

161-11 132ND AVENUE

QUEENS, NEW YORK

Remedial Action Report

NYC VCP Project Number 18CVCP063Q

E-Designation Project Number 18EHAN214Q

Prepared For:

Fifth Avenue Committee
621 Degraw Street, Brooklyn, NY 11217
www.fifthave.org

Prepared By:

ALC Environmental
121 West 27th Street, Suite 402
New York, NY 10001
212-675-5544
www.alcenvironmental.com

Certified By:

Hazem M. Hijazi, P.E.
RES of NY,
1218 Central Avenue, Suite 100
Albany, NY 12205

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REMEDIAL ACTION REPORT

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LIST OF ACRONYMS

Acronym	Definition
CAMP	Community Air Monitoring Plan
DER-10	NYS DEC Division of Environmental Remediation Technical Guidance Manual 10
EC	Engineering Control
HASP	Health and Safety Plan
IC	Institutional Control
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
ORC	Oxygen Release Compound
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SVOCs	Semi-Volatile Organic Compounds
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

RCA Recycled concrete Aggregate
SPDES
NYS DEC
DUSR

CERTIFICATION

I, Hazem M. Hijazi, of RESNY Inc, certify the following:

- I am currently a registered professional engineer licensed by the State of New York.
- I performed professional engineering services covering the implementation of the remedial program for the 161-11 132nd Avenue, Queens, NY site, site number 18CVCP063Q.
- I have reviewed this document, to which my signature and seal are affixed.
- The vapor barrier and composite cover system, implemented as part of construction, constructed during this remedial action were designed by Dave Pelletier, PE (NYS PE License No. 082127) of Jade Environmental, Inc. and achieve the goals established in the Remedial Action Work Plan for this site.
- The vapor barrier and composite cover system, implemented as part of construction, constructed during this remedial action were professionally observed by me or by a person under the supervision of the QEP are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report.
- The OER-approved Remedial Action Work Plan dated June 15, 2018 and Stipulations in a letter dated May 29, 2018 were implemented and that the requirements in those documents have been substantively complied with. To the best of my knowledge, 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.

Name

Hazem Hijazi

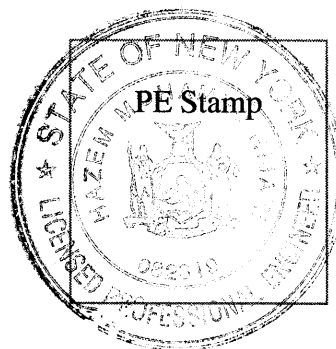
PE License Number

082819-1

Signature

Date

Hijazi
2/10/2021



I, Cheryl Benmergui, certify the following:

- I am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the 161-11 132nd Avenue, Queens, NY site, site number 18CVCP063Q.
- The OER-approved Remedial Action Work Plan dated June 15, 2018 and Stipulations in a letter dated May 29, 2018 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.

QEP Name

Cheryl Benmergui

QEP Signature

Cheryl Benmergui

Date

November 5, 2020

EXECUTIVE SUMMARY

Fifth Avenue Committee has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 161-11 132nd Avenue in the Rochdale/Springfield Gardens section of Queens, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A remedial action was performed pursuant to the OER-approved RAWP in a manner that has rendered the Site protective of public health and the environment consistent with the proposed use of the property. This RAR describes the remedial action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

Site Location and Background

The Site is addressed 161-11 132nd Avenue in the Rochdale/Springfield Gardens section of Queens, New York and identified as Block 12277, and Lot 2 (formerly part of Lot 1) on the New York City Tax Map. The Site is approximately 80,466-square feet and is bounded by a 12-story senior housing building fronting Guy R Boulevard to the northeast, 132nd Avenue to the southeast, 161st Street to the southwest, and row of small single-family dwellings to the northwest. Prior to redevelopment, the Site was formerly part of Lot 1 (prior to subdivision), was an irregular shaped lot, and the area designated for redevelopment was utilized as a paved at-grade outdoor parking lot, with concrete walkways and landscaped areas.

Summary of Redevelopment Plan

The development project consisted of redeveloping Lot 2, approximately 80,466 square feet (SF), with a new 10-story senior residential housing annex connecting into the existing 12-story Northeastern Towers senior residential building located at 131-10 Guy R Brewer Boulevard (Lot 1). The new development includes a total of 159 affordable residential units, a senior center, and a cellar, totaling a gross square footage of 145,804 square feet (SF). Construction of the cellar included excavation to a depth of 12 feet (ft) below grade,

with a footprint of 11,871 SF, and occupies the majority of the new annex, with an additional excavation depth of five ft (17 ft below grade in total) for construction of the elevator pit. No residential units exist in the new cellar. The cellar consists of storage spaces, mechanical and utility rooms, and exercise classroom, and a superintendent's office.

The ground floor occupies a footprint of 20,900 SF and consists of the residential lobbies, 12 residential units, management offices, community rooms, elevators, restrooms, and commercial space utilized as a senior center. The second through tenth floors consist of a total of 147 residential units with laundry and lounge rooms on each floor. The exterior of the property consists of 19,460 SF of landscaped areas with 10,659 SF of sidewalk surfaces and a resurfaced parking lot providing a total of 90 parking spaces. Grading of the former parking lot was raised approximately 10 to 20 percent of the previous grade. A subsurface infiltration and detention area were installed in the southern portions of the parking lot and occupies an area of 85 ft by 35 ft, and excavated down to 6 ft below grade for installation.

A total of approximately 12,282.96 tons (6,720 CY) of non-hazardous soil/fill was excavated to Capital Development located at 1-Capital Boulevard, East Bangor, Pennsylvania 18103. Groundwater beneath the Site was measured at approximately 16 ft below grade during remedial and geotechnical investigations. However, groundwater was encountered at the extent of excavation for construction of the elevator pit at approximately 17 ft below grade. Dewatering was not necessary during excavation. No fluids were pumped or removed off-site.

Summary of Description of Surrounding Property

The general vicinity of the Site consists mainly of residential properties in the form of small single family homes on similarly small lots. The Site is bounded to the immediate north by a 12-story senior residential building known as Northeastern Towers located on Lot 1, bounded to the immediate northeast by Guy R Brewer Boulevard, followed by two 14-story residential apartment buildings associated with the Rochdale Village apartment complexes; bounded to the immediate southeast by 132nd Avenue followed, by a large

water supply tank and a single-story pump house associated with the Jamaica Water Supply Company; bounded to the immediate southwest by 161st Street, followed by a row of residential buildings including: two 2-story residential buildings, a 2-story residential and commercial building, with a detached garage, identified as a day care facility known as “Rose Day Care”, a 1 ½ -story residential building with a detached garage, and a single story residential building; and bounded to the northwest by a row of residential buildings including two 2 ½ -story residential buildings, two 2-story residential and two 1 ½ -story residential buildings. Junior High School 072-Queens is located within 500 feet east-southeast of the Site.

Summary of Past Site Uses and Areas of Concern

According to the NYC Department of Buildings records and historical sources reviewed (Fire Insurance maps, aerial photographs and city directories), The Site was formerly part of Lot 1 and had been used for residential occupancy since the Northeastern Towers’ construction in 1984. Prior to current improvements the Site consisted of vacant land, which appears to have been utilized and an outdoor parking lot in the early 1950s. No other prior uses were identified.

Recognized environment conditions (RECs) were not identified in association with the Site. The following historical surrounding land were identified for this Site:

- The adjacent property to the southwest, identified as “NYCDEP-Tank 33”, was listed as a Resources Conservation and Recovery Act Conditionally Exempt Small Quantity Generator (RCRA-CESQG) facility and verified to be a conditionally exempt small quantity generator in 2008 and 2015. No reported releases or violation are associated with this property or generator listing.
- The Leaking Storage Tanks (LTANKS) database reported one open LTANKS located at 167-02 Baisley Boulevard approximately 0.3 miles north-northeast of the Site. Its distance from the Property precludes its potential from impacting the Property subsurface.
- The New York State Department of Environmental Conservation (NYSDEC) SPILLS (NY Spills) database reported a NY Spills site approximately 82 feet to the

west of the Site however, this case was closed by the NYSDEC in November 2005.

- The Petroleum Bulk Storage (PBS), Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs) lists did not identify any PBS facilities on-site, but did identify four USTs and three ASTs within ¼ -mile radius of the project site.

The property was assigned an E-Designation (E-426) for Hazardous Materials, Air Quality, and Noise, as part of the Northeastern Towers Annex Rezoning on October 17, 2017 (CEQR 17DCP161Q).

Summary of the Work Performed under the Remedial Investigation

ALC Performed the following scope of work at the Site on February 13, 2018:

1. Conducted a Site Inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Advanced seven (7) soil borings across the proposed development Site, and collected fifteen (15) soil samples, including one duplicate, for chemical analysis from the soil borings to evaluate soil quality;
3. Installed three (3) monitoring wells throughout the Site to establish groundwater flow and collected three (3) groundwater samples and one trip blank sample for chemical analysis to evaluate groundwater quality;
4. Installed four (4) soil vapor probes around the proposed Site perimeter and collected four (4) samples for chemical analysis.

Summary of Findings of Remedial Investigation

A Remedial Investigation (RI) was performed, and the results are documented in a companion document called ‘Remedial Investigation Report, 131-10 Guy R Brewer Boulevard’, dated March 2018 (RIR). Below are a summary of environmental findings during the RI:

1. Elevation of the property is approximately 19 feet above mean sea level.
2. Depth to groundwater ranges from 11.4 to 13.9 feet at the Site.

3. Groundwater flow is generally from northwest to southwest beneath the Site.
4. Depth to bedrock is unknown as it was not encountered during the RI.
5. The stratigraphy of the Site, from the surface down, consists of three feet of historic fill underlain by seven (7) feet of gravely sand.
6. Soil/fill samples collected during the RI were compared to 6NYCRR Part 375-6.8 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs), and Restricted Residential Use (Track 2) SCOs. Results showed no volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs) above Track 2 SCOs in any of the soil samples collected. No pesticides or polychlorinated biphenyls (PCBs) were detected in any of the soil samples collected. Two metals, mercury (maximum 0.207 mg/Kg) and zinc (maximum 136 mg/Kg), exceeded Unrestricted Use (Track 1) SCOs in the surface soil.
7. Groundwater samples collected during the RI were compared to the NYSDEC 6NYCRR Part 703.5 Class GA Groundwater Quality Standards (GQS). Results showed no VOCs or SVOCs above their respective GQS. No pesticides or PCBs were detected in any of the groundwater samples collected. One total metal parameter, manganese (maximum 3,620 ug/L) was detected above its respective GQS.
8. Soil vapor samples collected during the RI were compared to the compounds listed in Table 3.1 Air Guidance Values derived by the New York State Department of Health (NYSDOH) located in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006,
 - Updated September 2013 for Tetrachloroethane (PCE),
 - Updated August 2015 for Trichloroethane (TCE), and
 - Updated May 2017 for soil vapor/indoor air decision matrices.

Soil vapor sampling detected PCE (maximum 32 ug/m³), TCE (maximum 0.72 ug/m³), and methylene chloride (maximum 15 ug/m³) in all four soil vapor samples collected from the Site. Petroleum and dry cleaner products-related compounds were detected in low levels. Maximum concentrations of BTEX compounds were

1,609 ug/m³. Concentrations of PCE, TCE, and methylene chloride were below the monitoring/mitigation levels established by the NYSDOH guidance matrices recommending no further action.

Appendix A includes the RIR.

Summary of the Remedial Action

The Remedial Action achieved protection of public health and the environment for the intended use of the property. The Remedial Action achieved all of the Remedial Action Objectives established for the project; addressed applicable standards, criteria, and guidance; reduced mobility, toxicity and volume of contaminants; was cost effective and implementable; and used standard methods that are well established in the industry. The remedial action is effective in the short-term and long-term.

A summary of the milestones achieved in the Remedial Action is as follows:

- A Pre-Application Meeting was held on December 19, 2017.
- A Remedial Investigation (RI) was performed on February 13, 2018.
- A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP).
- A Site Contact List was established.
- A draft RAWP was prepared and released with a Fact Sheet on April 17, 2018 for a 30-day public comment period.
- The RAWP and Stipulation List dated June 15, 2018 and May 29, 2018, respectively, were approved by the New York City Office of Environmental Remediation (OER) June, 15, 2018.
- Site briefings were conducted with New York State Department of Environmental Conservation (NYSDEC) on April 30, 2018.
- A Pre-Construction Meeting was held on June 28, 2018.
- A Fact Sheet providing notice of the start of the remedial action was issued on August, 24, 2018.
- The remedial action began in September 5, 2018 and completed in June 10, 2020.

Appendix B contains the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan.
2. Mobilized site security and equipment; completed utility mark outs; and marked and staked excavation areas.
3. Performed Waste Characterization Study prior to excavation activities. Nine (9) waste characterization soil samples were collected on September 5, 2018. Waste characterization samples were collected at a frequency dictated by the disposal facility.
4. Performed a Community Air Monitoring Program for particulates and volatile organic carbon compounds during soil disturbance activities. CAMP was performed from September 5, 2018 to January 15, 2019. No odor or elevated PID readings were recorded.
5. Selected NYSDEC Part 375 Track 2 Soil Cleanup Objectives (SCOs).
6. The following excavations were performed: The entire footprint of the cellar area was excavated to a depth of 12 feet below grade, and excavated to a depth of 2 feet below grade in the slab-on-grade portions of the ground floor. A small portion of the property was excavated to a depth of 17 feet below grade for construction of the elevator pit, and excavated to a depth of 6 feet below grade for installation of the stormwater infiltration and detention area. A total of 6,720 cubic yards of soil/fill was excavated and removed from the property.
7. Excavated 6,720 cubic yards of non-hazardous soil/fill and transported it to Capital Development, located at 1-Capital Boulevard, East Bangor, PA.
8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. 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.

10. Appropriately segregated excavated media onsite prior to disposal. Transported and disposed all soil/fill material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and the RAWP.
11. Collected and analyzed five (5) end-point (EP-1 through EP-5) samples to determine attainment of SCOs. Track 2 SCOs were achieved.
12. Constructed an engineered Composite Cover System consisting of 4 inches of concrete slab underlain by a 20-mil vapor barrier membrane, underlain by 6 inches of $\frac{3}{4}$ -inch bluestone, underlain by compacted subgrade separated by TenCate Mirafi[®] 140N geotextile fabric in all building areas; 4 inches of concrete sidewalk underlain by 6 inches of gravel, broken stone and sand mixture in all sidewalk areas; 2 inches of NYSDOT 6F type asphalt pavement underlain by 3 inches of NYSDOT Type 3 Asphalt underlain by 6 inches of NYSDOT item No 304.12 Type 2 (bluestone) in parking areas, and 2 feet of clean soil in open space areas. The contractor for the composite cover construction was Darcon Construction Inc.
13. Installed a Vapor Barrier System that consisted of a 20-mil Stego[®] Wrap 20-Mil Vapor Barrier beneath the building slab and outside all sub-grade foundation walls. This vapor barrier product is a deviation from the OER-approved RAWP that specified installation of 20-mil Grace Preprufe 300R below the building slab and 15-mil Grace Preprufe 160R outside all sub-grade foundation walls. Submittal of the Stego Wrap vapor barrier product was provided to OER for approval prior to commencement of soil disturbance activities. All welds, seams and penetrations were properly sealed to prevent preferential pathways for vapor migration. The contractor for the Vapor Barrier System construction was Darcon Construction Inc.
14. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.

16. Imported soil to be used for backfill and cover in compliance with the Remedial Action Work Plan and in accordance with applicable laws and regulations.
17. Submitted daily reports during construction oversight activities. Daily reports were submitted from September 5, 2018 to December 27, 2018. Intermittent Weekly reports were submitted from January 18, 2019 to December 6, 2019. Monthly reports were submitted from September 2018 to May 2020.
18. Submitted a Sustainability Report.
19. Submitted an RAR that describes the Remedial Action; certifies that the remedial requirements defined in the RAWP have been achieved; defines the Site boundaries; and lists any changes from the RAWP.

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REMEDIAL ACTION REPORT

1.0 SITE BACKGROUND

Fifth Avenue Committee has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 161-11 132nd Avenue in the Rochdale/Springfield Gardens section of Queens, New York. The boundary of the property subject to this Remedial Action is shown in Figure 1 and includes, in its entirety, Queens Block 12277 and Lot 2. The Remedial Action was performed pursuant to the OER-approved RAWP in a manner that has rendered the property protective of public health and the environment consistent with its intended use. This RAR describes the Remedial Action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment and complies with applicable environmental standards, criteria and guidance (SCGs) and applicable laws and regulations.

1.1 SITE LOCATION AND BACKGROUND

The Site is addressed 161-11 132nd Avenue in the Rochdale/Springfield Gardens section of Queens, New York and identified as Block 12277, and Lot 2 (formerly part of Lot 1) on the New York City Tax Map. The Site is approximately 80,466-square feet and is bounded by a 12-story senior housing building fronting Guy R Boulevard to the northeast, 132nd Avenue to the southeast, 161st Street to the southwest, and row of small single family dwellings to the northwest. Prior to redevelopment, the Site was formerly part of Lot 1 (prior to subdivision), was an irregular shaped lot, and the area designated for redevelopment was utilized as a paved at-grade outdoor parking lot, with concrete walkways and landscaped areas. The Site Location Map is shown in Figure 1. The Site Boundary Map is shown in Figure 2.

1.2 REDEVELOPMENT PLAN

The development project consisted of redeveloping Lot 2, approximately 80,466 square feet (SF), with a new 10-story senior residential housing annex connecting into the existing 12-story Northeastern Towers senior residential building located at 131-10 Guy R Brewer

Boulevard (Lot 1). The new development includes a total of 159 affordable residential units, a senior center, and a cellar, totaling a gross square footage of 145,804 square feet (SF). Construction of the cellar included excavation to a depth of 12 feet (ft) below grade, with a footprint of 11,871 SF, and occupies the majority of the new annex, with an additional excavation depth of five ft (17 ft below grade in total) for construction of the elevator pit. No residential units exist in the new cellar. The cellar consists of storage spaces, mechanical and utility rooms, and exercise classroom, and a superintendent's office.

The ground floor occupies a footprint of 20,900 SF and consists of the residential lobbies, 12 residential units, management offices, community rooms, elevators, restrooms, and commercial space utilized as a senior center. The second through tenth floors consist of a total of 147 residential units with laundry and lounge rooms on each floor. The exterior of the property consists of 19,460 SF of landscaped areas with 10,659 SF of sidewalk surfaces and a resurfaced parking lot providing a total of 90 parking spaces. Grading of the former parking lot was raised approximately 10 to 20 percent of the previous grade. A subsurface infiltration and detention area were installed in the southern portions of the parking lot and occupies an area of 85 ft by 35 ft, and excavated down to 6 ft below grade for installation.

A total of approximately 12,282.96 tons (6,720 CY) of non-hazardous soil/fill was excavated to Capital Development located at 1-Capital Boulevard, East Bangor, Pennsylvania 18103. Groundwater beneath the Site was measured at approximately 16 ft below grade during remedial and geotechnical investigations. However, groundwater was encountered at the extent of excavation for construction of the elevator pit at approximately 17 ft below grade. Dewatering was not necessary during excavation. No fluids were pumped or removed off-site.

A map showing the building location, basement location and open space location is shown in the Development Plan in Figure 3.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The general vicinity of the Site consists mainly of residential properties in the form of small single family homes on similarly small lots. The Site is bounded to the immediate north by a 12-story senior residential building known as Northeastern Towers located on Lot 1, bounded to the immediate northeast by Guy R Brewer Boulevard, followed by two 14-story residential apartment buildings associated with the Rochdale Village apartment complexes; bounded to the immediate southeast by 132nd Avenue followed, by a large water supply tank and a single-story pump house associated with the Jamaica Water Supply Company; bounded to the immediate southwest by 161st Street, followed by a row of residential buildings including: two 2-story residential buildings, a 2-story residential and commercial building, with a detached garage, identified as a day care facility known as “Rose Day Care”, a 1 ½ -story residential building with a detached garage, and a single story residential building; and bounded to the northwest by a row of residential buildings including two 2 ½ -story residential buildings, two 2-story residential and two 1 ½ -story residential buildings. Junior High School 072-Queens is located within 500 feet east-southeast of the Site. Figure 4 shows the surrounds land usage.

1.4 SUMMARY OF PAST SITE USES AND AREAS OF CONCERN

According to the NYC Department of Buildings records and historical sources reviewed (Fire Insurance maps, aerial photographs and city directories), The Site was formerly part of Lot 1 and had been used for residential occupancy since the Northeastern Towers’ construction in 1984. Prior to current improvements the Site consisted of vacant land, which appears to have been utilized and an outdoor parking lot in the early 1950s. No other prior uses were identified.

Recognized environment conditions (RECs) were not identified in association with the Site. The following historical surrounding land were identified for this Site:

- The adjacent property to the southwest, identified as “NYCDEP-Tank 33”, was listed as a Resources Conservation and Recovery Act Conditionally Exempt Small Quantity Generator (RCRA-CESQG) facility and verified to be a conditionally exempt small quantity generator in 2008 and 2015. No reported releases or violation

are associated with this property or generator listing.

- The Leaking Storage Tanks (LTANKS) database reported one open LTANKS located at 167-02 Baisley Boulevard approximately 0.3 miles north-northeast of the Site. Its distance from the Property precludes its potential from impacting the Property subsurface.
- The New York State Department of Environmental Conservation (NYSDEC) SPILLS (NY Spills) database reported a NY Spills site approximately 82 feet to the west of the Site however, this case was closed by the NYSDEC in November 2005.
- The Petroleum Bulk Storage (PBS), Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs) lists did not identify any PBS facilities on-site, but did identify four USTs and three ASTs within ¼ -mile radius of the project site.

The property was assigned an E-Designation (E-426) for Hazardous Materials, Air Quality, and Noise, as part of the Northeastern Towers Annex Rezoning on October 17, 2017 (CEQR 17DCP161Q).

1.5 SUMMARY OF WORK PERFORMED UNDER THE REMEDIAL INVESTIGATION

ALC Performed the following scope of work at the Site on February 13, 2018:

1. Conducted a Site Inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Advanced seven (7) soil borings across the proposed development Site, and collected fifteen (15) soil samples, including one duplicate, for chemical analysis from the soil borings to evaluate soil quality;
3. Installed three (3) monitoring wells throughout the Site to establish groundwater flow and collected three (3) groundwater samples and one trip blank sample for chemical analysis to evaluate groundwater quality;
4. Installed four (4) soil vapor probes around the proposed Site perimeter and collected four (4) samples for chemical analysis.

1.6 SUMMARY OF FINDINGS OF REMEDIAL INVESTIGATION

A Remedial Investigation (RI) was performed, and the results are documented in a companion document called 'Remedial Investigation Report, 131-10 Guy R Brewer Boulevard', dated March 2018 (RIR). Below are a summary of environmental findings during the RI:

1. Elevation of the property is approximately 19 feet above mean sea level.
2. Depth to groundwater ranges from 11.4 to 13.9 feet at the Site.
3. Groundwater flow is generally from northwest to southwest beneath the Site.
4. Depth to bedrock is unknown as it was not encountered during the RI.
5. The stratigraphy of the Site, from the surface down, consists of three feet of historic fill underlain by seven (7) feet of gravely sand.
6. Soil/fill samples collected during the RI were compared to 6NYCRR Part 375-6.8 Unrestricted Use (Track1) Soil Cleanup Objectives (SCOs), and Restricted Residential Use (Track 2) SCOs. Results showed no volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs) above Track 2 SCOs in any of the soil samples collected. No pesticides or polychlorinated biphenyls (PCBs) were detected in any of the soil samples collected. Two metals, mercury (maximum 0.207 mg/Kg) and zinc (maximum 136 mg/Kg), exceeded Unrestricted Use (Track 1) SCOs in the surface soil.
7. Groundwater samples collected during the RI were compared to the NYSDEC 6NYCRR Part 703.5 Class GA Groundwater Quality Standards (GQS). Results showed no VOCs or SVOCs above their respective GQS. No pesticides or PCBs were detected in any of the groundwater samples collected. One total metal parameter, manganese (maximum 3,620 ug/L) was detected above its respective GQS.
8. Soil vapor samples collected during the RI were compared to the compounds listed in Table 3.1 Air Guidance Values derived by the New York State Department of Health (NYSDOH) located in the NYSDOH Final Guidance for Evaluating Soil

Vapor Intrusion dated October 2006,

- Updated September 2013 for Tetrachloroethane (PCE),
- Updated August 2015 for Trichloroethane (TCE), and
- Updated May 2017 for soil vapor/indoor air decision matrices.

Soil vapor sampling detected PCE (maximum 32 ug/m³), TCE (maximum 0.72 ug/m³), and methylene chloride (maximum 15 ug/m³) in all four soil vapor samples collected from the Site. Petroleum and dry cleaner products-related compounds were detected in low levels. Maximum concentrations of BTEX compounds were 1,609 ug/m³. Concentrations of PCE, TCE, and methylene chloride were below the monitoring/mitigation levels established by the NYSDOH guidance matrices recommending no further action.

Appendix A includes the RIR.

2.0 DESCRIPTION OF REMEDIAL ACTIONS

The Remedial Action was performed in accordance with an OER-approved Remedial Action Work Plan and achieved the Remedial Action Objectives established for the project. The Remedial Action was evaluated in an alternatives analysis and was determined to be protective of human health and the environment, compliant with standards, criteria, and guidelines (SCGs), effective in the short-term, effective in the long-term, capable of attaining appropriate levels of reduction of toxicity, mobility, or volume of contaminated material, implementable, cost effective, acceptable to the community, consistent with land uses, and sustainable.

A summary of the milestones achieved in the Remedial Action is as follows:

- A Pre-Application Meeting was held on December 19, 2017.
- A Remedial Investigation (RI) was performed on February 13, 2018.
- A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP).
- A Site Contact List was established. A RAWP was prepared and released with a Fact Sheet on April 17, 2018 for a 30-day public comment period.
- The RAWP and Stipulation List dated June 15, 2018 and May 29, 2018, respectively, were approved by the New York City Office of Environmental Remediation (OER) on June, 15, 2018.
- Site briefings was conducted with New York State Department of Environmental Conservation (NYSDEC) on April 30, 2018.
- A Pre-Construction meeting was held on June 28, 2018.
- A Fact Sheet providing notice of the start of the remedial action was issued on August, 24, 2018.
- The remedial action began on September 5, 2018 and completed on June 10, 2020.

Appendix B includes the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan.
2. Mobilized site security and equipment; completed utility mark outs; and marked and staked excavation areas.
3. Performed Waste Characterization Study prior to excavation activities. Nine (9) waste characterization soil samples were collected on September 5, 2018. Waste characterization samples were collected at a frequency dictated by the disposal facility.
4. Performed a Community Air Monitoring Program for particulates and volatile organic carbon compounds during soil disturbance activities. CAMP was performed from September 5, 2018 to January 15, 2019. No odor or elevated PID readings were recorded.
5. Selected NYSDEC Part 375 Track 2 Soil Cleanup Objectives (SCOs).
6. The following excavations were performed: The entire footprint of the cellar area was excavated to a depth of 12 feet below grade, and excavated to a depth of 2 feet below grade in the slab-on-grade portions of the ground floor. A small portion of the property was excavated to a depth of 17 feet below grade for construction of the elevator pit, and excavated to a depth of 6 feet below grade for installation of the stormwater infiltration and detention area. A total of 6,720 cubic yards of soil/fill was excavated and removed from the property.
7. Excavated 6,720 cubic yards of non-hazardous soil/fill and transported it to Capital Development, located at 1-Capital Boulevard, East Bangor, PA.
8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. 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.
10. Appropriately segregated excavated media onsite prior to disposal. Transported and disposed all soil/fill material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and the RAWP.

11. Collected and analyzed five (5) end-point (EP-1 through EP-5) samples to determine attainment of SCOs. Track 2 SCOs were achieved.
12. Constructed an engineered Composite Cover System consisting of 4 inches of concrete slab underlain by a 20-mil vapor barrier membrane, underlain by 6 inches of ¾-inch bluestone, underlain by compacted subgrade separated by TenCate Mirafi® 140N geotextile fabric in all building areas; 4 inches of concrete sidewalk underlain by 6 inches of gravel, broken stone and sand mixture in all sidewalk areas; 2 inches of NYSDOT 6F type asphalt pavement underlain by 3 inches of NYSDOT Type 3 Asphalt underlain by 6 inches of NYSDOT item No 304.12 Type 2 (bluestone) in parking areas, and 2 feet of clean soil in open space areas. The contractor for the composite cover construction was Darcon Construction Inc.
13. Installed a Vapor Barrier System that consisted of a 20-mil Stego® Wrap 20-Mil Vapor Barrier beneath the building slab and outside all sub-grade foundation walls. This vapor barrier product is a deviation from the OER-approved RAWP that specified installation of 20-mil Grace Preprufe 300R below the building slab and 15-mil Grace Preprufe 160R outside all sub-grade foundation walls. Submittal of the Stego Wrap vapor barrier product was provided to OER for approval prior to commencement of soil disturbance activities. All welds, seams and penetrations were properly sealed to prevent preferential pathways for vapor migration. The contractor for the Vapor Barrier System construction was Darcon Construction Inc.
14. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Imported soil to be used for backfill and cover in compliance with the Remedial Action Work Plan and in accordance with applicable laws and regulations.
17. Submitted daily reports during construction oversight activities. Daily reports were submitted from September 5, 2018 to December 27, 2018. Intermittent Weekly reports were submitted from January 18, 2019 to December 6, 2019. Monthly reports were submitted from September 2018 to May 2020.

18. Submitted a Sustainability Report.
19. Submitted an RAR that describes the Remedial Action; certifies that the remedial requirements defined in the RAWP have been achieved; defines the Site boundaries; and lists any changes from the RAWP.

3.0 COMPLIANCE WITH REMEDIAL ACTION WORK PLAN

3.1 CONSTRUCTION HEALTH & SAFETY PLAN

The remedial construction activities performed under this program were in compliance with the Construction Health and Safety Plan and applicable laws and regulations. The Site Safety Coordinator was George Smoudianis.

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 from September 5, 2018 to January 15, 2019, from October 28, 2019 to November 26, 2019, and March 26, 2020 to March 27, 2020, in compliance with the Community Air Monitoring Plan in the approved RAWP. The results of Community Air Monitoring are shown in Appendix C. No fugitive odors or nuisance particulates were observed migrating off-site.

3.3 SOIL/MATERIALS MANAGEMENT PLAN

The Soil/Materials Management Plan provided detailed plans for managing all soil/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 full compliance with methods and processes defined in the RAWP for storm water

prevention and applicable laws and regulations.

3.5 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

Deviations in the Remedial Action from the RAWP and summarized below:

- The RAWP proposed constructed an engineered composite cover system consisting of 6 inches of reinforced concrete slab underlain by 6 inches of clean sub-base material in all building areas, and 4 inches of asphalt pavement underlain by 6 inches of clean sub-base material in all parking areas. Construction of the composite cover consisted of 4 inches of concrete slab underlain by a 20-mil vapor barrier membrane, underlain by 6 inches of ¾-inch bluestone, underlain by compacted subgrade separated by TenCate Mirafi® 140N geotextile fabric in all building areas; 2 inches of NYSDOT 6F type asphalt pavement underlain by 3 inches of NYSDOT Type 3 Asphalt underlain by 6 inches of NYSDOT item No 304.12 Type 2 (bluestone) in parking areas. Historic fill was removed during the removal action eliminating any potential for direct contact with contaminated soil/fill and public health exposure. The final development is protective of public health and the environment, in conjunction with installation of the vapor barrier membrane.
- The RAWP proposed installation of Grace Preprufe 300R below the building foundation slab and Grace Preprufe 160R outside sub-grade foundation walls. However, the project team proposed to install Stego® Wrap 20-Mil Vapor Barrier below the foundation slab and outside sub-grade foundation walls. Stego® Wrap 20-Mil Vapor Barrier is a multi-layer co-extruded 20 mil vapor barrier made from polyethylene resins. OER was notified of the proposed change in vapor barrier materials on July 27, 2018 prior to commencement of remedial activities. An email from OER approving this change is included in Appendix J.

4.0 REMEDIAL PROGRAM

4.1 PROJECT ORGANIZATION

Redevelopment of the site was performed for Northeastern Towers Annex LP, care of the applicant Fifth Avenue Committee. The PE responsible for implantation of the remedial action for this project was Hazem M. Hijazi. On-Site monitoring in accordance with the CHASP and CAMP, soil screening and soil sampling was performed by Jeff Diamond of ALC Environmental. The Qualified Environmental Professional which implemented the remedial action was Cheryl Benmergui, Project Manager of ALC Environmental. The general contractor was Mega Contracting Group. The excavation and foundation contractor was Darcon Construction Inc.

4.2 SITE CONTROLS

Site Preparation

Plans for the new building (NYC DOB Job number NB-420663776) were approved on June 14, 2018. Mobilization to the Site occurred on August 15, 2018 beginning with perimeter fence installation, and delivery of equipment on August 24, 2018. Waste characterization was performed on September 5, 2018, to supplement the conditional approval from the disposal facility to increase the approval amount of 4,500 tons to 18,000 tons of material prior to excavation activities. Remedial excavation began on September 6, 2018. An OER Project Notice was erected at the project entrance and was in place during all phases of the Remedial Action.

Soil Screening

All intrusive soil excavation activities were overseen by ALC. Excavated material was screened continuously using hand-held instruments for olfactory and visual inspection to ensure proper material handling and management, and community protection. No odors or elevated PID readings were observed during excavation activities. Excavated material was transported off-site to an accepting facility. Soil disposal requests and acceptance letters are provided in Appendix D.

Stockpile Management

For the majority of the project, soil was excavated and directly loaded into trucks to eliminate the need for stockpiling. However, any soil stockpiles that were generated and kept overnight were covered with a 8-mil poly-sheeting to prevent dust and minimize odors. Stockpile covers were inspected daily.

Truck Inspection

A stabilized construction entrance consisting of a bed of crushed concrete, with the entrance and exit from 132nd Avenue. The stabilized entrance was inspected on a daily basis during soil loading activities and reinforced as needed with additional concrete material to prevent the accumulation of mud or soil and to minimize the potential for impacted soil to be dispersed beyond the Site boundary. Before exiting the Site, trucks were examined for evidence of contaminated soil on the undercarriage, body, and wheels. Any observed soil/debris was removed utilizing brooms, shovels, and potable water, as necessary.

Site Security

An 8-foot high construction fence was constructed around the perimeter of the property. The fence was locked with a chain and padlock during non-working hours/days.

Nuisance Controls

No petroleum odors or other odors were detected during removal of the historic fill layer and native soil. Additionally, no elevated PID readings were recorded during implementation of the CAMP. Dust and odor were minimized by excavating and live-loading directly into trucks, covering stockpiles with 8-mil poly sheeting during off-work hours, and using dust suppression techniques during soil intrusive activities including water application and extra care during soil handling in dry and high-wind periods. No community complaints were reported.

Reporting

Daily Status reports were prepared and forwarded to the OER project manager for

construction days in which soil disturbance activities were performed (soil excavation/loading), and summarizes the amount of material transported off-site for disposal, from September 5, 2018 through December 27, 2018. Weekly status reports were forwarded to the OER project managers describing construction activities when soil excavation of backfilling activities did not occur, intermittently from January 18, 2019, through December 6, 2019. Monthly status reports were forwarded to the OER project manager for the duration of all construction activities from September 2018 through May 2020. All daily, weekly and monthly reports are included in Appendix E. Digital photographs of the Remedial Action are included in Appendix F.

4.3 MATERIALS EXCAVATION AND REMOVAL ACTION

Waste Characterization Soil Sampling

Waste characterization soil sampling was performed on September 5, 2018 prior to excavation activities. The Waste Characterization Study consisted of the collection 9 5-point composite soil samples designated as DS-1 through DS-9 respectively. Three (3) samples, DS-1, DS-7, and DS-8, were collected from the depth interval of 1 foot to 6 feet below grade, one (1) sample, DS-9, was collected from a depth interval of 1 foot to 10 feet below grade, three (3) samples, DS-3, DS-5, and DS-6, were collected from interval of 1 foot to 12 feet below grade, and one sample (1) sample, DS-4, was collected from interval of 1 foot to 14 feet below grade.

The 9 waste characterization soil samples representing the historic fill material were submitted to York Analytical Laboratories, Inc., for laboratory analysis of VOCs, SVOCs, TAL Metals, Pesticides, and PCBs.

A formal soil disposal request letter that summarized the sampling and waste characterization results was forwarded to Material Solution Services along with a Historic Fill & Soil Disposal notification Form. A copy of the Historic Fill & Soil Disposal Notification Form and formal soil disposal request letter are included in Appendix D. A sampling plan and laboratory reports for the fill material are provided with the formal soil

disposal request letter.

Based upon the laboratory results of the waste characterization soil sampling, Coplay Quarry Reclamation Project facility accepted all fill material from the Site. Copies of the soil disposal acceptance letters are included in Appendix D.

Soil/Fill Excavation and Removal

The footprint of the cellar area (about 10.4% of the property) was excavated to a depth of approximately 12 feet below grade for development purposes, with some additional excavation up 17 feet below grade for the elevator pit. Additional excavations were performed to a depth of 2 feet below grade in the slab-on-grade portions of the ground floor (about 6.7% of the property), and to a depth of 6 feet below grade for installation of the stormwater system infiltration and detention area (about 2.6% of the property). A map showing the approximate locations where excavations were performed and approximate thickness of excavated material is shown in Figure 5. A total of 6,720 cubic yards of historic fill and native 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: historic fill, 3,070.74 tons, clean/native soil, 9,212.22 tons. The Removal Action was performed under the oversight of Cheryl Benmergui and Jeff Diamond of ALC.

Onsite Reuse.

Material excavated for construction of the stormwater system infiltration and detention area, excavated down to approximately 6 feet below grade, was reused onsite as backfill around the newly installed detention system. Approximately 1,800 cubic yards were reused in the detention system area and surrounding area as compacted subgrade for the new parking lot. One end-point sample was collected from the excavated area, and results satisfy Track 2 SCOs. A map showing the approximate source location of reused soil and the location of placement of reused soil is shown in Figure 6.

Soil Cleanup Objectives

The SCOs for this Remedial Action are Track 2 Residential Use.

End Point Sample Results

The SCOs for this project were achieved. A total of five end-point samples were collected throughout the Site as indicated in Appendix 5 of the OER-approved Stipulation List. End-point samples were collected at various depths based on the excavation extent of the designated areas, and are as follows: EPS- 1 was collected at 13.5 ft below grade from Grid #4; EPS-2 was collected at 12.5 ft below grade from Grid #6; EPS-3 and EPS-4 were collected at 7 ft and 8 ft below grade, respectively, from the northwest portion of the Site in the excavation area for the stormwater system infiltration and detention area; and EPS- 5 was collected at 2 ft below grade from the northern parking lot section. Dedicated disposable sampling equipment was utilized to collect each endpoint sample.

End-point samples were transferred into appropriate laboratory supplied bottles and placed on ice. All samples were relinquished to the laboratory courier under proper chain of custody and analyzed by York Analytical Laboratory, Inc. (York) (NYS License No. 10854 and 12058), a NYSDOH ELAP-approved laboratory for analysis of VOCs, SVOCs, TAL Metals, Pesticides, and PCBs.

End-point samples were compared to Track 1 and Track 2 Residential Use SCOs. Acetone exceeded Track 1 but satisfied Track 2 SCOs in all five end-point samples. Three pesticide compounds (4,4'-DDE, 4,4'-DDT, and dieldrin) exceeded Track 1 SCOs but satisfied Track 2 SCOs in end-point sample EPS-5. No other exceedances were identified. All end-point samples satisfy the Track 2 Residential Use SCOs established for this remedial project.

A map of end-point sample locations is shown in Figure 7. A tabular summary of end-point sampling results compared to SCOs is included in Table 1. Full laboratory reports are included in Appendix G.

4.4 MATERIALS DISPOSAL

A total of 12,282.96 tons of non-hazardous fill material and clean/native soil was excavated

and transported off-site for disposal at Capital Development, located at 1-Capital Boulevard, East Bangor, PA. The Capital Development facility is a beneficial reuse reclamation project, accepting Clean Fill/Regulated Fill in compliance with Pennsylvania Department of Environmental Protection Rules and Regulations. Excavation and transportation of material designated for off-site disposal was performed from September 6, 2018 to October 4, 2018. Letters were sent to the disposal facility requesting approval for disposal of on-site material based on the soil samples collected during the RI performed in February 2018 and the waste characterization samples collected in September 2018. Approval letters were provided by the accepting facility prior to disposal of material.

The type, quantity and disposal location of each material removed and disposed off-Site is presented below:

Disposal Location/Address	Type of Material	Quantity
Capital Development 1-Capital Boulevard East Bangor, PA	Non-Hazardous Soil	12,282.96 tons

Letters from Mega Contracting on behalf of Fifth Avenue Committee to disposal facility providing materials type, source and data, and acceptance letters from disposal facility stating it is approved to accept above materials, as well as the OER Historic Fill Notification Form are attached in Appendix D. Manifests are included in Appendix H. Waste characterization report is presented in Appendix D. A table of individual truck transport and material disposal quantities is included in Table 2.

4.5 BACKFILL IMPORT

Imported material was brought on site for development purposes and are summarized as follows:

- Approximately 638 cubic yards of RCA material was imported to the Site on December 27 - 28, 2018, from 284 Aggregates, located at 10 NJ-284 located in Sussex, NJ 07461, and used as subgrade under foundation slabs.
- Approximately 1,000 cubic yards of $\frac{3}{4}$ clean bluestone was imported to the Site in January and February 2020, from Impact Recovery and Reuse Center (IRRC),

located at 1000 Page Avenue in Lyndhurst, NJ, 07030, and used as subgrade for parking lot areas and sidewalks.

- Approximately 308 cubic yards of clean top soil was imported to the Site in May and June 2020, from 565 Land Development, LLC located at 73 Lewisburg Road in Wantage, NJ 07461, and used as clean fill in landscaped areas.

Submissions of imported material were forwarded to OER for review, including source facility letters describing the material, sampling method, and analytical results. The type, quantity and source facility of each material imported is presented below:

Table 3 – Backfill Quantities:

Source Facility	Type of Material	Quantity
284 Aggregates 10 NJ-284 Sussex, NJ 07461	RCA	638 cubic yards
Impact Recovery and Reuse Center 1000 Page Avenue Lyndhurst, NJ 07030	Bluestone	1,000 cubic yards
565 Land Development LLC 73 Lewisburg Road Wantage, NJ 07461	Top Soil	308 cubic yards

All soil imported to the property achieved the lower of 6NYCRR Part 375-6.8

Groundwater Protection Standards and Restricted Residential SCOs. Tables summarizing chemical analytical results for backfill are included in Table 4. Full laboratory reports are included in Appendix I. A map showing backfill placement locations at the Site is shown in Figure 6.

5.0 ENGINEERING CONTROLS

A Track 2 Residential Remedial Action was achieved and Engineering Controls are not required. However, as part of construction, several protective systems were installed. These are:

- (1) Composite Cover System;
- (2) Vapor Barrier System;

Composite Cover System

As part of development, an engineered Composite cover System has been built at the site. This Composite Cover System is comprised of four-inch thick concrete building slab underlain by a 20-mil vapor barrier membrane, underlain by six-inches of $\frac{3}{4}$ -inch bluestone, underlain by compacted subgrade separated by TenCate Mirafi® 140N geotextile fabric in all building areas; four inches of concrete sidewalk underlain by six inches of gravel, broken stone and sand mixture in all sidewalk areas; two inches of NYSDOT 6F type asphalt pavement underlain by three inches of NYSDOT Type 3 Asphalt underlain by six inches of NYSDOT item No 304.12 Type 2 (bluestone) in parking areas, and two feet of clean soil in open space areas. The contractor for the composite cover construction was Darcon Construction Inc.

Figures 8 through 11 shows the as-built design for each cover type used in the Composite Cover System on this Site. Figure 12 shows a map of the location of each Composite Cover System type built at the Site. Photographs of construction of the Composite Cover System are included in Appendix F.

Vapor Barrier System

As part of development, a Vapor Barrier System has been built at the site. This Vapor Barrier System consists of 20-mil Stego® Wrap 20-Mil Vapor Barrier beneath the building slab and outside sub-grade foundation sidewalls to mitigate soil vapor migration into the building. All welds, seams and penetrations were properly sealed utilizing Stego® Tape to prevent preferential pathways for vapor migration. The professional engineer for the Vapor

Barrier System was Hazem M. Hijazi. The contractor for the Vapor Barrier System construction was Darcon Construction Inc.

Figure 13 shows the as-built engineering diagram for the Vapor Barrier System used on this Site. Photographs of installation of the Vapor Barrier System are included in Appendix F. A copy of manufacturer's specifications, OER-approval, and contractor's certification for the Vapor Barrier System is included in Appendix J.

6.0 INSTITUTIONAL CONTROLS

A Track 2 Residential Remedial Action was achieved and Engineering Controls and Institutional Controls are not required.

7.0 SITE MANAGEMENT PLAN

A Track 2 Residential Remedial Action was achieved and Site Management is not required.

8.0 SUSTAINABILITY REPORT

This Remedial Action provided for sustainable remediation and redevelopment through a variety of means that are defined in this Sustainability Report.

Reuse of Clean, Recyclable Materials and Conservation of Natural Resources. Reuse of clean, recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction since these materials can be locally-derived. An estimate of the tonnage of recycled material reused on this project is 2,700 tons of reused on-site soil, and the importation of 760.5 tons of RCA, 1,480 tons of bluestone, and 462 tons of clean top soil.

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, and can lower traffic congestion and provide substantial cost savings. Approximately 1,800 cubic yards of excavated material was reused onsite as backfill under imported clean fill.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions. Natural gas is utilized as the principal fuel in the new building.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later that could impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

As part of redevelopment, a composite cover and vapor barrier membrane were installed to eliminate the risk of future migration of vapors into the structure. Additionally, the composite cover extends through the remainder of site, consisting of a paved parking lot,

sidewalks, and two feet of clean soil in landscaped areas. The area of the Site that utilizes recontamination controls under this plan is 80,466 square feet.

Storm-water Retention. Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters. A stormwater system was installed in the parking lot consisting of subsurface infiltration and detention areas. An estimate of area of the property for which enhanced storm-water retention capability has been established for the redevelopment project is 2,975 square feet, with a total volume capacity of 67,600 gallons.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use. The new building includes the use of photovoltaic panels (approximately 7,800 SF of panels), a greywater collection and recycling system, and the capacity for natural daylighting (approximately 6,474 SF) in residential units.

Paperless Brownfield Cleanup Program. Fifth Avenue Committee participated in OER's paperless Voluntary Cleanup Program. Under this program, submission of electronic documents replaced submission of hard copies for the review of project documents, communications and milestone reports. A best estimate of the mass (pounds) of paper saved under this plan is 25 pounds.

Low-Energy Project Management Program. Fifth Avenue Committee participated in OER's low-energy project management program. Under this program, whenever possible, meetings were held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation. A gross estimate of the number of miles of personal transportation that was conserved in this process is 100 miles.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance. The number of trees planted as part of this redevelopment is 23. The total area vegetated is 19,460 SF.