.6 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
									TOTAL WATTAGE:	**248.6w**		

12/04/2024

LOCATION	ZONE	DESCRIPTION	FIXTURE TYPE	LAMP/ SOURCE TYPE	LOAD TYPE	DRIVER TYPE	DIMMING	FIXTURE WATTS	QTY.	TOTAL WATTS	NOTES	REV.
INDIRECT LIGHT DETAIL ON TOP OF WALL @ DOUGLASS ST	**305-10**	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC OPTIC	LA-102	INTEGRATED LED	0-10V (2 ZONES)	INTEGRAL ELECT	D	12.0 w/ft.	5	60.0 w/ft.	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FIELD DIMENSIONS FOR LENGTHS AND CORNERS EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING FIXTURE REQUIRES 2 ZONES OF 0-10V WIRING FOR CONTROLS OF INTENSITY AND COLOR	
									TOTAL WATTAGE:	**620.6w**		
15TH FLOOR												
SPEAKEASY (1501)												
PUBLIC SPACES THROUGHOUT	**1501-01**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	3	51.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
PUBLIC SPACES THROUGHOUT	**1501-02**	WOOD CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100D	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	4	68.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
PUBLIC SPACES THROUGHOUT	**1501-03**	WOOD CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100D	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	2	34.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
SHELVING DETAIL	**1501-04**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	9	25.2 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
DOUGLASS ST @ ROOF CO-WORKING	**1501-05**	DECORATIVE WALL SCONCE	LD-107	G8 BI PIN BASE LED BULB - TBD	TRIAC	INTEGRAL ELECT	D	6.0w	2	12.0w	ID TO VERIFY FINISHES GC TO VERIFY WALL CONDITIONS FOR MOUNTING EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING	
SHELVING DETAIL	**1501-06**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	36	100.8 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
SHELVING DETAIL	**1501-07**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	18	50.4 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC	**1501-08**	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 26] BEAM SPREAD	LA-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	19.5w	16	312.0w	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING. ID TO VERIFY FINISH	
AMENITIES - PART OF FF&E PACAKGE	**LOCAL (TABLE LAMP)**	FF&E FIXTURE PACKAGE	LD-XXX	TBD	TBD	TBD	D	10.0w	1	10.0w	FIXTURE SELECTION TBD PER FF&E PACKAGE. ALLOW FOR 10W PER FIXTURE	
AMENITIES - PART OF FF&E PACAKGE	**LOCAL (TABLE LAMP)**	FF&E FIXTURE PACKAGE	LD-XXX	TBD	TBD	TBD	D	10.0w	1	10.0w	FIXTURE SELECTION TBD PER FF&E PACKAGE. ALLOW FOR 10W PER FIXTURE	
									TOTAL WATTAGE:	**673.4w**		
CORRIDOR 2 RESTROOM (1502)												
PUBLIC SPACES THROUGHOUT	**1502-01**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	1	17.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
DOUGLASS & UNION ST @ AMENITY RESTROOMS	**1502-02**	WALL MOUNTED VANITY SCONCE	LD-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	6.8w	2	13.6w	GC TO VERIFY WALL CONDITIONS FOR MOUNTING EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING PROVIDE 0-10V WIRING	
									TOTAL WATTAGE:	**30.6w**		
CORRIDOR (C015)												
RESIDENTIAL CORRIDORS THROUGHOUT	**C015-01**	CEILING RECESSED FIXED DOWNLIGHT 40] BEAM SPREAD	LA-201	INTEGRATED LED	TRIAC	INTEGRAL ELECT	D	12.0w	4	48.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE WITH CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL	
RESIDENTIAL CORRIDORS THROUGHOUT	**C015-02**	CEILING RECESSED FIXED DOWNLIGHT 40] BEAM SPREAD	LA-201	INTEGRATED LED	TRIAC	INTEGRAL ELECT	D	12.0w	6	72.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE WITH CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL	
WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC	**C015-03**	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 26] BEAM SPREAD	LA-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	19.5w	8	156.0w	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING. ID TO VERIFY FINISH	
									TOTAL WATTAGE:	**276.0w**		
									TOTAL WATTAGE:	**7,288.5w**		

12/04/2024

LOCATION	ZONE	DESCRIPTION	FIXTURE TYPE	LAMP/ SOURCE TYPE	LOAD TYPE	DRIVER TYPE	DIMMING	FIXTURE WATTS	QTY.	TOTAL WATTS	NOTES	REV.
CO-WORK LOUNGE (304)												
PUBLIC SPACES THROUGHOUT	**304-01**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	4	68.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
INDIRECT LIGHT DETAIL ON TOP OF WALL @ DOUGLASS ST	**304-02**	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC OPTIC	LA-102	INTEGRATED LED	0-10V (2 ZONES)	INTEGRAL ELECT	D	12.0 w/ft.	67.5	810.0 w/ft.	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FIELD DIMENSIONS FOR LENGTHS AND CORNERS EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING FIXTURE REQUIRES 2 ZONES OF 0-10V WIRING FOR CONTROLS OF INTENSITY AND COLOR	
WOOD SLAT CEILINGS THROUGHOUT - GROUND FLOOR, ELEVATOR LOBBIES, ETC	**304-03**	TRACK MOUNTED DUAL ACCENT LIGHT ASSEMBLY 26] BEAM SPREAD	LA-105	INTEGRATED LED	0-10V	REMOTE ELECT	D	19.5w	42	819.0w	EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE LOW END DIMMING. ID TO VERIFY FINISH	
SHELVING DETAIL	**304-04**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	18	50.4 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
SHELVING DETAIL	**304-05**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	29.2	81.8 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
DOUGLASS ST @ ROOF CO-WORKING	**304-06**	DECORATIVE WALL SCONCE	LD-107	G8 BI PIN BASE LED BULB - TBD	TRIAC	INTEGRAL ELECT	D	6.0w	4	24.0w	ID TO VERIFY FINISHES GC TO VERIFY WALL CONDITIONS FOR MOUNTING EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING	
DOUGLASS ST @ ROOF CO-WORKING	**304-07**	DECORATIVE TABLE TASK LIGHT FIXTURE	LD-108	INTEGRATED LED	INTEGRAL	INTEGRAL ELECT	D	28.8w	2	57.6w	GC TO VERIFY MILLWORK CONDITIONS FOR COMPATIBILITYAND MOUNTING INTEGRATION EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING PROVIDE 0-10V WIRING	
AMENITIES - PART OF FF&E PACAKGE	**304-08**	FF&E FIXTURE PACKAGE	LD-XXX	TBD	TBD	TBD	D	10.0w	1	10.0w	FIXTURE SELECTION TBD PER FF&E PACAKGE. ALLOW FOR 10W PER FIXTURE	
SHELVING DETAIL	**304-09**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8w	14.6	40.9w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
									TOTAL WATTAGE:	**1,961.6w**		
BACK SPACES (305)												
PUBLIC SPACES THROUGHOUT	**305-01**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	2	34.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
SHELVING DETAIL	**305-02**	SURFACE MOUNTED LINEAR LED STRIPLIGHT - LOW VOLTAGE	LA-103C	INTEGRATED LED	0-10V	REMOTE ELECT	D	2.8 w/ft.	43.8	122.6 w/ft.	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM EE TO VERIFY VOLTAGE SO TO SPECIFY LENGTHS AS REQUIRED PER ARCHITECTURAL DWGS AND FIELD DIMENSIONS SO TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL REMOTE DIMMABLE TRANSFORMER TO BE LOCATED IN ACCESSIBLE AND VENTILATED LOCATION AS REQUIRED.	
INDIRECT LIGHT DETAIL ON TOP OF WALL @ DOUGLASS ST	**305-03**	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC OPTIC	LA-102	INTEGRATED LED	0-10V (2 ZONES)	INTEGRAL ELECT	D	12.0 w/ft.	5	60.0 w/ft.	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FIELD DIMENSIONS FOR LENGTHS AND CORNERS EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING FIXTURE REQUIRES 2 ZONES OF 0-10V WIRING FOR CONTROLS OF INTENSITY AND COLOR	
PUBLIC SPACES THROUGHOUT	**305-04**	CEILING RECESSED ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100B	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	17.0w	4	68.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
DOUGLASS ST @ ROOF CO-WORKING	**305-05**	DECORATIVE PENDANT	LD-109	E26 A-SHAPED LED - TBD	TRIAC	INTEGRAL ELECT	D	12.0w	1	12.0w	GC TO VERIFY CEILING TYPE FOR COMPATIBILITY WITH SUSPENSION KIT EE TO VERIFY DIMMING COMPATIBILITY WITH CONTROL SYSTEM FOR FLICKER FREE DIMMING	
PUBLIC SPACES THROUGHOUT	**305-06**	CEILING RECESSED DUAL ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	24.0w	2	48.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
INDIRECT LIGHT DETAIL ON TOP OF WALL @ DOUGLASS ST	**305-07**	SURFACE MOUNTED IN ARCHITECTURAL COVE LINEAR LED SYSTEM WITH SYMMETRIC OPTIC	LA-102	INTEGRATED LED	0-10V (2 ZONES)	INTEGRAL ELECT	D	12.0 w/ft.	10	120.0 w/ft.	GC TO VERIFY COVE CONDITION SIZE AND SPACE FOR PROPER MOUNTING GC TO VERIFY FIELD DIMENSIONS FOR LENGTHS AND CORNERS EE TO VERIFY CONTROLS COMPATIBILITY WITH CONTROLS SYSTEM FOR FLICKER FREE LOW END DIMMING FIXTURE REQUIRES 2 ZONES OF 0-10V WIRING FOR CONTROLS OF INTENSITY AND COLOR	
PUBLIC SPACES THROUGHOUT	**305-08**	CEILING RECESSED DUAL ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	24.0w	2	48.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	
PUBLIC SPACES THROUGHOUT	**305-09**	CEILING RECESSED DUAL ADJUSTABLE DOWNLIGHT 40] BEAM SPREAD	LA-100	INTEGRATED LED	0-10V	INTEGRAL ELECT	D	24.0w	2	48.0w	EE TO VERIFY VOLTAGE AND COMPATIBILITY WITH CONTROL SYSTEM ID TO VERIFY FINISH GC TO VERIFY HOUSING DEPTH AND TYPE. PER CEILING CONDITIONS GC TO PROVIDE ALL ADDITIONAL ACCESSORIES REQUIRED FOR PROPER SYSTEM AND INSTALL PROVIDE 0-10V WIRING	

END OF ZONE SCHEDULE

GENERAL NOTES:
- QUANTITIES SHOWN ARE ESTIMATES FOR BUDGETING PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL FIXTURE COUNTS AND LENGTHS.
- CONTRACTOR TO VERIFY ALL VOLTAGES, LAMP TYPES, FIELD MEASUREMENTS, AND PROVIDE ALL REMOTE TRANSFORMERS.
- CONTRACTOR TO FIELD VERIFY MOUNTING CONDITIONS AND PROVIDE ALL HARDWARE NECESSARY TO COMPLETE INSTALLATION.
- THE CLIENT SHALL NOT HOLD CONSULTANT LIABLE FOR RE-DESIGN SERVICES DUE TO COST OVERRUNS IF THEY CHOOSE NOT TO DEFINE TARGETED BUDGETS.
- ALLOW (1) OR MORE NON-DIM CIRCUITS FOR EACH DMX-CONTROLLED ZONE
- ZONES NOTED AS STANDALONE ARE CONTROLLED BY LOCAL WALL-BOX DIMMERS AS PER DWGS

ABBREVIATED TERMS:

LINE- LINE VOLTAGE DIMMABLE
ELV- REVERSE-PHASE ELECTRONIC LOW VOLTAGE DIMMING
FWD ELV- FORWARD-PHASE ELECTRONIC LOW VOLTAGE DIMMING
MLV- MAGNETIC LOW VOLTAGE (FORWARD PHASE) DIMMING
DMX- DMX512 CONTROL
DALI- DALI CONTROL
2-WIRE- LUTRON 2-WIRE DIMMING
3-WIRE- LUTRON 3-WIRE DIMMING
ECO- LUTRON ECOSYSTEM
NON-DIM- NON-DIMMING w/ SWITCHED
0-10V- 0-10V DIMMING
VIF- VERIFY IN FIELD

1 LIGHTING ZONE SCHEDULE
SCALE: N/A

CLIENT
CHARNEY COMPANIES
5-26 46TH AVENUE, SUITE 2A
LONG ISLAND CITY, NY 11101

TAVROS HOLDINGS
19 WEST 24TH STREET, 12TH FLOOR
NEW YORK, NY 10010

ARCHITECT
FOGARTY | FINGER architecture | interiors
69 Walker Street New York, NY 10013
t 212 966 7450 f 212 966 7444

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TITAN ENGINEERS
1331 STUYVESANT AVE
UNION, NJ 07083

MEP ENGINEER
ETTINGER ENGINEERING ASSOCIATES
505 EIGHTH AVE 24TH FLOOR
NEW YORK, NY 10018

FACADE
HATFIELD GROUP
285 WEST BROADWAY #

TABLES

251 Douglass Street, Brooklyn, NY

Site Management Plan
NYSDEC BCP #C224367

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

Table 2- Groundwater Elevation Data
251 Douglass Street, Brooklyn, NY

Well ID	Date Gauged	DTW	TOC Elevation	GW Elevation	DTP	DNAPL Thickness (ft)
GW-1	10/7/2022	7.00	8.43	1.43	NA	NA
GW-2	10/7/2022	11.21	13.77	2.56	NA	NA
GW-2-45'	6/15/2023	10.47	13.68	3.21	NA	NA
GW-3	10/7/2022	10.55	12.78	2.23	NA	NA
GW-4	10/7/2022	8.97	11.12	2.15	NA	NA
GW-5	10/7/2022	6.97	8.27	1.30	NA	NA
GW-6	10/7/2022	6.81	8.27	1.46	NA	NA
GW-7	10/7/2022	9.40	11.54	2.14	NA	NA
GW-8	10/7/2022	8.60	10.47	1.87	NA	NA
GW-8-45'	6/15/2023	7.44	10.43	2.99	NA	NA
GW-8-93'	6/15/2023	7.77	10.38	2.61	NA	NA
CW-7-65	6/15/2023	5.34	8.24	2.90	61.11	2.58
CW-7-55	6/15/2023	5.33	8.32	2.99	47.86	6.65
CW-4-85	6/15/2023	5.81	8.50	2.69	NA	NA
CW-4-75	6/15/2023	5.39	8.53	3.14	59.97	14.94
CW-4-55	6/15/2023	5.46	8.50	3.04	43.53	11.36
CW-4-45	6/15/2023	5.32	8.45	3.13	35.87	6.37
CW-5-75	6/15/2023	8.33	11.36	3.03	70.39	5.45
CW-5-53	6/15/2023	8.36	11.36	3.00	51.06	4.66
CW-1-70	6/15/2023	8.29	11.24	2.95	NA	NA
CW-1-55	6/15/2023	8.17	11.26	NA	NA	NA
CW-2-85	6/15/2023	8.77	11.91	NA	NA	NA
CW-3-50	6/15/2023	8.76	12.10	NA	NA	NA
CW-3-55	6/15/2023	8.28	11.83	NA	46.36	8.2

Table 2- Groundwater Elevation Data
251 Douglass Street, Brooklyn, NY

Well ID	Date Gauged	DTW	TOC Elevation	GW Elevation	DTP	DNAPL Thickness (ft)
CW-3-75	6/15/2023	8.31	11.69	NA	NA	NA
CW-3-80	6/15/2023	8.32	11.49	NA	NA	NA
CW-6-50	6/15/2023	9.56	12.84	NA	NA	NA
CW-6-55	6/15/2023	9.43	12.89	NA	46.41	8.88
CW-6-70	6/15/2023	9.36	12.70	NA	NA	NA
CW-6-75	6/15/2023	9.34	12.57	NA	NA	NA

TABLE 3
251 DOUGLASS STREET, BROOKLYN, NY
TANK ENDPOINT SAMPLE ANALYSIS SUMMARY

LOCATION			TANK 1 8/11/2023		TANK 2 8/11/2023		TANK 3 NE 8/11/2023		TANK 3 N 8/11/2023		TANK 4 N 8/11/2023		TANK 1 8/1		TANK 1 8/2		TANK 2 8/1		TANK 2 8/2		TANK 3 8/1		TANK 3 8/2		TANK 4 8/1		TANK 4 8/2		TANK 5 8/1		TANK 5 8/2		TANK 6 8/1		TANK 6 8/2		TANK 7 8/1		TANK 7 8/2		TANK 8 8/1		TANK 8 8/2		TRIP BLANK	
SAMPLING DATE			11/16/2023		11/16/2023		11/16/2023		11/16/2023		11/16/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023		12/12/2023	
LAB SAMPLE ID		NY-RSGW	L2362829-01		L2362829-02		L2362829-03		L2362829-04		L2362829-04 RE		L2373526-01		L2373526-01 RE		L2373526-02		L2373526-03		L2401248-01		L2401248-02		L2401248-03		L2401248-04		L2401248-05		L2401248-06		L2452535-01		L2452535-02		L2452535-03		L2452535-04		L2452535-05		L2452535-06		L2452535-07		L2452535-08		L2452535-09		L2452535-10		L2452535-11	
SAMPLE TYPE			SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)																																													
			Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																																															
Chromium, Hexavalent	19	110	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	U	1.6	U	1.3	U	0.928	U	0.895	U	1.01	U	1.3	U	1.29	U	1.21	U	0.927	U	-	-
Cyanide, Total	40	27	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	U	1.5	U	1.4	U	1.4	J	1.1	U	1.3	U	1.2	J	1.5	U	1.1	U	-	-
Solids, Total	~	~	%	89.7		89.2		87.1		91.1		-	86.9				87.5		77.1		77.2		87.4		88.9		88.7		86.6		66.6		63.6		61.6		86.2		89.4		77.8		61.6		62.1		66.2		86.3		-	-
Organochlorine Pesticides by GC																																													
4,4'-DDD	14	13	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00813		0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00116	J	0.0018	U	-	-
4,4'-DDE	17	8.9	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00107	JP	0.00242	U	0.00254	U	0.0297		0.00112	JP	0.00269	IP	0.00079	JP	0.00253	U	0.00378	IP	0.00097	J	-	-
4,4'-DDT	136	7.9	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00428		0.00242	U	0.00254	U	0.107		0.00318		0.00462		0.0042		0.00253	U	0.0112		0.0018	U	-	-
Aldrin	0.19	0.097	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Alpha-BHC	0.02	0.48	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00099	U	0.00101	U	0.00106	U	0.00076	U	0.00073	U	0.00084	U	0.00103	U	0.00105	U	0.00095	U	0.00075	U	-	-
Beta-BHC	0.09	0.36	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Chlordane	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0199	U	0.0202	U	0.0212	U	0.0152	U	0.0204	IP	0.0167	U	0.0168		0.0211	U	0.019	U	0.015	U	-	-
cis-Chlordane	2.9	4.2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00298	U	0.00303	U	0.00318	U	0.00228	U	0.00263	IP	0.00251	U	0.00418	IP	0.00316	U	0.00213	IP	0.00089	JP	-	-
Delta-BHC	0.25	100	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Dieldrin	0.1	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00149	U	0.00152	U	0.00159	U	0.00114	U	0.00075	J	0.00125	U	0.00368	IP	0.00158	U	0.00142	U	0.00112	U	-	-
Endosulfan I	102	24	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Endosulfan II	102	24	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Endosulfan sulfate	1000	24	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00099	U	0.00101	U	0.00106	U	0.00076	U	0.00073	U	0.00084	U	0.00103	U	0.00105	U	0.00095	U	0.00075	U	-	-
Endrin	0.06	11	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00099	U	0.00101	U	0.00106	U	0.00076	U	0.00073	U	0.00084	U	0.00103	U	0.00105	U	0.00095	U	0.00075	U	-	-
Endrin aldehyde	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Endrin ketone	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00238	U	0.00242	U	0.00254	U	0.00182	U	0.00175	U	0.002	U	0.00246	U	0.00253	U	0.00228	U	0.0018	U	-	-
Heptachlor	0.38	2.1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00119	U	0.00121	U	0.00127	U	0.00091	U	0.00088	U	0.001	U	0.00123	U	0.00126	U	0.00114	U	0.0009	U	-	-
Heptachlor epoxide	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00447	U	0.00455	U	0.00477	U	0.00341	U	0.00328	U	0.00376	U	0.00461	U	0.00474	U	0.00427	U	0.00337	U	-	-
Lindane	0.1	1.3	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00099	U	0.00101	U	0.00106	U	0.00076	U	0.00073	U	0.00084	U	0.00103	U	0.00105	U	0.00095	U	0.00075	U	-	-
Methoxychlor	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00447	U	0.00455	U	0.00477	U	0.00341	U	0.00328	U	0.00376	U	0.00461	U	0.00474	U	0.00427	U	0.00337	U	-	-
Toxaphene	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0447	U	0.0455	U	0.0477	U	0.0341	U	0.0328	U	0.0376	U	0.0461	U	0.0474	U	0.0427	U	0.0337	U	-	-
trans-Chlordane	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00298	U	0.00303	U	0.00318	U	0.00228	U	0.00263	IP	0.00251	U	0.00501	IP	0.00316	U	0.00461	IP	0.0011	JP	-	-
Perfluorinated Alkyl Acids by EPA 1633																																													
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0027	J	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
2H,2H,3H-Perfluorooctanoic Acid (5:3FTCA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00497	U	0.005	U	0.00499	U	0.00498	U	0.00498	U	0.00499	U	0.00498	U	0.00498	U	0.00498	U	0.00499	U	0.00498	U	-	-
3-Perfluoroheptylpropanoic Acid (7:3FTCA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00497	U	0.005	U	0.00499	U	0.00498	U	0.00498	U	0.00499	U	0.00498	U	0.00498	U	0.00498	U	0.00499	U	0.00498	U	-	-
3-Perfluoropropyl Propanoic Acid (2:3FTCA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0009	U	0.001	U	0.001	U	0.0007	U	0.0007	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	-	-
4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
N-Ethyl Perfluorooctanesulfonamide (NEtFOSE)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00199	U	0.002	U	0.002	U	0.00149	U	0.002	U	0.00199	U	0.002	U	0.00199	U	0.002	U	0.00199	U	0.002	U	0.00199	U	-	-
N-Ethyl Perfluorooctanesulfonamidoethanol (NEtFOSAA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00199	U	0.002	U	0.002	U	0.00199	U	0.002	U	0.00199	U	0.002	U	0.00199	U	0.002	U	0.00199	U	0.002	U	0.00199	U	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluorobutanesulfonic Acid (PFBS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorobutanoic Acid (PFBA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	-	-
Perfluorodecanesulfonic Acid (PFDS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	3.96E-05	J	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	4.6E-05	J	3.96E-05	J	4.55E-05	J	-	-
Perfluorodecanoic Acid (PFDA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorododecanesulfonic Acid (PFDoS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorododecanoic Acid (PFDoA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluoroheptanesulfonic Acid (PFHpS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0003	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0003	U	-	-
Perfluoroheptanoic Acid (PFHpA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.00006	J	0.0002	U	3.3E-05	J	0.00011	J	0.0002	U	4.9E-05	J	-	-
Perfluorohexanesulfonic Acid (PFHxS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorohexanoic Acid (PFHxA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	4.7E-05	J	0.00012	J	0.0002	U	-	-
Perfluorononanesulfonic Acid (PFNS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorononanoic Acid (PFNA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0003	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0003	U	-	-
Perfluorooctanesulfonamide (PFOSA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.001	0.044	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00512	J	0.00625	J	0.00611	J	0.00414	J	0.00427	J	0.00519	J	0.00516	J	0.00552	J	0.00624	J	0.00555	J	-	-
Perfluorooctanoic Acid (PFOA)	0.0008	0.033	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00006	J	6.8E-05	J	0.0002	U	0.0002	U	0.00017	J	9.3E-05	J	7.8E-05	J	0.00022	J	0.00042	J	0.00015	J	-	-
Perfluoropentanesulfonic Acid (PFPeS)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluoropentanoic Acid (PFPeA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	6.1E-05	J	0.00011	J	0.0004	U	0.0004	U	-	-
Perfluorotetradecanoic Acid (PFTeDA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorotridecanoic Acid (PFTrDA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluoroundecanoic Acid (PFUnA)	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	8.4E-05	J	0.0002	U	0.0002	U	7.6E-05	J	8.4E-05	J	0.00012	J	-	-
Polychlorinated Biphenyls by GC																																													
Aroclor 1016	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1221	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1232	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1242	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1248	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1254	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.013	J	0.0536	U	-	-
Aroclor 1260	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.0131	J	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1262	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
Aroclor 1268	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.056	U	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.0746	U	0.0536	U	-	-
PCBs, Total	3.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.071	U	0.0735	U	0.0791	U	0.0121	J	0.0551	U	0.0628	U	0.0781	U	0.0767	U	0.012	J	0.0536	U	-	-
Semivolatile Organics by GC/MS																																													
1,2,4,5-Tetrachlorobenzene	~	~	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.21	U	0.21	U	0.19	U	0.18	U	0.18	U	0.19	U	0.25	U	0.26	U	0.26	U	0.19	U	0.18	U	0.21	U	0.26	U	0.26	U	0.25	U	0.19	U	-	-
1,2,4-Trichlorobenzene	1.2	1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3
251 DOUGLASS STREET, BROOKLYN, NY
TANK ENDPOINT SAMPLE ANALYSIS SUMMARY

LOCATION			BT-12-102720		TANK 2 BIDRAIN-2-3		TANK 1 BIDRAIN-1-3		TANK 1 BIDRAIN-1-W		TANK 1 BIDRAIN-1-E		TANK 1 BIDRAIN-1-N		TANK 1 BIDRAIN-1-S		DUPLICATE-102924		TANK 2 BIDRAIN-2-W		TANK 2 BIDRAIN-2-E		TANK 2 BIDRAIN-2-N		TANK 2 BIDRAIN-2-S		TANK 3 BIDRAIN-3-W		TANK 3 BIDRAIN-3-E		TANK 3 BIDRAIN-3-N		TANK 3 BIDRAIN-3-S		TANK 4 BOTTOM		TANK 4 BOTTOM-1		TANK 4 BOTTOM-2		TANK 4 BIDRAIN-W1		TANK 4 BIDRAIN-W2		TANK 4 BIDRAIN-E1		TANK 4 BIDRAIN-E2		TANK 4 BIDRAIN-N1		TANK 4 BIDRAIN-N2		TANK 4 BIDRAIN-S1		TANK 4 BIDRAIN-S2		TANK 4 BIDRAIN-W		TANK 4 BIDRAIN-E		TANK 4 BIDRAIN-N		TANK 4 BIDRAIN-S		
SAMPLING DATE			10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/29/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024		
LAB SAMPLE ID		NY-RSGW	L2463100-01		L2463100-02		L2463100-03		L2463100-04		L2463100-05		L2463100-06		L2463100-07		L2463100-08		L2463100-10		L2463676-01		L2463676-02		L2463676-03		L2463676-04		L2463676-05		L2463676-06		L2463676-07		L2463676-08		L2463676-09		L2463676-10		L2463676-11		L2463676-12		L2463676-13		L2463676-14		L2463676-15		L2463676-16		
SAMPLE TYPE			SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		
SAMPLE DEPTH (ft.)																																																					
			Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																																																					
Chromium, Hexavalent	19	110	0.996	U	0.959	U	0.949	U	0.972	U	0.99	U	1.03	U	0.999	U	0.963	U	-	-	0.974	U	0.967	U	1.04	U	0.922	U	1.02	U	0.943	U	0.946	U	10.8		1.01	U	0.949	U	0.955	U	0.972	U	0.937	U	0.913	U	0.968	U	1.03	U		
Cyanide, Total	40	27	1.1	U	1.1	U	1.1	U	0.25	J	0.44	J	1.1	U	1.2	U	1.1	U	-	-	1.2	U	1.2	U	1.3	U	1.1	U	1.2	U	1.1	U	1.1	U	1.2	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.2	U		
Solids, Total	-	-	80.3		83.4		84.3		82.2		80.8		77.8		80.1		83.1		-	-	82.1		82.7		77.1		86.8		78		84.8		84.6		78.2		79.4		84.3		83.8		82.3		85.4		87.6		82.6		77.4		
Organochlorine Pesticides by GC																																																					
4,4'-DDD	14	13	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00212	J	0.00233	
4,4'-DDE	17	8.9	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00276	J	0.00065	J
4,4'-DDT	136	7.9	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00288	J	0.00202	J		
Aldrin	0.19	0.097	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Alpha-BHC	0.11	0.48	0.00092	U	0.00077	U	0.00077	U	0.00077	U	0.0008	U	0.00828	U	0.00082	U	0.00078	U	-	-	0.00078	U	0.00079	U	0.00084	U	0.00076	U	0.00083	U	0.00074	U	0.00076	U	0.00083	U	0.00082	U	0.00076	U	0.00076	U	0.00073	U	0.00076	U	0.00073	U	0.00077	U	0.00085	U		
Beta-BHC	0.09	0.36	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Chlordane	-	-	0.0163	U	0.0154	U	0.0155	U	0.0154	U	0.016	U	0.166	U	0.0164	U	0.0156	U	-	-	0.0156	U	0.0157	U	0.0167	U	0.0151	U	0.0167	U	0.0149	U	0.0151	U	0.0166	U	0.0164	U	0.0152	U	0.0151	U	0.0157	U	0.0151	U	0.0146	U	0.0154	U	0.0149	U		
cis-Chlordane	2.9	4.2	0.00245	U	0.00231	U	0.00232	U	0.00231	U	0.0024	U	0.0248	U	0.00247	U	0.00234	U	-	-	0.00234	U	0.00236	U	0.0025	U	0.00226	U	0.00251	U	0.00224	U	0.00227	U	0.0025	U	0.00246	U	0.00227	U	0.00236	U	0.00227	U	0.00218	U	0.00231	U	0.00254	U		
Delta-BHC	0.25	100	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Dieldrin	0.1	0.2	0.0012	U	0.00115	U	0.00116	U	0.00116	U	0.0012	U	0.0124	U	0.00123	U	0.00117	U	-	-	0.00117	U	0.00118	U	0.00125	U	0.00113	U	0.00126	U	0.00112	U	0.00114	U	0.00125	U	0.00123	U	0.00114	U	0.00113	U	0.00118	U	0.00114	U	0.00109	U	0.00116	U	0.00127	U		
Endosulfan I	102	24	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Endosulfan II	102	24	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Endosulfan sulfate	1000	24	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Endosulfan I	102	24	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Endosulfan II	102	24	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Endosulfan sulfate	1000	24	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Endrin	0.06	11	0.00082	U	0.00077	U	0.00077	U	0.00077	U	0.0008	U	0.00828	U	0.00082	U	0.00078	U	-	-	0.00078	U	0.00079	U	0.00084	U	0.00076	U	0.00084	U	0.00075	U	0.00076	U	0.00083	U	0.00082	U	0.00076	U	0.00076	U	0.00073	U	0.00076	U	0.00073	U	0.00077	U	0.00085	U		
Endrin aldehyde	-	-	0.00214	U	0.00201	U	0.00202	U	0.00202	U	0.0021	U	0.0248	U	0.00247	U	0.00234	U	-	-	0.00234	U	0.00236	U	0.0025	U	0.00226	U	0.00251	U	0.00224	U	0.00227	U	0.0025	U	0.00246	U	0.00227	U	0.00236	U	0.00227	U	0.00218	U	0.00231	U	0.00254	U		
Endrin ketone	-	-	0.00196	U	0.00184	U	0.00186	U	0.00185	U	0.00192	U	0.0199	U	0.00197	U	0.00187	U	-	-	0.00188	U	0.00189	U	0.002	U	0.00181	U	0.00201	U	0.00179	U	0.00182	U	0.002	U	0.00197	U	0.00182	U	0.00181	U	0.00189	U	0.00182	U	0.00175	U	0.00185	U	0.00203	U		
Heptachlor	0.38	2.1	0.00098	U	0.00092	U	0.00093	U	0.00093	U	0.00096	U	0.00992	U	0.00099	U	0.00094	U	-	-	0.00094	U	0.00094	U	0.001	U	0.00091	U	0.001	U	0.00089	U	0.00091	U	0.001	U	0.00099	U	0.00091	U	0.00091	U	0.00084	U	0.00091	U	0.00087	U	0.00093	U	0.00102	U		
Heptachlor epoxide	-	-	0.00167	U	0.00156	U	0.00158	U	0.00158	U	0.0016	U	0.0169	U	0.00167	U	0.00159	U	-	-	0.00159	U	0.00161	U	0.00171	U	0.00154	U	0.00171	U	0.00152	U	0.00155	U	0.00171	U	0.00168	U	0.00155	U	0.00154	U	0.00159	U	0.00148	U	0.00154	U	0.00148	U	0.00173	U	0.00193	U		
Lindane	0.1	1.3	0.00082	U	0.00077	U	0.00077	U	0.00077	U	0.0008	U	0.00828	U	0.00082	U	0.00078	U	-	-	0.00078	U	0.00079	U	0.00084	U	0.00076	U	0.00084	U	0.00075	U	0.00076	U	0.00083	U	0.00082	U	0.00076	U	0.00076	U	0.00073	U	0.00076	U	0.00073	U	0.00077	U	0.00085	U		
Methoxychlor	-	-	0.00327	U	0.00346	U	0.00348	U	0.00348	U	0.0036	U	0.0372	U	0.0037	U	0.00351	U	-	-	0.00352	U	0.00354	U	0.00376	U	0.0034	U	0.00377	U	0.00336	U	0.0034	U	0.00374	U	0.0037	U	0.00341	U	0.0034	U	0.00354	U	0.0034	U	0.00328	U	0.00348	U	0.00381	U		
Toxaphene	-	-	0.0367	U	0.0346	U	0.0348	U	0.0348	U	0.0361	U	0.372	U	0.037	U	0.0351	U	-	-	0.0352	U	0.0354	U	0.0376	U	0.034	U	0.0377	U	0.0336	U	0.034	U	0.0374	U	0.0369	U	0.0341	U	0.034	U	0.0354	U	0.0341	U	0.0328	U	0.0348	U	0.0381	U		
trans-Chlordane	-	-	0.00245	U	0.00231	U	0.00232	U	0.00232	U	0.0024	U	0.0248	U	0.00247	U	0.00234	U	-	-	0.00234	U	0.00236	U	0.0025	U	0.00226	U	0.00251	U	0.00224	U	0.00227	U	0.0025	U	0.00246	U	0.00227	U	0.00227	U	0.00236	U	0.00227	U	0.00218	U	0.00114	J	0.00254	U		
Perfluorinated Alkyl Acids by EPA 1633																																																				
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11-Cl-PF3OUdS)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	-	-	0.00497	U	0.00493	U	0.00493	U	0.00496	U	0.00513	U	0.0617	U	0.00511	U	0.00486	U	-	-	0.00486	U	0.00489	U	0.00521	U	0.00469	U	0.00521	U	0.00464	U	0.00469	U	0.00517	U	0.00511	U	0.00469	U	0.00469	U	0.00451	U	0.00469	U	0.00451	U	0.00479	U	0.00493	U	0.00526	U		
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	-	-	0.00497	U	0.00491	U	0.00493	U	0.00496	U	0.00513	U	0.0617	U	0.00498	U	0.00492	U	-	-	0.00495	U	0.00489	U	0.00496	U	0.00494	U	0.00488	U	0.00487	U	0.00497	U	0.00496	U	0.00488	U	0.00494	U	0.00486	U	0.00495	U	0.00488	U	0.00495	U	0.00498	U	0.00493	U		
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	-	-	0.001	U	0.00099	U	0.00099	U	0.00099	U	0.001	U	0.0124	U	0.00103	U	0.00098	U	-	-	0.00099	U	0.00098	U	0.00105	U	0.00094	U	0.00108	U	0.00097	U	0.00094	U	0.00104	U	0.00102	U	0.00095	U	0.00094	U	0.00097	U	0.00094	U	0.00091	U	0.00096	U	0.00102	U		
4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	-	-	0.0008	U	0.00079	U	0.00079	U	0.00079	U	0.0008	U	0.0008	U	0.00079	U	-	-	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.00078	U	0.0008	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00078	U	0.00079	U	0.00079	U	0.0008	U	0.00079	U		
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U		
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U		
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U		
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	-	-	0.00199	U	0.00196	U	0.00197	U	0.00198	U	0.00199	U	0.0199	U	0.00197	U	-	-	0.00198	U	0.00196	U	0.00199	U	0.00198	U	0.00195	U	0.00199	U	0.00198	U	0.00195	U	0.00198	U	0.00194	U	0.00198	U	0.00195	U	0.00198	U	0.00195	U	0.00199	U	0.00197	U				
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.00039	U	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U				
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.00039	U	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U				
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.00039	U	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U				
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.00039	U	-	-	0.0004	U	0.00039	U	0.0004	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U	0.00039	U	0.0004	U				
Perfluorobutanesulfonic Acid (PFBS)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluorobutanoic Acid (PFBA)	-	-	0.0079	U	0.00803	U	0.00793	U	0.0079	U	0.00803	U	0.0079	U	0.00793	U	-	-	0.00793	U	0.00778	U	0.00793	U	0.00793	U	0.00778	U	0.00836	U	0.00779	U	0.00778	U	0.00793	U	0.00778	U	0.00779	U	0.00778	U	0.00793	U	0.00778	U	0.00779	U	0.00793	U	0.00778	U	0.00793	U				
Perfluorodecanesulfonic Acid (PFDS)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluorodecanoic Acid (PFDA)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluorododecanoic Acid (PFDoS)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluorododecanoic Acid (PFDoA)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluoroheptanesulfonic Acid (PFHpS)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluoroheptanoic Acid (PFHpA)	-	-	2.3E-05	J	0.0002	U	1.8E-05	J	0.00013	J	5.2E-05	J	4.5E-05	J	3.7E-05	J	0.0002	U	-	-	5.5E-05	J	0.0002	U	4.5E-05	J	0.00003	J	2.3E-05	J	0.0002	U	0.00013	J	7.5E-05	J	0.0001	J	0.00013	J	0.00031	J	0.00008	J	0.00021	J	0.0002	U				
Perfluorohexanesulfonic Acid (PFHxS)	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U				
Perfluorohexanoic Acid (PFHxA)	-

TABLE 3
251 DOUGLASS STREET, BROOKLYN, NY
TANK ENDPOINT SAMPLE ANALYSIS SUMMARY

LOCATION			TANK 6 BOTTOM 1		TANK 6 BOTTOM 2		TANK 6 BOTTOM 3		DUP-101124		TRIP BLANK	
SAMPLING DATE			10/31/2024		10/31/2024		10/31/2024		10/31/2024		10/31/2024	
LAB SAMPLE ID	NY-RSGW	NY-RSSPR	L2463676-17		L2463676-18		L2463676-19		L2463676-20		L2463676-22	
SAMPLE TYPE			SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)												
			Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry												
Chromium, Hexavalent	19	110	0.936	U	0.96	U	0.938	U	0.963	U	-	-
Cyanide, Total	40	27	1.2	U	1.2	U	1.2	U	1.1	U	-	-
Solids, Total	~	~	85.5		83.3		85.3		83.1		-	-
Organochlorine Pesticides by GC												
4,4'-DDD	14	13	0.00185	U	0.00203		0.00184	U	0.00298		-	-
4,4'-DDE	17	8.9	0.00185	U	0.00187	U	0.00184	U	0.00106	J	-	-
4,4'-DDT	136	7.9	0.00185	U	0.00198		0.00184	U	0.0021	JP	-	-
Aldrin	0.19	0.097	0.00185	U	0.00187	U	0.00184	U	0.00184	U	-	-
Alpha-BHC	0.02	0.48	0.00077	U	0.00078	U	0.00077	U	0.00077	U	-	-
Beta-BHC	0.09	0.36	0.00185	U	0.00187	U	0.00184	U	0.00184	U	-	-
Chlordane	~	~	0.0154	U	0.0156	U	0.0154	U	0.0153	U	-	-
Cis-Chlordane	2.9	4.2	0.00231	U	0.00234	U	0.0023	U	0.0023	U	-	-
Delta-BHC	0.25	100	0.00185	U	0.00187	U	0.00184	U	0.00184	U	-	-
Dieldrin	0.1	0.2	0.00116	U	0.00117	U	0.00115	U	0.00115	U	-	-
Endosulfan I	102	24	0.00185	U	0.00187	U	0.00184	U	0.00184	U	-	-
Endosulfan II	102	24	0.00185	U	0.00187	U	0.00184	U	0.00184	U	-	-
Endosulfan sulfate	1000	24	0.00077	U	0.00078	U	0.00077	U	0.00089	JP	-	-
Endrin	0.06	11	0.00077	U	0.00078	U	0.00077	U	0.00077	U	-	-
Endrin aldehyde	~	~	0.00231	U	0.00234	U	0.0023	U	0.0023	U	-	-
Endrin ketone	~	~	0.00185	U	0.00187	U	0.00184	U	0.00184	U	-	-
Heptachlor	0.38	2.1	0.00092	U	0.00094	U	0.00092	U	0.00092	U	-	-
Heptachlor epoxide	~	~	0.00347	U	0.0035	U	0.00345	U	0.00345	U	-	-
Lindane	0.1	1.3	0.00077	U	0.00078	U	0.00077	U	0.00077	U	-	-
Methoxychlor	~	~	0.00347	U	0.0035	U	0.00345	U	0.00345	U	-	-
Toxaphene	~	~	0.0347	U	0.035	U	0.0345	U	0.0345	U	-	-
Trans-Chlordane	~	~	0.00231	U	0.00234	U	0.0023	U	0.0023	U	-	-
Perfluorinated Alkyl Acids by EPA 1633												
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	~	~	0.0008	U	0.00079	U	0.00079	U	0.0008	U	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	~	~	0.0008	U	0.0003	J	0.00112		0.00106	J	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	~	~	0.0008	U	0.00079	U	0.00079	U	0.0008	U	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	~	~	0.0008	U	0.00079	U	0.00079	U	0.0008	U	-	-
1H,1H,2H,2H-Perfluorooctanoic Acid (6:2FTCA)	~	~	0.00498	U	0.00496	U	0.00495	U	0.00498	U	-	-
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	~	~	0.00498	U	0.00496	U	0.00495	U	0.00498	U	-	-
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	~	~	0.001	U	0.00099	U	0.00099	U	0.001	U	-	-
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	~	~	0.0008	U	0.00079	U	0.00079	U	0.0008	U	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	~	~	0.0008	U	0.00079	U	0.00079	U	0.0008	U	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	~	~	0.0008	U	0.00079	U	0.00079	U	0.0008	U	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	~	~	0.00199	U	0.00198	U	0.00198	U	0.00199	U	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	~	~	0.00199	U	0.00198	U	0.00198	U	0.00199	U	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	~	~	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	~	~	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	~	~	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	~	~	0.0004	U	0.0004	U	0.0004	U	0.0004	U	-	-
Perfluorobutanesulfonic Acid (PFBS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorobutanoic Acid (PFBA)	~	~	3.7E-05	J	0.00079	U	5.8E-05	J	4.6E-05	J	-	-
Perfluorodecanesulfonic Acid (PFDS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorodecanoic Acid (PFDA)	~	~	0.0002	U	0.0002	U	4.8E-05	J	0.0002	U	-	-
Perfluorododecanesulfonic Acid (PFDoS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorododecanoic Acid (PFDoA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluoroheptanesulfonic Acid (PFHpS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluoroheptanoic Acid (PFHpA)	~	~	0.00027		8.4E-05	J	0.0006		0.00018	J	-	-
Perfluorohexanesulfonic Acid (PFHxS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorohexanoic Acid (PFHxA)	~	~	7.7E-05	J	0.0002	U	0.0002	J	6.7E-05	J	-	-
Perfluorononanesulfonic Acid (PFNS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorononanoic Acid (PFNA)	~	~	0.00018	J	0.00006	J	0.00018		0.00016	J	-	-
Perfluorooctanesulfonamide (FOSA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.001	0.044	0.00011	J	2.7E-05	J	0.00011	J	0.00014	J	-	-
Perfluorooctanoic Acid (PFOA)	0.0008	0.033	0.00031		0.00012	J	0.00071		0.00023		-	-
Perfluoropentanesulfonic Acid (PFPeS)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluoropentanoic Acid (PFPeA)	~	~	7.3E-05	J	0.0004	U	0.00019	J	6.6E-05	J	-	-
Perfluorotetradecanoic Acid (PFTeDA)	~	~	0.0002	U	0.0002	U	0.0002	U	0.0002	U	-	-
Perfluorotridecanoic Acid (PFTrDA)	~	~	0.0002	U	0.0002	U	5.3E-05	J	0.0002	U	-	-
Perfluoroundecanoic Acid (PFUnA)	~	~	1.9E-05	J	0.00055	J	0.00016	J	0.0002	U	-	-
Polychlorinated Biphenyls by GC												
Aroclor 1016	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
Aroclor 1221	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
Aroclor 1232	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
Aroclor 1242	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
Aroclor 1248	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
Aroclor 1254	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0127	J	-	-
Aroclor 1260	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0145	J	-	-
Aroclor 1262	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
Aroclor 1268	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0575	U	-	-
PCBs, Total	3.2	1	0.0582	U	0.0584	U	0.0561	U	0.0272	J	-	-
Semivolatile Organics by GC/MS												
1,2,4,5-Tetrachlorobenzene	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
1,2,4-Trichlorobenzene	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
1,2-Dichlorobenzene	1.1	100	0.19	U	0.092	J	0.19	U	0.054	J	-	-
1,3-Dichlorobenzene	2.4	49	0.19	U	0.2	U	0.19	U	0.2	U	-	-
1,4-Dichlorobenzene	1.8	13	0.19	U	0.17	J	0.19	U	0.048	J	-	-
1,4-Dioxane	0.1	13	0.029	U	0.03	U	0.029	U	0.03	U	-	-
2,4,5-Trichlorophenol	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2,4,6-Trichlorophenol	~	~	0.11	U	0.12	U	0.12	U	0.12	U	-	-
2,4-Dichlorophenol	~	~	0.17	U	0.18	U	0.17	U	0.18	U	-	-
2,4-Dimethylphenol	~	~	0.19	U	0.093	J	0.19	U	0.2	U	-	-
2,4-Dinitrophenol	~	~	0.92	U	0.96	U	0.93	U	0.95	U	-	-
2,4-Dinitrotoluene	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2,6-Dinitrotoluene	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2-Chloronaphthalene	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2-Chlorophenol	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2-Methylnaphthalene	~	~	0.22	J	1.8		0.41		0.45		-	-
2-Methylphenol	0.33	100	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2-Nitroaniline	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
2-Nitrophenol	~	~	0.41	U	0.43	U	0.42	U	0.43	U	-	-
3,3'-Dichlorobenzidine	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
3-Methylphenol/4-Methylphenol	0.33	100	0.046	J	0.28	J	0.12	J	0.41		-	-
3-Nitroaniline	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
4,6-Dinitro-o-cresol	~	~	0.5	U	0.52	U	0.5	U	0.51	U	-	-
4-Bromophenyl phenyl ether	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
4-Chloroaniline	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
4-Chlorophenyl phenyl ether	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
4-Nitroaniline	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
4-Nitrophenol	~	~	0.27	U	0.28	U	0.27	U	0.28	U	-	-
Acenaphthene	98	100	0.019	J	1.9		0.025	J	1		-	-
Acenaphthylene	107	100	0.093	J	0.16	U	0.053	J	0.33		-	-
Acetophenone	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Anthracene	1000	100	0.2		1.3		0.019	J	0.66		-	-
Benzo(a)anthracene	1	1	0.65		0.8		0.15		0.39		-	-
Benzo(a)pyrene	22	1	0.55		0.64		0.18		0.39		-	-
Benzo(b)fluoranthene	1.7	1	0.77		0.7		0.22		0.4		-	-
Benzo(ghi)perylene	1000	100	0.39		0.38		0.16		0.28		-	-
Benzo(k)fluoranthene	1.7	3.9	0.24		0.22		0.061	J	0.13		-	-
Benzoic Acid	~	~	0.62	U	0.64	U	0.63	U	0.64	U	-	-
Benzyl Alcohol	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Biphenyl	~	~	0.44	U	0.45	U	0.038	J	0.45	U	-	-
Bis(2-chloroethoxy)methane	~	~	0.21	U	0.22	U	0.21	U	0.21	U	-	-
Bis(2-chloroethyl)ether	~	~	0.17	U	0.18	U	0.17	U	0.18	U	-	-
Bis(2-chloroisopropyl)ether	~	~	0.23	U	0.24	U	0.23	U	0.24	U	-	-
Bis(2-ethylhexyl)phthalate	~	~	0.19	U	0.39		0.19	U	0.16	J	-	-
Butyl benzyl phthalate	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Carbazole	~	~	0.08	J	0.2	U	0.026	J	0.2	U	-	-
Chrysene	1	3.9	0.62		0.72		0.16		0.4		-	-
Di-n-butylphthalate	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Di-n-octylphthalate	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Dibenz(a,h)anthracene	1000	0.33	0.093	J	0.074	J	0.02	J	0.045	J	-	-
Dibenzofuran	210	59	0.054	J	1.6		0.039	J	0.59		-	-
Diethyl phthalate	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Dimethyl phthalate	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Fluoranthene	1000	100	1.3		3		0.32		1		-	-
Fluorene	386	100	0.06	J	2.8		0.036	J	1.4		-	-
Hexachlorobenzene	3.2	1.2	0.11	U	0.12	U	0.12	U	0.12	U	-	-
Hexachlorobutadiene	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Hexachlorocyclopentadiene	~	~	0.55	U	0.57	U	0.55	U	0.56	U	-	-
Hexachloroethane	~	~	0.15	U	0.16	U	0.15	U	0.16	U	-	-
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.38		0.3		0.14	J	0.17		-	-
Isophorone	~	~	0.17	U	0.18	U	0.17	U	0.18	U	-	-
N-Nitroso-di-n-propylamine	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Naphthalene	12	100	0.15	J	0.68		0.19	U	0.2		-	-
NDPA/DPA	~	~	0.15	U	0.16	U	0.15	U	0.16	U	-	-
Nitrobenzene	~	~	0.17	U	0.18	U	0.17	U	0.18	U	-	-
P-Chloro-m-cresol	~	~	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Pentachlorophenol	0.8	6.7	0.15	U	0.16	U	0.15	U	0.16	U	-	-
Phenanthrene	1000	100	0.8		4.6		0.3		1.2		-	-
Phenol	0.33	100	0.19	U	0.2	U	0.19	U	0.2	U	-	-
Pyrene	1000	100	1.1		2.4		0.31		1.2		-	-
Total Metals												
Aluminum, Total			4850		3390		5790		4270		-	-
Antimony, Total			0.373	J	4.63	U	4.6	U	4.7	U	-	-
Arsenic, Total	16	16	5.51		5.51		5.25		3.64		-	-
Barium, Total	820	400	70.9		43.1		58.8		44.6		-	-
Beryllium, Total	47	72	0.319	J	0.26	J	0.363	J	0.284	J	-	-
Cadmium, Total	7.5	4.3	0.114	J	0.926	U	0.171	J	0.149	J	-	-
Calcium, Total			2990		3420		6440		7600		-	-
Chromium, Total			10.4		9.44		12.7		20		-	-
Cobalt, Total			5.9		5.35		9.28		8.11		-	-
Copper, Total	1720	270	34.8		25.6		32.2		25.5		-	-
Iron, Total			11400		13700		17100		12000		-	-
Lead, Total	450	400	277		173		191		346		-	-
Magnesium, Total			1540		1470		2280		1840		-	-
Manganese, Total	2000	2000	165		156		198		253		-	-
Mercury, Total	0.73	0.81	1.13		0.17		0.53		0.694		-	-
Nickel, Total	130	310	17.2		11.8		25.4		18.2		-	-
Potassium, Total			626		522		738		556		-	-
Selenium, Total	4	180	0.518	J	0.508	J	1.84	U	0.573	J	-	-
Silver, Total	8.3	180	0.444	U	0.463	U	0.46	U	0.47	U	-	-
Sodium, Total			110	J	71.6	J	115	J	80.3	J	-	-
Thallium, Total			0.31	J	1.85	U	1.84	U	1.88	U	-	-
Vanadium, Total			14.3		13.3		16.8		13.3		-	-
Zinc, Total	2480	10000	66.6		44		88.8		78		-	-
Volatile Organics by EPA 5035												
1,1,1,2-Tetrachloroethane			0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
1,1,1-Trichloroethane	0.68	100	0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
1,1,2,2-Tetrachloroethane			0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
1,1,2-Trichloroethane			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,1-Dichloroethane	0.27	26	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,1-Dichloroethene	0.33	100	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,2-Dichloropropane			0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
1,2,3-Trichlorobenzene			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
1,2,3-Trichloropropane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
1,2,4,5-Tetramethylbenzene			0.003	U	12		0.0029		4.9		0.002	U
1,2,4-Trichlorobenzene			0.003	U	0.082	J	0.0025	U	0.14	U	0.002	U
1,2,4-Trimethylbenzene	3.6	52	0.003	U	0.13	U	0.0025	U	0.11	J	0.002	U
1,2-Dibromo-3-chloropropane			0.0046	U	0.2	U	0.0038	U	0.2	U	0.003	U
1,2-Dibromoethane			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,2-Dichlorobenzene	1.1	100	0.003	U	0.26	U	0.0025	U	0.099	J	0.002	U
1,2-Dichloroethane	0.02	3.1	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,2-Dichloroethene, Total			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,2-Dichloropropane			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
1,3,5-Trimethylbenzene	8.4	52	0.003	U	0.028	J	0.0025	U	0.1	J	0.002	U
1,3-Dichlorobenzene	2.4	49	0.003	U	0.079	J	0.0025	U	0.14	U	0.002	U
1,3-Dichloropropane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
1,3-Dichloropropene, Total			0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
1,4-Dichlorobenzene	1.8	13	0.003	U	0.5		0.0025	U	0.064	J	0.002	U
1,4-Dioxane	0.1	13	0.12	U	5.2	U	0.1	U	5.4	U	0.08	U
2,2-Dichloropropane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
2-Butanone	0.12	100	0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
2-Hexanone			0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
4-Methyl-2-pentanone			0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
Acetone	0.05	100	0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
Acrylonitrile			0.0061	U	0.26	U	0.005	U	0.27	U	0.004	U
Benzene	0.06	4.8	0.00076	U	0.011	J	0.00063	U	0.034	U	0.0005	U
Bromobenzene			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Bromochloromethane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Bromodichloromethane			0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
Bromoform			0.0061	U	0.26	U	0.005	U	0.27	U	0.004	U
Bromomethane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Carbon disulfide			0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
Carbon tetrachloride	0.76	2.4	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
Chlorobenzene	1.1	100	0.00076	U	0.86		0.00063	U	0.072		0.0005	U
Chloroethane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Chloroform	0.37	49	0.0023	U	0.098	U	0.0019	U	0.1	U	0.0015	U
Chloromethane			0.0061	U	0.26	U	0.005	U	0.27	U	0.004	U
cis-1,2-Dichloroethene	0.25	100	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
cis-1,3-Dichloropropene			0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
Dibromochloromethane			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
Dibromomethane			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Dichlorodifluoromethane			0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
Ethyl ether			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Ethylbenzene	1	41	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
Hexachlorobutadiene			0.0061	U	0.26	U	0.005	U	0.27	U	0.004	U
Isopropylbenzene			0.0015	U	2.3		0.0012	U	0.5		0.001	U
Methyl tert butyl ether	0.93	100	0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
Methylene chloride	0.05	100	0.0076	U	0.22	U	0.0063	U	0.34	U	0.005	U
n-Butylbenzene	12	100	0.0015	U	4.9		0.00025	J	1.3		0.001	U
n-Propylbenzene	3.9	100	0.0015	U	7.1		0.00031	J	1.3		0.001	U
Naphthalene	12	100	0.0061	U	1.2		0.0009	J	0.47		0.004	U
o-Chlorotoluene			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
o-Xylene			0.0015	U	0.043	J	0.0012	U	0.032	J	0.001	U
p-Chlorotoluene			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
p-Diethylbenzene			0.003	U	3		0.0025	U	0.47		0.002	U
p-Ethyltoluene			0.003	U	0.025	J	0.0025	U	0.056	J	0.002	U
p-Isopropyltoluene			0.0015	U	0.015	J	0.0012	U	0.0017	J	0.001	U
p/m-Xylene			0.003	U	0.13	U	0.0025	U	0.14	U	0.002	U
sec-Butylbenzene	11	100	0.0015	U	1.4		0.00025	J	1		0.001	U
Styrene			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
tert-Butylbenzene	5.9	100	0.003	U	0.2		0.0025	U	0.074	J	0.002	U
Tetrachloroethene	1.3	19	0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
Toluene	0.7	100	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
trans-1,2-Dichloroethene	0.19	100	0.0023	U	0.098	U	0.0019	U	0.1	U	0.0015	U
trans-1,3-Dichloropropene			0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
trans-1,4-Dichloro-2-butene			0.0076	U	0.32	U	0.0063	U	0.34	U	0.005	U
Trichloroethene	0.47	21	0.00076	U	0.022	U	0.00063	U	0.034	U	0.0005	U
Trichlorofluoromethane			0.0061	U	0.26	U	0.005	U	0.27	U	0.004	U
Vinyl acetate			0.015	U	0.65	U	0.012	U	0.68	U	0.01	U
Vinyl chloride	0.02	0.9	0.0015	U	0.065	U	0.0012	U	0.068	U	0.001	U
Xylenes, Total	1.6	100	0.0015	U	0.043	J	0.0012	U	0.032	J	0.001	U
Volatile Organics by EPA 5035 High												
1,1,1,2-Tetrachloroethane			-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	0.68	100	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane			-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane			-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	0.27	26	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.33	100	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane			-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene			-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane			-	-	-	-	-	-

Table 4
Soil Endpoint Analytical Summary Table
251 Douglass Street, Brooklyn, NY
C224367

LOCATION				EP-1-012023		EP-1-010924		EP-2-012023		EP-2-010924		EP-3-012023		EP-3-010924		EP-4-012023		EP-4-010924		EP-5-012023		EP-5-010924		EP-6-012023		EP-6-010924		EP-7-012023		EP-7-010924		EP-8-012023		EP-8-010924		EP-9_120424		EP-10-110424		EP-11-102924		EP-12-102924		EP-13-102324		EP-13-122723		EP-13-122723		EP-14-121223		EP-14-121223		EP-15-121223		EP-15-121223		EP-16-121223		EP-16-121223		EP-17-121023	
SAMPLING DATE		NY-RESGW	NY-RESRR	11/29/2023		1/9/2024		11/29/2023		1/9/2024		11/29/2023		1/9/2024		11/29/2023		1/9/2024		11/29/2023		1/9/2024		11/29/2023		1/9/2024		11/29/2023		1/9/2024		11/29/2023		1/9/2024		12/6/2023		11/6/2024		10/29/2024		10/30/2024		10/23/2023		12/27/2023		12/27/2023		11/6/2024		11/6/2024		12/1/2023		12/1/2023		11/29/2023		11/29/2023		12/3/2024	
LAB SAMPLE ID				L2370317-01		L2405250-01		L2370317-04		L2405250-08		L2370317-05		L2405250-01		L2370317-06		L2405250-06		L2370317-07		L2405250-07		L2370317-08		L2405250-08		L2370317-09		L2405250-09		L2370317-10		L2405250-10		L2470507-01		L2464203-01		L2463100-01		L2463171-01		L2376196-01		L2405182-01		L2373527-01		L2405188-01		L2375527-02		L2405181-02		L2375527-03		L2405181-03		L2435281-01	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Units			Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																																																													
Chromium, Hexavalent	mg/kg	19	110	0.498	J			0.476	J			0.216	J			0.194	J			0.893	U			0.903	U			0.948	U			0.924	U			0.265	J	0.75	U	0.996	U	0.969	U	0.892	U			0.447	J			0.937	U			0.342	J			0.914	U	
Cyanide, Total	mg/kg	27	27	1.1	U			0.72	J			1.1	U			0.46	J			1.1	U			1.1	U			1.1	U			1.1	U			0.69	J	1.1	U	1.1	U	0.3	J	1.1	U			0.43	J			1.1	U			1.1	U			1	U	
Solids, Total	%			90.4		83.6		84.1		87.3		89.8		87.3		87.4		86.4		89.4		87.2		88.6		89.1		84.4		88.9		86.6		86.8		79.2		91.4		80.3		84.3		89.7		87.2		85.4		84.8		84.8		87.5	
Organochlorine Pesticides by GC																																																												
4,4'-DDD	mg/kg	14	13	0.00573	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00169				0.0031				0.00179	U			0.00176	U	
4,4'-DDE	mg/kg	17	8.9	0.00173	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00184				0.00235				0.00179	U			0.00176	U	
4,4'-DDT	mg/kg	136	7.9	0.00173	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00386	JP			0.00861				0.00179	U			0.00176	U	
Aldrin	mg/kg	0.19	0.097	0.00173	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00174	U			0.00184	U			0.00179	U			0.00176	U	
Alpha-BHC	mg/kg	0.02	0.48	0.00072	U			0.00076	U			0.00069	U			0.00074	U			0.00073	U			0.00073	U			0.00753	U			0.00753	U			0.00766	U	0.00694	U	0.00817	U	0.00757	U	0.00721	U			0.00726	U			0.00767	U			0.00746	U			0.00734	U	
Beta-BHC	mg/kg	0.09	0.36	0.00173	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00174	U			0.00184	U			0.00179	U			0.00176	U	
Chlordane	mg/kg	0.91	4.2	0.0144	U			0.0152	U			0.014	U			0.0148	U			0.0146	U			0.0143	U			0.0151	U			0.0151	U			0.0162	U	0.0139	U	0.0163	U	0.0151	U	0.0144	U			0.0206				0.0232				0.0149	U			0.0147	U	
cis-Chlordane	mg/kg	2.9	4.2	mg/kg	0.00216	U		0.00228	U			0.0021	U			0.00222	U			0.00219	U			0.00214	U			0.00226	U			0.00226	U			0.00243	U	0.00208	U	0.00245	U	0.00227	U	0.00216	U			0.00384				0.00476				0.00224	U			0.0022	U	
Delta-BHC	mg/kg	0.25	100	0.00173	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00174	U			0.00184	U			0.00179	U			0.00176	U	
Dieldrin	mg/kg	0.1	0.2	mg/kg	0.00108	U		0.00114	U			0.00105	U			0.00111	U			0.0011	U			0.00107	U			0.00113	U			0.00113	U			0.00123	U	0.00104	U	0.00122	U	0.00114	U	0.00108	U			0.00109	U			0.00115	U			0.00112	U			0.0011	U	
Endosulfan I	mg/kg	102	24	mg/kg	0.00173	U		0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00174	U			0.00184	U			0.00179	U			0.00176	U	
Endosulfan II	mg/kg	102	24	mg/kg	0.00173	U		0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00174	U			0.00184	U			0.00179	U			0.00176	U	
Endosulfan sulfate	mg/kg	1000	24	mg/kg	0.00072	U		0.00076	U			0.00069	U			0.00074	U			0.00073	U			0.00073	U			0.00753	U			0.00753	U			0.00766	U	0.00694	U	0.00817	U	0.00757	U	0.00721	U			0.00726	U			0.00767	U			0.00746	U			0.00734	U	
Endrin	mg/kg	0.06	11	0.00072	U			0.00076	U			0.00069	U			0.00074	U			0.00073	U			0.00073	U			0.00753	U			0.00753	U			0.00766	U	0.00694	U	0.00817	U	0.00757	U	0.00721	U			0.00726	U			0.00767	U			0.00746	U			0.00734	U	
Endrin aldehyde	mg/kg	--	--	0.00216	U			0.00228	U			0.0021	U			0.00222	U			0.00219	U			0.00214	U			0.00226	U			0.00226	U			0.00243	U	0.00208	U	0.00245	U	0.00227	U	0.00216	U			0.00218	U			0.0023	U			0.00224	U			0.0022	U	
Endrin ketone	mg/kg	--	--	0.00173	U			0.00182	U			0.00168	U			0.00178	U			0.00175	U			0.00171	U			0.00181	U			0.00181	U			0.00184	U	0.00167	U	0.00196	U	0.00182	U	0.00173	U			0.00174	U			0.00184	U			0.00179	U			0.00176	U	
Heptachlor	mg/kg	0.38	2.6	mg/kg	0.000864	U		0.000912	U			0.000839	U			0.000889	U			0.000876	U			0.000856	U			0.000904	U			0.000904	U			0.000971	U	0.000833	U	0.00098	U	0.000909	U	0.000865	U			0.000871	U			0.000921	U			0.000896	U			0.000881	U	
Heptachlor epoxide	mg/kg	--	--	mg/kg	0.00324	U		0.00342	U			0.00315	U			0.00333	U			0.00329	U			0.00321	U			0.00339	U			0.00339	U			0.00364	U	0.00312	U	0.00367	U	0.00341	U	0.00324	U			0.00411	I			0.00345	U			0.0036	U			0.0033	U	
Lindane	mg/kg	0.1	1.3	mg/kg	0.00173	U		0.00076	U			0.00069	U			0.00074	U			0.00073	U			0.00073	U			0.00753	U			0.00753	U			0.00766	U	0.00694	U	0.00817	U	0.00757	U	0.00721	U			0.00726	U			0.00767	U			0.00746	U			0.00734	U	
Methoxychlor	mg/kg	--	--	0.00324	U			0.00342	U			0.00315	U			0.00333	U			0.00329	U			0.00321	U			0.00339	U			0.00339	U			0.00364	U	0.00312	U	0.00367	U	0.00341	U	0.00324	U			0.00327	U			0.00345	U			0.00336	U			0.0033	U	
Toxaphene	mg/kg	--	--	0.0081	U			0.0086	U			0.0079	U			0.0083	U			0.0082	U			0.0081	U			0.0339	U			0.0339	U			0.0364	U	0.0312	U	0.0367	U	0.0341	U	0.0324	U			0.0327	U			0.0345	U			0.0336	U			0.033	U	
trans-Chlordane	mg/kg	2.9	4.2	mg/kg	0.00216	U		0.00228	U			0.0021	U			0.00222	U			0.00219	U			0.00214	U			0.00226	U			0.00226	U			0.00243	U	0.00208	U	0.00245	U	0.00227	U	0.00216	U			0.00318	JP			0.00345	U			0.00224	U			0.0022	U	
Perfluorinated Alkyl Acids by EPA 537.1																																																												
1H,1H,2H,2H-Perfluorodecanesulfonic acid	ng/kg	--	--	0.0224	U																																																							
1H,1H,2H,2H-Perfluorooctanesulfonic acid	ng/kg	--	--			0.000797	U			0.000787	U			0.000797	U			0.000796	U			0.00079	U			0.000778	U			0.000774	U			0.00081	U	0.00162		0.0008	U	0.000796	U	0.000796	U			0.000766	U			0.000766	U			0.000768	U			0.000799	U			0.000795	U	0.000783	U
N-Ethyl Perfluorooctanesulfonamidoacetic acid	ng/kg	--	--			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
N-Methyl Perfluorooctanesulfonamidoacetic acid	ng/kg	--	--			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorobutanesulfonic acid (PFBS)	ng/kg	375	73.5			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000231				0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorobutanoic acid (PFBA)	ng/kg	375	22.4			0.000797	U			0.000787	U			0.000797	U			0.000796	U			0.00079	U			0.000778	U			0.000774	U			0.00081	U	0.00206	J	0.0008	U	0.000796	U	0.000796	U			0.000918	J			0.000798	U			0.000799	U			0.000795	U	0.000783	U
Perfluorodecanesulfonic Acid (PFDS)	ng/kg	375	77.3			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorodecanoic Acid (PFDA)	ng/kg	375	76.2			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000378	JP			0.000393	JP			0.000196	U			0.0002	U			0.000199	U	0.000196	U
Perfluorododecanoic Acid (PFDoA)	ng/kg	387	65.1			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluoroheptanesulfonic Acid (PFHpS)	ng/kg	375	65.9			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluoroheptanoic Acid (PFHpA)	ng/kg	375	69.9			0.00026	J			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000203	J			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorohexanesulfonic Acid (PFHxS)	ng/kg	300	46.4			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorohexanoic Acid (PFHxA)	ng/kg	300	24.4			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorononanoic Acid (PFNA)	ng/kg	375	95.1			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorooctanesulfonamide (PFOSA)	ng/kg	154	61.6			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorooctanesulfonic Acid (PFOS)	ng/kg	3.6	0.88	0.00216		0.00228		0.0021		0.00222		0.00219		0.00214		0.00226		0.00243		0.00208		0.00245		0.00227		0.00216		0.00218		0.0023		0.00224		0.00308		0.00682		0.00203		0.00183	J	0.00132	J																		
Perfluorooctanoic Acid (PFOA)	ng/kg	0.066	0.033	0.00216		0.00228		0.0021		0.00222		0.00219		0.00214		0.00226		0.00243		0.00208		0.00245		0.00227		0.00216		0.00218		0.0023		0.00224		0.00308		0.00682		0.00203		0.00183	J	0.00132	J																		
Perfluoropentanesulfonic Acid (PFPeS)	ng/kg	375	67.1			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluoropentanoic Acid (PFPeA)	ng/kg	375	69.9			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorotetradecanoic Acid (PFTeA)	ng/kg	476	56.7			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluorotridecanoic Acid (PFTrDA)	ng/kg	430	56.7			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.0002	U	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
Perfluoroundecanoic Acid (PFUnA)	ng/kg	387	65.1			0.000199	U			0.000197	U			0.000199	U			0.000198	U			0.000197	U			0.000194	U			0.000194	U			0.000202	U	0.000198	U	0.00023	J	0.000199	U	0.000199	U			0.000199	U			0.0002	U			0.000199	U			0.0002	U			0.000199	U	0.000196	U
PFOA/PFOS, Total	ng/kg	--	--	0.00432		0.00456		0.0042		0.00444		0.00438		0.00428		0.00452		0.00486		0.00416		0.0049		0.00454		0.00432		0.00436		0.0046		0.00448		0.00616		0.01364		0.00406		0.00366	J	0.00264	J																		
Polychlorinated Biphenyls by GC																																																											
Aroclor 1016	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1221	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1232	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1242	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1248	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1254	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.00641	J	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1260	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0213	J			0.0575	U			0.0557	U	
Aroclor 1262	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0543	U			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.0539	U			0.0574	U			0.0575	U			0.0557	U	
Aroclor 1268	mg/kg	3.2	1	0.0574	U			0.0568	U			0.0519	U			0.0539	U			0.0542	U			0.0519	U			0.0553	U			0.0109	J			0.0602	U	0.0522	U	0.0592	U	0.0556	U	0.0539	U			0.00665	J			0.00795	J			0.0575	U			0.0557	U	
PCBs, Total	mg/kg	3.2	1	0.0115	U			0.0114	U			0.0104	U			0.0108	U			0.0108	U			0.0104	U			0.0111	U			0.0109	J			0.0121	U	0.0104	U	0.0118	U	0.0111	U	0.0108	U			0.00641	J			0.0115	J			0.0115	U			0.0111	U			0.0112	U	
Semivolatile Organics by GC/MS																																																											
1,2,4,5-Tetrachlorobenzene	mg/kg	--	--	mg/kg	0.18	U		1.9	U			0.18	U			0.19	U			0.18	U			0.18	U			0.19	U			0.94	U			0.2	U	0.18	U	0.2	U	0.19	U	0.18	U			0.19	U			0.19	U			0.19	U			0.19	U		
1,2,4-Trichlorobenzene	mg/kg	--	--	mg/kg	0.18	U		1.9	U			0.18	U			0.19	U			0.18	U			0.18	U			0.19	U			0.94	U			0.2	U	0.18	U	0.2	U	0.19	U	0.18	U			0.19	U			0.19	U			0.19	U			0.19	U		
1,2-Dichlorobenzene	mg/kg	1.1	100	mg/kg	0.18	U		1.9	U			0.18	U			0.19	U			0.18	U			0.18	U			0.19	U			0.94	U			0.2	U	0.003	J	0.2	U	0.19	U	0.18	U			0.19	U			0.19	U			0.19	U			0.19	U		
1,3-Dichlorobenzene	mg/kg	2.4	49	mg/kg	0.18	U		1.9	U			0.18	U			0.19	U			0.18	U			0.18	U			0.19	U			0.94	U			0.2	U	0.18	U	0.2	U	0.19	U	0.18	U			0.19	U			0.19	U			0.19	U			0.19	U		
1,4-Dichlorobenzene	mg/kg	1.8	13	mg/kg	0.18	U		1.9	U			0.18	U			0.19	U			0.18	U			0.18	U			0.19	U			0.94	U			0.2	U	0.18	U	0.2	U	0.19	U	0.18	U			0.19	U			0.19	U			0.19	U			0.19	U		
1,4-Dioxane	mg/kg	0.1	13	mg/kg	0.29	U		0.29	U			0.028	U			0.027	U			0.026	U			0.026	U			0.027	U			0.14	U			0.031	U	0.026	U	0.03	U	0.029	U	0.027	U			0.028	U			0.028	U			0.028	U			0.028	U			0.028	U		
2,4,5-Trichlorophenol	mg/kg	--	--	mg/kg	0.18	U		1.9	U			0.18	U			0.19	U			0.18	U			0.18	U			0.19	U			0.94	U			0.2	U	0.18	U	0.2	U	0.19	U	0.18	U			0.19	U			0.19	U			0.19	U			0.19	U		
2,4,6-Trichlorophenol	mg/kg	--	--	mg/kg	0.11	U		1.2	U			0.11	U			0.11	U			0.11	U			0.11	U			0.12	U			0.56	U			0.12	U	0.11	U	0.12	U	0.12	U	0.11	U			0.11	U			0.11	U			0.12	U			0.12	U		
2,4-Dichlorophenol	mg/kg	--	--	mg/kg	0.18	U		1.7	U			0.16	U			0.17	U			0.16	U			0.16	U			0.17	U			0.84	U			0.18	U	0.16	U	0.18	U	0.17	U	0.16	U			0.17	U			0.17	U			0.17	U			0.17	U		
2,4-Dimethylphenol	mg/kg	--	--	mg/kg	0.18	U		1.9	U			0.18	U			0.065	J			0.18	U			0.18	U			0.19	U		

Table 4
Soil Endpoint Analytical Summary Table
251 Douglass Street, Brooklyn, NY
C224367

LOCATION			SP-18-103034	SP-19-103024	SP-20-103024	SP-21-122722	SP-21-122722	SP-22-122722	SP-22-122722	SP-23-122722	SP-23-122722	SP-24-122722	SP-24-122722	SP-25-120226	SP-25-091624	SP-27-091624	SP-28-091624	SP-29-091624	SP-30-122722	SP-31-122722	SP-32-122722	SP-33-122722	SP-33-122722	SP-34-LS7-010924	SP-34-091624	SP-35-091624	SP-36-091324	SP-37-010924	SP-38-122722
SAMPLING DATE	NY-RESGW	NY-RESRR	10/30/2024	10/30/2024	10/29/2024	12/27/2023	12/27/2023	12/27/2023	12/27/2023	12/13/2023	12/13/2023	12/13/2023	12/13/2023	12/13/2023	9/24/2024	9/24/2024	9/24/2024	9/24/2024	12/27/2023	12/27/2023	12/27/2023	12/27/2023	12/27/2023	9/24/2024	9/24/2024	9/24/2024	9/24/2024	9/24/2024	12/27/2023
LAB SAMPLE ID			L2463371-02	L2463371-03	L2462503-01	L2376196-02	L2465182-02	L2376127-04	L2403181-04	L2376127-05	L2403181-05	L2376127-06	L2403181-06	L2476334-01	L2465300-03	L2465300-04	L2465300-05	L2465300-06	L2465075-01	L2376196-10	L2465182-09	L2376196-03	L2403183-03	L2376196-04	L2465182-04	L2403249-01	L2500230-01	L2453030-02	L2453030-01	L2452897-01	L2403075-02	L2376196-11
SAMPLE TYPE			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Cadmium			Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual	Results Qual
General Chemistry																														
Chromium, Hexavalent			19 3.10 mg/kg	1.03 U	0.937 U	0.916 U	0.952 U			0.377 J		0.46 J		0.194 J		0.92 U	1.23 U	0.996 U	1.03 U	0.937 U	0.927 U			1.06 U		0.917 U		0.986 U	0.241 J	1.01 U	1.03 U	1.15 U	0.92 U	0.931 U
Cyanide, Total			27 2.5 mg/kg	1 J	0.36 J	1.1 U	0.34 J			0.27 J		0.33 J		1 U	0.47 J	0.42 J	0.87 J	1.1 U	0.29 J			1.4		1.2 U	1.2 U	0.51 J	1.4 U	1.1 U	0.32 J	
Solids, Total			%	77.9	85.4	87.3	84	84	87.6	87.6	84.7	84.7	87.7	87.7	69.9	84.8	80.3	77.3	85.4	86.3	86.3	75.3	75.3	87.2	87.2	81.1	83.1	79.4	77.4	69.4	87	85.9
Organochlorine Pesticides by GC																														
4,4'-DDD			14 2.3 mg/kg	0.00351 U	0.00181 U	0.00179 U	0.00258			0.00146 J		0.0017 J		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00204 JP	0.00317			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 U	0.0018 U	0.00156 J
4,4'-DDE			17 8.9 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00183 U			0.00116 J		0.00135 J		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00192 U	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 JP	0.0018 U	0.000594 JP
4,4'-DDT			136 7.9 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00561			0.00514		0.00498		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00574	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00312 J	0.00565	0.00288
Aldrin			19 0.097 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00183 U			0.00173 U		0.00167 U		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00182 U	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 U	0.0018 U	0.00218 U
Alpha-BHC			0.02 0.48 mg/kg	0.000837 U	0.000761 U	0.000745 U	0.000761 U			0.000719 U		0.000779 U		0.000728 U		0.000721 U	0.000909 U	0.000803 U	0.000832 U	0.000758 U	0.000758 U			0.000753 U		0.000752 U		0.000698 U	0.000794 U	0.000828 U	0.000853 U	0.000971 U	0.000751 U	0.000775 U
Beta-BHC			0.09 1.4 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00183 U			0.00173 U		0.00167 U		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00182 U	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 U	0.0018 U	0.0018 U
Chlordane			97 74.9 mg/kg	0.0167 U	0.0152 U	0.0149 U	0.0187 JP			0.0183		0.0147 JP		0.0146 U		0.0144 U	0.0181 U	0.0161 U	0.0166 U	0.0173	0.0441			0.052		0.0151 U		0.0156 U	0.0159 U	0.0166 U	0.0171 U	0.0187 U	0.024	0.015 U
cis-Chlordane			2.9 4.2 mg/kg	0.00251 U	0.00228 U	0.00224 U	0.00177 JP			0.00191 J		0.00196 J		0.00218 U		0.00216 U	0.00297 U	0.00241 U	0.0025 U	0.000802 JP	0.00341			0.00303		0.00226 U		0.00234 U	0.00239 U	0.00249 U	0.00256 U	0.0028 U	0.00177 J	0.00225 U
Delta-BHC			19 84.9 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00183 U			0.00167 U		0.00167 U		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00182 U	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 U	0.0018 U	0.0018 U
Dieldrin			0.1 0.2 mg/kg	0.00126 U	0.00114 U	0.00112 U	0.00114 U			0.00108 U		0.00107 U		0.00109 U		0.00108 U	0.00148 U	0.0012 U	0.00125 U	0.00114 U	0.00114 U			0.00125 U		0.00113 U		0.00117 U	0.00119 U	0.00124 U	0.00128 U	0.0014 U	0.00113 U	0.00112 U
Endosulfan I			102 24 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00183 U			0.00173 U		0.00167 U		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00182 U	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 U	0.0018 U	0.0018 U
Endosulfan II			102 24 mg/kg	0.00201 U	0.00183 U	0.00179 U	0.00183 U			0.00173 U		0.00167 U		0.00175 U		0.00173 U	0.00218 U	0.00193 U	0.002 U	0.00182 U	0.00182 U			0.002 U		0.00181 U		0.00168 U	0.00191 U	0.00199 U	0.00205 U	0.00234 U	0.0018 U	0.0018 U
Endosulfan sulfate			1000 24 mg/kg	0.00157 JP	0.000761 U	0.000745 U	0.000761 U			0.000719 U		0.000779 U		0.000728 U		0.000721 U	0.000909 U	0.000803 U	0.000832 U	0.000759 U	0.000758 U			0.000835 U		0.000753 U		0.000782 U	0.000796 U	0.000828 U	0.000853 U	0.000971 U	0.000751 U	0.00075 U
Endrin			0.06 11 mg/kg	0.000837 U	0.000761 U	0.000745 U	0.000761 U			0.000719 U		0.000779 U		0.000728 U		0.000721 U	0.000909 U	0.000803 U	0.000832 U	0.000759 U	0.000758 U			0.000835 U		0.000753 U		0.000782 U	0.000796 U	0.000828 U	0.000853 U	0.000971 U	0.000751 U	0.000775 U
Endrin aldehyde			4421.93 mg/kg	0.00251 U	0.00228 U	0.00224 U	0.00228 U			0.00216 U		0.00234 U		0.00218 U		0.00216 U	0.00297 U	0.00241 U	0.0025 U	0.00228 U	0.00227 U			0.0025 U		0.00226 U		0.00234 U	0.00239 U	0.00249 U	0.00256 U	0.0028 U	0.00225 U	0.00225 U
Endrin ketone			13494.70 mg/kg	0.000719 U	0.000653 U	0.00172 U	0.000653 U			0.000619 U		0.000167 U		0.000175 U		0.000173 U	0.000218 U	0.000193 U	0.002 U	0.000182 U	0.000182 U			0.002 U		0.000181 U		0.000168 U	0.000191 U	0.000199 U	0.000205 U	0.000234 U	0.0018 U	0.0018 U
Heptachlor			0.38 2.1 mg/kg	0.001 U	0.000914 U	0.000894 U	0.000913 U			0.000863 U		0.000835 U		0.000874 U		0.000865 U	0.00109 U	0.000964 U	0.000998 U	0.000911 U	0.000909 U			0.001 U		0.000904 U		0.000938 U	0.000955 U	0.000996 U	0.00102 U	0.00117 U	0.000901 U	0.0009 U
Heptachlor epoxide			0.024 57.3 mg/kg	0.00272 U	0.00248 U	0.00243 U	0.00335 U	0.00242 U		0.00234 U		0.00191 U		0.00328 U		0.00234 U	0.00446 U	0.00342 U	0.00374 U	0.00341 U	0.00223 J			0.00376 U		0.00339 U		0.00312 U	0.00358 U	0.00374 U	0.00384 U	0.00421 U	0.00338 U	0.00337 U
Lindane			0.5 1.3 mg/kg	0.000837 U	0.000761 U	0.000745 U	0.000761 U			0.000719 U		0.000779 U		0.000728 U		0.000721 U	0.000909 U	0.000803 U	0.000832 U	0.000759 U	0.000758 U			0.000835 U		0.000753 U		0.000782 U	0.000796 U	0.000828 U	0.000853 U	0.000971 U	0.000751 U	0.000775 U
Methoxychlor			2.43.5 mg/kg	0.00277 U	0.00343 U	0.00335 U	0.00342 U			0.00324 U		0.00351 U		0.00328 U		0.00324 U	0.00446 U	0.00362 U	0.00374 U	0.00341 U	0.00341 U			0.00376 U		0.00339 U		0.00352 U	0.00358 U	0.00374 U	0.00384 U	0.00421 U	0.00338 U	0.00337 U
Toxaphene			1.9 3.2 mg/kg	0.0277 U	0.0343 U	0.0335 U	0.0342 U			0.0324 U		0.0351 U		0.0328 U		0.0324 U	0.0446 U	0.0362 U	0.0374 U	0.0341 U	0.0341 U			0.0376 U		0.0339 U		0.0352 U	0.0358 U	0.0374 U	0.0384 U	0.0421 U	0.0338 U	0.0337 U
trans-Chlordane			4.2 2.9 mg/kg	0.00251 U	0.00228 U	0.00224 U	0.00163 JP			0.00205 J		0.00197 JP		0.00218 U		0.00216 U	0.00297 U	0.00241 U	0.0025 U	0.00228 U	0.00505			0.00206 JP		0.00226 U		0.00234 U	0.00239 U	0.00249 U	0.00256 U	0.0028 U	0.00225 U	0.00225 U
Perfluorinated Alkyl Acids by EPA 1633																														
1H,1H,2H,2H-Perfluorodecanesulfonic	39108-34-4	– –	mg/kg	0.000841	0.000798 U	0.000798 U	–	–	0.000795 U	–	–	0.000794 U	–	0.000792 U	–	0.000794 U	0.000798 U	0.0008 U	0.000798 U	0.0008 U	0.000762 U	–	–	0.000796 U	–	0.000799 U	–	0.000792 U	0.000771 U	0.000794 U	0.000798 U	0.000798 U	0.000799 U	0.00076 U	–
1H,1H,2H,2H-Perfluorooctanesulfonic	27619-97-2	– –	mg/kg	0.000796 U	0.000798 U	0.000197 J	–	–	0.000653 J	–	–	0.000794 U	–	0.000792 U	–	0.000794 U	0.000798 U	0.0008 U	0.000798 U	0.0008 U	0.000762 U	–	–	0.000796 U	–	0.000799 U	–	0.000792 U	0.000771 U	0.000794 U	0.000798 U	0.000798 U	0.000799 U	0.00076 U	–
N-Ethyl Perfluorooctanesulfonamido	2991-50-6	– –	mg/kg	0.000598 U	0.000608 U	0.000608 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000608 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.0002 U	–	0.0002 U	–	0.000598 U	0.000608 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
N-Methyl Perfluorooctanesulfonamic	2355-31-9	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.0002 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.0002 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorobutanoic Acid (PFBA)	375-22-4	– –	mg/kg	0.000598 U	0.000598 U	0.000598 U	–	–	0.000598 U	–	–	0.000598 U	–	0.000598 U	–	0.000598 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.00054 J	–	0.000799 U	–	0.000598 U	0.000598 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorodecanesulfonic Acid (PFDS	335-77-3	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorodecanoic Acid (PFDA)	335-76-2	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000685 J	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorododecanoic Acid (PFDoA)	307-55-1	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluoroheptanesulfonic Acid (PFHp	375-92-8	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluoroheptanoic Acid (PFHpA)	375-85-9	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000668 J	–	0.000685 J	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorohexanesulfonic Acid (PFHxS	355-46-4	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorohexanoic Acid (PFHxA)	307-24-4	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorononanoic Acid (PFNA)	375-95-1	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorooctanesulfonamide (PFOSA	754-91-6	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.003 0.048 mg/kg	0.000599 J	0.000495 J	0.000277 J	–	–	0.000637	–	–	0.000598 J	–	0.000246	–	0.000598 J	0.000504 J	0.000191 J	0.000602 J	0.000324	0.000944	0.0013	–	–	0.000192 JF	–	0.000171 J	0.000193	0.000598 U	0.000245	0.000324	0.00119	–
Perfluorooctanoic Acid (PFOA)	335-67-1	0.0008 0.033 mg/kg	0.00017 J	0.000469 J	0.000127 J	–	–	0.00018	–	–	0.00027	–	0.000124 J	–	0.000068 J	0.000354 J	0.000173 J	0.000092 J	0.000224	0.000177 J	0.000484	–	–	0.000178 J	–	0.000128 J	0.000193	0.000045 J	0.000154 J	0.0001 J	0.000137 J	0.000115 J	–
Perfluoropentanoic Acid (PFPeA)	2706-90-3	– –	mg/kg	0.000512 J	0.000599 U	0.0002 U	–	–	0.000591 J	–	–	0.000537 J	–	0.000498 J	–	0.000397 J	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.00024 J	–	0.000599 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorotetradecanoic Acid (PFTeD	376-06-7	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	– –	mg/kg	0.000599 U	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	– –	mg/kg	0.000536 J	0.000599 U	0.0002 U	–	–	0.000599 U	–	–	0.000598 U	–	0.000598 U	–	0.000599 U	0.000599 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–	–	0.000599 U	–	0.0002 U	–	0.000598 U	0.000599 U	0.000598 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	–
PFOA/PFOS, Total		soil –	ng/kg	–	–	–	–	–	0.00122 –	–	–	0.00116 –	–	0.00037 J	–	0.000248 J	–	–	–	–	0.00112 J	–	–	0.00178 –	–	0.00037 J	–	0.000299 J	0.000193 U	–	–	0.00134 –	–
Polychlorinated Biphenyls by GC																														
Aroclor 1016			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1221			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1232			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1242			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1248			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1254			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.00635 J			0.0124 J		0.0569 U		0.0545 U		0.00629 JP	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.00635 J			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1260			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1262			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.0528 U		0.0569 U		0.0545 U		0.0566 U	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0558 U			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Aroclor 1268			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.0547 U			0.00842 J		0.0569 U		0.0545 U		0.027 J	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.0136 J			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
PCBs, Total			3.2 1 mg/kg	0.0616 U	0.0552 U	0.0526 U	0.00635 J			0.0124 J		0.0569 U		0.0545 U		0.0333 J	0.0732 U	0.0578 U	0.0622 U	0.0571 U	0.00952 J			0.0645 U		0.0538 U		0.0579 U	0.0548 U	0.0586 U	0.0622 U	0.0691 U	0.0545 U	0.0547 U
Semivolatile Organics by GC/MS																														
1,2,4,5-Tetrachlorobenzene		– –	mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
1,2,4-Trichlorobenzene		– –	mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
1,2-Dichlorobenzene		1.1 100 mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
1,3-Dichlorobenzene		2.4 49 mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
1,4-Dichlorobenzene		1.8 13 mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
1,4-Dioxane		0.1 13 mg/kg	0.14 U	0.14 U	0.028 U	0.03 U			0.14 U		0.029 U		0.14 U		0.029 U	0.038 U	0.03 U	0.032 U	0.029 U	0.14 U			0.032 U		0.028 U		0.03 U	0.029 U	0.03 U	0.032 U	0.036 U	0.028 U	0.028 U
2,4,5-Trichlorophenol			3.4 1 mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
2,4,6-Trichlorophenol			69 58 mg/kg	0.64 U	0.58 U	0.11 U	0.58 U			0.56 U		0.58 U		0.56 U		0.11 U	0.15 U	0.12 U	0.13 U	0.12 U	0.57 U			0.13 U		0.11 U		0.12 U	0.12 U	0.12 U	0.13 U	0.14 U	0.11 U	0.12 U
2,4-Dichlorophenol			6.2 1.9 mg/kg	0.86 U	0.78 U	0.15 U	0.87 U			0.84 U		0.87 U		0.84 U		0.18 U	0.24 U	0.19 U	0.19 U	0.17 U	0.86 U			0.19 U		0.17 U		0.18 U	0.17 U	0.18 U	0.19 U	0.21 U	0.17 U	0.17 U
2,4-Dimethylphenol			1.1 100 mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2 U	0.2 U	0.2 U	0.21 U	0.24 U	0.19 U	0.19 U
2,4-Dinitrophenol			0.2 160 mg/kg	5.1 U	4.7 U	0.9 U	4.7 U			4.5 U		4.6 U		4.5 U		0.9 U	1.2 U	0.93 U	1 U	0.91 U	4.6 U			1 U		0.86 U		0.94 U	0.96 U	1 U	1.1 U	1.2 U	0.89 U	0.9 U
2,4-Dinitrotoluene			1.1 1.4 mg/kg	1.1 U	0.97 U	0.19 U	0.97 U			0.94 U		0.96 U		0.94 U		0.19 U	0.26 U	0.2 U	0.21 U	0.19 U	0.96 U			0.22 U		0.19 U		0.2

Table 4
Soil Endpoint Analytical Summary Table
251 Douglass Street, Brooklyn, NY
C224367

LOCATION		NY-RESGW	NY-RESRR		EP-3B-122723		EP-3N-122723		EP-2D-122723		EP-4D-122723		EP-4D-122723		DUP-1-122723		DUP-1-122723		DUP-1-122723		AQUICATS-091324		AQUICATS-091324		AQUICATS-102024		DUP-120324		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
SAMPLING DATE					12/27/2023		12/27/2023		12/27/2023		12/27/2023		12/27/2023		12/27/2023		12/27/2023		12/27/2023		9/13/2024		9/13/2024		10/29/2024		9/13/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024	
LAB SAMPLE ID					1240118Z2-10		1237619E-06		1240118Z-06		1237619E-05		1240118Z-05		1237619E-07		1240118Z2-07		1240118Z-07		1242607-02		1242607-02 R1		1246310E-08		1242607-04		1242503-02		1246310E-10		1246310E-11		1246422-02		1247033A-02		1247033E-04		1247033E-05		1247033E-06		1247033E-07		1250023A-02	
SAMPLE TYPE					SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	CasNum				Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																																															
Chromium, Hexavalent	18540-29-9	19	110	mg/kg	-	-	0.138	J	-	-	0.191	J	-	-	0.901	U	-	-	1.01	U	-	-	0.963	U	0.899	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	57-12-5	40	27	mg/kg	-	-	1.1	U	-	-	1.1	U	-	-	1.1	U	-	-	1.2	U	-	-	1.2	U	1	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solids, Total	NONE	-	-	%	85.9		89.2		89.2		89.1		89.1		88.8		88.8		79.5		83.1		90		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides by GC																																															
4,4'-DDD	72-54-8	14	13	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	72-55-9	17	8.9	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDT	50-29-3	136	7.9	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin	309-00-2	0.19	0.097	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	319-84-6	0.02	0.48	mg/kg	-	-	0.000738	U	-	-	0.000738	U	-	-	0.000734	U	-	-	0.000794	U	-	-	0.000781	U	0.000714	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC	319-85-7	0.09	0.36	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	57-74-9	-	-	mg/kg	-	-	0.0148	U	-	-	0.0148	U	-	-	0.0147	U	-	-	0.0159	U	-	-	0.0156	U	0.0143	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	5103-71-9	2.9	4.2	mg/kg	-	-	0.00221	U	-	-	0.00222	U	-	-	0.0022	U	-	-	0.00238	U	-	-	0.00234	U	0.00214	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta-BHC	319-86-8	0.25	100	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	60-57-1	0.1	0.2	mg/kg	-	-	0.00111	U	-	-	0.00111	U	-	-	0.0011	U	-	-	0.00119	U	-	-	0.00117	U	0.00107	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	959-98-8	102	24	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	33213-65-9	102	24	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	1031-07-8	1000	24	mg/kg	-	-	0.000738	U	-	-	0.000738	U	-	-	0.000734	U	-	-	0.000794	U	-	-	0.000781	U	0.000714	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	72-20-8	0.06	11	mg/kg	-	-	0.000738	U	-	-	0.000738	U	-	-	0.000734	U	-	-	0.000794	U	-	-	0.000781	U	0.000714	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	7421-93-4	-	-	mg/kg	-	-	0.00221	U	-	-	0.00222	U	-	-	0.0022	U	-	-	0.00238	U	-	-	0.00234	U	0.00214	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	53494-70-5	-	-	mg/kg	-	-	0.00177	U	-	-	0.00177	U	-	-	0.00176	U	-	-	0.0019	U	-	-	0.00187	U	0.00171	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	76-44-8	0.38	2.1	mg/kg	-	-	0.000886	U	-	-	0.000886	U	-	-	0.00088	U	-	-	0.000953	U	-	-	0.000937	U	0.000857	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	1024-57-3	-	-	mg/kg	-	-	0.00332	U	-	-	0.00332	U	-	-	0.0033	U	-	-	0.00357	U	-	-	0.00351	U	0.00321	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lindane	58-89-9	0.1	1.3	mg/kg	-	-	0.000738	U	-	-	0.000738	U	-	-	0.000734	U	-	-	0.000794	U	-	-	0.000781	U	0.000714	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	72-43-5	-	-	mg/kg	-	-	0.00332	U	-	-	0.00332	U	-	-	0.0033	U	-	-	0.00357	U	-	-	0.00351	U	0.00321	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	8001-35-2	-	-	mg/kg	-	-	0.0332	U	-	-	0.0332	U	-	-	0.033	U	-	-	0.0357	U	-	-	0.0351	U	0.0321	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	5103-74-2	-	-	mg/kg	-	-	0.00221	U	-	-	0.00222	U	-	-	0.0022	U	-	-	0.00238	U	-	-	0.00234	U	0.00214	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorinated Alkyl Acids by EPA 537																																														
1H,1H,2H,2H-Perfluorooctanesulfonic	27619-34-4	-	-	mg/kg	0.0008	U	-	-	0.000801	U	-	-	0.0008	U	-	-	0.000793	U	0.000792	U	-	-	0.000788	U	0.000796	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorooctanesulfon	27619-97-2	-	-	mg/kg	0.0008	U	-	-	0.000801	U	-	-	0.0008	U	-	-	0.000793	U	0.000792	U	-	-	0.000241	J	0.000796	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamid	2991-50-6	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonoami	4151-31-9	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic Acid (PFBA)	375-22-4	-	-	mg/kg	0.0008	U	-	-	0.000801	U	-	-	0.0008	U	-	-	0.000793	U	0.000792	U	-	-	0.000788	U	0.000796	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.000074	J	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic Acid (PFDA)	335-76-2	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic Acid (PFDoA)	307-55-1	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanesulfonic Acid (PFHp	375-92-8	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)	375-85-9	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.00053	J	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanesulfonic Acid (PFHx	355-46-4	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic Acid (PFHxA)	307-24-4	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanoic Acid (PFNA)	375-95-1	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonamide (PFOSA	754-91-6	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.001	0.048	mg/kg	0.000179	J	-	-	0.000171	J	-	-	0.00246	-	-	-	0.000231	J	0.00025	-	-	-	0.000197	U	0.000199	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanoic Acid (PFOA)	335-67-1	0.0008	0.033	mg/kg	0.00021	-	-	-	0.000517	-	-	-	0.0002	U	-	-	0.000209	-	0.000113	J	-	-	0.000047	J	0.000078	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic Acid (PFPeA)	2706-90-3	-	-	mg/kg	0.000053	J	-	-	0.000075	J	-	-	0.0004	U	-	-	0.000196	U	0.000196	U	-	-	0.000194	U	0.000198	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic Acid (PFTeD	376-06-7	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	-	-	mg/kg	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.000198	U	0.000198	U	-	-	0.000197	U	0.000199	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PFOA/PFOS, Total	null	-	-	mg/kg	0.000389	J	-	-	0.000688	J	-	-	0.00246	-	-	-	0.00044	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls by GC																																														
Aroclor 1016	12674-11-2	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	11104-28-2	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	11141-16-5	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	53469-21-9	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	12672-29-6	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	11097-69-1	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	11096-82-5	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	37324-23-5	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.0534	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	11100-14-4	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.00569	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs, Total	1336-36-3	3.2	1	mg/kg	-	-	0.0539	U	-	-	0.0539	U	-	-	0.0533	U	-	-	0.0602	U	-	-	0.0598	U	0.00569	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Organics by GC/MS																																														
1,2,4,5-Tetrachlorobenzene	95-94-3	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	1.1	100	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	2.4	49	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	1.8	13	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dioxane	123-91-1	0.1	13	mg/kg	-	-	0.027	U	-	-	0.028	U	-	-	0.028	U	-	-	0.03	U	0.031	U	0.03	U	0.027	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	95-95-4	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	88-06-2	-	-	mg/kg	-	-	0.11	U	-	-	0.11	U	-	-	0.11	U	-	-	0.12	U	0.12	U	0.12	U	0.11	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	120-83-2	-	-	mg/kg	-	-	0.16	U	-	-	0.17	U	-	-	0.17	U	-	-	0.18	U	0.19	U	0.18	U	0.16	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	105-67-9	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	51-28-5	-	-	mg/kg	-	-	0.88	U	-	-	0.9	U	-	-	0.89	U	-	-	0.96	U	1	U	0.96	U	0.87	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	121-14-2	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	606-20-2	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	91-58-7	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	95-57-8	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	91-57-6	-	-	mg/kg	-	-	0.22	U	-	-	0.027	J	-	-	0.22	U	-	-	2.4	-	5.7	-	2.4	-	0.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	95-48-7	0.33	100	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline	88-74-4	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	88-75-5	-	-	mg/kg	-	-	0.4	U	-	-	0.4	U	-	-	0.4	U	-	-	0.44	U	0.45	U	0.43	U	0.39	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	91-94-1	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	0.33	100	mg/kg	-	-	0.26	U	-	-	0.27	U	-	-	0.27	U	-	-	0.29	U	0.17	J	0.13	J	0.075	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	99-09-2	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-o-cresol	534-52-1	-	-	mg/kg	-	-	0.46	U	-	-	0.48	U	-	-	0.48	U	-	-	0.53	U	0.54	U	0.52	U	0.47	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	101-55-3	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	106-47-8	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	7005-72-3	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	100-01-6	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	100-02-7	-	-	mg/kg	-	-	0.26	U	-	-	0.26	U	-	-	0.26	U	-	-	0.28	U	0.29	U	0.28	U	0.25	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	83-32-9	98	100	mg/kg	-	-	0.15	U	-	-	0.11	J	-	-	0.029	J	-	-	0.46	-	0.81	-	0.88	-	0.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	208-96-8	107	100	mg/kg	-	-	0.15	U	-	-	0.14	J	-	-	0.15	U	-	-	1.3	-	2.8	-	1.8	-	0.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	mg/kg	-	-	0.18	U	-	-	0.19	U	-	-	0.18	U	-	-	0.2	U	0.21	U	0.2	U	0.18	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	120-12-7	1000	100	mg/kg	-	-	0.043	J	-	-	0.47	-	-	-	0.07	J	-	-	1.1	-	2	-	1.8	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	56-55-3	1	1	mg/kg	-	-	0.22	-	-	-	1.6	-	-	-	0.25	-	-	-	1.3	-	2.4	-	3.6	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	50-32-8	22	1	mg/kg	-	-	0.25	-	-	-	1.7	-	-	-	0.27	-	-	-	1	-	2.2	-	3.4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	205-99-2	1.7	1	mg/kg	-	-	0.29	-	-	-	1.8	-	-	-	0.29	-	-	-	1.2	-	2.6	-	2.9	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	191-24-2	1000	100	mg/kg	-	-	0.14	J	-	-	1	-	-	-	0.15	-	-	-	0.55	-	1.3	-	2.4	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	207-08-9	1.7	3.9	mg/kg	-	-	0.098	J	-	-	0.74	-	-	-	0.11	-	-	-	0.35	-	0.62	-	0.75	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5
2022 RI Groundwater Emergent Contaminants Analytical Results Summary
251 Douglass Street, Brooklyn, NY

Sample ID		NYSDEC TOGS Standards and Guidance Values - GA	GW-1		GW-2		GW-3		GW-4		GW-5		GW-6		GW-7		GW-8		EQUIPMENT BLANK		GW-DUP-1		EQUIPMENT BLANK	
York ID			L2266709-01		L2268641-02		L2268641-01		L2268133-01		L2268308-02		L2266709-02		L2268308-01		L2266709-03		L2267521-05		L2268133-02		L2268133-03	
Sampling Date			11/29/2022		12/7/2022		12/7/2022		12/5/2022		12/6/2022		11/29/2022		12/6/2022		11/29/2022		12/1/2022		12/5/2022		12/5/2022	
Client Matrix			WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Compound	**CAS Number**	ng/L	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perfluorinated Alkyl Acids by Isotope Dilution			ng/L		ng/L		ng/L		ng/L		ng/L		ng/L		ng/L		ng/L		ng/L		ng/L		ng/L	
Perfluorobutanoic Acid (PFBA)	375-22-4	100	17.6		NA		NA		4.32		18.7		35.2		9.99		20.8		1.79	U	17.8		1.79	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	100	40.4		NA		NA		8.34		52.4		80.3		19.9		68.7		1.79	U	45.7		1.79	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	100	9.4		NA		NA		0.885	J	12.6		17.2		3.58		7.84		1.79	U	6.58		1.79	U
Perfluorohexanoic Acid (PFHxA)	307-24-4	100	33.3		NA		NA		7.1		43.5		64.7		14.5		45.9		1.79	U	37.7		1.79	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	100	26		NA		NA		3.65		65.9		40.3		9.27		24		1.79	U	18.2		1.79	U
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	100	7.88		NA		NA		0.97	J	6.27		11		2.22		6.08		1.79	U	5.7		1.79	U
Perfluorooctanoic Acid (PFOA)	335-67-1	10	**98.2**		NA		NA		**13.8**		**94.5**		**215**		**43.4**		**107**		1.79	U	**63.5**		1.79	U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	100	1.85	U	NA		NA		1.84	U	4.29		1.81	U	1.79	U	1.8	U	1.51	J	1.9	U	1.79	U
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	100	1.85	U	NA		NA		1.84	U	1.8	U	0.977	J	1.79	U	0.683	J	1.79	U	1.9	U	1.79	U
Perfluorononanoic Acid (PFNA)	375-95-1	100	3.33		NA		NA		1.84	U	10.3		14.8		2.9		5.65		1.79	U	1.16	J	1.79	U
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	10	8.18		NA		NA		1.52	J	1.87		**44.1**		**15.5**		**25.9**		0.61	JF	7.89		1.79	U
Perfluorodecanoic Acid (PFDA)	335-76-2	100	1.85	U	NA		NA		1.84	U	0.324	J	1.41	J	0.394	J	1.76	J	1.79	U	0.694	J	1.79	U
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	100	1.85	U	NA		NA		1.84	U	14		3.8		1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	100	1.85	U	NA		NA		1.84	U	1.8	U	0.253	JF	1.79	U	0.324	J	1.79	U	1.9	U	1.79	U
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
Perfluorooctanesulfonamide (FOSA)	754-91-6	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
Perfluorododecanoic Acid (PFDoA)	307-55-1	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
Perfluorotetradecanoic Acid (PFTA)	376-06-7	100	1.85	U	NA		NA		1.84	U	1.8	U	1.81	U	1.79	U	1.8	U	1.79	U	1.9	U	1.79	U
PFOA/PFOS, Total	null	100	**106**		NA		NA		15.3	J	96.4		**259**		58.9		**133**		0.61	J	71.4		1.79	U

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for detected concentrations that exceed method dictated limits between the two GC columns used for analysis
NT=this indicates the analyte was not a target for this sample
NA=this indicates that the sample was not analyzed at the time of RIR submission
~=this indicates that no regulatory limit has been established for this analyte

Table 5
2022 RI Groundwater Volatile Organic Compounds Analytical Results Summary
251 Douglass Street, Brooklyn, NY

Sample ID		NYSDEC TOGS	GW-1		GW-2		GW-3		GW-4		GW-5		GW-6		GW-7		GW-8		TRIP BLANK		TRIP BLANK		EQUIPMENT BLANK		GW-DUP-1		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
York ID		Standards and	L2261709-01		L2268641-02		L2268641-01		L2268118-01		L2268306-02		L2261709-02		L2268306-01		L2266709-03		L2266709-06		L2267521-04		L2267521-05		L2268118-02		L2268118-03		L2268118-04		L2268306-03		L2268641-03	
Sampling Date		Guidance Values - GA	11/29/2022		12/7/2022		12/7/2022		12/5/2022		12/6/2022		11/29/2022		12/6/2022		11/29/2022		11/29/2022		12/1/2022		12/1/2022		12/5/2022		12/5/2022		12/5/2022		12/6/2022		12/7/2022	
Client Matrix			WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
SAMPLE DEPTH (ft.)																																		
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organics by GC/MS		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Methylene chloride	75-09-2	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,1-Dichloroethane	75-34-3	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Chloroform	67-66-3	7	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Carbon tetrachloride	56-23-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	1	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Tetrachloroethene	127-18-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichlorofluoromethane	75-69-4	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Bromodichloromethane	75-27-4	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropene, Total	542-75-6	~	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	563-58-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Bromoform	75-25-2	50	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	71-43-2	1	0.5	U	0.5	U	0.5	U	0.68		**3.6**		0.5	U	0.76		0.5	U	0.5	U	0.5	U	0.5	U	0.94		0.5	U	0.5	U	0.5	U	0.5	U
Toluene	108-88-3	5	2.5	U	2.5	U	2.5	U	2.5	U	0.86	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Ethylbenzene	100-41-4	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Chloromethane	74-87-3	~	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Bromomethane	74-83-9	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Vinyl chloride	75-01-4	2	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	1.4	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,1-Dichloroethene	75-35-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	156-60-5	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichloroethene	79-01-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	95-50-1	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,3-Dichlorobenzene	541-73-1	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,4-Dichlorobenzene	106-46-7	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl tert butyl ether	1634-04-4	10	4.1		0.84	J	0.99	J	3.3		1.3	J	1.5	J	0.8	J	3.6		2.5	U	2.5	U	2.5	U	3.8		2.5	U	2.5	U	2.5	U	2.5	U
p/m-Xylene	179601-23-1	5	2.5	U	2.5	U	2.5	U	2.5	U	4		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
o-Xylene	95-47-6	5	2.5	U	2.5	U	2.5	U	2.5	U	1.5	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Xylenes, Total	1330-20-7	~	2.5	U	2.5	U	2.5	U	2.5	U	5.5	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dichloroethene, Total	540-59-0	~	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Dibromomethane	74-95-3	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2,3-Trichloropropane	96-18-4	0.04	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Acrylonitrile	107-13-1	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Dichlorodifluoromethane	75-71-8	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	50	7.1		5	U	5	U	2.1	J	3.4	J	4.2	J	1.8	J	11		11		13		2.5	J	1.7	J	5	U	6.8		4.9	J
Carbon disulfide	75-15-0	60	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone	78-93-3	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl acetate	108-05-4	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	108-10-1	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromochloromethane	74-97-5	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
2,2-Dichloropropane	594-20-7	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dibromoethane	106-93-4	0.0006	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,3-Dichloropropane	142-28-9	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,1,1,2-Tetrachloroethane	630-20-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Bromobenzene	108-86-1	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
n-Butylbenzene	104-51-8	5	2.5	U	2.5	U	2.5	U	2.5	U	**14**		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
sec-Butylbenzene	135-98-8	5	2.5	U	2.5	U	0.81	J	2.5	U	**13**		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
tert-Butylbenzene	98-06-6	5	2.5	U	2.5	U	2.5	U	2.5	U	1	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
o-Chlorotoluene	95-49-8	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
p-Chlorotoluene	106-43-4	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Hexachlorobutadiene	87-68-3	0.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Isopropylbenzene	98-82-8	5	2.5	U	0.91	J	2.5	U	2.5	U	**32**		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
p-Isopropyltoluene	99-87-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Naphthalene	91-20-3	10	2.5	U	2.5	U	1.5	J	2.5	U	2.9	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
n-Propylbenzene	103-65-1	5	2.5	U	1	J	2.5	U	2.5	U	**68**		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2,3-Trichlorobenzene	87-61-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2,4-Trichlorobenzene	120-82-1	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,3,5-Trimethylbenzene	108-67-8	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2,4-Trimethylbenzene	95-63-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,4-Dioxane	123-91-1	~	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U
p-Diethylbenzene	105-05-5	~	2	U	2	U	2	U	2	U	10	J	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
p-Ethyltoluene	622-96-8	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,2,4,5-Tetramethylbenzene	95-93-2	5	2	U	0.61	J	2	U	2	U	**60**		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Ethyl ether	60-29-7	~	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
trans-1,4-Dichloro-2-butene	110-57-6	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Volatile Organics by GC/MS-TIC																																		
Unknown	null		1.22	J	1.33	J	2.61	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		1.15	J	NT		3.03	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		1.08	J	NT		4.34	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		2.63	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclohexane	000110-82-7		NT		1.49	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Benzene	null		NT		1.51	J	NT		NT		92.3	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		1.53	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		27.4	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		89.6	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		80.4	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		203	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		29	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		26.7	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Aromatic	null		NT		NT		NT		NT		44.8	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclohexane, ethyl-	001678-91-7		NT		2.02	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Cyclohexane	null		1.1	J	3.48	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclohexane, methyl-	000108-87-2		NT		5.21	NJ	NT		NT		34.7	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Cyclohexane	null		NT		NT		2.62	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Cyclohexane	null		NT		NT		2.28	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Cyclohexane	null		NT		NT		3.11	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Cyclopentane	null		1.91	J	NT		5.83	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		61.4	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		17.7	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		33.9	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		40.4	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		19.3	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclohexane, 1,1-dimethyl-	000590-66-9		3.13	NJ	NT		4.8	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclopentane, 1,2-dimethyl-	002452-99-5		NT		1.8	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclohexane, 1,1,3-trimethyl-	003073-66-3		NT		2.53	NJ	4.58	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclopentane, 1,1,3-trimethyl-	004516-69-2		4.16	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		NT		NT		NT		NT		36.5	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		1.11	J	2.17	J	6.11	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Total TIC Compounds	null		17.5	J	23.1	J	39.3	J	NT		837	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follow:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a %-difference for detected concentrations that exceed method dictated limits between the two GC columns used for analysis
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

Table 5
2022 RI Groundwater Semi-Volatile Organic Compounds Analytical Results Summary
251 Douglass Street, Brooklyn, NY

Sample ID		NYSDEC TOGS Standards and Guidance Values - GV	GW-1		GW-2		GW-3		GW-4		GW-5		GW-6		GW-7		GW-8		TRIP BLANK		TRIP BLANK		EQUIPMENT BLANK		GW-DUP-1		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
York ID			L2266709-01		L2268641-02		L2268641-01		L2268118-01		L2268306-02		L2266709-02		L2263306-01		L2266709-03		L2266709-04		L2267521-04		L2267521-05		L2268118-02		L2268118-03		L2268118-06		L2268306-03		L2268641-03	
Sampling Date			11/29/2022		12/7/2022		12/7/2022		12/5/2022		12/6/2022		11/29/2022		12/6/2022		11/29/2022		11/29/2022		12/1/2022		12/1/2022		12/5/2022		12/5/2022		12/5/2022		12/6/2022		12/7/2022	
Client Matrix			WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,4 Dioxane by 8270E-SIM		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
1,4-Dioxane	123-91-1	~	4.14		0.594		0.63		18.8		1.59		3.22		2.34		10		--		--		0.147	U	18.1		0.144	U	--	-	--	-	--	
Semivolatile Organics by GC/MS		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
1,2,4-Trichlorobenzene	120-82-1	5	5	U	5	U	0.93	J	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Bis(2-chloroethyl)ether	111-44-4	1	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
1,2-Dichlorobenzene	95-50-1	3	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
1,3-Dichlorobenzene	541-73-1	3	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
1,4-Dichlorobenzene	106-46-7	3	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
3,3'-Dichlorobenzidine	91-94-1	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2,4-Dinitrotoluene	121-14-2	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2,6-Dinitrotoluene	606-20-2	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
4-Chlorophenyl phenyl ether	7005-72-3	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
4-Bromophenyl phenyl ether	101-55-3	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
Bis(2-chloroisopropyl)ether	108-60-1	5	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
Bis(2-chloroethoxy)methane	111-91-1	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Hexachlorocyclopentadiene	77-47-4	5	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	NT		NT		20	U	20	U	20	U	NT		NT		NT	
Isophorone	78-59-1	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Nitrobenzene	98-95-3	0.4	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
NDPA/DPA	86-30-6	50	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
n-Nitrosodi-n-propylamine	621-64-7	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Bis(2-ethylhexyl)phthalate	117-81-7	5	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NT		NT		3	U	1.6	J	**25**		NT		NT		NT	
Butyl benzyl phthalate	85-68-7	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Di-n-butylphthalate	84-74-2	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Di-n-octylphthalate	117-84-0	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Diethyl phthalate	84-66-2	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Dimethyl phthalate	131-11-3	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Biphenyl	92-52-4	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
4-Chloroaniline	106-47-8	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2-Nitroaniline	88-74-4	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
3-Nitroaniline	99-09-2	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
4-Nitroaniline	100-01-6	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Dibenzofuran	132-64-9	~	2	U	2	U	4.5		2	U	2.3		2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
1,2,4,5-Tetrachlorobenzene	95-94-3	5	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NT		NT		10	U	10	U	10	U	NT		NT		NT	
Acetophenone	98-86-2	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2,4,6-Trichlorophenol	88-06-2	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
p-Chloro-m-cresol	59-50-7	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
2-Chlorophenol	95-57-8	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
2,4-Dichlorophenol	120-83-2	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2,4-Dimethylphenol	105-67-9	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2-Nitrophenol	88-75-5	~	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NT		NT		10	U	10	U	10	U	NT		NT		NT	
4-Nitrophenol	100-02-7	~	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NT		NT		10	U	10	U	10	U	NT		NT		NT	
2,4-Dinitrophenol	51-28-5	10	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	NT		NT		20	U	20	U	20	U	NT		NT		NT	
4,6-Dinitro-o-cresol	534-52-1	~	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NT		NT		10	U	10	U	10	U	NT		NT		NT	
Phenol	108-95-2	1	5	U	5	U	5	U	5	U	**2.1**		5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2-Methylphenol	95-48-7	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	~	5	U	5	U	5	U	5	U	2.5	J	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
2,4,5-Trichlorophenol	95-95-4	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT	
Benzoic Acid	65-85-0	~	7.4	J	50	U	7.2	J	50	U	50	U	5.4	J	5.8	J	7.8	J	NT		NT		5.4	J	50	U	50	U	NT		NT		NT	
Benzyl Alcohol	100-51-6	~	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	NT		NT		NT	
Carbazole	86-74-8	~	2	U	2	U	1.4	J	2	U	2	U	2	U	2	U	2	U	NT		NT		2	U	2	U	2	U	1.4	J	NT		NT	
Semivolatile Organics by GC/MS-SIM		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene	83-32-9	20	0.23		1.9		12		0.1		4		0.07	J	0.01	J	0.68		NT		NT		0.1	U	0.11		0.1	U	NT		NT		NT	
2-Chloronaphthalene	91-58-7	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	NT		NT		0.2	U	0.2	U	0.2	U	NT		NT		NT	
Fluoranthene	206-44-0	50	0.13		1.1		5.6		0.35		0.48		0.24		0.03	J	0.1		NT		NT		0.1	U	0.47		0.1	U	NT		NT		NT	
Hexachlorobutadiene	87-68-3	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NT		NT		0.5	U	0.5	U	0.5	U	NT		NT		NT	
Naphthalene	91-20-3	10	0.07	J	0.28		1		0.14		0.1	U	0.14		0.1	U	0.1	U	NT		NT		0.05	J	0.14		0.1	U	NT		NT		NT	
Benzo(a)anthracene	56-55-3	0.002	**0.04**	J	**0.21**		**1**		**0.2**		**0.13**		**0.1**		**0.04**	J	**0.08**	J	NT		NT		**0.02**	J	**0.24**		**0.04**	J	NT		NT		NT	
Benzo(a)pyrene	50-32-8	0	**0.02**	J	**0.1**		**0.76**		**0.18**		**0.09**	J	**0.14**		**0.02**	J	**0.16**		NT		NT		0.1	U	**0.24**		0.1	U	NT		NT		NT	
Benzo(b)fluoranthene	205-99-2	0.002	**0.03**	J	**0.12**		**0.82**		**0.21**		**0.11**		**0.14**		**0.03**	J	**0.13**		NT		NT		**0.02**	J	**0.26**		0.1	U	NT		NT		NT	
Benzo(k)fluoranthene	207-08-9	0.002	**0.02**	J	**0.05**	J	**0.31**		**0.08**	J	**0.04**	J	**0.05**	J	**0.01**	J	**0.05**	J	NT		NT		**0.01**	J	**0.12**		0.1	U	NT		NT		NT	
Chrysene	218-01-9	0.002	**0.03**	J	**0.13**		**0.89**		**0.19**		**0.12**		**0.09**	J	**0.02**	J	**0.07**	J	NT		NT		0.1	U	**0.3**		0.1	U	NT		NT		NT	
Acenaphthylene	208-96-8	~	0.02	J	0.07	J	0.66		0.08	J	0.1	U	0.05	U	0.1	U	0.22		NT		NT		0.1	U	0.1	U	0.1	U	NT		NT		NT	
Anthracene	120-12-7	50	0.07	J	0.48		4.2		0.1	J	0.34		0.06	J	0.01	J	0.03	J	NT		NT		0.1	U	0.12		0.01	J	NT		NT		NT	
Benzo(ghi)perylene	191-24-2	~	0.02	J	0.05	J	0.3		0.12		0.05	J	0.12		0.02	J	0.16		NT		NT		0.01	J	0.16		0.1	U	NT		NT		NT	
Fluorene	86-73-7	50	0.08	J	1.7		10		0.23		5.9		0.05	J	0.1	U	0.06	J	NT		NT		0.1	U	0.15		0.1	U	NT		NT		NT	
Phenanthrene	85-01-8	50	0.24		2.2		9.2		0.5		5.2		0.24		0.1	U	0.11		NT		NT		0.1	U	0.58		0.02	J	NT		NT		NT	
Dibenz(a,h)anthracene	53-70-3	~	0.1	U	0.02	J	0.1	U	0.02	J	0.02	J	0.02	J	0.1	U	0.02	J	NT		NT		0.1	U	0.04	J	0.1	U	NT		NT		NT	
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	**0.02**	J	**0.06**	J	**0.37**		**0.13**		**0.05**	J	**0.1**	J	**0.02**	J	**0.12**		NT		NT		**0.02**	J	**0.17**		0.1	U	NT		NT		NT	
Pyrene	129-00-0	50	0.13		0.88		4.1		0.35		0.61		0.31		0.03	J	0.16		NT		NT		0.1	U	0.43		0.1	U	NT		NT		NT	
2-Methylnaphthalene	91-57-6	~	0.07	J	0.06	J	0.71		0.22		0.21		0.03	J	0.1	U	0.03	J	NT		NT		0.03	J	0.07	J	0.1	U	NT		NT		NT	
Pentachlorophenol	87-86-5	1	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	NT		NT		0.8	U	0.8	U	0.8	U	NT		NT		NT	
Hexachlorobenzene	118-74-1	0.04	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	NT		NT		0.8	U	0.8	U	0.8	U	NT		NT		NT	
Hexachlorothane	67-72-1	5	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	NT		NT		0.8	U	0.8	U	0.8	U	NT		NT		NT	
Semivolatile Organics by GC/MS-TIC			NT		NT		NT		NT		35.8	NJ	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene, Propyl-	000103-65-1		NT		NT		NT		NT		21	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Benzene	null		NT		NT		NT		NT		19.5	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Benzene	null		NT		NT		1.56	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Alcohol	null		NT		1.56	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Benzene	null		NT		NT		NT		NT		20.8	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		19.6	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		19.7	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		16.4	J	3.49	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		27.8	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		39.1	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Naphthalene	null		NT		NT		NT		NT		22.8	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Organic Acid	null		NT		NT		NT		NT		30.5	JB	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		3.45	J	NT		NT		NT	
Unknown	null		NT		NT		NT		4.4	J	NT		NT		NT		NT		NT		NT		NT		3.45	J	NT		NT		NT		NT	
Unknown	null		NT		NT		NT		3.42	J	NT		NT		NT		NT		NT		NT		2.94	J	7.6	J	1.56	J	NT		NT		NT	
Unknown Organic Acid	null		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		28.8	J	68.5	J	2.14	J	NT		NT		NT	
Unknown Siloxane	null		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		3.85	J	NT		NT		NT		NT	
Unknown	null		2.18	JB	NT		NT		9.31	J	NT		1.74	JB	NT		NT		NT		NT		2.14	J	3.6	J	3.2	J	NT		NT		NT	
Unknown	null		1.71	JB	1.49	JB	3.64	J	5.85	J	NT		5.45	J	NT		4.94	J	NT		NT		2.44	J	4.44	J	3.96	J	NT		NT		NT	
Unknown	null		4.69	J	1.89	J	7.96	J	8.22	J	NT		3.2	J	1.56	J	1.93	J	NT		NT		2.65	J	3.64	J	7.67	J	NT		NT		NT	
Unknown	null		2.8	J	4.29	J	9.24	J	13.4	J	NT		2.14	J	5.24	J	6.07	J	NT		NT		8.54	J	3.2	J	2.47	J	NT		NT		NT	
Unknown	null		2.04	JB	5.45	JB	7.64	J	4.25	J	60.7	J	2.94	JB	7.34	J	4.14	J	NT		NT		1.89	J	10.2	J	4.94	J	NT		NT		NT	
Unknown	null		5.71	JB	1.49	JB	5.2	JB	2.98	J	25.2	J	8.62	JB	8.18	JB	4.29	JB	NT		NT		8.47	J	20.1	J	6.4	J	NT		NT		NT	
Unknown Naphthalene	null		NT		NT		4.18	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Unknown	null		2.58	J	6.04	JB	3.42	J	4.14	J	17.1	J	1.74	J	2.58	JB	7.74	JB	NT		NT		2.76	J	3.85	J	1.96	J	NT		NT		NT	
Unknown	null		9.6	JB	1.82	J	2.84	J	14.3	J	92.8	J	8.98	JB	2.8	J	6.87	JB	NT		NT		2.76	J	4.36	J	1.89	J	NT		NT		NT	
Unknown Organic Acid	null		9.96	JB	7.96	JB	10.7	J	7.67	J	NT		3.24	J	6.14	JB	2.98	J	NT		NT		2.69	J	4.91	J	3.56	J	NT		NT		NT	
Unknown Organic Acid	null		3.64	J	2.18	J	13.3	J	21.5	J	NT		2.58	J	8.58	JB	2.73	J	NT		NT		13.2	J	40.2	J	27.9	J	NT		NT		NT	
Unknown Amide	null		1.85	J	NT		NT		NT		NT		1.85	J	NT		5.49	J	NT		NT		2.29	J	NT		NT		NT		NT		NT	
Unknown PAH	null		NT		NT		4.44	J	NT		NT		NT		NT		19.8	JB	NT		NT		NT		NT		NT		NT		NT		NT	
Unknown PAH	null		15.4	JB	NT		2.76	J	NT		NT		13.1	JB	NT		10.5	JB	NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Alkane	null		31.7	JB	NT		NT		3.16	J	NT		24.9	JB	NT		3.05	J	NT		NT		NT		NT		NT		NT		NT		NT	
Unknown Alkane	null		NT		1.74	J	NT		6.29	J	NT		NT		2.4	J	2.91	J	NT		NT		3.45	J	NT		NT		NT		NT		NT	
Unknown Alkane	null		2.4	J	3.34	J	NT		3.24	J	NT		2.36	J	2.84	J	NT		NT		NT		2.36	J	NT		NT		NT		NT		NT	
Unknown Alkane	null		NT		NT		2.91	J	NT		NT		NT		NT		2.33	J	NT		NT		NT		NT		NT		NT		NT		NT	
Unknown PAH	null		NT		NT		5.24	J	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cyclic Octaatomic Sulfur	010544-50-0		6.58	NJ	NT		2.98	NJ	NT		NT		NT		NT		NT		NT		NT		3.27	NJ	NT		NT		NT		NT	
Total TIC Compounds	null		103	J	39.3	J	86.5	J	173	J	469	J	86.3	J	47.7	J	85.8	J	NT		NT		87.4	J	185	J	72.6	J	NT		NT		NT	

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for detected concentrations that exceed method dictated limits between the two GC columns used for analysis
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

Table 5
2022 RI Groundwater Metals Analytical Results Summary
251 Douglass Street, Brooklyn, NY

Sample ID		NYSDEC TOGS Standards and Guidance Values - GA	GW-1		GW-2		GW-3		GW-4		GW-5		GW-6		GW-7		GW-8		TRIP BLANK		TRIP BLANK		EQUIPMENT BLANK		GW-DUP-1		EQUIPMENT BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
York ID			L2266709-01		L2268641-01		L2268641-01		L2268118-01		L2268306-01		L2266709-01		L2268306-01		L2266709-01		L2266709-04		L2267521-01		L2267521-01		L2268118-01		L2268118-01		L2268306-01		L2268641-01		L2268641-01	
Sampling Date			11/29/2021		12/7/2021		12/7/2021		12/5/2021		12/6/2021		11/29/2021		12/6/2021		11/29/2021		11/29/2021		12/1/2021		12/1/2021		12/5/2021		12/5/2021		12/6/2021		12/7/2021		12/7/2021	
Client Matrix			WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Compound	CAS Number		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
General Chemistry		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Cyanide, Total	57-12-5	200	2	J	13		4	J	6		5	U	5	U	5	U	5	U	NT		NT		5	U	5		5	U	NT		NT		NT		NT	
Cyanide, Dissolved	57-12-5	~	NT		13		4	J	2	J	1	J	NT		6	U	NT		NT		NT		NT		3	J	5	U	NT		NT		NT		NT	
Chromium, Hexavalent	18540-29-9	50	10	U	10	U	10	U	50	U	10	U	10	U	10	U	10	U	NT		NT		10	U	10	U	10	U	NT		NT		NT		NT	
Total Metals		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Aluminum, Total	7429-90-5	~	32.2		202		1120		372		228		332		118		182		NT		NT		10	U	406		20.3		NT		NT		NT		NT	
Antimony, Total	7440-36-0	3	4	U	4	U	4	U	0.44	J	4	U	0.56	J	0.52	J	4	U	NT		NT		4	U	4	U	4	U	NT		NT		NT		NT	
Arsenic, Total	7440-38-2	25	0.49	J	1.21		4.4		**63.03**		5.21		6.23		2.36		18.28		NT		NT		0.17	J	**63.86**		0.5	U	NT		NT		NT		NT	
Barium, Total	7440-39-3	1000	298.2		189.8		309.1		333.6		203.7		191.3		226.5		312.1		NT		NT		0.5	U	289.5		1.02		NT		NT		NT		NT	
Beryllium, Total	7440-41-7	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NT		NT		0.5	U	0.5	U	0.5	U	NT		NT		NT		NT	
Cadmium, Total	7440-43-9	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	NT		NT		0.2	U	0.2	U	0.2	U	NT		NT		NT		NT	
Calcium, Total	7440-70-2	~	175000		128000		165000		247000		113000		211000		130000		193000		NT		NT		100	U	216000		150		NT		NT		NT		NT	
Chromium, Total	7440-47-3	50	0.34	J	0.8	J	2.79		2.42		0.75	J	0.81	J	0.4	J	0.52	J	NT		NT		1	U	1.74		1	U	NT		NT		NT		NT	
Cobalt, Total	7440-48-4	~	0.64		1.51		2.9		1.28		3.78		5.52		0.92		4.54		NT		NT		0.5	U	1.09		0.5	U	NT		NT		NT		NT	
Copper, Total	7440-50-8	200	1	U	1.13		5.32		3.01		2.26		2.86		2.88		9.88		NT		NT		1	U	3.21		0.54	J	NT		NT		NT		NT	
Iron, Total	7439-89-6	300	**11900**		**3450**		**8090**		**16200**		**24600**		**5900**		**4740**		**14100**		NT		NT		50	U	**14500**		66.3		NT		NT		NT		NT	
Lead, Total	7439-92-1	25	3.37		6.04		**42.23**		**35.76**		12.32		**40.85**		9.45		8.73		NT		NT		1	U	**50.87**		0.81	J	NT		NT		NT		NT	
Magnesium, Total	7439-95-4	35000	27500		23300		30200		**49600**		18000		26000		19600		28900		NT		NT		70	U	**41900**		70	U	NT		NT		NT		NT	
Manganese, Total	7439-96-5	300	**1048**		**863**		**1091**		**1122**		**878.5**		**1966**		**536.2**		**1449**		NT		NT		1	U	**1003**		0.53	J	NT		NT		NT		NT	
Mercury, Total	7439-97-6	0.7	0.09	J	0.2	U	0.54		0.21		0.2	U	0.31		0.2	U	0.11	J	NT		NT		0.2	U	0.49		0.2	U	NT		NT		NT		NT	
Nickel, Total	7440-02-0	100	0.81	J	2.56	J	17.41		2.84		12		3.65		1.95	J	2.78		NT		NT		2	U	2.53		2	U	NT		NT		NT		NT	
Potassium, Total	7440-09-7	~	25700		18000		20500		34000		20100		24300		15400		21900		NT		NT		100	U	28000		100	U	NT		NT		NT		NT	
Selenium, Total	7782-49-2	10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		5	U	5	U	5	U	NT		NT		NT		NT	
Silver, Total	7440-22-4	50	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	NT		NT		0.4	U	0.4	U	0.4	U	NT		NT		NT		NT	
Sodium, Total	7440-23-5	20000	**142000**		**53000**		**113000**		**177000**		**138000**		**112000**		**60500**		**96100**		NT		NT		100	U	**146000**		100	U	NT		NT		NT		NT	
Thallium, Total	7440-28-0	0.5	1	U	2	U	2	U	0.16	J	2	U	1	U	2	U	1	U	NT		NT		1	U	2	U	2	U	NT		NT		NT		NT	
Vanadium, Total	7440-62-2	~	5	U	5	U	5.22		2.72	J	5	U	5	U	5	U	5	U	NT		NT		5	U	2.74	J	5	U	NT		NT		NT		NT	
Zinc, Total	7440-66-6	2000	10	U	10	U	20.94		20.24		7.74	J	139.1		13.52		52.97		NT		NT		10	U	24.86		10	U	NT		NT		NT		NT	
Dissolved Metals		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Aluminum, Dissolved	7429-90-5	~	10	U	4.89	J	21.2		4.69	J	17.6		10	U	10	U	5.16	J	NT		NT		NT		3.49	J	3.75	J	NT		NT		NT		NT	
Antimony, Dissolved	7440-36-0	3	4	U	4	U	0.47	J	0.75	J	0.45	J	0.72	J	0.69	J	0.48	J	NT		NT		NT		4	U	4	U	NT		NT		NT		NT	
Arsenic, Dissolved	7440-38-2	25	0.4	J	1.35		2.75		**36.79**		3.94		2.52		1.97		7.53		NT		NT		NT		**26.8**		0.5	U	NT		NT		NT		NT	
Barium, Dissolved	7440-39-3	1000	184.2		148.9		260.8		197.7		171.4		157.1		210.8		215.6		NT		NT		NT		204.3		0.5	U	NT		NT		NT		NT	
Beryllium, Dissolved	7440-41-7	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NT		NT		NT		0.5	U	0.5	U	NT		NT		NT		NT	
Cadmium, Dissolved	7440-43-9	5	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	NT		NT		NT		0.2	U	0.2	U	NT		NT		NT		NT	
Calcium, Dissolved	7440-70-2	~	164000		128000		157000		243000		117000		204000		137000		189000		NT		NT		NT		234000		63	J	NT		NT		NT		NT	
Chromium, Dissolved	7440-47-3	50	1	U	0.21	J	0.36	J	0.32	J	0.23	J	1	U	1	U	0.53	J	NT		NT		NT		0.28	J	0.19	J	NT		NT		NT		NT	
Cobalt, Dissolved	7440-48-4	~	0.6		1.33		2.02		0.81		3.93		5.07		0.84		4.24		NT		NT		NT		0.97		0.5	U	NT		NT		NT		NT	
Copper, Dissolved	7440-50-8	200	1	U	1	U	1.1	U	0.78	J	1	U	1	U	0.41	J	1	U	NT		NT		NT		1	U	1	U	NT		NT		NT		NT	
Iron, Dissolved	7439-89-6	300	**2000**		**844**		**2210**		**4190**		**18400**		**1070**		**1860**		**2110**		NT		NT		NT		**779**		36.2	J	NT		NT		NT		NT	
Lead, Dissolved	7439-92-1	25	1	U	1	U	0.78	J	1	U	1.4		0.58	J	1	U	1	U	NT		NT		NT		1	U	1	U	NT		NT		NT		NT	
Magnesium, Dissolved	7439-95-4	35000	27000		23600		29200		**47600**		18700		25000		20600		27500		NT		NT		NT		**48100**		70	U	NT		NT		NT		NT	
Manganese, Dissolved	7439-96-5	300	**1006**		**845.2**		**1046**		**1059**		**894.2**		**1949**		**553.8**		**1412**		NT		NT		NT		**1096**		0.43	J	NT		NT		NT		NT	
Mercury, Dissolved	7439-97-6	0.7	0.2	U	0.2	U	0.2	U	0.16	J	0.2	U	0.2	U	0.2	U	0.2	U	NT		NT		NT		0.28		0.17	J	NT		NT		NT		NT	
Nickel, Dissolved	7440-02-0	100	0.76	J	1.22	J	14.67		1.15	J	11.02		2.65		1.71	J	1.99	J	NT		NT		NT		1.31	J	2	U	NT		NT		NT		NT	
Potassium, Dissolved	7440-09-7	~	24400		19200		20700		34300		22600		23200		17200		21100		NT		NT		NT		31700		100	U	NT		NT		NT		NT	
Selenium, Dissolved	7782-49-2	10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		NT		5	U	5	U	NT		NT		NT		NT	
Silver, Dissolved	7440-22-4	50	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	NT		NT		NT		0.4	U	0.4	U	NT		NT		NT		NT	
Sodium, Dissolved	7440-23-5	20000	**137000**		**51900**		**107000**		**182000**		**138000**		**106000**		**60400**		**94300**		NT		NT		NT		**174000**		54.8	J	NT		NT		NT		NT	
Thallium, Dissolved	7440-28-0	0.5	2	U	1	U	1	U	0.37	J	1	U	2	U	1	U	2	U	NT		NT		NT		1	U	1	U	NT		NT		NT		NT	
Vanadium, Dissolved	7440-62-2	~	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NT		NT		NT		5	U	5	U	NT		NT		NT		NT	
Zinc, Dissolved	7440-66-6	2000	10	U	10	U	5.93	J	5.36	J	10	U	104.2		7.4	J	29.47		NT		NT		NT		4.06	J	10	U	NT		NT		NT		NT	

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~=this indicates that no regulatory limit has been established for this analyte

Table 5
2022 RI Groundwater PCBs and Pesticides Analytical Results Summary
251 Douglass Street, Brooklyn, NY

Sample ID		NYSDEC TOGS Standards and Guidance Values - GA	GW-1		GW-6		GW-8		TRIP BLANK		TRIP BLANK		EQUIPMENT BLANK		GW-4		GW-DUP-1		EQUIPMENT BLANK		TRIP BLANK		GW-7		GW-5		TRIP BLANK		GW-3		GW-2		TRIP BLANK	
York ID			L2266709-01		L2266709-02		L2266709-03		L2266709-04		L2267521-01		L2267521-02		L2268118-01		L2268118-03		L2268118-04		L2268118-05		L2268306-01		L2268306-02		L2268306-03		L2268641-02		L2268641-03		L2268641-04	
Sampling Date			11/29/2022		11/29/2022		11/29/2022		11/29/2022		12/1/2022		12/1/2022		12/5/2022		12/5/2022		12/5/2022		12/5/2022		12/6/2022		12/6/2022		12/6/2022		12/7/2022		12/7/2022		12/7/2022	
Client Matrix			WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Polychlorinated Biphenyls by GC		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Aroclor 1016	12674-11-2	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1221	11104-28-2	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1232	11141-16-5	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1242	53469-21-9	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1248	12672-29-6	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1254	11097-69-1	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1260	11096-82-5	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1262	37324-23-5	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Aroclor 1268	11100-14-4	~	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
PCBs, Total	1336-36-3	0.09	0.071	U	0.071	U	0.071	U	NT		NT		0.071	U	0.071	U	0.071	U	0.071	U	NT		0.071	U	0.071	U	NT		0.071	U	0.071	U	NT	
Organochlorine Pesticides by GC		ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Delta-BHC	319-86-8	0.04	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Lindane	58-89-9	0.05	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Alpha-BHC	319-84-6	0.01	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Beta-BHC	319-85-7	0.04	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Heptachlor	76-44-8	0.04	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Aldrin	309-00-2	~	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Heptachlor epoxide	1024-57-3	0.03	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Endrin	72-20-8	0	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
Endrin aldehyde	7421-93-4	5	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
Endrin ketone	53494-70-5	5	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
Dieldrin	60-57-1	0.004	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
4,4'-DDE	72-55-9	0.2	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
4,4'-DDD	72-54-8	0.3	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
4,4'-DDT	50-29-3	0.2	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
Endosulfan I	959-98-8	~	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Endosulfan II	33213-65-9	~	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
Endosulfan sulfate	1031-07-8	~	0.029	U	0.029	U	0.029	U	NT		NT		0.029	U	0.029	U	0.029	U	0.029	U	NT		0.029	U	0.029	U	NT		0.029	U	0.029	U	NT	
Methoxychlor	72-43-5	35	0.143	U	0.143	U	0.143	U	NT		NT		0.143	U	0.143	U	0.143	U	0.143	U	NT		0.143	U	0.143	U	NT		0.143	U	0.143	U	NT	
Toxaphene	8001-35-2	0.06	0.143	U	0.143	U	0.143	U	NT		NT		0.143	U	0.143	U	0.143	U	0.143	U	NT		0.143	U	0.143	U	NT		0.143	U	0.143	U	NT	
cis-Chlordane	5103-71-9	~	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
trans-Chlordane	5103-74-2	~	0.014	U	0.014	U	0.014	U	NT		NT		0.014	U	0.014	U	0.014	U	0.014	U	NT		0.014	U	0.014	U	NT		0.014	U	0.014	U	NT	
Chlordane	57-74-9	0.05	0.143	U	0.143	U	0.143	U	NT		NT		0.143	U	0.143	U	0.143	U	0.143	U	NT		0.143	U	0.143	U	NT		0.143	U	0.143	U	NT	

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for detected concentrations that exceed method dictated limits between the two GC columns used for analysis
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

Table 5
2023 SRI Groundwater Analysis Summary
251 Douglass Street, Brooklyn, NY

LOCATION				CW-4-85		CW-4-85		CW-3-80		TRIP BLANK		TRIP BLANK		CW-1-70		CW-3-75		CW-3-75		CW-3-55		CW-3-55		CW-3-50		CW-3-50	
SAMPLING DATE				5/25/2023		5/25/2023		5/25/2023		5/25/2023		5/26/2023		5/26/2023		5/26/2023		5/26/2023		5/26/2023		5/26/2023		5/26/2023		5/26/2023	
LAB SAMPLE ID				L2329443-01		L2329443-01 R1		L2329443-02		L2329443-03		L2329754-01		L2329754-02		L2329754-03		L2329754-03 R1		L2329754-04		L2329754-04 R1		L2329754-05		L2329754-05 R1	
SAMPLE TYPE				WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	CasNum	NY-AWQS	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																											
Cyanide, Total	57-12-5	**200**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	1	J	-	-	9		-	-	7		-	-
Semivolatile Organics by GC/MS																											
1,2,4,5-Tetrachlorobenzene	95-94-3	**5**	ug/l	10	U	-	-	10	U	-	-	-	-	10	U	10	U	-	-	10	U	-	-	10	U	-	-
1,2,4-Trichlorobenzene	120-82-1	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
1,2-Dichlorobenzene	95-50-1	**3**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
1,3-Dichlorobenzene	541-73-1	**3**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
1,4-Dichlorobenzene	106-46-7	**3**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
2,4,5-Trichlorophenol	95-95-4		ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
2,4,6-Trichlorophenol	88-06-2		ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
2,4-Dichlorophenol	120-83-2	**1**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
2,4-Dimethylphenol	105-67-9	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	36		-	-	12		-	-
2,4-Dinitrophenol	51-28-5	**10**	ug/l	20	U	-	-	20	U	-	-	-	-	20	U	20	U	-	-	20	U	-	-	20	U	-	-
2,4-Dinitrotoluene	121-14-2	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
2,6-Dinitrotoluene	606-20-2	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
2-Chlorophenol	95-57-8		ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
2-Methylphenol	95-48-7		ug/l	5	U	-	-	5	U	-	-	-	-	5	U	0.68	J	-	-	4.1	J	-	-	7.8		-	-
2-Nitroaniline	88-74-4	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
2-Nitrophenol	88-75-5		ug/l	10	U	-	-	10	U	-	-	-	-	10	U	10	U	-	-	10	U	-	-	10	U	-	-
3,3'-Dichlorobenzidine	91-94-1	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5		ug/l	5	U	-	-	5	U	-	-	-	-	5	U	0.6	J	-	-	4.6	J	-	-	6.2		-	-
3-Nitroaniline	99-09-2	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
4,6-Dinitro-o-cresol	534-52-1		ug/l	10	U	-	-	10	U	-	-	-	-	10	U	10	U	-	-	10	U	-	-	10	U	-	-
4-Bromophenyl phenyl ether	101-55-3		ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
4-Chloroaniline	106-47-8	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
4-Chlorophenyl phenyl ether	7005-72-3		ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
4-Nitroaniline	100-01-6	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
4-Nitrophenol	100-02-7		ug/l	10	U	-	-	10	U	-	-	-	-	10	U	10	U	-	-	10	U	-	-	10	U	-	-
Acetophenone	98-86-2		ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Benzoic Acid	65-85-0		ug/l	50	U	-	-	50	U	-	-	-	-	50	U	50	U	-	-	50	U	-	-	21	J	-	-
Benzyl Alcohol	100-51-6		ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
Biphenyl	92-52-4		ug/l	2.4		-	-	1.7	J	-	-	-	-	3.5		39		-	-	28		-	-	35		-	-
Bis(2-chloroethoxy)methane	111-91-1	**5**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Bis(2-chloroethyl)ether	111-44-4	**1**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
Bis(2-chloroisopropyl)ether	108-60-1	**5**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
Bis(2-ethylhexyl)phthalate	117-81-7	**5**	ug/l	3	U	-	-	3	U	-	-	-	-	3	U	3	U	-	-	3	U	-	-	3	U	-	-
Butyl benzyl phthalate	85-68-7	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Carbazole	86-74-8		ug/l	2	U	-	-	2	U	-	-	-	-	1.3	J	17		-	-	17		-	-	16		-	-
Di-n-butylphthalate	84-74-2	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Di-n-octylphthalate	117-84-0	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Dibenzofuran	132-64-9		ug/l	0.78	J	-	-	2	U	-	-	-	-	0.56	J	6.2		-	-	5.4		-	-	6.3		-	-
Diethyl phthalate	84-66-2	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Dimethyl phthalate	131-11-3	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
Hexachlorocyclopentadiene	77-47-4	**5**	ug/l	20	U	-	-	20	U	-	-	-	-	20	U	20	U	-	-	20	U	-	-	20	U	-	-
Isophorone	78-59-1	**50**	ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
n-Nitrosodi-n-propylamine	621-64-7		ug/l	5	U	-	-	5	U	-	-	-	-	5	U	5	U	-	-	5	U	-	-	5	U	-	-
NDPA/DPA	86-30-6	**50**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
Nitrobenzene	98-95-3	**0.4**	ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
p-Chloro-m-cresol	59-50-7		ug/l	2	U	-	-	2	U	-	-	-	-	2	U	2	U	-	-	2	U	-	-	2	U	-	-
Phenol	108-95-2	**1**	ug/l	5	U	-	-	5	U	-	-	-	-	**1**	J	**2.1**	J	-	-	**16**		-	-	**19**		-	-
Semivolatile Organics by GC/MS-SIM																											
2-Chloronaphthalene	91-58-7	**10**	ug/l	0.2	U	-	-	0.2	U	-	-	-	-	1	U	1	U	-	-	4	U	-	-	4	U	-	-
2-Methylnaphthalene	91-57-6		ug/l	35		-	-	22		-	-	-	-	8		800	E	890		700		-	-	810		-	-
Acenaphthene	83-32-9	**20**	ug/l	4.9		-	-	3		-	-	-	-	**41**		**100**		-	-	14		-	-	16		-	-
Acenaphthylene	208-96-8		ug/l	14		-	-	7.4		-	-	-	-	9.4		200		-	-	350		-	-	370		-	-
Anthracene	120-12-7	**50**	ug/l	2.7		-	-	2.2		-	-	-	-	0.82		10		-	-	12		-	-	11		-	-
Benzo(a)anthracene	56-55-3	**0.002**	ug/l	**0.2**		-	-	**0.15**		-	-	-	-	**0.28**	J	**0.71**		-	-	**3.7**		-	-	**1.2**	J	-	-
Benzo(a)pyrene	50-32-8	**0**	ug/l	**0.08**	J	-	-	**0.04**	J	-	-	-	-	**0.18**	J	**0.41**	J	-	-	**2.5**		-	-	**0.62**	J	-	-
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	**0.05**	J	-	-	**0.03**	J	-	-	-	-	**0.14**	J	**0.27**	J	-	-	**1.6**	J	-	-	**0.44**	J	-	-
Benzo(ghi)perylene	191-24-2		ug/l	0.03	J	-	-	0.01	J	-	-	-	-	0.09	J	0.14	J	-	-	0.87	J	-	-	2	U	-	-
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	**0.02**	J	-	-	**0.01**	J	-	-	-	-	**0.05**	J	**0.11**	J	-	-	**0.76**	J	-	-	**0.18**	J	-	-
Chrysene	218-01-9	**0.002**	ug/l	**0.16**		-	-	**0.14**		-	-	-	-	**0.19**	J	**0.5**		-	-	**2.9**		-	-	**0.82**	J	-	-
Dibenzo(a,h)anthracene	53-70-3		ug/l	0.1	U	-	-	0.1	U	-	-	-	-	0.5	U	0.5	U	-	-	2	U	-	-	2	U	-	-
Fluoranthene	206-44-0	**50**	ug/l	1.9		-	-	1.7		-	-	-	-	0.82		4		-	-	8.1		-	-	4.8		-	-
Fluorene	86-73-7	**50**	ug/l	6.9		-	-	4.2		-	-	-	-	2.2		**51**		-	-	46		-	-	**52**		-	-
Hexachlorobenzene	118-74-1	**0.04**	ug/l	0.8	U	-	-	0.8	U	-	-	-	-	4	U	4	U	-	-	16	U	-	-	16	U	-	-
Hexachlorobutadiene	87-68-3	**0.5**	ug/l	0.5	U	-	-	0.5	U	-	-	-	-	2.5	U	2.5	U	-	-	10	U	-	-	10	U	-	-
Hexachloroethane	67-72-1	**5**	ug/l	0.8	U	-	-	0.8	U	-	-	-	-	4	U	4	U	-	-	16	U	-	-	16	U	-	-
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	**0.02**	J	-	-	**0.01**	J	-	-	-	-	**0.07**	J	**0.14**	J	-	-	**0.83**	J	-	-	2	U	-	-
Naphthalene	91-20-3	**10**	ug/l	**85**	E	**96**		**66**		-	-	-	-	**290**		**4400**	E	**9000**		**6900**	E	**8900**		**6900**	E	**8400**	
Pentachlorophenol	87-86-5	**1**	ug/l	0.1	J	-	-	0.11	J	-	-	-	-	4	U	4	U	-	-	16	U	-	-	16	U	-	-
Phenanthrene	85-01-8	**50**	ug/l	12		-	-	9		-	-	-	-	3.6		46		-	-	**51**		-	-	**51**		-	-
Pyrene	129-00-0	**50**	ug/l	2.5		-	-	2.2		-	-	-	-	1.1		5.2		-	-	11		-	-	6.2		-	-
Volatile Organics by GC/MS																											
1,1,1,2-Tetrachloroethane	630-20-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,1,1-Trichloroethane	71-55-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,1,2,2-Tetrachloroethane	79-34-5	**5**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
1,1,2-Trichloroethane	79-00-5	**1**	ug/l	1.5	U	-	-	1.5	U	1.5	U	1.5	U	15	U	150	U	-	-	380	U	-	-	380	U	-	-
1,1-Dichloroethane	75-34-3	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,1-Dichloroethene	75-35-4	**5**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
1,1-Dichloropropene	563-58-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2,3-Trichlorobenzene	87-61-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2,3-Trichloropropane	96-18-4	**0.04**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2,4,5-Tetramethylbenzene	95-93-2	**5**	ug/l	2	U	-	-	2	U	2	U	2	U	20	U	200	U	-	-	500	U	-	-	500	U	-	-
1,2,4-Trichlorobenzene	120-82-1	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2,4-Trimethylbenzene	95-63-6	**5**	ug/l	**5.4**		-	-	**6.4**		2.5	U	2.5	U	**18**	J	**350**		-	-	**420**	J	-	-	**360**	J	-	-
1,2-Dibromo-3-chloropropane	96-12-8	**0.04**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2-Dibromoethane	106-93-4	**0.0006**	ug/l	2	U	-	-	2	U	2	U	2	U	20	U	200	U	-	-	500	U	-	-	500	U	-	-
1,2-Dichlorobenzene	95-50-1	**3**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2-Dichloroethane	107-06-2	**0.6**	ug/l	**1.9**		-	-	**0.8**		0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
1,2-Dichloroethene, Total	540-59-0		ug/l	2.5	U	-	-	3.2	J	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,2-Dichloropropane	78-87-5	**1**	ug/l	1	U	-	-	0.22	J	1	U	1	U	10	U	100	U	-	-	250	U	-	-	250	U	-	-
1,3,5-Trimethylbenzene	108-67-8	**5**	ug/l	1.5	J	-	-	1.8	J	2.5	U	2.5	U	25	U	**96**	J	-	-	620	U	-	-	620	U	-	-
1,3-Dichlorobenzene	541-73-1	**3**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,3-Dichloropropane	142-28-9	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,3-Dichloropropene, Total	542-75-6		ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
1,4-Dichlorobenzene	106-46-7	**3**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
1,4-Dioxane	123-91-1		ug/l	250	U	-	-	250	U	250	U	250	U	2500	U	25000	U	-	-	62000	U	-	-	62000	U	-	-
2,2-Dichloropropane	594-20-7	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
2-Butanone	78-93-3	**50**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	**1700**		-	-
2-Hexanone	591-78-6	**50**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
4-Methyl-2-pentanone	108-10-1		ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
Acetone	67-64-1	**50**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	**650**	J	-	-
Acrylonitrile	107-13-1	**5**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
Benzene	71-43-2	**1**	ug/l	**47**		-	-	**16**		0.5	U	0.5	U	**1400**		**2800**		-	-	**34000**		-	-	**20000**		-	-
Bromobenzene	108-86-1	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Bromochloromethane	74-97-5	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Bromodichloromethane	75-27-4	**50**	ug/l	0.32	J	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
Bromoform	75-25-2	**50**	ug/l	2	U	-	-	2	U	2	U	2	U	20	U	200	U	-	-	500	U	-	-	500	U	-	-
Bromomethane	74-83-9	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Carbon disulfide	75-15-0	**60**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
Carbon tetrachloride	56-23-5	**5**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
Chlorobenzene	108-90-7	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Chloroethane	75-00-3	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Chloroform	67-66-3	**7**	ug/l	4.5		-	-	0.78	J	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Chloromethane	74-87-3		ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
cis-1,2-Dichloroethene	156-59-2	**5**	ug/l	2.5	U	-	-	2.2	J	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
cis-1,3-Dichloropropene	10061-01-5	**0.4**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
Dibromochloromethane	124-48-1	**50**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
Dibromomethane	74-95-3	**5**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
Dichlorodifluoromethane	75-71-8	**5**	ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
Ethyl ether	60-29-7		ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Ethylbenzene	100-41-4	**5**	ug/l	**24**		-	-	**7.1**		2.5	U	2.5	U	**730**		**1900**		-	-	**730**		-	-	**640**		-	-
Hexachlorobutadiene	87-68-3	**0.5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Isopropylbenzene	98-82-8	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	**31**		250	U	-	-	620	U	-	-	620	U	-	-
Methyl tert butyl ether	1634-04-4	**10**	ug/l	**20**		-	-	**22**		2.5	U	2.5	U	9.5	J	250	U	-	-	620	U	-	-	620	U	-	-
Methylene chloride	75-09-2	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
n-Butylbenzene	104-51-8	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
n-Propylbenzene	103-65-1	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	**11**	J	250	U	-	-	620	U	-	-	620	U	-	-
Naphthalene	91-20-3	**10**	ug/l	**140**		-	-	**180**		2.5	U	2.5	U	**470**		**9400**		-	-	**11000**		-	-	**9100**		-	-
o-Chlorotoluene	95-49-8	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
o-Xylene	95-47-6	**5**	ug/l	**9.4**		-	-	**7.8**		2.5	U	2.5	U	**56**		**940**		-	-	**1400**		-	-	**1200**		-	-
p-Chlorotoluene	106-43-4	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
p-Diethylbenzene	105-05-5		ug/l	0.97	J	-	-	1.1	J	2	U	2	U	20	U	200	U	-	-	500	U	-	-	500	U	-	-
p-Ethyltoluene	622-96-8		ug/l	9.8		-	-	5.4		2	U	2	U	20	U	510		-	-	180	J	-	-	500	U	-	-
p-Isopropyltoluene	99-87-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
p/m-Xylene	179601-23-1	**5**	ug/l	**17**		-	-	**17**		2.5	U	2.5	U	**13**	J	**1900**		-	-	**2700**		-	-	**2400**		-	-
sec-Butylbenzene	135-98-8	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Styrene	100-42-5	**5**	ug/l	4.3		-	-	**16**		2.5	U	2.5	U	25	U	**1200**		-	-	**5000**		-	-	**3600**		-	-
tert-Butylbenzene	98-06-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Tetrachloroethene	127-18-4	**5**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
Toluene	108-88-3	**5**	ug/l	**40**		-	-	**22**		2.5	U	2.5	U	25	U	**2200**		-	-	**15000**		-	-	**9800**		-	-
trans-1,2-Dichloroethene	156-60-5	**5**	ug/l	2.5	U	-	-	0.97	J	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
trans-1,3-Dichloropropene	10061-02-6	**0.4**	ug/l	0.5	U	-	-	0.5	U	0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
trans-1,4-Dichloro-2-butene	110-57-6	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Trichloroethene	79-01-6	**5**	ug/l	0.38	J	-	-	**9.3**		0.5	U	0.5	U	5	U	50	U	-	-	120	U	-	-	120	U	-	-
Trichlorofluoromethane	75-69-4	**5**	ug/l	2.5	U	-	-	2.5	U	2.5	U	2.5	U	25	U	250	U	-	-	620	U	-	-	620	U	-	-
Vinyl acetate	108-05-4		ug/l	5	U	-	-	5	U	5	U	5	U	50	U	500	U	-	-	1200	U	-	-	1200	U	-	-
Vinyl chloride	75-01-4	**2**	ug/l	1	U	-	-	1	U	1	U	1	U	10	U	100	U	-	-	250	U	-	-	250	U	-	-
Xylenes, Total	1330-20-7		ug/l	26		-	-	25		2.5	U	2.5	U	69	J	2800		-	-	4100		-	-	3600		-	-

ug/l - micrograms per liter
U - not detected
J - lab estimated value
Bold/Highlighted - exceeds regulatory criteria

Table 5
2023 SRI Groundwater Analysis Summary
251 Douglass Street, Brooklyn, NY

LOCATION				CW-2-85		CW-2-85		CW-1-55		CW-1-55		CW-6-50		CW-6-50		CW6-75		DUP		DUP		TRIP BLANK		CW-6-70		CW-6-70		CW-2-45	
SAMPLING DATE				5/26/2023		5/26/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023		5/30/2023	
LAB SAMPLE ID				L2329754-06		L2329754-06 R1		L2329990-01		L2329990-01 R1		L2329990-02		L2329990-02 R1		L2329990-03		L2329990-04		L2329990-04 R1		L2329990-05		L2329990-06		L2329990-06 R1		L2329990-07	
SAMPLE TYPE				WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	CasNum	NY-AWQS	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
General Chemistry																													
Cyanide, Total	57-12-5	**200**	ug/l	5	U	-	-	5	U	-	-	2	J	-	-	5	U	5	U	-	-	-	-	5	U	-	-	2	J
Semivolatile Organics by GC/MS																													
1,2,4,5-Tetrachlorobenzene	95-94-3	**5**	ug/l	10	U	-	-	10	U	-	-	10	U	-	-	10	U	10	U	-	-	-	-	10	U	-	-	10	U
1,2,4-Trichlorobenzene	120-82-1	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
1,2-Dichlorobenzene	95-50-1	**3**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
1,3-Dichlorobenzene	541-73-1	**3**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
1,4-Dichlorobenzene	106-46-7	**3**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
2,4,5-Trichlorophenol	95-95-4		ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2,4,6-Trichlorophenol	88-06-2		ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2,4-Dichlorophenol	120-83-2	**1**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2,4-Dimethylphenol	105-67-9	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2,4-Dinitrophenol	51-28-5	**10**	ug/l	20	U	-	-	20	U	-	-	20	U	-	-	20	U	20	U	-	-	-	-	20	U	-	-	20	U
2,4-Dinitrotoluene	121-14-2	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2,6-Dinitrotoluene	606-20-2	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2-Chlorophenol	95-57-8		ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
2-Methylphenol	95-48-7		ug/l	0.68	J	-	-	1.2	J	-	-	3.6	J	-	-	5	U	5	U	-	-	-	-	5	U	-	-	1.4	J
2-Nitroaniline	88-74-4	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
2-Nitrophenol	88-75-5		ug/l	10	U	-	-	10	U	-	-	10	U	-	-	10	U	10	U	-	-	-	-	10	U	-	-	10	U
3,3'-Dichlorobenzidine	91-94-1	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5		ug/l	0.7	J	-	-	2.3	J	-	-	5.6		-	-	5	U	5	U	-	-	-	-	1.2	J	-	-	3.6	J
3-Nitroaniline	99-09-2	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
4,6-Dinitro-o-cresol	534-52-1		ug/l	10	U	-	-	10	U	-	-	10	U	-	-	10	U	10	U	-	-	-	-	10	U	-	-	10	U
4-Bromophenyl phenyl ether	101-55-3		ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
4-Chloroaniline	106-47-8	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
4-Chlorophenyl phenyl ether	7005-72-3		ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
4-Nitroaniline	100-01-6	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
4-Nitrophenol	100-02-7		ug/l	10	U	-	-	10	U	-	-	10	U	-	-	10	U	10	U	-	-	-	-	10	U	-	-	10	U
Acetophenone	98-86-2		ug/l	5	U	-	-	5	U	-	-	12		-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
Benzoic Acid	65-85-0		ug/l	50	U	-	-	50	U	-	-	50	U	-	-	50	U	50	U	-	-	-	-	50	U	-	-	50	U
Benzyl Alcohol	100-51-6		ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
Biphenyl	92-52-4		ug/l	28		-	-	35		-	-	34		-	-	1.5	J	1.8	J	-	-	-	-	41		-	-	12	
Bis(2-chloroethoxy)methane	111-91-1	**5**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
Bis(2-chloroethyl)ether	111-44-4	**1**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
Bis(2-chloroisopropyl)ether	108-60-1	**5**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
Bis(2-ethylhexyl)phthalate	117-81-7	**5**	ug/l	3	U	-	-	3	U	-	-	3	U	-	-	3	U	3	U	-	-	-	-	3	U	-	-	3	U
Butyl benzyl phthalate	85-68-7	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
Carbazole	86-74-8		ug/l	10		-	-	8.6		-	-	18		-	-	2	U	2	U	-	-	-	-	14		-	-	3.3	
Di-n-butylphthalate	84-74-2	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
Di-n-octylphthalate	117-84-0	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	8.4		-	-	-	-	5	U	-	-	5	U
Dibenzofuran	132-64-9		ug/l	5.3		-	-	4.8		-	-	6.6		-	-	2	U	2	U	-	-	-	-	7.3		-	-	2.6	
Diethyl phthalate	84-66-2	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
Dimethyl phthalate	131-11-3	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
Hexachlorocyclopentadiene	77-47-4	**5**	ug/l	20	U	-	-	20	U	-	-	20	U	-	-	20	U	20	U	-	-	-	-	20	U	-	-	20	U
Isophorone	78-59-1	**50**	ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
n-Nitrosodi-n-propylamine	621-64-7		ug/l	5	U	-	-	5	U	-	-	5	U	-	-	5	U	5	U	-	-	-	-	5	U	-	-	5	U
NDPA/DPA	86-30-6	**50**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
Nitrobenzene	98-95-3	**0.4**	ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
p-Chloro-m-cresol	59-50-7		ug/l	2	U	-	-	2	U	-	-	2	U	-	-	2	U	2	U	-	-	-	-	2	U	-	-	2	U
Phenol	108-95-2	**1**	ug/l	**1.2**	J	-	-	**11**		-	-	**9**		-	-	5	U	5	U	-	-	-	-	**1.8**	J	-	-	5	U
Semivolatile Organics by GC/MS-SIM																													
2-Chloronaphthalene	91-58-7	**10**	ug/l	10	U	-	-	2	U	-	-	2	U	-	-	0.2	U	0.2	U	-	-	-	-	2	U	-	-	1	U
2-Methylnaphthalene	91-57-6		ug/l	640		-	-	370		-	-	600		-	-	22		25		-	-	-	-	580		-	-	180	
Acenaphthene	83-32-9	**20**	ug/l	18		-	-	**96**		-	-	13		-	-	1		1.2		-	-	-	-	**24**		-	-	**21**	
Acenaphthylene	208-96-8		ug/l	300		-	-	92		-	-	300		-	-	10		12		-	-	-	-	270		-	-	77	
Anthracene	120-12-7	**50**	ug/l	10		-	-	19		-	-	13		-	-	2		2.3		-	-	-	-	8.8		-	-	5.3	
Benzo(a)anthracene	56-55-3	**0.002**	ug/l	**2**	J	-	-	**6.6**		-	-	**4.6**		-	-	**1.2**		**1.2**		-	-	-	-	**0.46**	J	-	-	**0.22**	J
Benzo(a)pyrene	50-32-8	**0**	ug/l	5	U	-	-	**7**		-	-	**4.5**		-	-	**1.1**		**1.1**		-	-	-	-	**0.3**	J	-	-	**0.1**	J
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	5	U	-	-	**4.6**		-	-	**3.1**		-	-	**0.82**		**0.75**		-	-	-	-	**0.24**	J	-	-	**0.08**	J
Benzo(ghi)perylene	191-24-2		ug/l	5	U	-	-	2.6		-	-	1.5		-	-	0.45		0.41		-	-	-	-	1	U	-	-	0.5	U
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	5	U	-	-	**1.8**		-	-	**1.1**		-	-	**0.32**		**0.3**		-	-	-	-	1	U	-	-	0.5	U
Chrysene	218-01-9	**0.002**	ug/l	**0.76**	J	-	-	**6**		-	-	**4.2**		-	-	**1.1**		**1.1**		-	-	-	-	**0.42**	J	-	-	**0.2**	J
Dibenzo(a,h)anthracene	53-70-3		ug/l	5	U	-	-	0.6	J	-	-	0.39	J	-	-	0.1		0.11		-	-	-	-	1	U	-	-	0.5	U
Fluoranthene	206-44-0	**50**	ug/l	4.8	J	-	-	17		-	-	10		-	-	2.3		2.5		-	-	-	-	3.5		-	-	2.7	
Fluorene	86-73-7	**50**	ug/l	44		-	-	45		-	-	44		-	-	3.7		4.3		-	-	-	-	42		-	-	20	
Hexachlorobenzene	118-74-1	**0.04**	ug/l	40	U	-	-	8	U	-	-	8	U	-	-	0.8	U	0.8	U	-	-	-	-	8	U	-	-	4	U
Hexachlorobutadiene	87-68-3	**0.5**	ug/l	25	U	-	-	5	U	-	-	5	U	-	-	0.5	U	0.5	U	-	-	-	-	5	U	-	-	2.5	U
Hexachloroethane	67-72-1	**5**	ug/l	40	U	-	-	8	U	-	-	8	U	-	-	0.8	U	0.8	U	-	-	-	-	8	U	-	-	4	U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	5	U	-	-	**2.2**		-	-	**1.3**		-	-	**0.39**		**0.35**		-	-	-	-	1	U	-	-	0.5	U
Naphthalene	91-20-3	**10**	ug/l	**5900**		**5600**	E	**1900**	E	**2600**		**3800**	E	**5900**		**63**		**75**	E	**78**		-	-	**2600**	E	**3600**		**1000**	E
Pentachlorophenol	87-86-5	**1**	ug/l	40	U	-	-	0.42	J	-	-	8	U	-	-	0.06	J	0.8	U	-	-	-	-	0.57	J	-	-	0.24	J
Phenanthrene	85-01-8	**50**	ug/l	47		-	-	**73**		-	-	**51**		-	-	7.2		8.3		-	-	-	-	38		-	-	23	
Pyrene	129-00-0	**50**	ug/l	6.2		-	-	25		-	-	14		-	-	3		3.2		-	-	-	-	4.5		-	-	3	
Volatile Organics by GC/MS																													
1,1,1,2-Tetrachloroethane	630-20-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,1,1-Trichloroethane	71-55-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,1,2,2-Tetrachloroethane	79-34-5	**5**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
1,1,2-Trichloroethane	79-00-5	**1**	ug/l	75	U	-	-	60	U	-	-	150	U	-	-	1.5	U	1.5	U	-	-	1.5	U	150	U	-	-	30	U
1,1-Dichloroethane	75-34-3	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,1-Dichloroethene	75-35-4	**5**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
1,1-Dichloropropene	563-58-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,2,3-Trichlorobenzene	87-61-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,2,3-Trichloropropane	96-18-4	**0.04**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,2,4,5-Tetramethylbenzene	95-93-2	**5**	ug/l	100	U	-	-	80	U	-	-	200	U	-	-	0.61	J	0.54	J	-	-	2	U	200	U	-	-	40	U
1,2,4-Trichlorobenzene	120-82-1	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,2,4-Trimethylbenzene	95-63-6	**5**	ug/l	**350**		-	-	**150**		-	-	**450**		-	-	**11**		**8.4**		-	-	2.5	U	**250**		-	-	**140**	
1,2-Dibromo-3-chloropropane	96-12-8	**0.04**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,2-Dibromoethane	106-93-4	**0.0006**	ug/l	100	U	-	-	80	U	-	-	200	U	-	-	2	U	2	U	-	-	2	U	200	U	-	-	40	U
1,2-Dichlorobenzene	95-50-1	**3**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,2-Dichloroethane	107-06-2	**0.6**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.35	J	0.35	J	-	-	0.5	U	50	U	-	-	10	U
1,2-Dichloroethene, Total	540-59-0		ug/l	120	U	-	-	100	U	-	-	250	U	-	-	1.8	J	1.8	J	-	-	2.5	U	250	U	-	-	50	U
1,2-Dichloropropane	78-87-5	**1**	ug/l	50	U	-	-	40	U	-	-	100	U	-	-	0.23	J	1	U	-	-	1	U	100	U	-	-	20	U
1,3,5-Trimethylbenzene	108-67-8	**5**	ug/l	**97**	J	-	-	**37**	J	-	-	**120**	J	-	-	3.1		2.5		-	-	2.5	U	250	U	-	-	**40**	J
1,3-Dichlorobenzene	541-73-1	**3**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,3-Dichloropropane	142-28-9	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,3-Dichloropropene, Total	542-75-6		ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
1,4-Dichlorobenzene	106-46-7	**3**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
1,4-Dioxane	123-91-1		ug/l	12000	U	-	-	10000	U	-	-	25000	U	-	-	250	U	250	U	-	-	250	U	25000	U	-	-	5000	U
2,2-Dichloropropane	594-20-7	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
2-Butanone	78-93-3	**50**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
2-Hexanone	591-78-6	**50**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
4-Methyl-2-pentanone	108-10-1		ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
Acetone	67-64-1	**50**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	1.6	J	-	-	5	U	500	U	-	-	100	U
Acrylonitrile	107-13-1	**5**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
Benzene	71-43-2	**1**	ug/l	**3200**		-	-	**3300**		-	-	**6300**		-	-	**75**		**44**		-	-	0.5	U	**1500**		-	-	**8.3**	J
Bromobenzene	108-86-1	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Bromochloromethane	74-97-5	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Bromodichloromethane	75-27-4	**50**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
Bromoform	75-25-2	**50**	ug/l	100	U	-	-	80	U	-	-	200	U	-	-	2	U	2	U	-	-	2	U	200	U	-	-	40	U
Bromomethane	74-83-9	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Carbon disulfide	75-15-0	**60**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
Carbon tetrachloride	56-23-5	**5**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
Chlorobenzene	108-90-7	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Chloroethane	75-00-3	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Chloroform	67-66-3	**7**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	1.2	J	0.72	J	-	-	2.5	U	250	U	-	-	50	U
Chloromethane	74-87-3		ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
cis-1,2-Dichloroethene	156-59-2	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	1.8	J	1.8	J	-	-	2.5	U	250	U	-	-	50	U
cis-1,3-Dichloropropene	10061-01-5	**0.4**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
Dibromochloromethane	124-48-1	**50**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
Dibromomethane	74-95-3	**5**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
Dichlorodifluoromethane	75-71-8	**5**	ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
Ethyl ether	60-29-7		ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Ethylbenzene	100-41-4	**5**	ug/l	**780**		-	-	**720**		-	-	**570**		-	-	**7.3**		4.8		-	-	2.5	U	**290**		-	-	**680**	
Hexachlorobutadiene	87-68-3	**0.5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Isopropylbenzene	98-82-8	**5**	ug/l	120	U	-	-	**29**	J	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	**33**	J
Methyl tert butyl ether	1634-04-4	**10**	ug/l	**38**	J	-	-	100	U	-	-	250	U	-	-	3.2		3.4		-	-	2.5	U	250	U	-	-	50	U
Methylene chloride	75-09-2	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
n-Butylbenzene	104-51-8	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
n-Propylbenzene	103-65-1	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	0.92	J	0.75	J	-	-	2.5	U	250	U	-	-	50	U
Naphthalene	91-20-3	**10**	ug/l	**9000**		-	-	**5800**		-	-	**12000**		-	-	**190**		**140**		-	-	2.5	U	**7800**		-	-	**3000**	
o-Chlorotoluene	95-49-8	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
o-Xylene	95-47-6	**5**	ug/l	**700**		-	-	**340**		-	-	**1200**		-	-	**15**		**9.9**		-	-	2.5	U	**390**		-	-	**230**	
p-Chlorotoluene	106-43-4	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
p-Diethylbenzene	105-05-5		ug/l	100	U	-	-	33	J	-	-	200	U	-	-	1.3	J	1.2	J	-	-	2	U	200	U	-	-	40	U
p-Ethyltoluene	622-96-8		ug/l	140		-	-	190		-	-	170	J	-	-	4.8		3.5		-	-	2	U	150	J	-	-	240	
p-Isopropyltoluene	99-87-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
p/m-Xylene	179601-23-1	**5**	ug/l	**1300**		-	-	**620**		-	-	**2400**		-	-	**34**		**23**		-	-	2.5	U	**790**		-	-	**410**	
sec-Butylbenzene	135-98-8	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Styrene	100-42-5	**5**	ug/l	**1800**		-	-	**400**		-	-	**3800**		-	-	**49**		**30**		-	-	2.5	U	**1000**		-	-	50	U
tert-Butylbenzene	98-06-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Tetrachloroethene	127-18-4	**5**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.65		0.77		-	-	0.5	U	50	U	-	-	10	U
Toluene	108-88-3	**5**	ug/l	**3100**		-	-	**1400**		-	-	**9300**		-	-	**88**		**53**		-	-	2.5	U	**2300**		-	-	**640**	
trans-1,2-Dichloroethene	156-60-5	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
trans-1,3-Dichloropropene	10061-02-6	**0.4**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	0.5	U	0.5	U	-	-	0.5	U	50	U	-	-	10	U
trans-1,4-Dichloro-2-butene	110-57-6	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Trichloroethene	79-01-6	**5**	ug/l	25	U	-	-	20	U	-	-	50	U	-	-	**6.5**		**7.7**		-	-	0.5	U	50	U	-	-	10	U
Trichlorofluoromethane	75-69-4	**5**	ug/l	120	U	-	-	100	U	-	-	250	U	-	-	2.5	U	2.5	U	-	-	2.5	U	250	U	-	-	50	U
Vinyl acetate	108-05-4		ug/l	250	U	-	-	200	U	-	-	500	U	-	-	5	U	5	U	-	-	5	U	500	U	-	-	100	U
Vinyl chloride	75-01-4	**2**	ug/l	50	U	-	-	40	U	-	-	100	U	-	-	1	U	1	U	-	-	1	U	100	U	-	-	20	U
Xylenes, Total	1330-20-7		ug/l	2000		-	-	960		-	-	3600		-	-	49		33		-	-	2.5	U	1200		-	-	640	

ug/l - micrograms per liter
U - not detected
J - lab estimated value
Bold/Highlighted - exceeds regulatory criteria

Table 5
2023 SRI Groundwater Analysis Summary
251 Douglass Street, Brooklyn, NY

LOCATION				CW-2-45		GW-8-93	
SAMPLING DATE				5/30/2023		5/30/2023	
LAB SAMPLE ID				L2329990-07 R1		L2330116-01	
SAMPLE TYPE				WATER		WATER	
	CasNum	NY-AWQS	Units	Results	Qual	Results	Qual
General Chemistry							
Cyanide, Total	57-12-5	**200**	ug/l	-	-	5	U
Semivolatile Organics by GC/MS							
1,2,4,5-Tetrachlorobenzene	95-94-3	**5**	ug/l	-	-	10	U
1,2,4-Trichlorobenzene	120-82-1	**5**	ug/l	-	-	5	U
1,2-Dichlorobenzene	95-50-1	**3**	ug/l	-	-	2	U
1,3-Dichlorobenzene	541-73-1	**3**	ug/l	-	-	2	U
1,4-Dichlorobenzene	106-46-7	**3**	ug/l	-	-	2	U
2,4,5-Trichlorophenol	95-95-4		ug/l	-	-	5	U
2,4,6-Trichlorophenol	88-06-2		ug/l	-	-	5	U
2,4-Dichlorophenol	120-83-2	**1**	ug/l	-	-	5	U
2,4-Dimethylphenol	105-67-9	**50**	ug/l	-	-	5	U
2,4-Dinitrophenol	51-28-5	**10**	ug/l	-	-	20	U
2,4-Dinitrotoluene	121-14-2	**5**	ug/l	-	-	5	U
2,6-Dinitrotoluene	606-20-2	**5**	ug/l	-	-	5	U
2-Chlorophenol	95-57-8		ug/l	-	-	2	U
2-Methylphenol	95-48-7		ug/l	-	-	2.4	J
2-Nitroaniline	88-74-4	**5**	ug/l	-	-	5	U
2-Nitrophenol	88-75-5		ug/l	-	-	10	U
3,3'-Dichlorobenzidine	91-94-1	**5**	ug/l	-	-	5	U
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5		ug/l	-	-	3.3	J
3-Nitroaniline	99-09-2	**5**	ug/l	-	-	5	U
4,6-Dinitro-o-cresol	534-52-1		ug/l	-	-	10	U
4-Bromophenyl phenyl ether	101-55-3		ug/l	-	-	2	U
4-Chloroaniline	106-47-8	**5**	ug/l	-	-	5	U
4-Chlorophenyl phenyl ether	7005-72-3		ug/l	-	-	2	U
4-Nitroaniline	100-01-6	**5**	ug/l	-	-	5	U
4-Nitrophenol	100-02-7		ug/l	-	-	10	U
Acetophenone	98-86-2		ug/l	-	-	5	U
Benzoic Acid	65-85-0		ug/l	-	-	50	U
Benzyl Alcohol	100-51-6		ug/l	-	-	2	U
Biphenyl	92-52-4		ug/l	-	-	43	
Bis(2-chloroethoxy)methane	111-91-1	**5**	ug/l	-	-	5	U
Bis(2-chloroethyl)ether	111-44-4	**1**	ug/l	-	-	2	U
Bis(2-chloroisopropyl)ether	108-60-1	**5**	ug/l	-	-	2	U
Bis(2-ethylhexyl)phthalate	117-81-7	**5**	ug/l	-	-	3	U
Butyl benzyl phthalate	85-68-7	**50**	ug/l	-	-	5	U
Carbazole	86-74-8		ug/l	-	-	6.8	
Di-n-butylphthalate	84-74-2	**50**	ug/l	-	-	5	U
Di-n-octylphthalate	117-84-0	**50**	ug/l	-	-	5	U
Dibenzofuran	132-64-9		ug/l	-	-	10	
Diethyl phthalate	84-66-2	**50**	ug/l	-	-	5	U
Dimethyl phthalate	131-11-3	**50**	ug/l	-	-	5	U
Hexachlorocyclopentadiene	77-47-4	**5**	ug/l	-	-	20	U
Isophorone	78-59-1	**50**	ug/l	-	-	5	U
n-Nitrosodi-n-propylamine	621-64-7		ug/l	-	-	5	U
NDPA/DPA	86-30-6	**50**	ug/l	-	-	2	U
Nitrobenzene	98-95-3	**0.4**	ug/l	-	-	2	U
p-Chloro-m-cresol	59-50-7		ug/l	-	-	2	U
Phenol	108-95-2	**1**	ug/l	-	-	**4.9**	J
Semivolatile Organics by GC/MS-SIM							
2-Chloronaphthalene	91-58-7	**10**	ug/l	-	-	10	U
2-Methylnaphthalene	91-57-6		ug/l	-	-	510	
Acenaphthene	83-32-9	**20**	ug/l	-	-	**55**	
Acenaphthylene	208-96-8		ug/l	-	-	190	
Anthracene	120-12-7	**50**	ug/l	-	-	34	
Benzo(a)anthracene	56-55-3	**0.002**	ug/l	-	-	**16**	
Benzo(a)pyrene	50-32-8	**0**	ug/l	-	-	**18**	
Benzo(b)fluoranthene	205-99-2	**0.002**	ug/l	-	-	**11**	
Benzo(ghi)perylene	191-24-2		ug/l	-	-	6.6	
Benzo(k)fluoranthene	207-08-9	**0.002**	ug/l	-	-	**5.3**	
Chrysene	218-01-9	**0.002**	ug/l	-	-	**16**	
Dibenzo(a,h)anthracene	53-70-3		ug/l	-	-	1.4	J
Fluoranthene	206-44-0	**50**	ug/l	-	-	37	
Fluorene	86-73-7	**50**	ug/l	-	-	**74**	
Hexachlorobenzene	118-74-1	**0.04**	ug/l	-	-	40	U
Hexachlorobutadiene	87-68-3	**0.5**	ug/l	-	-	25	U
Hexachloroethane	67-72-1	**5**	ug/l	-	-	40	U
Indeno(1,2,3-cd)pyrene	193-39-5	**0.002**	ug/l	-	-	**5.6**	
Naphthalene	91-20-3	**10**	ug/l	**1400**		**2000**	
Pentachlorophenol	87-86-5	**1**	ug/l	-	-	40	U
Phenanthrene	85-01-8	**50**	ug/l	-	-	**130**	
Pyrene	129-00-0	**50**	ug/l	-	-	**56**	
Volatile Organics by GC/MS							
1,1,1,2-Tetrachloroethane	630-20-6	**5**	ug/l	-	-	62	U
1,1,1-Trichloroethane	71-55-6	**5**	ug/l	-	-	62	U
1,1,2,2-Tetrachloroethane	79-34-5	**5**	ug/l	-	-	12	U
1,1,2-Trichloroethane	79-00-5	**1**	ug/l	-	-	38	U
1,1-Dichloroethane	75-34-3	**5**	ug/l	-	-	62	U
1,1-Dichloroethene	75-35-4	**5**	ug/l	-	-	12	U
1,1-Dichloropropene	563-58-6	**5**	ug/l	-	-	62	U
1,2,3-Trichlorobenzene	87-61-6	**5**	ug/l	-	-	62	U
1,2,3-Trichloropropane	96-18-4	**0.04**	ug/l	-	-	62	U
1,2,4,5-Tetramethylbenzene	95-93-2	**5**	ug/l	-	-	50	U
1,2,4-Trichlorobenzene	120-82-1	**5**	ug/l	-	-	62	U
1,2,4-Trimethylbenzene	95-63-6	**5**	ug/l	-	-	**140**	
1,2-Dibromo-3-chloropropane	96-12-8	**0.04**	ug/l	-	-	62	U
1,2-Dibromoethane	106-93-4	**0.0006**	ug/l	-	-	50	U
1,2-Dichlorobenzene	95-50-1	**3**	ug/l	-	-	62	U
1,2-Dichloroethane	107-06-2	**0.6**	ug/l	-	-	12	U
1,2-Dichloroethene, Total	540-59-0		ug/l	-	-	62	U
1,2-Dichloropropane	78-87-5	**1**	ug/l	-	-	25	U
1,3,5-Trimethylbenzene	108-67-8	**5**	ug/l	-	-	**37**	J
1,3-Dichlorobenzene	541-73-1	**3**	ug/l	-	-	62	U
1,3-Dichloropropane	142-28-9	**5**	ug/l	-	-	62	U
1,3-Dichloropropene, Total	542-75-6		ug/l	-	-	12	U
1,4-Dichlorobenzene	106-46-7	**3**	ug/l	-	-	62	U
1,4-Dioxane	123-91-1		ug/l	-	-	6200	U
2,2-Dichloropropane	594-20-7	**5**	ug/l	-	-	62	U
2-Butanone	78-93-3	**50**	ug/l	-	-	120	U
2-Hexanone	591-78-6	**50**	ug/l	-	-	120	U
4-Methyl-2-pentanone	108-10-1		ug/l	-	-	120	U
Acetone	67-64-1	**50**	ug/l	-	-	120	U
Acrylonitrile	107-13-1	**5**	ug/l	-	-	120	U
Benzene	71-43-2	**1**	ug/l	-	-	**700**	
Bromobenzene	108-86-1	**5**	ug/l	-	-	62	U
Bromochloromethane	74-97-5	**5**	ug/l	-	-	62	U
Bromodichloromethane	75-27-4	**50**	ug/l	-	-	12	U
Bromoform	75-25-2	**50**	ug/l	-	-	50	U
Bromomethane	74-83-9	**5**	ug/l	-	-	62	U
Carbon disulfide	75-15-0	**60**	ug/l	-	-	120	U
Carbon tetrachloride	56-23-5	**5**	ug/l	-	-	12	U
Chlorobenzene	108-90-7	**5**	ug/l	-	-	62	U
Chloroethane	75-00-3	**5**	ug/l	-	-	62	U
Chloroform	67-66-3	**7**	ug/l	-	-	62	U
Chloromethane	74-87-3		ug/l	-	-	62	U
cis-1,2-Dichloroethene	156-59-2	**5**	ug/l	-	-	62	U
cis-1,3-Dichloropropene	10061-01-5	**0.4**	ug/l	-	-	12	U
Dibromochloromethane	124-48-1	**50**	ug/l	-	-	12	U
Dibromomethane	74-95-3	**5**	ug/l	-	-	120	U
Dichlorodifluoromethane	75-71-8	**5**	ug/l	-	-	120	U
Ethyl ether	60-29-7		ug/l	-	-	62	U
Ethylbenzene	100-41-4	**5**	ug/l	-	-	**530**	
Hexachlorobutadiene	87-68-3	**0.5**	ug/l	-	-	62	U
Isopropylbenzene	98-82-8	**5**	ug/l	-	-	**24**	J
Methyl tert butyl ether	1634-04-4	**10**	ug/l	-	-	62	U
Methylene chloride	75-09-2	**5**	ug/l	-	-	62	U
n-Butylbenzene	104-51-8	**5**	ug/l	-	-	62	U
n-Propylbenzene	103-65-1	**5**	ug/l	-	-	62	U
Naphthalene	91-20-3	**10**	ug/l	-	-	**4400**	
o-Chlorotoluene	95-49-8	**5**	ug/l	-	-	62	U
o-Xylene	95-47-6	**5**	ug/l	-	-	**200**	
p-Chlorotoluene	106-43-4	**5**	ug/l	-	-	62	U
p-Diethylbenzene	105-05-5		ug/l	-	-	20	J
p-Ethyltoluene	622-96-8		ug/l	-	-	200	
p-Isopropyltoluene	99-87-6	**5**	ug/l	-	-	62	U
p/m-Xylene	179601-23-1	**5**	ug/l	-	-	**380**	
sec-Butylbenzene	135-98-8	**5**	ug/l	-	-	62	U
Styrene	100-42-5	**5**	ug/l	-	-	**34**	J
tert-Butylbenzene	98-06-6	**5**	ug/l	-	-	62	U
Tetrachloroethene	127-18-4	**5**	ug/l	-	-	12	U
Toluene	108-88-3	**5**	ug/l	-	-	**810**	
trans-1,2-Dichloroethene	156-60-5	**5**	ug/l	-	-	62	U
trans-1,3-Dichloropropene	10061-02-6	**0.4**	ug/l	-	-	12	U
trans-1,4-Dichloro-2-butene	110-57-6	**5**	ug/l	-	-	62	U
Trichloroethene	79-01-6	**5**	ug/l	-	-	12	U
Trichlorofluoromethane	75-69-4	**5**	ug/l	-	-	62	U
Vinyl acetate	108-05-4		ug/l	-	-	120	U
Vinyl chloride	75-01-4	**2**	ug/l	-	-	25	U
Xylenes, Total	1330-20-7		ug/l	-	-	580	

ug/l - micrograms per liter
U - not detected
J - lab estimated value
Bold/Highlighted - exceeds regulatory criteria

Table 6
2022 RI Soil Vapor Analytical Results Summary
251 Douglass Street, Brooklyn, NY

SAMPLE ID: / LAB ID: / COLLECTION DATE: / SAMPLE MATRIX:		NYSDOH Matrices Soil Vapor	SS-11 L2266268-01 11/22/2022 SOIL_VAPOR		SV-10 L2266268-02 11/22/2022 SOIL_VAPOR		SV-12 L2266268-03 11/22/2022 SOIL_VAPOR		SS-9 L2266268-04 11/22/2022 SOIL_VAPOR		SS-9 L2266268-04 R1 11/22/2022 SOIL_VAPOR		SV-DUP L2266268-05 11/22/2022 SOIL_VAPOR	
Compound	**CAS Number**		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
VOLATILE ORGANICS IN AIR		ug/m3	ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3	
Dichlorodifluoromethane	75-71-8	~	**2.26**		1.98	U	**3.29**		75.7	U	-		**1.81**	
Chloromethane	74-87-3	~	0.413	U	**3.08**		**0.535**		31.6	U	-		**0.878**	
Freon-114	76-14-2	~	1.4	U	2.8	U	1.4	U	107	U	-		1.4	U
Vinyl chloride	75-01-4	6	0.511	U	1.02	U	0.511	U	39.1	U	-		0.511	U
1,3-Butadiene	106-99-0	~	0.442	U	**7.28**		**1.31**		33.8	U	-		**6.48**	
Bromomethane	74-83-9	~	0.777	U	1.55	U	0.777	U	59.4	U	-		0.777	U
Chloroethane	75-00-3	~	0.528	U	1.06	U	0.528	U	40.4	U	-		0.528	U
Ethanol	64-17-5	~	**11.6**		18.8	U	**15**		722	U	-		**12.2**	
Vinyl bromide	593-60-2	~	0.874	U	1.75	U	0.874	U	66.9	U	-		0.874	U
Acetone	67-64-1	~	**489**		**753**		**748**		**2610**		-		**644**	
Trichlorofluoromethane	75-69-4	~	**1.18**		2.25	U	**11.4**		86	U	-		**2.67**	
Isopropanol	67-63-0	~	1.23	U	**2.95**		**3.47**		**295**		-		**3.76**	
1,1-Dichloroethene	75-35-4	6	0.793	U	1.59	U	0.793	U	60.7	U	-		0.793	U
Tertiary butyl Alcohol	75-65-0	~	**3.67**		**6.18**		**7.52**		116	U	-		**5.55**	
Methylene chloride	75-09-2	100	**3.93**		3.47	U	**31.4**		133	U	-		**7.4**	
3-Chloropropene	107-05-1	~	0.626	U	1.25	U	0.626	U	47.9	U	-		0.626	U
Carbon disulfide	75-15-0	~	**2.79**		**14**		**3.15**		47.6	U	-		**9.47**	
Freon-113	76-13-1	~	1.53	U	3.07	U	1.53	U	117	U	-		1.53	U
trans-1,2-Dichloroethene	156-60-5	~	0.793	U	1.59	U	0.793	U	60.7	U	-		0.793	U
1,1-Dichloroethane	75-34-3	~	0.809	U	1.62	U	0.809	U	61.9	U	-		0.809	U
Methyl tert butyl ether	1634-04-4	~	0.721	U	1.44	U	0.721	U	55.2	U	-		0.721	U
2-Butanone	78-93-3	~	**30.1**		**50.4**		**69.6**		113	U	-		**42.5**	
cis-1,2-Dichloroethene	156-59-2	6	0.793	U	1.59	U	0.793	U	60.7	U	-		0.793	U
Ethyl Acetate	141-78-6	~	1.8	U	3.6	U	1.8	U	138	U	-		1.8	U
Chloroform	67-66-3	~	0.977	U	**3.62**		**3.76**		74.7	U	-		**2.09**	
Tetrahydrofuran	109-99-9	~	**1.76**		**3.21**		**4.19**		113	U	-		**8.08**	
1,2-Dichloroethane	107-06-2	~	0.809	U	1.62	U	0.809	U	61.9	U	-		0.809	U
n-Hexane	110-54-3	~	**42.6**		**335**		**12.3**		**12900**		-		**19.4**	
1,1,1-Trichloroethane	71-55-6	100	1.09	U	**11.7**		**1.19**		83.5	U	-		**3.63**	
Benzene	71-43-2	~	**6.1**		**16.6**		**6.23**		**460**		-		**7.67**	
Carbon tetrachloride	56-23-5	6	1.26	U	2.52	U	1.26	U	96.2	U	-		1.26	U
Cyclohexane	110-82-7	~	**2.56**		**30.4**		**6.82**		**33400**	E	**41300**		**12**	
1,2-Dichloropropane	78-87-5	~	0.924	U	1.85	U	0.924	U	70.7	U	-		0.924	U
Bromodichloromethane	75-27-4	~	1.34	U	2.68	U	1.34	U	103	U	-		1.34	U
1,4-Dioxane	123-91-1	~	0.721	U	1.44	U	0.721	U	55.1	U	-		0.721	U
Trichloroethene	79-01-6	6	1.07	U	2.15	U	1.07	U	82.2	U	-		1.07	U
2,2,4-Trimethylpentane	540-84-1	~	0.934	U	1.87	U	0.934	U	71.5	U	-		0.934	U
Heptane	142-82-5	~	**68.4**		**50.8**		**14.5**		**5000**		-		**12.7**	
cis-1,3-Dichloropropene	10061-01-5	~	0.908	U	1.82	U	0.908	U	69.5	U	-		0.908	U
4-Methyl-2-pentanone	108-10-1	~	**3.68**		4.1	U	**2.57**		157	U	-		**3.39**	
trans-1,3-Dichloropropene	10061-02-6	~	0.908	U	1.82	U	0.908	U	69.5	U	-		0.908	U
1,1,2-Trichloroethane	79-00-5	~	1.09	U	2.18	U	1.09	U	83.5	U	-		1.09	U
Toluene	108-88-3	~	**65.9**		**54.6**		**52.8**		**155**		-		**69**	
2-Hexanone	591-78-6	~	**3.4**		**6.6**		**16.3**		62.7	U	-		**9.1**	
Dibromochloromethane	124-48-1	~	1.7	U	3.41	U	1.7	U	130	U	-		1.7	U
1,2-Dibromoethane	106-93-4	~	1.54	U	3.07	U	1.54	U	118	U	-		1.54	U
Tetrachloroethene	127-18-4	100	**224**		**199**		**113**		**384**		-		**161**	
Chlorobenzene	108-90-7	~	0.921	U	1.84	U	0.921	U	70.5	U	-		0.921	U
Ethylbenzene	100-41-4	~	**19.9**		**20**		**24.1**		**146**		-		**15.5**	
p/m-Xylene	179601-23-1	~	**68.2**		**71.2**		**62.1**		133	U	-		**49.1**	
Bromoform	75-25-2	~	2.07	U	4.14	U	2.07	U	158	U	-		2.07	U
Styrene	100-42-5	~	0.852	U	1.7	U	**2.18**		65.1	U	-		0.852	U
1,1,2,2-Tetrachloroethane	79-34-5	~	1.37	U	2.75	U	1.37	U	105	U	-		1.37	U
o-Xylene	95-47-6	~	**25.5**		**27.6**		**22.7**		66.5	U	-		**17.1**	
4-Ethyltoluene	622-96-8	~	**5.36**		**6.34**		**4.83**		75.2	U	-		**1.75**	
1,3,5-Trimethylbenzene	108-67-8	~	**4.84**		**5.95**		**5.01**		75.2	U	-		**1.88**	
1,2,4-Trimethylbenzene	95-63-6	~	**20.9**		**23.2**		**16.1**		75.2	U	-		**5.41**	
Benzyl chloride	100-44-7	~	1.04	U	2.07	U	1.04	U	79.2	U	-		1.04	U
1,3-Dichlorobenzene	541-73-1	~	1.2	U	2.4	U	1.2	U	92	U	-		1.2	U
1,4-Dichlorobenzene	106-46-7	~	1.2	U	2.4	U	**1.4**		92	U	-		**2.09**	
1,2-Dichlorobenzene	95-50-1	~	1.2	U	2.4	U	1.2	U	92	U	-		1.2	U
1,2,4-Trichlorobenzene	120-82-1	~	1.48	U	2.97	U	1.48	U	114	U	-		1.48	U
Hexachlorobutadiene	87-68-3	~	2.13	U	4.27	U	2.13	U	163	U	-		2.13	U

NOTES:
Any Regulatory Exceedences are color coded by Regulation

Q is the Qualifier Column with definitions as follows:
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
~=this indicates that no regulatory limit has been established for this analyte