Hazardous Materials
Remedial Closure Report

For

180 Ashland Place

180 Ashland Place, Brooklyn, NY 11217

Block 2095; Lot 26

OER Project Numbers: 21TMP0825K, 21EHAZ168K

E-Designation: E-97

CEQR Number: 00DCP034Y

Unified Bulk Program

Special Downtown Brooklyn District Rezoning

Prepared for:

Ashland Dekalb LLC
28 Liberty Street, New York, NY 10005
peter.donohoe@rockrose.com

Prepared by:

Fleming, Lee Shue Environmental Engineering & Geology D.P.C.
158 West 29th Street
New York, NY 10001
212-675-3225

December 2024

REMEDIAL CLOSURE REPORT

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LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CO	Certificate of Occupancy
CPC	City Planning Commission
DSNY	Department of Sanitation
"E"	E-Designation
EAS	Environmental Assessment Statement
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
EC/IC	Engineering Control and Institutional Control
ELAP	Environmental Laboratory Accreditation Program
FDNY	New York City Fire Department
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
HVAC	Heating, Ventilation, and Air Conditioning
IDW	Investigation Derived Waste
Notice - NNO	Notice of No Objection
Notice - NTP	Notice to Proceed
Notice - NOS	Notice of Satisfaction
Notice - FNOS	Final Notice of Satisfaction
NYC BSA	New York City Board of Standards and Appeals
NYC DCP	New York City Department of City Planning
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC DOF	New York City Department of Finance
NYC HPD	New York City Housing Preservation and Development
NYCRR	New York Codes Rules and Regulations

NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DEC PBS	New York State Department of Environmental Conservation Petroleum Bulk Storage
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
PM	Particulate Matter
QEP	Qualified Environmental Professional
RA	Register Architect
RAWP	Remedial Action Work Plan
RCA	Recycled Concrete Aggregate
RCR	Remedial Closure Report
RD	Restrictive Declaration
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
TCO	Temporary Certificate of Occupancy
VB	Vapor Barrier
VOCs	Volatile Organic Compounds

CERTIFICATION

I, Arnold Fleming, certify the following:

- I am currently a registered professional engineer licensed by the State of New York.
- I performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the 180 Ashland Place site, OER site number 21TMP0825K.
- I have reviewed this document, to which my signature and seal are affixed.
- Engineering Controls implemented during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The Engineering Controls constructed during this remedial action were professionally observed by me or by a person under my direct supervision and (1) are consistent with the Engineering Control design established in the Remedial Action Work Plan and (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Closure Report.
- I certify in accordance with the applicable standard of care that the implementation of the remedial program requirements as stated in the OER-approved Remedial Action Work Plan dated *August 26, 2021* and Stipulations in the Decision Document dated *October 6, 2021* were professionally observed by me or by a person under my direct supervision and (1) are consistent with the requirements set forth in Remedial Action Work Plan dated *August 26, 2021* and (2) are accurately reflected in the text and drawings for as-built design prepared by qualified professionals who presented documentation to me including the memorandum dated *February 22, 2024*, and the as-built below grade waterproofing drawings dated *October 26, 2022*, prepared by CANY Architecture & Engineering DPC for the vapor mitigation system, that I have reviewed.
- The OER-approved Remedial Action Work Plan dated *August 26, 2021* and Stipulations in a letter dated *October 6, 2021* were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquid or other material from the property was taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Arnold F. Fleming
Name

050411
PE License Number

Signature

12/5/2024
Date

EXECUTIVE SUMMARY

Ashland DeKalb LLC has performed this remedial action to remediate a 19,581-square foot site located at 180 Ashland Place in the Fort Greene neighborhood of Brooklyn, New York. A Phase II Remedial Investigation (Phase II) was performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). The remedial action described in this document fulfills the remedial objectives defined in the RAWP, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Prior Usage

The Site is located at 180 Ashland Place in the Fort Greene neighborhood in Brooklyn, New York and is identified as Block 2095 and Lot 26 (Formerly Lots 25, 26 & 29) on the New York City Tax Map. Figure 1 shows the Site location. The Site is approximately 19,581-sq. ft. and is bound by Dekalb Avenue to the north, residential properties to the south, Ashland Place to the east, and mixed-use residential and commercial properties to the west. A map of the site boundary is shown in Figure 2.

Previously, the Site was used for mixed-use commercial and residential properties and a large parking garage. The former Lot 25, or 96 DeKalb Avenue, was developed with a four-story mixed-use commercial and residential building encompassing approximately 700 sq. ft. and was developed with a basement with a top-of-slab elevation of 22.14 ft. (NAVD88). Former Lot 26, or 180 Ashland Place, was previously developed with an approximately 15,000 sq. ft., four-story parking garage. The parking garage was developed with a cellar parking area with a top-of-slab elevation ranging from 22.51 ft. (NAVD88) on the northern portion, and approximately 21.65 (NAVD88) on the southern half of the cellar area. The former Lot 29, or 104 DeKalb Avenue, was previously developed with an approximately 1,400 sq. ft., three-story mixed-use commercial and residential building developed with a basement/cellar with a top-of-slab elevation of 24 ft. (NAVD88).

Summary of Proposed Redevelopment Plan

The proposed redevelopment for the Site consists of a new 51-story mixed-use commercial/residential building. The current zoning designation is C6-4 for commercial purposes and DB as a part of the Special Downtown Brooklyn District. The proposed use is consistent with existing zoning for the property.

The new building is designed as a tiered structure to be developed with a 2-story structure along all DeKalb Avenue facing sections of the Site and a larger 51-story tower behind on the southern portion. The two-story structure in the northeastern section of the Site (former Lot 29) is designed as a slab-on-grade retail and residential amenity-use area with no cellar or basement space. The two-story structure in the northwestern section of the Site along Dekalb Avenue (Lot 26 and former Lot 25) is designed as a street-level entrance to the subgrade parking area with amenity/mechanical use on the second floor. This section of the Site was developed as slab-on-grade area for the parking garage ramp without additional cellar space. The western portion of Lot 26 is designed as a one-story amenity area with a planned terrace and a 600 sq. ft. open courtyard at grade. The southern section of Lot 26 is designed as a 51-story tower with two subgrade parking floors (cellar and sub cellar), a residential lobby and retail-use spaces on the 1st floor, and residential and amenity use on the tower floors above. A summary of development square footage is summarized below:

Area Type	Development Usage (square feet)
Gross Square Footage	446,891
Residential	393,305
Retail	3,195
Parking	25,127

The site elevation ranged from approximately 29 ft.-34 ft. NAVD88 at street level and 21 ft.-24 ft. NAVD88 within the parking cellar. For the purposes of this document, the DeKalb Avenue

street-elevation of 30 ft. NAVD88 will serve as "grade surface" herein. The water table is located at an elevation of 4 ft. NAVD88 or approximately 26 ft. below grade. The bottom-of-slab elevation for the sub cellar parking area is 9 ft. NAVD88. Installation of the piles and elevator/staircase foundations extended below the water table.

Prior to re-development, demolition of the existing on-Site buildings was conducted. Activity included demolition of the three existing buildings to the previous basement grade within all three lots, approximately 22-24 ft. NAVD88. The new development's parking sub-cellar bottom-of-slab (BOS) elevation is 9 ft. NAVD88 which required approximately 13-ft. of excavation below the previous building's (i.e., the parking garage) cellar. Final excavation volume was 21,793 cubic yards or 30,510 tons. Additional foundational elements were installed for structural support of the 51-story tower and generally included piles and pile caps throughout the sub cellar footprint. One elevator pit was constructed in the center of Lot 26 extending approximately 40 ft. below grade surface or to a final depth of approximately -10 ft. NAVD88.

Summary of Surrounding Properties

Overall, the surrounding properties are a mix of residential, commercial, healthcare and educational properties. Mixed-use commercial, including restaurants and retail, and residential properties adjoin the Site to the south and west. The Site is bounded by DeKalb Avenue to the north and Ashland Place to the east. Further north, across DeKalb Avenue is a parking lot for Brooklyn Hospital Center, which is located diagonally across from the northeast of the Site.

Summary of Past Uses of Site and Environmental Findings

In its early history, the Site was split into multiple lots which were separately developed for mixed-uses. Larger lots on-Site were initially developed into a horse livery from 1887 to 1915. Around 1938 these larger lots and some of the smaller lots were incorporated into a parking garage which had operated until demolition began (Lot 26). The two smaller lots (Lots 25 and 29) remained mixed—use residential with first-floor store fronts since at least 1887.

Historical Sanborn Fire Insurance maps first depict the Site use as a parking garage on the 1938 map. This map also depicted the presence of four (4) petroleum tanks near the eastern

property border. These gasoline tanks did not appear on any subsequent map and a review of available environmental and public city records showed no tank closures for the Site.

Based upon the results of the Phase I ESA, FLS identified two areas of concern (AOCs) for the Site. Historic commercial Site use and neighboring site use identified in the Phase I ESA had the potential to impact the quality of the Site and was largely isolated to two areas. Therefore, the two AOCs identified for this site were:

1. The Suspected UST Area. This area incorporated the southeast corner of the Site along Ashland Place and extended into the parking garage basement approximately 30 feet.

2. Benziger Brothers Factory Area. The neighboring property directly adjacent to the northwest was the location of the Benziger Brothers Factory from 1904 to 1950. The factory operated as a foundry, smelting and molding manufacturer of brass ornaments. This AOC included the northwest corner of the Site, incorporating areas that historically bordered the Benziger Brothers Factory.

Summary of Work Performed under the Remedial Investigation

Fleming, Lee Shue Environmental Engineering and Geology D.P.C., on behalf of Ashland Dekalb LLC, performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e., structures, buildings, etc.);

2. Conducted a geophysical investigation with ground penetrating radar (GPR) to identify potential underground anomalies on Site including USTs and related piping.

3. Installed ten (10) soil borings across the entire project Site, and collected twenty-one (21) soil samples for chemical analysis from the soil borings to evaluate soil quality;

4. Installed four temporary groundwater monitoring wells throughout the Site to establish groundwater flow and collected four groundwater samples for chemical analysis to evaluate groundwater quality;

5. Installed five (5) soil vapor probes around Site and collected five (5) samples for chemical analysis.

Summary of Findings of Remedial Investigation

1. Elevation of the property ranges from 24 to 34 ft. (NAVD88).
2. Depth to groundwater ranges from 22 to 23 ft. bgs. or 6 to 7 ft. (NAVD88) at the Site.
3. Groundwater flow is generally from north to south beneath the Site.
4. Depth to bedrock is approximately 129 ft. bgs. or -100 ft. (NAVD88) at the Site.
5. The stratigraphy of the site, from the surface down, consists of 4-6 ft. of urban fill materials, consisting of very fine to medium sand, silt, clay and gravel, asphalt and brick fragments underlain by approximately 26 ft. of red-brown, very fine to coarse sand, with silt, trace clay, and gravels.
6. Soil/fill samples collected during the RI were compared to New York State Department of Environmental Conservation (NYSDEC) 6NYCRR Part 375 Section 6.8 Unrestricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs).

    - Volatile organic compounds (VOCs) were largely non-detect throughout the Site. In select samples VOCs including ethylbenzene (max. of 4.3 mg/kg), n-propylbenzene (max. of 7.1 mg/kg), 1,3,5-trimethylbenzene (max. of 24 mg/kg), acetone (max of 0.81 mg/kg), methylene chloride (max of 1.6 mg/kg), and total xylenes (max of 7.6 mg/kg) exceeded Unrestricted Use SCOs. 1,2,4-trimethylbenzene (at 81 mg/kg) within sample SB-7 (17-18) was the only VOC detected within any sample to exceed the Restricted Residential Use SCO. The majority of maximum concentrations were found within sample SB-7 (17-18), which was adjacent to the suspect UST(s) at a depth of approximately 15.5 feet NAVD88.

    - In select samples, Semi-Volatile Organic Compounds (SVOCs) including benzo(a)pyrene (max. of 4.350 mg/kg), benzo(a)anthracene (max. of 3.330 mg/kg), benzo(b)fluoranthene (max. of 2.660 mg/kg), benzo(k)fluoranthene (max. of 3.170

mg/kg), chrysene (max. of 4.120 mg/kg), dibenzo(a, h)anthracene (max. of 0.635 mg/kg), indeno(1,2,3-cd)pyrene (max. of 1.500 mg/kg), and naphthalene (max of 22.60 mg/kg) exceeded Unrestricted Use SCOs. Of these compounds, analytical results for benzo(a)pyrene, benzo(a)anthracene, benzo(b), chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene also exceeded Restricted Residential Use SCOs. All SVOCs regulatory exceedances were isolated to three borings SB-3 (0-2), SB-7 (17-18), and SB-8 (0-2). The majority of maximum SVOC concentrations were found within the shallow interval sample SB-8 (0-2).

- No polychlorinated biphenyls (PCBs) were detected at concentrations exceeding their Unrestricted Use SCOs in any of the soil samples.
- Pesticides were largely non-detect throughout the Site. The only pesticide compound to exceed Unrestricted Use SCOs was 4,4'-DDE (0.00773 mg/kg) within a single sample at SB-10 (0-2).
- Metals including lead (max. of 608 mg/kg), nickel (max. of 61.3 mg/kg), silver (max. of 7.88 mg/kg), zinc (336 mg/kg) and mercury (max. of 4.99 mg/kg) were detected at concentrations exceeding Unrestricted Use SCOs. Of these metals, analytical results for mercury and lead concentrations also exceeded Restricted Residential Use SCOs within shallow interval samples at SB-1, SB-7, and SB-8.
- PFAS compounds were analyzed in two samples and found non-detect for all PFAS compounds including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Similarly, 1,4-dioxane was not detected.

7. Groundwater samples collected during the RI were compared to the NYSDEC TOGS Ambient Water Quality Standards and Guidance Values (TOGS).
    - VOCs including benzene (max. of 1.15 µg/L), ethylbenzene (max. of 266 µg/L), isopropylbenzene (max. of 24.40 µg/L), naphthalene (max. of 353 µg/L), n-butylbenzene (max. of 5.650 µg/L), n-propylbenzene (max. of 36.80 µg/L), m- & p-xylenes (max of 14.70 µg/L), sec-butylbenzene (6.75 µg/L), and total xylenes (15.70 µg/L) were detected at concentrations exceeding TOGS. All VOC regulatory exceedances were found within temporary well TW-3 within the Suspected UST AOC.

- No SVOCs were detected in groundwater at concentrations exceeding TOGS.
- No pesticides or PCBs were detected in groundwater.
- Metals including chromium (max. of 57.60 µg/L), lead (max. of 26.40 µg/L), magnesium (max. of 66,400 µg/L), manganese (max. of 7,510 µg/L), and sodium (max. of 82,900 µg/L) were detected at concentrations exceeding TOGS. Regulatory exceedances for metals (unfiltered), lead and chromium, were only found in temporary well TW-4.
- PFAS compounds were analyzed in four groundwater samples. PFAS compounds, including perfluorooctanoic acid (PFOA) (max. of 0.107 µg/L) and perfluorooctanesulfonic acid (PFOS) (max. of 0.0482 µg/L) were detected in groundwater samples. PFOA concentrations within temporary well TW-2 (0.107 µg/L) slightly exceeded the NYSDEC *Sampling, Analysis, and Assessment of Per-And Polyfluoroalkyl Substances* (January, 2021) guidance value of 0.100 µg/L. All other PFAS compounds remained below guidance values. 1,4-dioxane was not detected.

8. Soil vapor samples collected during the RI were evaluated using the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion matrices dated October 2006 (updated May 2017).
    - Soil vapor results indicated low levels of VOCs including 2-butanone (max. of 208 µg/m3 at SV-2), petroleum-related VOCs (i.e., BTEX) and low levels of chlorinated VOCs (CVOCs).
    - Maximum BTEX concentrations including benzene (19.9 µg/ m^3) and total xylenes (48.3 µg/ m^3) were found within soil vapor point SV-2. Maximum concentrations of ethylbenzene (8.9 µg/ m^3) and toluene (23.5 µg/ m^3) were found within SV-1. Total BTEX concentrations ranged from 5.63 µg/ m^3in SV-7 to 103.38 µg/ m^3 in SV-1.
    - CVOCs detections included tetrachloroethylene (PCE) (max. of 21.9 µg/m^3 within SV-2), trichloroethylene (TCE) (max. of 3.05 µg/m3 at SV-7), carbon tetrachloride (max. of 0.397 µg/m^3 at SV-7), methylene chloride (max. of 5.13 µg/ m^3 at SV-10). Cis-1,2-dichloroethylene was only detected at SV-2 (1.380

µg/ m^3). Other CVOCs, 1,1,1-trichloroethane and vinyl chloride were non-detect in all samples. No CVOCs were detected at concentrations warranting further action based on the NYSDOH Decision Matrices for soil vapor.

Summary of the Remedy

The remedial action achieved all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; was effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; was cost effective and implementable; and used standards methods that are well established in the industry. The remedial action was protective of public health and the environment for the intended use of the property.

The remedial action consisted of:

1. Established Site Specific SCOs.
2. Implemented a Community Air Monitoring Program for particulates and volatile organic carbon compounds between August 25, 2022 to October 26, 2023 during soil removal. There were two instances of CAMP exceedances for dust and VOCs. On June 7, 2023, dust readings exceeded the TWA due to poor air quality index caused by Canadian wildfires. On September 6, 2022, VOC readings exceeded the TWA due to a calibration gas canister left open during a bump calibration of the PID. There were no exceedances that triggered stop work orders during CAMP implementation. Dust mitigation actions were initiated during low-level exceedances of CAMP.
3. Mobilized site security and equipment, completed utility mark outs, and marked & staked excavation areas.
4. Performed Waste Characterization Study prior to excavation activities. Thirty-nine waste characterization soil samples were collected between August 30, 2022 and September 1, 2022. Waste characterization samples were collected at a frequency dictated by disposal facility(s). Hazardous waste was not identified.
5. The following excavations were performed: The majority of the subcellar footprint was excavated approximately 21 feet below street surface grade (30 feet NAVD88) to an elevation of approximately 9 feet (NAVD88) for development purposes. The building

core was excavated approximately 27 feet below street surface grade (3 feet NAVD88). Within this area, the elevator pit footprint was excavated to an elevation of approximately -10 feet (NAVD88). Additionally, the northwestern section of the Site adjacent to Dekalb Avenue was excavated at a slope from street surface grade to 8 feet below street surface grade (30 – 22 feet NAVD88) to accommodate the proposed parking ramp. The northeastern section of the Site adjacent to Dekalb Avenue was unexcavated.

6. Transported and disposed of a total of 30,510 tons of soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and the RAWP. Soil/fill were disposed as:

    a. 6,133 tons of non-hazardous contaminated soil and transported to Clean Earth of Carteret, located at 24 Middlesex Avenue, Carteret, NJ 07008;

    b. 10,382 tons of non-hazardous petroleum contaminated soil and transported to Bayshore Recycling Corporation, located at 75 Crows Mill Road, Keasby, NJ 08832;

    c. 13,798 of PA Clean Beneficial Use material type soil/fill and transported to Hazleton Creek Properties, located at 282 S Church Street, Hazleton, PA 18201; and

    d. 197 tons of non-hazardous NJ clean fill and transported to XRDS Recycling, located at 190 Pompton Plains Cross Road, Wayne, NJ 07470.

    In addition, removed 2,918 gallons of petroleum contaminated water and transported to Clean Water of New York, located at 32-49 Richmond Terrace, Staten Island, NY 10303; and Advanced Waste and Water Technology, located at 208 Route 109, Farmingdale, NY 11735.

7. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
8. Conducted materials management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removed seven (7) underground storage tanks encountered during soil/fill removal actions, and bulk removal of petroleum contaminated soil from below and around each

tank in accordance with DER-10 3.9(4) and Table 3.9. Registered and closed tanks with NYSDEC under PBS #2-613477, last updated on February 2, 2023. Brian Gaudreault of Brookside Environmental prepared an FDNY Affidavit on March 8, 2023, confirming that the seven USTs were removed, cleaned and properly disposed and that post-excavation samples were collected in accordance with the provisions of New York City Fire Code, Chapter 34, Section FC3404.2.13 and FC3404.2.14.

10. Remediated NYSDEC Spill No. 2101542, which was opened on May 19, 2021 during investigation, submitted a spill closure report to NYSDEC, and closed on the spill on January 11, 2024 in compliance with applicable local, State and Federal laws and regulations.
11. Collected seven (7) post excavation end-point samples, five (5) hotspot excavation samples, two (2) UST bottom samples, and ten (10) side-wall soil samples throughout the property to determine the performance of the remedy with respect to attainment of Site Specific SCOs. Endpoint soil sample results exceeded the established SCOs. A Site Specific cleanup is achieved for this property.
12. Imported 74.12 tons (52.94 cubic yards) of approved virgin stone aggregate from Stone Industries Inc. in Haledon, NJ 07508 for use as backfill and cover in accordance with applicable laws and regulations.
13. Submitted daily reports during construction oversight activities. Daily reports were submitted from August 25, 2022 to October 26, 2023.
14. Performed all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
15. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Installed a vapor barrier system beneath the building slab and outside of sub-grade foundation sidewalls up to grade to mitigate soil vapor migration into the building. The vapor barrier system in the parking garage area of the Site consists of a 46-mil Grace Preprufe® 300R Plus layer below the slab. Along all foundation sidewalls of the parking garage area, Preprufe® 160R Plus was installed up to street grade.

Additionally, along the eastern wall of the elevator pit and the eastern wall of the parking garage area, 4000 Bituthene waterproofing was installed.

The vapor barrier system within the northeastern slab-on-grade area along DeKalb Avenue consists of a 46-mil Grace Preprufe® 300R Plus vapor barrier layer below the slab and outside all sub-grade foundation sidewalls up to grade. The vapor barrier system in the parking ramp area of the site consists of a 46-mil Grace Preprufe® 300R Plus vapor barrier layer below the slab and outside all sub-grade foundation sidewalls up to grade, with the exception of the southwest corner of the ramp where a mix of Preprufe® 160R and 4000 Bituthene waterproofing were installed. Additionally, a strip of Aquafin-1C Crystalline was installed at the northern end of the ramp area. All welds, seams and penetrations were properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an Engineering Control for the remedial action and was installed by ECD NY Inc. under the supervision of the waterproofing consultant for this project, Consulting Associates of New York (CANY) and FLS.

17. Installed a composite cover consisting of a concrete building slab varying from 6 to 18-inch-thick across the Site underlain by the vapor barrier system, and an approximately 3-inch-thick mud slab over undisturbed compacted soil. In the northwestern area of the site, the parking ramp composite cover consists of a 12-inch-thick slab underlain by the vapor barrier system, a 3-inch-thick mud slab and compacted 2-inches of #57 ¾-inch virgin aggregate over compacted reuse soil from waste grids WC-2 and WC-4. A small strip of the composite cover along the west boundary of the parking ramp area consists of a 12-inch-thick slab underlain by the vapor barrier system, and another 12-inch-thick slab over prepared subgrade materials.
18. Constructed and operating cellar and sub cellar parking garages with high volume air exchange in conformance with NYC Building Code.
19. Submitted an RCR that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved, defines the Site boundaries, describes all Engineering and Institutional Controls applicable to the Site, and describes any changes from the RAWP.
20. Continued registration with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in the RAWP and a

requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

REMEDIAL CLOSURE REPORT

1.0 SITE BACKGROUND

This Remedial Closure Report (RCR) has been developed for 180 Ashland Place located in the Fort Greene section of Brooklyn, New York (the Site). This project has been assigned project numbers 21TMP0825K and 21EHAZ168K by the NYCOER. This RCR describes the remediation and mitigation activities implemented at the Site in coordination with NYCOER for the purposes of satisfying the requirements of the Hazardous Materials E-Designation Program and obtaining a Notice of Satisfaction. An E-Designation for Hazardous Materials (E-97) was placed on the Site by the New York City Department of City Planning (NYCDCP) as part of the June 1, 2001 Unified Bulk Program and Special Downtown Brooklyn District Rezoning action, City Environmental Quality Review (CEQR) number 00DCP034Y.

1.1 Site Location and Prior Usage

The Site is located at 180 Ashland Place in the Fort Greene neighborhood in Brooklyn, New York and is identified as Block 2095 and Lot 26 (Formerly Lots 25, 26 & 29) on the New York City Tax Map. Figure 1 shows the Site location. The Site is approximately 19,581-sq. ft. and is bound by Dekalb Avenue to the north, residential properties to the south, Ashland Place to the east, and mixed-use residential and commercial properties to the west. A map of the site boundary is shown in Figure 2.

Previously, the Site was used for mixed-use commercial residential properties and a large parking garage. The former Lot 25, or 96 DeKalb Avenue, was developed with a four-story mixed-use commercial and residential building encompassing approximately 700 sq. ft. and was developed with a basement with a top-of-slab elevation of 22.14 ft. (NAVD88). Former Lot 26, or 180 Ashland Place, was previously developed with an approximately 15,000 sq. ft., four-story parking garage. The parking garage was developed with a cellar parking area with a top-of-slab elevation ranging from 22.51 ft. (NAVD88) on the northern portion, and approximately 21.65 (NAVD88) on the southern half of the cellar area. The former Lot 29, or 104 DeKalb Avenue, was previously developed with an approximately 1,400 sq. ft., three-story mixed-use commercial

residential building developed with a basement/cellar with a top-of-slab elevation of 24 ft. (NAVD88).

1.2 Redevelopment Plan

The proposed redevelopment for the Site consists of a new 51-story mixed-use commercial/residential building. The current zoning designation is C6-4 for commercial purposes and DB as a part of the Special Downtown Brooklyn District. The proposed use is consistent with existing zoning for the property.

The new building is designed as a tiered structure with a 2-story structure along DeKalb Avenue and a larger 51-story tower on the southern portion of Lot 26. The northeast portion of the two-story structure is designed as a slab-on-grade retail and residential amenity-use area with no cellar. The northwest portion of the two-story structure is designed as a street-level entrance to the subgrade parking area with amenity/mechanical use on the second floor. The western portion of the site is designed as a one-story amenity area with a rooftop terrace and a 600 sq. ft. open courtyard at grade. The southern section is designed as a 51-story tower with two subgrade parking floors (cellar and sub cellar), a residential lobby, and retail-use spaces on the 1st floor, and residential and amenity use on the tower floors above.

1.3 Environmental Investigations

Fleming, Lee Shue Environmental Engineering and Geology D.P.C. on behalf of Ashland Dekalb LLC, performed the following scope of work, as outlined in the May 2021 RIR (Appendix A):

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e., structures, buildings, etc.);
2. Conducted a geophysical investigation with ground penetrating radar (GPR) to identify potential underground anomalies on Site including USTs and related piping.
3. Installed ten (10) soil borings across the entire project Site, and collected twenty-one (21) soil samples for chemical analysis from the soil borings to evaluate soil quality;

4. Installed four temporary groundwater monitoring wells throughout the Site to establish groundwater flow and collected four groundwater samples for chemical analysis to evaluate groundwater quality;

5. Installed five (5) soil vapor probes around Site and collected five (5) samples for chemical analysis.

Summary of Findings of Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, 180 Ashland Place", dated May 2021 (RIR). For more detailed results, consult the RIR in Appendix A.

1. Elevation of the property ranges from 24 to 34 ft. (NAVD88).

2. Depth to groundwater ranges from 22 to 23 ft. bgs. or 6 to 7 ft. (NAVD88) at the Site.

3. Groundwater flow is generally from north to south beneath the Site.

4. Depth to bedrock is approximately 129 ft. bgs. or -100 ft. (NAVD88) at the Site.

5. The stratigraphy of the site, from the surface down, consists of 4-6 ft. of urban fill materials, consisting of very fine to medium sand, silt, clay and gravel, asphalt and brick fragments underlain by approximately 26 f.t of red-brown, very fine to coarse sand, with silt, trace clay, and gravels

6. Soil/fill samples collected during the RI were compared to New York State Department of Environmental Conservation (NYSDEC) 6NYCRR Part 375 Section 6.8 Unrestricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs).

    - Volatile organic compounds (VOCs) were largely non-detect throughout the Site. In select samples VOCs including ethylbenzene (max. of 4.3 mg/kg), n-propylbenzene (max. of 7.1 mg/kg), 1,3,5-trimethylbenzene (max. of 24 mg/kg), acetone (max of 0.81 mg/kg), methylene chloride (max of 1.6 mg/kg), and total xylenes (max of 7.6 mg/kg) exceeded Unrestricted Use SCOs. 1,2,4-trimethylbenzene (at 81 mg/kg) within sample SB-7 (17-18) was the only VOC detected within any sample to exceed the Restricted Residential Use SCO. The

majority of maximum concentrations were found within sample SB-7 (17-18), which was adjacent to the suspect UST(s) at a depth of approximately 15.5 feet NAVD88.

- In select samples, Semi-Volatile Organic Compounds (SVOCs) including benzo(a)pyrene (max. of 4.350 mg/kg), benzo(a)anthracene (max. of 3.330 mg/kg), benzo(b)fluoranthene (max. of 2.660 mg/kg), benzo(k)fluoranthene (max. of 3.170 mg/kg), chrysene (max. of 4.120 mg/kg), dibenzo(a,h)anthracene (max. of 0.635 mg/kg), indeno(1,2,3-cd)pyrene (max. of 1.500 mg/kg), and naphthalene (max of 22.60 mg/kg) exceeded Unrestricted Use SCOs. Of these compounds, analytical results for benzo(a)pyrene, benzo(a)anthracene, benzo(b), chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene also exceeded Restricted Residential Use SCOs. All SVOCs regulatory exceedances were isolated to three borings SB-3 (0-2), SB-7 (17-18), and SB-8 (0-2). The majority of maximum SVOC concentrations were found within the shallow interval sample SB-8 (0-2).
- No polychlorinated biphenyls (PCBs) were detected at concentrations exceeding their Unrestricted Use SCOs in any of the soil samples.
- Pesticides were largely non-detect throughout the Site. The only pesticide compound to exceed Unrestricted Use SCOs was 4,4'-DDE (0.00773 mg/kg) within a single sample at SB-10 (0-2).
- Metals including lead (max. of 608 mg/kg), nickel (max. of 61.3 mg/kg), silver (max. of 7.88 mg/kg), zinc (336 mg/kg) and mercury (max. of 4.99 mg/kg) were detected at concentrations exceeding Unrestricted Use SCOs. Of these metals, analytical results for mercury and lead concentrations also exceeded Restricted Residential Use SCOs within shallow interval samples at SB-1, SB-7, and SB-8.
- PFAS compounds were analyzed in two samples and found non-detect for all PFAS compounds including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Similarly, 1,4-dioxane was not detected.

7. Groundwater samples collected during the RI were compared to the NYSDEC TOGS Ambient Water Quality Standards and Guidance Values (TOGS).

- VOCs including benzene (max. of 1.15 µg/L), ethylbenzene (max. of 266 µg/L), isopropylbenzene (max. of 24.40 µg/L), naphthalene (max. of 353 µg/L), n-butylbenzene (max. of 5.650 µg/L), n-propylbenzene (max. of 36.80 µg/L), m- & p-xylenes (max of 14.70 µg/L), sec-butylbenzene (6.75 µg/L), and total xylenes (15.70 µg/L) were detected at concentrations exceeding TOGS. All VOC regulatory exceedances were found within temporary well TW-3 within the Suspected UST AOC.
- No SVOCs were detected in groundwater at concentrations exceeding TOGS.
- No pesticides or PCBs were detected in groundwater.
- Metals including chromium (max. of 57.60 µg/L), lead (max. of 26.40 µg/L), magnesium (max. of 66,400 µg/L), manganese (max. of 7,510 µg/L), and sodium (max. of 82,900 µg/L) were detected at concentrations exceeding TOGS. Regulatory exceedances for metals (unfiltered), lead and chromium, were only found in temporary well TW-4.
- PFAS compounds were analyzed in four groundwater samples. PFAS compounds, including perfluorooctanoic acid (PFOA) (max. of 0.107 µg/L) and perfluorooctanesulfonic acid (PFOS) (max. of 0.0482 µg/L) were detected in groundwater samples. PFOA concentrations within temporary well TW-2 (0.107 µg/L) slightly exceeded the NYSDEC *Sampling, Analysis, and Assessment of Per-And Polyfluoroalkyl Substances* (January, 2021) guidance value of 0.100 µg/L. All other PFAS compounds remained below guidance values. 1,4-dioxane was not detected.

8. Soil vapor samples collected during the RI were evaluated using the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion matrices dated October 2006 (updated May 2017).
    - Soil vapor results indicated low levels of VOCs including 2-butanone (max. of 208 µg/ m^3 at SV-2), petroleum-related VOCs (i.e., BTEX) and low levels of chlorinated VOCs (CVOCs).
    - Maximum BTEX concentrations including benzene (19.9 µg/ m^3) and total xylenes (48.3 µg/ m^3) were found within soil vapor point SV-2. Maximum

concentrations of ethylbenzene (8.9 µg/ m^3) and toluene (23.5 µg/ m^3) were found within SV-1. Total BTEX concentrations ranged from 5.63 µg/ m^3in SV-7 to 103.38 µg/ m^3 in SV-1. CVOCs detections included tetrachloroethylene (PCE) (max. of 21.9 µg/m^3 within SV-2), trichloroethylene (TCE) (max. of 3.05 µg/m3 at SV-7), carbon tetrachloride (max. of 0.397 µg/m^3 at SV-7), methylene chloride (max. of 5.13 µg/ m^3 at SV-10). Cis-1,2-dichloroethylene was only detected at SV-2 (1.380 µg/ m^3). Other CVOCs, 1,1,1-trichloroethane and vinyl chloride were non-detect in all samples. No CVOCs were detected at concentrations warranting further action based on the NYSDOH Decision Matrices for soil vapor.

2.0 DESCRIPTION OF REMEDIAL ACTIONS

The Site was remediated in accordance with the scope of work presented in the OER-approved Remedial Action Work Plan (RAWP) dated August, 2021 and an October 2021 Stipulation List (Appendix B). Remedial actions were taken in accordance with applicable laws and regulations, and the site-specific-construction Construction Health and Safety Plan (CHASP). Any deviations from the RAWP are noted below.

The following remedial actions were completed in this program:

1. Established Site Specific SCOs.
2. Implemented a Community Air Monitoring Program for particulates and volatile organic carbon compounds between August 25, 2022 to October 26, 2023 during soil removal. There were two instances of CAMP exceedances for dust and VOCs. On June 7, 2023, dust readings exceeded the TWA due to poor air quality index caused by Canadian wildfires. On September 6, 2022, VOC readings exceeded the TWA due to a calibration gas canister left open during a bump calibration of the PID. There were no exceedances that triggered stop work orders during CAMP implementation. Dust mitigation actions were initiated during low-level exceedances of CAMP.
3. Mobilized site security and equipment, completed utility mark outs, and marked & staked excavation areas.
4. Performed Waste Characterization Study prior to excavation activities. Thirty-nine waste characterization soil samples were collected between August 30, 2022 and September 1, 2022. Waste characterization samples were collected at a frequency dictated by disposal facility(s). Hazardous waste was not identified.
5. The following excavations were performed: The majority of the subcellar footprint was excavated approximately 21 feet below street surface grade (30 feet NAVD88) to an elevation of approximately 9 feet (NAVD88) for development purposes. The building core was excavated approximately 27 feet below street surface grade (3 feet NAVD88). Within this area, the elevator pit footprint was excavated to an elevation of approximately -10 feet (NAVD88). Additionally, the northwestern section of the Site adjacent to Dekalb Avenue was excavated at a slope from street surface grade to 8 feet below street surface grade (30 – 22 feet NAVD88) to accommodate the proposed

parking ramp. The northeastern section of the Site adjacent to Dekalb Avenue was unexcavated.

6. Transported and disposed of a total of 30,510 tons of soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and the RAWP. Soil/fill were disposed as:
    a. 6,133 tons of non-hazardous contaminated soil and transported to Clean Earth of Carteret, located at 24 Middlesex Avenue, Carteret, NJ 07008;
    b. 10,382 tons of non-hazardous petroleum contaminated soil and transported to Bayshore Recycling Corporation, located at 75 Crows Mill Road, Keasby, NJ 08832;
    c. 13,798 of PA Clean Beneficial Use material type soil/fill and transported to Hazleton Creek Properties, located at 282 S Church Street, Hazleton, PA 18201; and
    d. 197 tons of non-hazardous NJ clean fill and transported to XRDS Recycling, located at 190 Pompton Plains Cross Road, Wayne, NJ 07470.

    In addition, removed 2,918 gallons of petroleum contaminated water and transported to Clean Water of New York, located at 32-49 Richmond Terrace, Staten Island, NY 10303; and Advanced Waste and Water Technology, located at 208 Route 109, Farmingdale, NY 11735.
7. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
8. Conducted materials management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removed seven (7) underground storage tanks encountered during soil/fill removal actions, and bulk removal of petroleum contaminated soil from below and around each tank in accordance with DER-10 3.9(4) and Table 3.9. Registered and closed tanks with NYSDEC under PBS #2-613477, last updated on February 2, 2023. Brian Gaudreault of Brookside Environmental prepared an FDNY Affidavit on March 8, 2023, confirming that the seven USTs were removed, cleaned and properly disposed and that

post-excavation samples were collected in accordance with the provisions of New York City Fire Code, Chapter 34, Section FC3404.2.13 and FC3404.2.14.

10. Remediated NYSDEC Spill No. 2101542, which was opened on May 19, 2021 during investigation, submitted a spill closure report to NYSDEC, and closed on the spill on January 11, 2024 in compliance with applicable local, State and Federal laws and regulations.
11. Collected seven (7) post excavation end-point samples, five (5) hotspot excavation samples, two (2) UST bottom samples, and ten (10) side-wall soil samples throughout the property to determine the performance of the remedy with respect to attainment of Site Specific SCOs. Endpoint soil sample results exceeded the established SCOs. A Site Specific cleanup is achieved for this property.
12. Imported 74.12 tons (52.94 cubic yards) of approved virgin stone aggregate from Stone Industries Inc. in Haledon, NJ 07508 for use as backfill and cover in accordance with applicable laws and regulations.
13. Submitted daily reports during construction oversight activities. Daily reports were submitted from August 25, 2022 to October 26, 2023.
14. Performed all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
15. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Installed a vapor barrier system beneath the building slab and outside of sub-grade foundation sidewalls up to grade to mitigate soil vapor migration into the building. The vapor barrier system consists of a 46-mil Grace Preprufe® 300R Plus layer below the parking garage, parking ramp, and on-grade slabs. Along the southern, western, and northern foundation sidewalls of the parking garage area, Preprufe® 160R Plus was installed up to street grade. Additionally, along the eastern wall of the elevator pit, the eastern wall of the parking garage area 4000 Bituthene waterproofing was installed along foundation walls up to grade.

    The vapor barrier system within the northeastern slab-on-grade area along DeKalb Avenue consists of a 46-mil Grace Preprufe® 300R Plus vapor barrier layer below the

slab and outside all sub-grade foundation sidewalls up to grade. The vapor barrier system in the parking ramp area of the site consists of a 46-mil Grace Preprufe® 300R Plus vapor barrier layer below the slab and outside all sub-grade foundation sidewalls up to grade, with the exception of the southwest corner of the ramp where a mix of Preprufe® 160R and 4000 Bituthene waterproofing were installed. Additionally, a strip of Aquafin-1C Crystalline was installed at the northern end of the ramp area All welds, seams and penetrations were properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an Engineering Control for the remedial action and was installed by ECD NY Inc. under the supervision of the waterproofing consultant for this project, Consulting Associates of New York (CANY) and FLS.

17. Installed a composite cover consisting of a concrete building slab varying from 6 to 18-inch-thick across the Site underlain by the vapor barrier system, and an approximately 3-inch-thick mud slab over undisturbed compacted soil. In the northwestern area of the site, the parking ramp composite cover consists of a 12-inch-thick slab underlain by the vapor barrier system, a 3-inch-thick mud slab and compacted 2-inches of #57 ¾-inch virgin aggregate over compacted reuse soil from waste grids WC-2 and WC-4. A small strip of the composite cover along the west boundary of the parking ramp area consists of a 12-inch-thick slab underlain by the vapor barrier system, and another 12-inch-thick slab over prepared subgrade materials.
18. Constructed and operating cellar and sub cellar parking garages with high volume air exchange in conformance with NYC Building Code.
19. Submitted an RCR that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved, defines the Site boundaries, describes all Engineering and Institutional Controls applicable to the Site, and describes any changes from the RAWP.
20. Continued registration with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in the RAWP and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it

is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

3.0 COMPLIANCE WITH REMEDIAL ACTION WORK PLAN

3.1 Construction Health and Safety Plan

The remedial construction activities performed under this program were in compliance with the site-specific CHASP and applicable laws and regulations. The Site Safety Coordinator was Shawn Clark (Total Safety Consulting).

3.2 Community Air Monitoring Plan

The Community Air Monitoring Plan provided for the collection and analysis of air samples during remedial construction activities to ensure proper protections were employed to protect workers and the neighboring community. Monitoring was performed in compliance with the Community Air Monitoring Plan in the approved RAWP between August 25, 2022 to October 26, 2023 during soil removal. There were two instances of CAMP exceedances for dust and VOCs. On June 7, 2023, dust readings exceeded the TWA due to poor air quality index caused by Canadian wildfires. On September 6, 2022, VOC readings exceeded the TWA due to a calibration gas canister left open during a bump calibration of the PID. There were no exceedances that triggered stop work orders during CAMP implementation. Dust mitigation actions were initiated during low-level exceedances of CAMP. The results of Community Air monitoring are presented in Appendix C.

3.3 Soil/Materials Management Plan

The Soil/Materials Management Plan in the RAWP provided detailed plans for managing all soils/materials that were disturbed at the Site, including excavation, handling, storage, transport and disposal. It also included a series of controls to assure effective, nuisance free remedial activity in compliance with applicable laws and regulations. Remedial construction activities performed under this program were in compliance with the SMMP in the approved RAWP.

3.4 Storm-Water Pollution Prevention

Storm water pollution prevention included physical methods and processes to control and/or divert surface water flows and to limit the potential for erosion and migration of Site soils, via wind or water. Remedial construction activities performed under this program were in compliance

with applicable storm-water pollution prevention laws and regulations and the RAWP.

3.5 Deviations from the Remedial Action Work Plan

Excavation Limitations in Proposed Garage Area

The approved RAWP initially outlined excavation of 16.4 feet from the former basement parking garage slab (22 ft. NAVD88) to a depth of approximately 5.6 ft. NAVD88 across the majority of the Site, as a part of construction of the sub cellar level parking garage. This would excavate the entire area to match the depth for the proposed foundational elements (i.e. the pile caps). During intrusive activity and soil removal, neighboring structures along the southern edge of the Site experienced extraneous movement, as documented by motion sensors installed within their basements. As such, excavation of the Site to a depth of 5.6 ft. NAVD88 was no longer considered structurally safe or practical. This information was relayed to both NYCOER and NYSDEC, and a secondary excavation and sampling plan was developed with the understanding that some potential petroleum contamination associated with the on-Site USTs and Open Spill below this depth may ultimately be left in place. The secondary excavation plan outlined that the majority of the development footprint would be excavated 21 ft. below surface grade to the final bottom-of-slab depth of 9 ft. NAVD88. Additional excavation occurred in the footprints of the foundation elements (i.e., pile caps) in the spill impact area to a depth of approximately 5 ft. NAVD88. Excavation depths for the building's core foundation and elevator pit were extended to depths of 3 ft. NAVD88 and -10 ft. NAVD88, respectively. Despite some contaminated materials being left in place, the site remedy and engineering controls implemented during the remedial action will serve to protect human health and the environment by preventing direct contact with soil materials and prevention of potential vapor intrusion. Any future intrusive work will be conducted according to the Site Management Plan presented as Section 6 of this document.

To adequately document the subsurface conditions of the new excavation plan, FLS proposed collecting additional endpoint samples at final excavation depth and within each pile cap area to document remaining conditions and concentrations of any contamination left in place. NYSDEC and NYCOER approved of this deviation to the RAWP on April 25, 2023. Copies of agency correspondence and approvals are provided within Appendix D.

Site Specific SCOs

The approved RAWP initially outlined the achievement of Restricted Residential SCOs. If exceedances of Restricted Residential SCOs were detected after analysis of end point confirmatory samples, additional excavation would be performed in order to achieve the approved remedial goals. If exceedances still remained after additional excavation, the remedial alternative of Site Specific SCOs would be implemented to achieve remedial goals.

Due to the above-mentioned extraneous movement documented in the neighboring buildings to the south, an altered remedial excavation plan was implemented on Site. This plan included some limits to excavation in the Open Spill area, and as a result, some contamination was ultimately left in place. As a result, the soil cleanup objective target was altered to the Site Specific SCOs.

Backfill and Soil Reuse Areas

Per the approved RAWP, the northwest corner of the Site, which was being developed as a ramp for the subsurface parking garage was initially planned to be excavated to 13.6 ft. NAVD88 and subsequently backfilled at a slope to the final garage ramp grade of street level to 21 ft. NAVD88.

Ultimately, excavation in this area was instead matched to the final garage ramp grade from approximately 22 ft. NAVD88 pitched up to street level along Dekalb Avenue, and utilized no soil backfill other than approximately 52.94 cu. yd. of approved stone aggregate (Figure 6).

This area was also utilized as a temporary site ramp during the remedial excavation of the Site between the northwestern corner of the proposed parking garage area and the northwestern section of the Site. This ramp was initially constructed using approximately 300 cubic yards of soils from Grids 2 and 4, which was documented as non-hazardous clean fill per the Waste Characterization Study (results provided in Appendix E). Ramp materials were initially proposed to be temporary and eventually removed for off Site disposal. The majority of this material was later disposed of off Site, but approximately 188.64 tons (~134.74 cu. yds) of this material was left in place in the area closest to Dekalb Avenue (Figure 7). Per discussion with OER, an extra confirmation sample, EP-14 (3’), was collected in the area to document surface conditions of the material being left in place under the ramp.

Previous waste characterization data from reused material was submitted to OER on October 13, 2022, with relevant characterization samples of material reused including WC-2 (7-14), WC-2 (14-21), WC-4 (7-14), WC-4 (14-21). Analytical results for these samples show reused soil met the Restricted Residential SCOs for reuse of clean fill. A figure of waste characterization sampling locations, and tables showing waste characterization sampling results can be found in Appendix E. Backfill and soil reuse areas can be found on Figures 6 and 7, respectively.

Vapor Barrier Products

At the time of RAWP acceptance, the exact products and placements of all subgrade vapor barrier/waterproofing products were not known and placeholders were used. A construction update confirming the vapor barrier products and layouts planned for the Site was submitted to OER on May 12, 2022.

The completed vapor barrier system in the proposed parking garage area of the Site was largely unchanged from the approved RAWP, and featured a Grace *Preprufe*® 300R Plus layer below the slab and a Grace *Preprufe*® 160R Plus layer up to grade. Along the east boundary of the parking garage excavation bordering Ashland Place, Bituthene 4000 layer up was installed up to grade. These product and layout updates to the vapor barrier system conformed to the requirements of the approved RAWP and is protective of public health and the environment by mitigating soil vapor migration into the constructed building.

Although not a change to the vapor barrier system, there was supplemental and supportive waterproofing added to deeper structural or foundational excavations within the parking garage area. Grace *Preprufe*® 300R Plus was installed along vertical surfaces of these elements along with 4000 Bituthene and Aquafin-1C Crystalline products. Similarly, the two outfacing areas along DeKalb Avenue were both underlain and bounded up to grade by Grace *Preprufe*® 300R Plus, but feature sparing use of Aquafin-1C Crystalline waterproofing, Grace *Preprufe*® 160R Plus, and 4000 Bituthene in select areas. Additionally, the northeastern outfacing lot features additional installations of Grace *Preprufe*® 300R Plus around structural elements. Exact vapor barrier and waterproofing As Built drawings as provided as Figures WP-01 – WP-03.

Achievement of SCOs

Site specific SCOs, as outlined in the RAWP, were not met for this project. VOCs had exceedances above the NYS Protection of Groundwater Standards for acetone in SB-7 (30'-31'), SB-9 (16'-18') and EP-11 (27'), methylene chloride in SB-7 (30'-31'), and ethylbenezene (1,390 µg/kg) in SW-6 (26'). All endpoint sample results are summarized in Table 1. A Restricted Residential Use cleanup was initially proposed in the RAWP. Due to the aforementioned excavation limitations, some impacted had to be left in place. However, the implementation of the engineering controls including the vapor barrier and composite cover system will prevent exposure of the public to this material and remain protective of human health. Any intrusive work below the slab will be managed by the Site Management Plan outlined in Section 6.

4.0 REMEDIAL PROGRAM

4.1 Project Organization

The professional Engineer (PE) and Qualified Environmental Professional for this project is Arnold F. Fleming, P.E. The project was managed by Joel Kane, and tasks were managed by Jordan Arey, Benjamin Hess, and Landon Silverman.

4.2 Site Controls

Site Preparation

Site preparation spanned from approximately June through August 2022. In that time, before remedial work began, a pre-construction meeting was completed with engagement from all involved parties to prepare the Site.

Mobilization involved measures that were tailored to each work phase with personnel training, equipment readiness, and thorough marking of the Site. A comprehensive check for utilities and easements preceded any invasive work, adhering strictly to safety standards and regulations. Stringent measures ensured safety for on-Site and off-Site structures, compliant storage of materials, and prevention of soil tracking off-Site via truck inspections and cleaning stations. Excavation supervision, soil testing, stockpile management, and transport followed strict guidelines. Site security, odor control, dust control, noise compliance, and meticulous documentation were upheld throughout the remedial process, and on-site personnel recorded activity daily.

Pre-Construction Meeting

A pre-construction meeting with all parties involved in the remedial process was held on August 4, 2022 prior to the start of remedial construction activities.

Mobilization

Mobilization was conducted as necessary for each phase of work at the Site. Mobilization included field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility

mark-outs. Each field team member attended an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site were fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). All invasive activities were performed in compliance with applicable laws and regulations including NYC Building Code to assure safety. Utility companies and other responsible authorities were contacted to locate and mark the locations, and a copy of the Mark-Out Ticket were retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations was employed during invasive and other work contemplated under the approved RAWP. The integrity and safety of on-Site and off-Site structures was maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Equipment and Material Staging

Equipment and materials were stored and staged in a manner that complies with applicable laws and regulations.

Stabilized Construction Entrance

Steps were taken to ensure that trucks departing the site did not track soil, fill or debris off-Site. Such actions included the use of cleaned asphalt or concrete pads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures were taken to ensure that adjacent roadways were kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station was set up close to the Site exit. Before exiting the Site, trucks were required to stop at the truck inspection station and were examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris were removed. Brooms, shovels and clean water were utilized for the removal of soil from vehicles and equipment, as necessary.

Soil Screening

All excavations were supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil was screened continuously using hand-held instruments (MiniRAE 3000 PID), by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) was stockpiled separately and was segregated from clean soil and construction materials. Stockpiles were used only when necessary and were removed as soon as practical. Excavated soils from suspected areas of contamination were stockpiled on, at minimum, double layers of 8-mil minimum sheeting, were covered at all times with appropriately anchored plastic tarps, and were routinely inspected. Broken or ripped tarps were promptly replaced.

All stockpile activities were compliant with applicable laws and regulations. Soil stockpile areas were appropriately graded to control run-off in accordance with applicable laws and regulations.

Truck Inspection

Loaded trucks leaving the Site were covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks were properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contained wet material that could have leaked, use of truck liners were implemented. All transport of materials was performed by licensed truckers and in compliance with applicable laws and regulations.

Site Security

Site access was physically protected by gated entrances and construction fencing along the northern and eastern boundaries of the Site. The Site was protected on the western and southern boundaries by adjoining buildings. A security guard stationed was present during evenings and overnight hours near one of the Site entrances to ensure no unpermitted access to the Site throughout the construction process.

Nuisance Controls

Odor control was conducted by screening excavated soil and conducting air monitoring during intrusive work. The Site field technician conducted perimeter monitoring using their olfactory senses and a handheld MiniRAE 3000 PID unit to detect nuisance odors. The monitoring was conducted in accordance with the CAMP and HASP action levels.

Dust management was implemented according to the SMMP during all invasive soil work. Dust was controlled by spraying water periodically on excavation areas, stockpiles and when dust generating construction activities were performed (i.e., grout grinding). No complaints were received with regard to odors or excessive dust leaving the Site. Summarized results of the CAMP can be found in Appendix C.

The project was also required to comply with applicable NYC noise control standards.

Reporting

Daily site activities were recorded in a bound field book during active remediation when FLS was present on the Site. For each day that soil trucking occurred, FLS kept a trucking log in the field book, and daily trucking totals were reported to the project manager and included in daily reports sent to OER. Daily reports were submitted for each day in which active remediation (soil removal or installation of remedial components) occurred between August 25, 2022 to October 26, 2023. Monthly reports were intermittently submitted between November 2023 to October 2024. Daily and monthly reports prepared for the Site during remedial action are presented in Appendix F. Digital photographs of the remedial action are included in Appendix G.

4.3 Materials Excavation and Removal

Soil Removal

Soil excavation/removal was implemented between October 14, 2022 and October 4, 2023. The Site was excavated in accordance with the scope of work presented in an OER-approved RAWP dated August 26, 2021 except where noted in Section 3.5 *Deviations from the RAWP.*

The majority of the sub cellar footprint was excavated approximately 21 feet below the street surface grade (30 feet NAVD88) to a depth of approximately 9 feet (NAVD88) for development purposes. Within this area, the proposed elevator pit footprint was excavated to a depth of

approximately -10 feet (NAVD88). Additionally, the northwestern section of the Site adjacent to Dekalb Avenue (i.e. Lot 26 and former Lot 25) were excavated to accommodate the proposed slab-on-grade developments and parking ramp, respectively.

The approved RAWP initially outlined excavation of 16.4 feet from the former basement parking garage slab (22 ft. NAVD88) to a depth of 5.6 ft. NAVD88 across the majority of the Site, as a part of construction of the sub cellar level parking garage. This would excavate the entire area to match the depth for the proposed foundational elements (i.e. the pile caps). During intrusive activity and soil removal, neighboring structures along the southern edge of the Site experienced extraneous movement, as documented by motion sensors installed within their basements. As such, excavation of the Site to a depth of 5.6 ft. NAVD88 was no longer considered structurally safe or practical. This information was relayed to both NYCOER and NYSDEC, and a secondary excavation and sampling plan was developed with the understanding that some potential petroleum contamination associated with the on-Site USTs and Open Spill below this depth may ultimately be left in place. The secondary excavation plan outlined that the majority of the development footprint would be excavated to the final bottom-of-slab depth of 9 ft. NAVD88. Additional excavation occurred in the footprints of the foundation elements (i.e., pile caps) in the spill impact area to a depth of approximately 5 ft. NAVD88. Excavation depths for the building's core foundation and elevator pit were extended to depths of 3 ft. NAVD88 and -10 ft. NAVD88, respectively. The Removal Action was performed under the oversight of Mr. Arnold F. Fleming, P.E.

Request letters and waste removal facility approvals are provided in Appendix H. Finalized manifests and weight tickets are provided in Appendix I. A map showing the location where excavations were performed is shown in Figure 3.

Underground Storage Tank (UST) Removal

Prior to the start of construction activities, a review of historic Sanborn Fire Insurance Map by FLS revealed that a portion of the Site was utilized as a parking garage facility with four (4) 550-gallon USTs as early as 1938. During construction activities, further investigation revealed the presence of one (1) additional 300-gallon UST in southeast corner of the Site, one (1) 300-gallon UST in the southwest corner of the site, and one (1) 3,000-gallon UST underneath the

sidewalk along the eastern property border. UST locations and information are shown on Figure 4 and below.

Table 2 – UST Tank Information

UST Tank Information			
Tank No.	**Size (Gallons)**	**Elevation (ft. NAVD88)**	**Contents**
001	250	28	Waste Oil
002	500	28	Heating Oil
003	3000	27	Gasoline
004	550	21	Gasoline
005	550	21	Gasoline
006	550	21	Gasoline
007	550	21	Gasoline

On-Site USTs were present at various depths. The four (4) 550-gallon gasoline USTs (Tanks 4 – 7) were located below the previous basement parking garage slab (~21' NAVD88). Two (2) USTs (Tanks 1 and 2) were located below the slab of the former slab-on-grade building on the southern end of the Site (~28' NAVD88). Finally, the 3,000-gal UST (Tank 3) was located beneath the on-Site sidewalk on the eastern side of the Site (~27' NAVD88). As such, UST removal occurred throughout the remedial excavation process over a period of time from September 13, 2022 to February 2, 2023.

Brookside Environmental Inc. of Copiague, NY, a licensed UST closure contractor, was retained to conduct the removal of the USTs as they were revealed by excavation. Representatives from FLS were present to oversee and document the UST removal process. All USTs were removed according to best practices and applicable regulations. This generally included vacuuming out remaining contents, filling the tank with inert gas to avoid spark risk, removal and

cleaning of the tank, and finally off-site disposal at a recycling facility. All soil material surrounding encountered USTs were inspected for signs of petroleum impacts by FLS personnel by visual and olfactory senses and with a PID. As approved by NYSDEC, all impacted soils from the USTs were managed under the existing NYSDEC Spill No. 2101542. All impacted soils were properly segregated and temporarily stockpiled according to the SMMP for the Site. All soils were removed as a part of the overall Site excavation for foundation construction. All USTs were registered and subsequently closed with the NYS PBS database on January 11, 2024. A copy of all tank disposal documentation, including the FDNY affidavit, is included as Appendix J.

Post Excavation End Point Sample Results

Post excavation end point sampling was conducted by FLS from April 4, 2023 to September 13, 2023. A total of twenty-four (24) soil samples were collected following remedial excavation. All samples were collected per DER-10, including the bottom and sidewalls of all pile caps within the spill area as detailed in Section 3.5 *Deviations from the RAWP*. Samples include seven (7) post excavation samples, five (5) hotspot excavation samples, two (2) UST bottom samples, and ten (10) side-wall soil samples.

Six (6) samples collected during the Phase II Remedial Investigation were samples at depths below the final excavation depth. These samples include SB-1 (25’-27’), SB-4 (16’-18’), SB-6 (16’-18’), SB-7 (30’-31’), SB-8 (26’-28’), and SB-9 (16’-18’). These samples provide additional insight into material that was left in place due to structural safety concerns when neighboring structures along the southern edge of the Site experienced extraneous movement and the unexcavated area in the northeast corner of the Site, as documented by motion sensors installed within their basements. These samples had several exceedances of Unrestricted Use SCOs for VOCs and metals, including acetone (max. conc. 810 ug/kg), methylene chloride (max. conc. 540 ug/kg), and nickel (max. conc. 41.900 mg/kg). Maximum acetone and methylene chloride detections also exceeded Protection of Groundwater Standards. None of these samples exceeded their respective Restricted Residential Use SCOs. Figure 4 shows endpoint sampling locations, and a tabular and map summary of end-point and applicable Remedial Investigation sampling results are included in Table 1 and Figures 5a and 5b, respectively, while Appendix K includes all analytical laboratory reports.

All soil samples were shipped under proper chain of custody protocol via courier to SGS North America Inc., a New York State ELAP-certified laboratory. The soil samples were analyzed for Target Compound List VOCs by U.S. Environmental Protection Agency (EPA) Method 8260, SVOCs by EPA Method 8270, Target Analyte List (TAL) Metals by EPA Methods 200.7/SW846 6010, and Target Analyte Pesticides and Polychlorinated Biphenyls (PCBs) by EPA Method 8081 and 8082, respectively.

Sampling results were compared to the New York State Unrestricted Use SCOs, Restricted Residential SCOs, and Protection of Groundwater SCOs. Additionally, per the approved RAWP, NYCOER established Site-Specific SCOs as outlined below:

Table 3 – List of SCOs

Contaminant	Site-Specific SCOs
VOCs	Protection of Groundwater
Total SVOCs	200 ppm
Lead	800 ppm
Mercury	1.5 ppm

Volatile Organic Compounds (VOCs)

VOCs were generally non-detect throughout the Site with the exception of some low concentrations of various compounds including petroleum compounds cyclohexane (max conc. 123 µg/kg), benzene (max conc. 20.9 µg/kg), ethylbenzene (max conc. 1,390 µg/kg), isopropylbenzene (max conc. 739 µg/kg), methylcyclohexane (max conc. 705 µg/kg), toluene (max conc. 29.7 µg/kg), and total xylene (max conc. 92.5 µg/kg). Of these, only two VOCs were detected at concentrations exceeding regulatory standards. The concentration of acetone within sample EP-11 (27') (87 µg/kg) exceeded Unrestricted Use SCOs (50 µg/kg) and the NYS Protection of Groundwater SCOs (50 µg/kg). Similarly, the concentration of ethylbenzene (1,390 µg/kg) within sample SW-6 (26') exceeded both Unrestricted Use SCOs (1,000 µg/kg) and NYS Protection of Groundwater SCOs (1,000 µg/kg). These samples were both located in or near the

suspected spill area where some contaminated material had to be left in place due to structural and safety-driven excavation limitations.

Semi-Volatile Organic Compounds (SVOCs)

SVOCs were generally non-detect throughout the Site with the exception of some low concentrations of polycyclic aromatic hydrocarbons (PAHs). Low concentrations of various compounds below SCOs were detected, including 1,1'-biphenyl (max conc. 116 µg/kg), acenaphthene (max conc. 1,410 µg/kg), anthracene (max conc. 793 µg/kg), benzo(g,h,i)perylene (max conc. 1,790 µg/kg), fluoranthene (max conc. 9,100 µg/kg), fluorene (max conc. 1,180 µg/kg), naphthalene (max conc. 3,640 µg/kg), phenanthrene (max conc. 6,210 µg/kg), and pyrene (max conc. 7,190 µg/kg).

Concentrations of SVOCs exceeded regulatory standards within only two samples, SW-9 (26') and EP-14 (3'). Within these samples concentrations of indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene all exceeded their respective Restricted Residential SCOs (500, 330, 1,000, 1,000 and 1,000 µg/kg). The total concentration of SVOCs detected ranged from 0.103 ppm to 49.25 ppm across the Site. Total SVOCs did not exceed the Site-Specific SCO of 200 ppm at any location.

Metals

Metals compounds were found throughout the Site including lead (max conc. 287 mg/kg), mercury (max conc. 0.22 mg/kg), nickel (max conc. 96.4 mg/kg), arsenic (max conc. 6.4 mg/kg), barium (max conc. 47.3 mg/kg), chromium (max conc. 19.9 mg/kg), cobalt (max conc. 8.1 mg/kg), vanadium (max conc. 26.1 mg/kg), and zinc (max conc. 132 mg/kg). In only sample EP-14 (3'), lead, mercury, and zinc exceeded their Unrestricted Use SCOs. Throughout the remainder of the Site, the only metals exceedances found were of nickel, which was detected at concentrations exceeding the NYSDEC Unrestricted Use SCO (30 mg/kg) in fourteen (14) samples, ranging from 30.3 mg/kg to 96.4 mg/kg. There were no analyte concentrations, including nickel, exceeding the Restricted Residential SCOs. Concentrations of lead and mercury did not exceed Site Specific SCOs at any location.

Polychlorinated Biphenyls (PCBs)

PCBs were non-detect throughout the Site, with the exception of two instances. Concentrations of Aroclor 1242 exceeded Unrestricted Use SCOs within samples SW-8 (26') (240 µg/kg) and EP-8 (26') (161 µg/kg). PCBs on Site did not exceed Restricted Residential SCOs.

Pesticides

Pesticides were largely non-detect throughout the Site with the exception of some low concentrations of 4,4'-DDD (max conc. 1.2 µg/kg), 4,4'-DDE (max conc. 4.1 µg/kg), 4,4'-DDT (max conc. 72.7 µg/kg), alpha-BHC (max conc. 0.63 µg/kg), alpha-Chlordane (max conc. 1.3 µg/kg), Dieldrin (max conc. 4.0 µg/kg), endosulfan-I (max conc. 0.88 µg/kg), Endrin aldehyde (max conc. 0.29 µg/kg), gamma-Chlordane (max conc. 0.57 µg/kg), Heptachlor epoxide (max conc. 0.68 µg/kg), and Methoxychlor (max conc. 1.2 µg/kg). Nearly all detections of Pesticides were exclusive to EP-14 (3'), and were found to exceed Unrestricted Use SCOs for 4,4'-DDE and 4,4'-DDT. Pesticide concentrations did not exceed Restricted Residential SCOs at any location.

The vast majority of impacted material on Site was removed. Site Specific SCOs were met at all endpoint sample and remedial investigation sample locations on Site with the exception of three (3) individual exceedances of VOCs above the NYS Protection of Groundwater Standards for acetone in SB-7 (30'-31'), SB-9 (16'-18') and EP-11 (27'), methylene chloride in SB-7 (30'-31'), and ethylbenzene (1,390 µg/kg) in SW-6 (26'). A Restricted Residential Use cleanup was proposed in the RAWP. Due to the aforementioned excavation limitations, some impacted material had to be left in place. Despite this, the implementation of the engineering controls including the vapor barrier and composite cover system will prevent exposure of the public to this material and remain protective of human health. Any intrusive work below the slab will be managed by the Site Management Plan outlined in Section 6.

NYSDEC Spill Closure

NYDEC Spill No. 2101542 was opened on May 19, 2021 during the investigation. All soil material surrounding encountered USTs was inspected for signs of petroleum impacts by FLS personnel by visual and olfactory senses and with a PID. All impacted soils were properly segregated and temporarily stockpiled according to the SMMP for the Site. All impacted soils below the tanks were over-excavated as a part of the overall Site excavation for foundation construction and disposed of off-Site. All USTs were removed according to best practices and

applicable regulations. This generally included vacuuming out remaining contents, filling the tank with inert gas to avoid spark risk, removal and cleaning of the tank, and finally off-site disposal at a recycling facility. Endpoint samples were collected throughout the area to document final conditions. A Spill Closure Report was submitted to NYSDEC on December 27th, 2023 and accepted by NYSDEC on March 27, 2024. The spill was retroactively listed as closed on January 11, 2024. Accordingly, no further action regarding this spill has been recommended at this time. Confirmation of spill closure and correspondence regarding the acceptance of the spill closure report are included in Appendix D.

4.4 Materials Disposal

From August 30, 2022 to September 1, 2022, 39 waste characterization samples were collected by FLS and results were sent to selected waste disposal facilities. Based on detected concentrations, approval was granted by the disposal facilities for disposal of waste from the various areas onsite. Letters from the generator to disposal facility providing materials type, source and data; and acceptance letters from disposal facility stating it is approved to accept these materials are attached in Appendix H. Manifests are included in Appendix I. Waste characterization sampling locations and waste characterization sampling results and exceedances are included Appendix E. The tonnage of material removed and disposed off-Site is presented below:

Table 4 – Disposal Quantities and Disposal Facilities

Destination	Type of Material	Quantity
Bayshore Recycling Corp. 75 Crows Mill Road Keasby, NJ 08832	Non-hazardous Petroleum Contaminated Soil	10,382 tons
XRDS Recycling 190 Pompton Plains Cross Road Wayne, NJ 07470	Non-hazardous NJ Clean Fill	197 tons
Hazleton Creek Properties 282 S Church Street Hazleton, PA 18201	PA Clean Beneficial Use Material type	13,798 tons

Clean Earth of Carteret 24 Middlesex Avenue Carteret, NJ 07008	Non-hazardous Contaminated Soil	6,133 tons

Excavation began on October 14, 2022, with the majority of material removed to accommodate support of excavation activities throughout the Site. Remedial excavation later took place as support of excavation activities continued across the Site.

A total of 30,510 tons of soil were excavated and removed from the property during the Removal Action. Materials removed from the property under this Removal Action is generally classified as follows: non-hazardous petroleum contaminated soil, 11,796 cubic yards (16,515 tons); and clean fill material, 9,996 cubic yards (13,995 tons). A summary of waste manifests, approximate loads, material removal locations, and material removal dates are provided in Appendix I.

4.5 Backfill Import

Approximately 74.12 tons (52.94 cubic yards) of virgin stone aggregate was imported from Stone Industries Inc. in Haledon, NJ and brought as backfill material for the development of the garage entrance ramp. Certifications, including sieve analysis, and approvals of all imported materials are provided in Appendix L. A map showing backfill placement locations at the Site is shown in Figure 6. Table 5 below summarizes backfill source, type, and quantity.

Table 5 – Backfill Quantities and Sources

Backfill Source	Backfill Type	Backfill Quantity
Stone Industries Inc. 400-402 Central Ave, Haledon, NJ 07508-	Virgin Aggregate (#57's (3/4"))	~74.12 tons (~52.94 cubic yards)

4.6 On-Site Reuse of Excavated Material

As previously described in Section 3.5 *Deviations from the RAWP,* excavation in the northwestern section of the Site was performed for the final garage ramp grade at street level down to 21 ft. NAVD88, which required reuse of approximately 188.64 tons (~134.74 cubic yards) of soils, which were originally placed in this area as the construction ramp directly adjacent to Dekalb Avenue. This ramp re-used non-hazardous material from Grids 2 and 4, which per the Waste Characterization data provided to OER was classified as Clean Fill meeting Restricted Residential SCOs. Per OER's request, an end point confirmation sample, EP-14 (3'), was collected from this area. The location of this soil reuse is shown in Figure 7 and Table 6 below summarizes the material source and quantity.

Table 6 – Soil Reuse Source and Quantity

Reused Material Source	Reuse Quantity
Northern half of proposed parking garage area	188.64 tons (134.74 cubic yards)

5.0 ENGINEERING CONTROLS

Engineering Controls were employed in the remedial action to address residual contamination remaining at the site. The Site has two primary Engineering Control Systems. These are:

(1) A Composite Cover System

(2) A Vapor Barrier System

5.1 Composite Cover System

Exposure to residual soil/fill is prevented by an engineered, composite cover system that has been built on the Site. This composite cover system is comprised of a 6 to 18-inch-thick concrete building slab, a vapor barrier or waterproofing layer (discussed in detail in the next section), and an approximately 3-inch-thick mud slab over undisturbed compacted soil or fill. Elements of the cover system generally remain the same, however, thickness of the concrete slab varies across the Site as follows:

- Sub-cellar footprint: 6” thick concrete slab;
- Northeastern slab-on-grade foundation: 10” concrete slab;
- Southwestern sub-cellar parking ramp landing: 10” concrete slab;
- Northwestern parking ramp and slab-on-grade foundation: 12” concrete slab; and
- Elevator Pit: 18” concrete slab.

The parking ramp is comprised of a 12-inch concrete slab, a vapor barrier, a 3-inch mud slab over approximately 2-inches of #57 ¾” virgin stone aggregate underlaid by compacted soil reused from other areas of the Site, as discussed in Section 4.5. Additionally, the area northwest of the parking ramp is comprised of a 12-inch-thick concrete building slab, a vapor barrier and another 12-inch-thick concrete slab over undisturbed compacted soil or fill.

The composite cover system is a permanent engineering control. The system will be inspected and its performance certified at specified intervals as required by the approved RAWP and if required, the Site Management Plan. A Soil and Material Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the

composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the Remedial Action Report. Figure 8 shows the approved design and location for each remedial cover type used on this Site.

5.2 Vapor Barrier System

A vapor barrier system consisting of vapor barrier/waterproofing below the building slab and outside the sub-grade foundation walls up to grade was installed to mitigate soil vapor migration into the building.

The vapor barrier system in the proposed parking garage area of the Site consists of a 46-mil Grace *Preprufe*® 300R Plus layer below the slab. Along north, west and south foundation walls of the parking garage area, *Preprufe*® 160R Plus was installed up to grade. Along the eastern wall of the elevator pit and the eastern wall of the parking garage area, 4000 Bituthene waterproofing was installed. Additional Aquafin-1C Crystalline waterproofing was installed throughout the Site including within the elevator pit and in two minor sections elsewhere in the parking garage area, as depicted on Figure WP-02.

The vapor barrier system within the slab-on-grade and parking ramp areas along DeKalb Avenue consists of 46-mil Grace *Preprufe*® 300R Plus below the slab and outside all sub-grade foundation sidewalls up to grade. At the southwest corner of the parking ramp, *Preprufe*® 160R Plus and 4000 Bituthene were applied to the foundation sidewalls. Additionally, one small strip in the northern portion of the parking ramp along DeKalb Avenue feature Aquafin-1C Crystalline waterproofing.

Grace *Preprufe*® membranes are composite sheets of a thick HDPE film, an aggressive pressure sensitive adhesive, and weather resistant coating. Water proofing of Grace *Preprufe*® 300R Plus is equivalent to a 46-mil vapor barrier. Grace *Preprufe*® 300R Plus was designed for horizontal and vertical use, for use both below and above concrete slabs and for vertical blind side applications. Grace *Preprufe*® 160R Plus (32-mil) membranes are equivalent with a HDPE and were applied horizontally to smooth prepare concrete, carton forms, well rolled and compacted sand or crushed stone substrate, and vertically to permanent framework or adjoining structures. Concrete was then cast directly against the adhesive side of the membranes.

The Grace *Preprufe*® adhesive layers work together to form a continuous and integral seal to surround the structure. Vertical elements were applied to the walls after removal of formwork for a fully bonded system to all structural surfaces. Installation included the manufacture recommended overlap between slab and wall applied water proofing. This effect is to totally encapsulate the building substructure to grade. This yields a barrier to both moisture and vapor. All welds, seams and penetrations were properly sealed to prevent preferential pathways for vapor migration utilizing Grace *Preprufe*® Tape and in some instances, liquid applied membrane including 4000 Bituthene, and/or Aquafin-1C Crystalline within the foundation pile caps.

A plan view showing the location of the vapor barrier system is provided in Figures WP-01 and WP-02. Typical design sections for the vapor barrier on slab and sidewalls are also provided in Figure WP-03. As-built drawings and diagrams, manufacturer documentation, photographs, and product specification sheets are provided in Appendix M. A PE-certified letter (on company letterhead) from CANY, the primary contractor responsible for installation oversight and field inspections, is also included in Appendix M.

The Vapor Barrier System is a permanent engineering control and was inspected during its installation and will be inspected during its performance certified at specific intervals as required by the approved RAWP and the Site Management Plan. A Soil and Materials Management Plan is included in the Site Management Plan and outlines the procedures to be followed in the event that the composite cover system and underlying vapor barrier system is disturbed after the remedial action is complete.

5.3 High-Volume Air Exchange

A mechanical high-volume air exchange was installed at the subcellar and cellar levels to mitigate soil vapor migration and accumulation of automobile exhaust fumes in the parking garage area of the Site. The high-volume air exchange will provide circulation of fresh air to the subcellar and cellar levels. Subcellar and cellar HVAC plan drawings are presented in Figures M-101.00 and M-102.00, respectively.

6.0 SITE MANAGEMENT PLAN

Site management is the last phase of the remedial process and begins after the approval of the Remedial Closure Report (RCR) and issuance of the Notice of Satisfaction (NOS) by the OER. It is the responsibility of the property owner to ensure that all Site management responsibilities are performed. The penalty for failure to implement the Site Management Plan (SMP) includes the revocation of the NOS and all associated certifications and liability protections.

Engineering Controls (ECs) and Institutional Controls (ICs) have been incorporated into this remediation to ensure that the Site remains protective of public health and the environment. The EC's provide physical protective measures. The ICs provide restrictions on Site usage and provide operation, maintenance, inspection and certification measures. The E-Designation will continue to be registered with the NYC Department of Buildings. This SMP includes all methods necessary to ensure compliance with ECs and ICs required for the property.

The SMP provides a detailed description of procedures required to manage residual material at the Site following the completion of remedial construction. This includes: (1) operation and maintenance of ECs (2) periodic inspections of ECs and ICs and (3) certification of performance of ECs and ICs.

6.1 Engineering and Institutional Controls

Engineering Controls

Engineering Controls are employed in the remedial action to address residual materials remaining at the Site. The Site has two (2) ECs. These are:

- Composite cover system, and
- Vapor barrier

Composite Cover System

Exposure to residual soil/fill is prevented by an engineered, composite cover system built on the Site. A description of the Composite Cover System, as-built design details and the location of each cover type are detailed in Section 5.0 of the RCR.

The composite cover system is a permanent EC for the Site. The system will be inspected and certified at specified intervals as indicated in this SMP. The Composite Cover System does not require any special operation or maintenance activities. If the system is breached during future construction activities, it will be rebuilt by reconstructing the system according to the original design and tying newly constructed cover layers into existing cover layers to form a continuous system.

Vapor Barrier System

The potential migration of soil vapor will be further mitigated with a combination of building slab and vapor barrier. A description of the Vapor Barrier System, as-built design details and the system location are provided in Section 5.0 of the RCR. The system will be inspected and its performance certified at specified intervals defined in this SMP.

The Vapor Barrier System does not require any special operation or maintenance activities. If the system is breached during future construction activities, the system will be rebuilt by reconstructing the vapor barrier layers and sealing the newly constructed materials with existing barrier materials in accordance with manufacturer specifications.

Institutional Controls

A series of ICs are required under this Remedial Action to assure permanent protection of public health by elimination of exposure to residual materials. These ICs define the program to operate, maintain, inspect and certify the performance of ECs and ICs on this property. These ICs will be implemented in accordance with the SMP included in this RCR.

The ICs are also designed to prevent future exposure to residual soil/materials by controlling disturbances in the subsurface, restrict higher uses of the property than those addressed by the Remedial Action and establish restrictions on activities and site usage. The ICs for the Site are:

1. Submittal of a SMP in the RCR that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. The SMP requires that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. The OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification complies with the Rules of the City of New York (RCNY) §43-1407(l)(3).

2. Vegetable gardens and farming on the Site are prohibited;

3. The use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;

4. All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in the approved SMP;

5. The Site will be used for restricted residential and commercial use and will not be used for a higher level of use without prior approval by OER; and

6. The ECs will be inspected and their performance certified at a frequency and in a manner defined in this SMP.

6.2 Inspections

Inspection of EC/IC's will be conducted at a frequency described below. The inspections will evaluate the following:

- If ECs or ICs employed at the Site continue to perform as designed and continue to be protective of human health and the environment;

- If anything has occurred that impairs the ability of the ECs or ICs to protect public health and the environment;

- If changes are needed to the remedial systems or controls;
- If compliance with this SMP has been maintained;
- If Site records are complete and up to date; and
- General Site conditions at the time of inspection.

In addition, if an emergency occurs, such as a natural disaster, or if an unforeseen failure of any of the ECs occurs, an inspection of the Site will be performed within 14 days to evaluate the ECs and a letter report documenting the findings will be submitted to OER.

The building maintenance personnel will be instructed to inspect the condition of the building foundation and slab on a monthly basis and to report any problems to the environmental professional in the contact list below.

Inspection of Composite Cover System

An inspection of the composite cover will consist of a visual inspection of concrete slab, and will include all accessible locations including the Site perimeter and all internal access points on the ground floor. The inspector will document any faulty or defective conditions observed during the inspection, broken or damaged concrete, or any failure in the integrity of the floor that would compromise the ability of the composite cover to perform as an EC.

Inspection of Vapor Barrier System

The vapor barrier will be inspected concurrently with the inspection of the composite cover. If the inspector observes a failure in the composite cover that exposes the vapor barrier, then the underlying vapor barrier will be inspected for any damage, including tears or perforations, which would prevent the vapor barrier from functioning in accordance with its intended use.

Inspection of Site Use Prohibitions

Inspections to evaluate the status of Site use prohibitions will include an evaluation of whether there is vegetable gardening or farming in residual soil/fill; whether groundwater underlying the Site has been used without treatment rendering it safe for its intended use; whether activities that have disturbed Site soil/fill have been conducted pursuant to the Soil/Material Management (SMMP) provisions of this SMP, or otherwise approved by OER; and whether the Site has been

used for a higher level of use other than the restricted residential use addressed by the Remedial Action.

Inspection and Certification Letter Report

The results of inspections performed during a reporting period and certification of performance of all ECs and ICs will be included in an Inspection and Certification Letter Report to be submitted by July 31, 2026 (for reporting period calendar year 2025), July 31, 2031 (for reporting period calendar years 2025-2030), July 31, 2041, and every 10 years thereafter (for the reporting period consisting of the 10 prior calendar years). The Inspection and Certification Letter Reports will be submitted to OER in digital format. The letter report will include, at a minimum, the following:

- Date of inspections;
- Personnel conducting inspections;
- Description of the inspection activities performed;
- Any observations, conclusions, or recommendations;
- Copy of any inspection forms;
- Certification of the performance of ECs and ICs, as discussed below.
- The certification of the performance of EC's and IC's will establish:
- If ECs or ICs employed at the Site continue to be in place and perform as designed and continue to be protective of human health and the environment;
- If anything has occurred that impairs the ability of ECs or ICs to protect public health and the environment;
- If changes are needed to the remedial systems or controls;
- If compliance with this SMP has been maintained;
- If vegetable gardening and/or farming in residual soils has been prevented;

- If groundwater underlying the Site is being utilized without treatment rendering it safe for the intended purpose has been prevented;
- If activities on the Site that have disturbed residual soil/fill material have been in accordance with the SMMP in this SMP;
- If the Site has been used for a higher level of use other than the restricted residential use addressed by the Remedial Action;
- If Site records are complete and up to date;
- If the Site continues to be registered as an E-Designated property by the NYC Department of Buildings.

OER may enter the Site upon notice for the purpose of evaluating the performance of EC's and IC's.

Notifications

Notifications are to be submitted by the property owner to OER as described below:

- 60-day advance notice of any proposed changes in Site use to Unrestricted Residential that is not contemplated in the Remedial Action.
- Notice within 10 days 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.

6.3 Soil/Materials Management Plan

Any future intrusive work that will disturb residual soil/fill beneath the property, including modifications or repairs to the existing composite cover system, will be performed in compliance with this Soil/Materials Management Plan (SMMP). Intrusive work will also be conducted in accordance with the procedures defined in the Community Air Monitoring Plan (CAMP) included in this chapter and a Construction Health and Safety Plan (CHASP). The CHASP included as Appendix N is the responsibility of the property owner and should be in compliance with NYSDEC DER-10 Technical Guide and 29 CFR 1910 and 1926, and all other applicable Federal, State and

City regulations. Intrusive construction work should be compliant with this SMMP and described in the next Inspection and Certification Letter Report.

Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by OER.

Stockpile Methods

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

Materials Excavation, Load-Out and Departure

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in the RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

Offsite Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible, in order to minimize off Site disturbance.

Outbound truck transport routes are included in the RAWP. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site 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. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

Materials Disposal Offsite

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. A manifest system for off-Site transportation of exported materials will be employed. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by OER with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and

that the material complies with receipt requirements for recycling under 6NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

Materials Reuse Onsite

Any non-hazardous soil excavated during construction purposes will be placed in the same excavation it was derived from or will be disposed of off-site unless otherwise approved by OER beforehand.

Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR. This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

Import of Backfill Soil from Offsite Sources

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. Imported soils will not exceed groundwater protection standards established in Part 375. Imported soils for Track 1 remedial action projects will not exceed Track 1 SCO's.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any

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

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.
- All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in the remedial plan.
- All material will be subject to source screening and chemical testing.
- Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:
- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and

  Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the final remedial report. A PE/QEP is responsible to

ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYS DEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory, and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material from the identified clean soil sources will be taken at a minimum frequency of one sample for every 500 cubic yards of material. One composite sample will be collected form each source of virgin quarried material or other material with an NYS DEC approved BUD, unless otherwise approved by OER. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements, is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) without fines may be imported from facilities permitted or registered by NYSDEC. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA will not be used as cover material.

Submission of a NYSDEC Notification of Fill Transport Form may be required if the following conditions apply as per 6 NYCRR Part 360.13 for the use of fill material at the Site:

- At least five days in advance of transfers of general fill, restricted-use fill and limited-use fill generated in, imported to, or relocated within the City of New York in amounts greater than 10 cubic yards.
- At least five days in advance of delivery of restricted-use fill and limited-use fill in amounts greater than 10 cubic yards anywhere in the State of New York.

Notification to the Department is not required when the destination is a facility authorized under 6 NYCRR Part 361-5, however the facility may request information required by this form as part of their waste control plan. A copy of the form is available at the following website: https://www.dec.ny.gov/docs/materials_minerals_pdf/budtransfill.pdf.

Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

Storm-Water Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in the

remedial plan (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area as needed and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot be controlled by these means, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

The odor control plan must be capable of controlling emissions of nuisance odors. If nuisance odors are identified, 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. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP’s certifying this plan.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles;
- Use of properly anchored tarps to cover soil/fill stockpiles;
- Exercise extra care during dry and high-wind periods; and

- Use of asphalt millings, gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dust will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying this remedial plan.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously as per CHASP 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 ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume if dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded in a field log and available for NYCOER personnel to review. Modifications to the monitoring requirements will be coordinated with NYCOER.

Noise

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

This SMMP includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of the CHASP are in compliance with safety requirements of the United States Occupational Safety and Health Administration (OSHA). The CHASP is included as Appendix N.

6.4 Contingency Plan

This contingency plan is developed for the remedial construction or repair work to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

Emergency Telephone Numbers

In the event of any emergency condition pertaining to these remedial systems, the Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to FLS at (212) 675-3225. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

NYC OER General Number:	(212) 788-8841
Medical, Fire, and Police:	911
One Call Center: 3-day notice required for utility mark-out	(800) 272-4480
Poison Control Center:	(800) 222-1222

Environmental Contact Numbers

Arnold Fleming, P.E. – Qualified Environmental Professional	(212) 675-3225
NYC Office of Environmental Remediation	(212) 788-8841; 311

Map and Directions to Nearest Hospital

Hospital Name: The Brooklyn Hospital Center

Hospital Location: 121 Dekalb Avenue

Hospital Telephone: 718-250-8000

Directions to the Hospital:

1. *Head north on Ashland Place*
2. *Arrive at 121 Dekalb Avenue*

Total Distance: 190 ft.

Total Estimated Time: 1 minute

Map Showing Route from the Site to the Hospital