

**BEACH 19TH STREET AT CORNAGA  
COMMONS (PHASE I of II)**

**QUEENS, NEW YORK**

**Remedial Action Plan**

**OER Project Number 18TMP0305Q/18EH-N127Q**

**Prepared For:**

Radson Development

77 Cuttermill Road, Great Neck, NY

516-730-9300

[dan@rad-son.com](mailto:dan@rad-son.com)

**Prepared By:**

GEI Consultants, Inc., P. C., 110 Walt Whitman Road,

Huntington Station, NY 11746

631-760-9300

[wmonterosso@geiconsultants.com](mailto:wmonterosso@geiconsultants.com)

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# REMEDIAL ACTION PLAN

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## LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C&D	Construction and Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering Controls and Institutional Controls
ELAP	Environmental Laboratory Accreditation Program
GQS	Groundwater Quality Standards
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IRM	Interim Remedial Measure
MNA	Monitored Natural Attenuation

<b>Acronym</b>	<b>Definition</b>
NOC	Notice of Completion
NYS DEC	New York State Department of Environmental Conservation
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYC VCP	New York City Voluntary Cleanup Program
NYCRR	New York Codes Rules and Regulations
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAP	Remedial Action Plan or Plan

<b>Acronym</b>	<b>Definition</b>
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
USGS	United States Geological Survey
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compound

## CERTIFICATION

I, Gary A. Rozmus, P.E., am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for designing the remedial program for the Beach 19th at Cornaga Commons, 19-38 Cornaga Avenue, Far Rockaway, New York site, site number 18TMP0305Q. I certify to the following:

- I have reviewed this document and the Stipulation List, to which my signature and seal are affixed.
- Engineering Controls developed for this remedial action were designed by me or a person under my direct supervision and designed to achieve the goals established in this Remedial Action Plan (RAP) for this site.
- The Engineering Controls to be constructed during this remedial action are accurately reflected in the text and drawings of the RAP and are of sufficient detail to enable proper construction.
- This RAP has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Gary A. Rozmus

Name

# 056744

PE License Number

Gary A. Rozmus

Signature

12/28/2018

Date



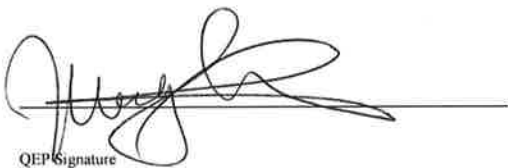
**Hazardous Materials Remedial Action Plan**  
**Beach 19<sup>th</sup> Street at Cornaga Commons (Phase I of II), Queens, New York**  
**OER Project Number 18TMP0305Q/18EH-N127Q**

I, Wendy Monterosso, am a qualified Environmental Professional. I will have primary direct responsibility for implementation of the remedial program for the Beach 19th at Cornaga Commons, 19-38 Cornaga Avenue,, Far Rockaway, New York, site number 18TMP0305Q. I certify to the following:

- This RAP has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Wendy Monterosso

QEP Name

  
QEP Signature

12/28/18

Date

## **EXECUTIVE SUMMARY**

Radson Development is working with the NYC Office of Environmental Remediation (OER) in the New York City “E” Designation Program to investigate and remediate a 1.26-acre (54,897-square foot) site located at 19-38 Cornaga Avenue in Queens, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Plan (RAP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

### **Site Location and Background**

The Site is located at 19-38 Cornaga Avenue in the Far Rockaway section of Queens, New York and is identified as Block 15561 and Lots 8, 10, and 58 on the New York City Tax Map. The Site is 1.26 acres (54,897-square feet) and is bounded by residential dwellings and a commercial strip mall to the north, Cornaga Avenue and commercial properties to the south, Beach 19<sup>th</sup> Street and commercial properties to the east, and commercial properties and Beach 20<sup>th</sup> Street to the west. Currently, the Site is used for off-site parking associated with a nearby grocery store and is also rented out to several landscaping companies for storage of their respective fleet of trucks and vehicles.

### **Summary of Redevelopment Plan**

The Site is located in the Far Rockaway section of Queens and is identified as Block 15561 and Lots 8, 10, and 58. The current zoning is C4-2 and R5 with a C2-2 overlay and the lots are currently vacant. According to aerial photographs it appears the primary usage of the three vacant lots is for automobile storage with visual signs of vegetation growth along the perimeters of Lots 8, 10, and 58.

The proposed development will occur in two stages (Phase I and Phase II) and includes redefining the existing three lots into two new lots, Lot 8 and Lot 58. The new Lot 8 will include

the portions of both Lot 58 and Lot 10 that front on Beach 20<sup>th</sup> Street. The new Lot 58 will include the remaining portions of Lot 10 that front on Beach 19<sup>th</sup> Street. The two phases of the construction will take place as follows:

- Phase I: Beach 19<sup>th</sup> at Cornaga Commons (Beach 19<sup>th</sup>) is the first phase of a two-phase, mixed-use new construction project located at 19-38 Cornaga Avenue in Far Rockaway, Queens. Beach 19<sup>th</sup> is comprised of 166 rental units, which will be 100% affordable housing, parking, and commercial space. The single building will occupy Block 15561, new Lot 58 (which includes a significant portion of the former Lot 10). Residential amenities include laundry, a community room for tenant use, bicycle storage, and landscaped terraces. The building will also contain below-grade and above-grade parking with 81 spaces. Parking will be available to tenants for a fee. Beach 19<sup>th</sup> will also include a large retail space on the ground floor which could be occupied by a healthy grocery option or medical user. Beach 19<sup>th</sup> at Cornaga Commons will maintain 144,441 gross square feet (GSF) of residential; 14,327 GSF of Community Space; 38,980 GSF of parking at grade; and 7,012 GSF of below grade parking. Excavation depth for the below grade parking will be approximately 15 feet below grade (ft. bg.).
- Phase II: The second phase of Cornaga Commons known as Beach 20<sup>th</sup> Street at Cornaga Commons (Beach 20<sup>th</sup>) will have 81 units of 100% affordable rental housing and 8,650 square feet of commercial and/or community facility and will be constructed on the new Lot 8 (which encompasses portions of the former Lots 10 and 58). Including the second phase, there will be a total of 247 rental units in Cornaga Commons. The excavation depth of Beach 20<sup>th</sup> street will be approximately 15 ft. bg.

The remedial investigation at the Site was conducted in a single mobilization, and as such, the results for all three parcels were detailed in a single Remedial Investigation Report (RIR). Due to the nature of the construction schedule, the remedial actions to be undertaken for each Phase will be presented in separate RAPs. This RAP pertains only to Phase I of the development, known as Beach 19<sup>th</sup> Street at Cornaga Commons.

### **Summary of Surrounding Property**

Surrounding property usage at the project site is primarily residential and commercial. Surrounding the property to the north is a commercial strip mall and residential dwellings. Surrounding to the east (across Beach 19<sup>th</sup> Street) is a commercial strip mall and residential dwellings. Surrounding to the south (across Cornaga Avenue) are commercial buildings. Surrounding to the west (across Beach 20<sup>th</sup> Street) are commercial properties. One sensitive receptor, Miss D's Playgroup Day Care, located at 15-26 Central Avenue, is within a 500-foot radius of the site.

### **Summary of Past Site Uses and Areas of Concern**

According to a Phase I Environmental Site Assessment (ESA) published by Brinkerhoff Environmental Services, Inc. (Brinkerhoff) in June 2017, the subject property was developed with several low-rise commercial and residential structures from at least 1886 through 1980. The commercial structures consisted of an ice house, hotels, stables, a park house office, a bowling alley, an office building, an auto house, an ice cream factory, a printing shop, and other unidentified stores.

The Areas of Concern (AOCs) identified for the Site include:

1. The northern half of the Site was being used for commercial vehicle storage and light maintenance of fleet vehicles. Evidence of surficial staining was observed throughout this area.
2. The southern portion of the Site was being used as a parking lot.
3. The potential exists for urban historic fill to be present beneath the Site.

## **Summary of Work Performed under the RI**

GEI performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 13 soil borings across the entire project Site (Beach 19<sup>th</sup> and Beach 20<sup>th</sup>) and collected 25 soil samples for chemical analysis from the soil borings to evaluate soil quality. (Two [2] sample intervals were proposed to be collected from each soil sample interval. Refusal was encountered in B-5 and as a result only one [1] sample was obtained from this location.);
3. Installed four (4) temporary groundwater monitoring wells at the Site and collected seven (7) groundwater samples for chemical analysis to evaluate groundwater quality. Three (3) permanent monitoring wells were located at the site and were installed during the geotechnical investigation prior to GEI Consultants, Inc., P. C.'s RI efforts. These three (3) existing permanent wells were incorporated into the RI and utilized as sampling points. At NYCOER's request, two (2) additional groundwater samples were collected from the accessible permanent Site wells (19-MW-2 and 20-MW-1) to confirm the results for metals;
4. Installed nine (9) soil vapor probes and collected nine (9) samples for chemical analysis;

Deployed one (1) outdoor ambient air canister at an up-wind location and collected one (1) sample for chemical analysis.

## **Summary of Findings of Remedial Investigation**

1. Elevation of the property is relatively flat and is approximately 29 feet.
2. Depth to groundwater ranges from 22.23 ft. bg. to 24.91 ft. bg. feet at the Site.
3. Groundwater flow is generally from northeast to southwest beneath the Site.

4. Bedrock was not encountered during the RI.
5. The stratigraphy of the site, from the surface down, consists of approximately 0-5 feet of urban fill underlain by natural glacial sands, with varying degrees of silt, gravel, and cobbles.
6. Soil/fill samples collected during the RI showed soil chemistry results consistent with parking areas and typical urban fill and construction demolition fill quality conditions found throughout the metropolitan area. Soil samples were compared to NYSDEC Part 375 Table 375-6.8 Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Restricted Residential Soil Cleanup Objectives (RRSCOs). Exceedances of the Part 375 UUSCOs and RRSCOs were detected for semivolatile organic compounds (SVOCs), pesticides and metals.
  - a. SVOCs that exceeded RRSCOs and UUSCOs include benzo(a)anthracene (max 5.650 parts per million [ppm]), benzo(a)pyrene (max 5.650 ppm), benzo(b)fluoranthene (max 5.360 ppm), benzo(k)fluoranthene (max 4.560 ppm), chrysene (max 4.820 ppm), dibenzo(a,h)anthracene (max 1.170 ppm), and indeno(1,2,3-cd)pyrene (max 3 ppm).
  - b. Pesticides that exceeded RRSCOs and UUSCOs include 4,4'-DDD (max 0.0166 ppm), 4,4'-DDE (max 0.0123 ppm), 4,4'-DDT (max 0.156 ppm), alpha-Chlordane (max 0.968 ppm), dieldrin (max 1.340 ppm), and heptachlor (max 0.112 ppm).
  - c. Metals that exceeded RRSCOs and UUSCOs include barium (max 1,690 ppm), copper (max 73.40 ppm), lead (max 529 ppm), mercury (max 1.81), selenium (max 9.44 ppm), and zinc (max 2,080 ppm).
  - d. No volatile organic compounds (VOCs) or Polychlorinated Biphenyls (PCBs) exceeded RRSCOs.

The majority of the RRSCO exceedances are confined to the 0-2-foot interval, with the exception of borings 19-B-3, 19-B-8, and 19-B-10, where mercury exceeded the RRSCO in the 12-14-foot interval. There were no visual, olfactory, or photoionization detector (PID) screening observations or evidence indicating any petroleum spill releases have occurred at the site.

7. Groundwater samples collected during the RI showed groundwater chemistry results for (magnesium and sodium) consistent with local/regional conditions near the coastline, where groundwater may be impacted by saltwater intrusion from the Atlantic Ocean. Samples were compared to 6NYCRR Part 700-705 Class GA standards. SVOCs, pesticides, and metals were detected in groundwater samples above Groundwater Quality Standards (GQS).
  - a. SVOCs that exceeded GQS included benzo(a)pyrene (max 1.010 micrograms per liter [ $\mu\text{g/L}$ ]), benzo(a)pyrene (max 1.240  $\mu\text{g/L}$ ), benzo(b)fluoranthene (max 0.970  $\mu\text{g/L}$ ), benzo(k)fluoranthene (max 0.994  $\mu\text{g/L}$ ), chrysene (max 0.945  $\mu\text{g/L}$ ), and indeno(1,2,3-cd)pyrene (max 0.812).
  - b. Pesticides that exceeded GQS included chlordane, total (max 0.158  $\mu\text{g/L}$ ) and dieldrin (max 0.0441  $\mu\text{g/L}$ ).
  - c. Metals that exceeded GQS in dissolved samples included antimony (26.600  $\mu\text{g/L}$ ), beryllium (max 7.370  $\mu\text{g/L}$ ), cadmium (max 25.400  $\mu\text{g/L}$ ), chromium (max 2780  $\mu\text{g/L}$ ), copper (max 784  $\mu\text{g/L}$ ), lead (max 444  $\mu\text{g/L}$ ), magnesium (max 83,800  $\mu\text{g/L}$ ), manganese (max 1,530  $\mu\text{g/L}$ ), sodium (max 456,000  $\mu\text{g/L}$ ), and selenium (max 19.900  $\mu\text{g/L}$ ).
  - d. No VOCs or PCBs exceeded GQS.

The SVOC, pesticide and remainder of the metal detections are typical of groundwater within parking areas and areas underlain by urban fill and construction demolition fill found throughout the metropolitan area. There

was no visual (sheen) or olfactory observations or evidence indicating any petroleum spill releases have occurred at the site.

8. Soil vapor samples collected during the RI were compared to New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York – 2006 Decision Matrices. Soil vapor samples showed trace detections of VOCs, including petroleum (BTEX) compounds and chlorinated solvents. Petroleum related BTEX compounds were detected at low concentrations with highest concentrations for benzene (max. of 14 microgram per cubic meter [ $\mu\text{g}/\text{m}^3$ ]). Chlorinated VOCs (CVOCs) including carbon tetrachloride (max 0.71  $\mu\text{g}/\text{m}^3$ ), methylene chloride (max. 47  $\mu\text{g}/\text{m}^3$ ), tetrachloroethylene (PCE) (max. 15  $\mu\text{g}/\text{m}^3$ ), and trichloroethylene (TCE) (max. 1.9  $\mu\text{g}/\text{m}^3$ ) were detected in the soil vapor samples. Overall, the highest concentrations were detected for propylene at 570  $\mu\text{g}/\text{m}^3$ . These detections do not indicate an on-site source of contamination contributing to soil vapor concentrations. Since there are no buildings on the Site, the full vapor intrusion pathway could not be evaluated; however, the observed soil vapor concentrations are not likely to cause a vapor intrusion condition into any future buildings constructed at the Site. Concentrations of PCE and TCE are below the NYSDOH Guidance matrix and do not require monitoring/mitigation.

### **Summary of the Remedial Action**

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

The proposed remedial action will consist of:

1. Performance of a CAMP for particulates and VOC compounds.

2. Establishment of Track 4 Site-Specific Soil Cleanup Objectives (SCOs).
3. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s).
5. Excavation and removal of soil/fill exceeding Track 4 Site Specific SCOs. The entire footprint of the Site building will be excavated to a depth of approximately 15 ft. bg. for development purposes. A small portion of property will be excavated to the depths of 2-15 ft. bg. for construction of the access ramps leading to the sub-grade parking garage, and 17 ft. bg. for the elevator pit(s). Approximately 15,000 tons of soil are anticipated to be removed as part of development.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. 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.
8. Removal of all potential unknown underground storage tanks (USTs) that are encountered during soil/fill removal actions. Registration of tanks and reporting of any petroleum spills associated with potential unknown USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
9. Transportation and off-Site disposal of all soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.

10. Collection and analysis of five (5) end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
12. Construction of an engineered composite cover consisting of a 6-inch thick concrete building slab with an 8-inch clean granular sub-base beneath all building areas, 4-inch poured concrete on a 6-inch sub-base in sidewalk areas, and a paved parking and access ramp to the sub-grade parking garage.
13. Installation of a vapor barrier system consisting of waterproofing/vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate potential soil vapor migration into the building. The vapor barrier system will consist of a 21-mil Florprufe<sup>®</sup> 120 vapor barrier below the slab throughout the full building area and a 42-mil Preprufe<sup>®</sup> 300 R and 160R vapor barrier manufacturer outside all sub-grade foundation sidewalls. All welds, seams, and penetrations will be properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an Engineering Control (EC) for the remedial action. The remedial engineer will certify in the Remedial Closure Report (RCR) that the vapor barrier system was designed and properly installed to mitigate potential soil vapor migration into the building.
14. Construction and operation of a cellar -level parking garage with high volume air exchange in conformance with NYC Building Code.
15. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
16. Dewatering is not anticipated during the redevelopment since the groundwater table is approximately five feet below the bottom of the planned excavation.

17. Implementation of storm water pollution prevention measures in compliance with applicable laws and regulations.
18. Submission of a RCR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAP, and describes all ECs/Institutional Controls (ICs) to be implemented at the Site.
19. Submission of an approved Site Management Plan (SMP) in the RCR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of ECs/ICs, and reporting at a specified frequency.
20. The property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of ECs/ICs in this RAP and a requirement that management of these controls must be in compliance with an approved SMP. ICs 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.

## COMMUNITY PROTECTION STATEMENT

The NYC Office of Environmental Remediation (OER) provides governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Plan (RAP) (“cleanup plan”) describes the findings of prior environmental studies, shows the location of identified contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

### **Project Information:**

- Site Name: Beach 19<sup>th</sup> Street at Cornaga Commons
- Site Address: 19-38 Cornaga Avenue, Far Rockaway
- NYC “E” Designation Program Project Number: 18TMP0305Q

### **Project Contacts:**

- OER Project Manager: Anna Brooks, 212-788-7423
- Site Project Manager: Wendy Monterosso (GEI Consultants, Inc., P. C.), 631-760-9300
- Site Safety Officer: TBD
- Online Document Repository: <https://a002-epic.nyc.gov/app/workspace/4883/docrepository>

**Remedial Investigation and Cleanup Plan:** Under the oversight of the NYC OER, a thorough study of this property (called a remedial investigation) has been performed to identify

past property usage, to sample and test soils, groundwater and soil vapor, and to identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

**Identification of Sensitive Land Uses:** Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

**Qualitative Human Health Exposure Assessment:** An important part of the cleanup planning for the Site is a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

**Health and Safety Plan:** This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this RAP are in compliance with applicable safety requirements of the United States Occupational Safety and Health Administration (OSHA). This RAP includes many protective elements including those discussed below.

**Site Safety Coordinator:** This project has a designated Site safety coordinator to implement the CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is identified at the beginning of this Community Protection Statement.

**Worker Training:** Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operator training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

**Community Air Monitoring Plan:** Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a ‘Contingency Plan’).

**Odor, Dust, and Noise Control:** This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with applicable NYC noise control standards. If you observe problems in these areas, please contact the on-Site Project Manager or NYC Office of Environmental Remediation Project Manager listed on the first page of this Community Protection Statement document.

**Quality Assurance:** This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the Remedial Closure Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

**Storm water Management:** To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm water management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

**Hours of Operation:** The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation will conform to requirements of the NYC Department of Buildings.

**Signage:** While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the E-Designation Program and provides project contact names and numbers, and a link to the document repository where project documents can be viewed.

**Complaint Management:** The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager, or the NYC Office of Environmental Remediation Project Manager listed on the first page of this Community Protection Statement document or call 311 and mention the Site is in the NYC E-Designation Program.

**Utility Mark-outs:** To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

**Soil and Liquid Disposal:** All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State, and Federal regulations, and required permits will be obtained.

**Soil Chemical Testing and Screening:** All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

**Stockpile Management:** Soil stockpiles will be kept covered with tarps to prevent dust, odor and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed, to protect storm water catch basins and other discharge points.

**Trucks and Covers:** Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be 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 contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with applicable laws and regulations.

**Imported Material:** All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on the Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

**Equipment Decontamination:** All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

**Housekeeping:** Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

**Truck Routing:** Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

**Final Report:** The results of all cleanup work will be fully documented in a final report (called the Remedial Action Report) that will be available for public review online. A link to the online document repository and the public library with Internet access nearest the Site are listed on the first page of this Community Protection Statement document

**Long-Term Site Management:** If long-term protection is needed after the cleanup is complete, the property owner will be required to comply with an ongoing SMP that calls for continued inspection of protective controls, such as Site covers. The SMP is evaluated and approved by the NYC OER. Requirements that the property owner must comply with are defined either in the property's deed or established through a city environmental designation registered with the Department of Buildings. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

# REMEDIAL ACTION PLAN

## 1.0 PROJECT BACKGROUND

Radson Development is working with the NYC Office of Environmental Remediation (OER) in the New York City “E” Designation Program to investigate and remediate a property located at 19-38 Cornaga Avenue in the Far Rockaway section of Queens, New York (the “Site”). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Plan (RAP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. 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.

### 1.1 Site Location and Background

The Site is located at 19-38 Cornaga Avenue in the Far Rockaway section of Queens, New York and is identified as Block 15561 and Lots 8, 10, and 58 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is 1.26 acres (54,897-square feet) and is bounded by residential dwellings and a commercial strip mall to the north, Cornaga Avenue and commercial properties to the south, Beach 19<sup>th</sup> Street and commercial properties to the east, and commercial properties and Beach 20<sup>th</sup> Street to the west. A site map depicting the site boundaries is shown in **Figure 2**. Currently, the Site is used for off-Site parking associated with a nearby grocery store and is also rented out to several landscaping companies for storage of their respective fleet of trucks and vehicles.

### 1.2 Redevelopment Plan

The Site is located in the Far Rockaway section of Queens and is identified as Block 15561 and Lots 8, 10, and 58. The current zoning is C4-2 and R5 with a C2-2 overlay and the lots are

currently vacant. According to aerial photographs it appears the primary usage of the three vacant lots is for automobile storage with visual signs of vegetation growth along the perimeters of Lots 8, 10, and 58.

The proposed development will occur in two stages (Phase I and Phase II) and includes redefining the existing three lots into two new lots, Lot 8 and Lot 58. The new Lot 8 will include the portions of both Lot 58 and Lot 10 that front on Beach 20<sup>th</sup> Street. The new Lot 58 will include the remaining portions of Lot 10 that front on Beach 19<sup>th</sup> Street. The new Lot boundaries are shown on **Figure 2**. The two phases of the construction will take place as follows:

- **Phase I:** Beach 19<sup>th</sup> at Cornaga Commons (Beach 19<sup>th</sup>) is the first phase of a two-phase, mixed-use new construction project located at 19-38 Cornaga Avenue (formerly 10-25 Beach 20<sup>th</sup> Street) in Far Rockaway, Queens. Beach 19<sup>th</sup> is comprised of 166 rental units, which will be 100% affordable housing, parking, and commercial space. The single building will occupy Block 15561, new Lot 58 (which includes a significant portion of the former Lot 10). Residential amenities include laundry, a community room for tenant use, bicycle storage, and landscaped terraces. The building will also contain below-grade and above-grade parking with 81 spaces. Parking will be available to tenants for a fee. Beach 19<sup>th</sup> will also include a large retail space on the ground floor which could be occupied by a healthy grocery option or medical user. Beach 19<sup>th</sup> at Cornaga Commons will maintain 144,441 gross square feet (GSF) of residential; 14,327 GSF of Community Space; 38,980 GSF of parking at grade; and 7,012 GSF of below grade parking. Excavation depth for the below grade parking will be approximately 15 feet below grade (ft. bg.). The layout of the proposed development for Phase I is included in **Appendix A**.
- **Phase II:** The second phase of Cornaga Commons known as Beach 20<sup>th</sup> Street at Cornaga Commons (Beach 20<sup>th</sup>) will have 81 units of 100% affordable rental housing and 8,650 square feet of commercial and/or community facility and will be constructed on the new Lot 8 (which encompasses portions of the former Lots 10 and 58). Including the second

phase, there will be a total of 247 rental units in Cornaga Commons. The excavation depth of Beach 20<sup>th</sup> street will be approximately 15 ft. bg.

The remedial investigation at the Site was conducted in a single mobilization, and as such, the results for all three parcels were detailed in a single Remedial Investigation Report (RIR). Due to the nature of the construction schedule, the remedial actions to be undertaken for each Phase will be presented in separate RAPs). This RAP pertains only to Phase I of the development, known as Beach 19th Street at Cornaga Commons.

### **1.3 Description of Surrounding Property**

Surrounding property usage at the project site is primarily residential and commercial. Surrounding the property to the north is a commercial strip mall and residential dwellings. Surrounding to the east (across Beach 19<sup>th</sup> Street) is a commercial strip mall and residential dwellings. Surrounding to the south (across Cornaga Avenue) are commercial buildings. Surrounding to the west (across Beach 20<sup>th</sup> Street) are commercial properties. There are no sensitive receptors (i.e., schools, hospitals, or day care facilities within a 250 to 500-foot radius). **Figure 3** shows the surrounding land usage.

### **1.4 Environmental Investigation Reports**

According to a Phase I Environmental Site Assessment (ESA) published by Brinkerhoff Environmental Services, Inc. (Brinkerhoff) in June 2017 (previously provided as **Appendix B** to the RIR), the subject property was developed with several low-rise commercial and residential structures from at least 1886 through 1980. The commercial structures consisted of an ice house, hotels, stables, a park house office, a bowling alley, an office building, an auto house, an ice cream factory, a printing shop, and other unidentified stores.

The Areas of Concern (AOCs) identified for the Site include:

1. The northern half of the Site was being used for commercial vehicle storage and light maintenance of fleet vehicles. Evidence of surficial staining was observed throughout this area.

2. The southern portion of the Site was being used as a parking lot.

The potential exists for urban historic fill to be present beneath the Site.

## **1.5 Summary of Work Performed under the Remedial Investigation**

GEI performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 13 soil borings across the entire project Site (Beach 19<sup>th</sup> and Beach 20<sup>th</sup>) and collected 25 soil samples for chemical analysis from the soil borings to evaluate soil quality. (Note: two [2] sample intervals were proposed to be collected from each soil sample interval. Refusal was encountered in B-5 and as a result only one [1] sample was obtained from this location.);
3. Installed four (4) temporary groundwater monitoring wells at the Site and collected seven (7) groundwater samples for chemical analysis to evaluate groundwater quality. Three (3) permanent monitoring wells were located at the site and were installed during the geotechnical investigation prior to GEI Consultants, Inc., P. C.'s RI efforts. These three (3) existing permanent wells were incorporated into the RI and utilized as sampling points. At NYCOER's request, two (2) additional groundwater samples were collected from the accessible permanent Site wells (19-MW-2 and 20-MW-1) to confirm the results for metals;
4. Installed nine (9) soil vapor probes and collected nine (9) samples for chemical analysis;

Deployed one (1) outdoor ambient air canister at an up-wind location and collected one (1) sample for chemical analysis.

## 1.6 Summary of Findings of Remedial Investigation

A remedial investigation was performed, and the results are documented in a companion document called “Remedial Investigation Report, Beach 19<sup>th</sup> and Beach 20<sup>th</sup> At Cornaga Commons (Phase I)”, dated August, 2018(RIR). A summary of the findings is as follows:

1. Elevation of the property is relatively flat and is approximately 29 feet.
2. Depth to groundwater ranges from 22.23 ft. bg. to 24.91 ft. bg. feet at the Site.
3. Groundwater flow is generally from northeast to southwest beneath the Site.
4. Bedrock was not encountered during the RI.
5. The stratigraphy of the site, from the surface down, consists of approximately 0-5 feet of urban fill underlain by natural glacial sands, with varying degrees of silt, gravel, and cobbles.
6. Soil/fill samples collected during the RI showed soil chemistry results consistent with parking areas and typical urban fill and construction demolition fill quality conditions found throughout the metropolitan area. Soil samples were compared to NYSDEC Part 375 Table 375-6.8 Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Restricted Residential Soil Cleanup Objectives (RRSCO). Exceedances of the Part 375 UUSCOs and RRSCO were detected for semivolatile organic compounds (SVOCs), pesticides and metals.
  - a. SVOCs that exceeded RRSCO and UUSCO include benzo(a)anthracene (max 5.650 parts per million [ppm]), benzo(a)pyrene (max 5.650 ppm), benzo(b)fluoranthene (max 5.360 ppm), benzo(k)fluoranthene (max 4.560 ppm), chrysene (max 4.820 ppm), dibenzo(a,h)anthracene (max 1.170 ppm), and indeno(1,2,3-cd)pyrene (max 3 ppm).
  - b. Pesticides that exceeded RRSCO and UUSCO include 4,4'-DDD (max 0.0166 ppm), 4,4'-DDE (max 0.0123 ppm), 4,4'-DDT (max 0.156 ppm),

alpha-Chlordane (max 0.968 ppm), dieldrin (max 1.340 ppm), and heptachlor (max 0.112 ppm).

- c. Metals that exceeded RRSCOs and UUSCOs include barium (max 1,690 ppm), copper (max 73.40 ppm), lead (max 529 ppm), mercury (max 1.81), selenium (max 9.44 ppm), and zinc (max 2,080 ppm).
- d. No volatile organic compounds (VOCs) or Polychlorinated Biphenyls (PCBs) exceeded RRSCOs.

The majority of the RRSCO exceedances are confined to the 0-2-foot interval, with the exception of borings 19-B-3, 19-B-8, and 19-B-10, where mercury exceeded the RRSCO in the 12-14-foot interval. There were no visual, olfactory, or photoionization detector (PID) screening observations or evidence indicating any petroleum spill releases have occurred at the site.

- 7. Groundwater samples collected during the RI showed groundwater chemistry results for (magnesium and sodium) consistent with local/regional conditions near the coastline, where groundwater may be impacted by saltwater intrusion from the Atlantic Ocean. Samples were compared to 6NYCRR Part 700-705 Class GA standards. SVOCs, pesticides, and metals were detected in groundwater samples above Groundwater Quality Standards (GQS).

- a. SVOCs that exceeded GQS included benzo(a)pyrene (max 1.010 micrograms per liter [ $\mu\text{g/L}$ ]), benzo(a)pyrene (max 1.240  $\mu\text{g/L}$ ), benzo(b)fluoranthene (max 0.970  $\mu\text{g/L}$ ), benzo(k)fluoranthene (max 0.994  $\mu\text{g/L}$ ), chrysene (max 0.945  $\mu\text{g/L}$ ), and indeno(1,2,3-cd)pyrene (max 0.812).
- b. Pesticides that exceeded GQS included chlordane, total (max 0.158  $\mu\text{g/L}$ ) and dieldrin (max 0.0441  $\mu\text{g/L}$ ).
- c. Metals that exceeded GQS in dissolved samples included antimony (26.600  $\mu\text{g/L}$ ), beryllium (max 7.370  $\mu\text{g/L}$ ), cadmium (max 25.400  $\mu\text{g/L}$ ), chromium

(max 2780 µg/L), copper (max 784 µg/L), lead (max 444 µg/L), magnesium (max 83,800 µg/L), manganese (max 1,530 µg/L), sodium (max 456,000 µg/L), and selenium (max 19.900 µg/L).

d. No VOCs or PCBs exceeded GQS.

The SVOC, pesticide and remainder of the metal detections are typical of groundwater within parking areas and areas underlain by urban fill and construction demolition fill found throughout the metropolitan area. There was no visual (sheen) or olfactory observations or evidence indicating any petroleum spill releases have occurred at the site.

8. Soil vapor samples collected during the RI were compared to New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York – 2006 Decision Matrices. Soil vapor samples showed trace detections of VOCs, including petroleum (BTEX) compounds and chlorinated solvents. Petroleum related BTEX compounds were detected at low concentrations with highest concentrations for benzene (max. of 14 microgram per cubic meter [µg/m<sup>3</sup>]). Chlorinated VOCs (CVOCs) including carbon tetrachloride (max 0.71 µg/m<sup>3</sup>), methylene chloride (max. 47 µg/m<sup>3</sup>), tetrachloroethylene (PCE) (max. 15 µg/m<sup>3</sup>), and trichloroethylene (TCE) (max. 1.9 µg/m<sup>3</sup>) were detected in the soil vapor samples. Overall, the highest concentrations were detected for propylene at 570 µg/m<sup>3</sup>. These detections do not indicate an on-site source of contamination contributing to soil vapor concentrations. Since there are no buildings on the Site, the full vapor intrusion pathway could not be evaluated; however, the observed soil vapor concentrations are not likely to cause a vapor intrusion condition into any future buildings constructed at the Site. Concentrations of PCE and TCE are below the NYSDOH Guidance matrix and do not require monitoring/mitigation.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAP, disposal of significant amounts of hazardous waste is not suspected at this site.

## **2.0 Remedial Action Objectives**

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

### **Soil**

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

### **Groundwater**

- Prevent direct exposure to contaminated groundwater.

### **Soil Vapor**

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

### **3.0 Remedial Alternatives Analysis**

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of applicable standards, criteria and guidance values (SCGs). Remedial alternatives are then developed and evaluated based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community acceptance;
- Land use; and
- Sustainability.

As required, a Track 1 Unrestricted Use scenario is evaluated for the remedial action. The following is a detailed description of the alternatives analyzed to address impacted media at the Site:

#### **Alternative 1:**

- Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
- Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. Based on the results of the Remedial Investigation, it is expected that this alternative would be achieved by excavating the entire Site to a depth of approximately 15 feet below grade to remove all historic fill. If soil/fill containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building's cellar level is complete, additional excavation would be performed to ensure complete removal of soil/ fill that does not meet Track 1 Unrestricted Use SCOs.
- No Engineering or Institutional Controls are required for a Track 1 cleanup. However; as part of development, a vapor barrier/waterproofing membrane, and sub-grade ventilated parking would be installed to prevent potential exposures from soil vapor in the future.

**Alternative 2:**

- Establishment of Track 4 Site-Specific SCOs;
- Removal of all soil/fill exceeding Track 4 Site-Specific SCOs and confirmation that Track 4 Site-Specific SCOs have been achieved with post-excavation end-point sampling. Based on the results of the Remedial Investigation, it is expected that SCOs would be achieved by excavating for construction of the new building's cellar level to a depth of approximately 15 feet across the entire proposed building footprint and approximately 2-15 feet for the parking garage access ramp. If soil/fill containing analytes at concentrations above Track 4 Site-specific SCOs is still present at the base of the excavation, additional excavation would be performed to meet Track 4 Site-Specific SCOs.

- Placement of a composite cover system over the entire Site to prevent exposure to remaining soil/fill;
- Installation of a waterproofing/vapor barrier system beneath the cellar level parking garage slab and along foundation side walls to prevent potential exposures from soil vapor;
- Installation of ventilation for the sub-grade parking garage, which underlies the entire building footprint;
- Establishment of use restrictions including prohibitions on the use of groundwater from the Site; prohibitions of restricted Site uses, such as farming or vegetable gardening, to prevent future exposure pathways; and prohibition of a higher level of land use without OER approval;
- Establishment of an approved Site Management Plan (SMP) to ensure long-term management of these Engineering and Institutional Controls including the performance of periodic inspections and certification that the controls are performing as they were intended. The SMP will note that the property owner and property owner's successors and assigns must comply with the approved SMP; and
- The property will continue to be registered with an E-Designation at the NYC Buildings Department.

### **3.1 Threshold Criteria**

#### **Protection of Public Health and the Environment**

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls (ECs) or Institutional Controls (ICs). Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by removing all soil/fill exceeding Track 1 Unrestricted Use SCOs and groundwater protection standards, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contaminants leaching into groundwater.

Alternative 2 would achieve comparable protections of human health and the environment by excavation and removal of most of the historic fill at the Site and by ensuring that remaining soil/fill on-Site meets Track 4 Site-Specific SCOs, as well as by placement of Institutional and Engineering Controls, including a composite cover system. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. Implementing Institutional Controls including an SMP and continuing the E-designation on the property would ensure that the composite cover system remains intact and protective of public health. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater.

For both Alternatives, potential exposure to contaminated soils or groundwater during construction would be minimized by implementing a Construction Health and Safety Plan (CHASP), an approved Soil/Materials Management Plan (SMMP), and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be prevented as its use is prohibited by city laws and regulations. Potential future migration of off-Site soil vapors into the new building would be prevented by installing a waterproofing/vapor barrier below the building slab and outside foundation walls below grade and operating the required high-volume air exchange ventilation for the sub-grade parking garage.

### **3.2 Balancing Criteria**

#### **Compliance with Standards, Criteria, and Guidance (SCGs)**

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical-specific SCGs and Remedial Action Objectives (RAOs) for soil through removal of soil to achieve Track 1 UUSCOs and Protection of Groundwater SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a waterproofing/vapor barrier system below the new building's basement slab and continuing the vapor barrier outside of subgrade foundation walls, as part of development. In addition, the cellar of the building will contain a parking garage with high volume air exchange that conforms to the NYC Building Code.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to meet Track 4 Site-Specific SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a waterproofing/vapor barrier system below the new building's basement slab and continuing the vapor barrier outside of subgrade foundation walls. An SMP would ensure that these controls remained protective for the long term. In addition, the cellar of the building will contain a parking garage with high volume air exchange that conforms to the NYC Building Code and will mediate any potential accumulation of soil vapors inside the building.

Health and safety measures contained in the CHASP and CAMP will be implemented during Site redevelopment under this RAP.

For both Alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to Site-related contaminants.

### **Short-Term Effectiveness and Impacts**

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their short-term effects during the remedial action on public health

and the environment during implementation of the remedial action, including protection of the community, protection of on-Site workers and environmental impacts.

Both Alternative 1 and 2 have similar short-term effectiveness during their implementation, as each requires excavation of historic fill material. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short-term impacts could potentially be higher for Alternative 1 since excavation of greater amounts of historical fill material would take place. However, focused attention to means and methods during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize the overall impact of these activities.

An additional short-term adverse impact and risk to the community associated with both remedial alternatives is increased truck traffic. Truck traffic will be routed on the most direct course using major thoroughfares where possible, and flag persons will be used to protect pedestrians at Site entrances and exits.

The potential adverse impact to the community, workers and the environment for both alternatives would be minimized through implementation of control plans including a CHASP, a CAMP and an SMMP, during all on-Site soil disturbance activities and would minimize the release of contaminants into the environment. Both alternatives provide short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a CHASP would provide protection from on-Site contaminants by using personal protective equipment that would be worn consistent with the documented risks within the respective work zones.

### **Long-term effectiveness and permanence**

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after

response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site, assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of ECs.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill above Track 1 UUSCOs. Removal of on-Site contaminant sources will also prevent future groundwater contamination.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 Site-Specific SCOs; installing a composite cover system across the Site; maintaining use restrictions; establishing an SMP to ensure long-term management of ICs and ECs; and maintaining registration as an E-designated property to memorialize these controls for the long term. The SMP would ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended, assuring that protections designed into the remedy continue to provide the required level of protection.

### **Reduction of toxicity, mobility, or volume of contaminated material**

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure, and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Track 1 UUSCOs.

Alternative 2 would remove most of the historic fill at the Site, and all remaining on-Site soil/fill beneath the new building will meet Track 4 Site-Specific SCOs.

Alternative 1 would remove a greater total mass of contaminants from the Site. The removal of soil to 15 feet for the new development in both scenarios would lessen the difference in contaminant mass removal between these two alternatives.

### **Implementability**

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement both Alternatives 1 and 2 are readily available and have been proven to be effective in remediating the contaminants present on the Site. They use standard equipment and technologies that are well established in the industry. The reliability of each remedy is also high. There are no special difficulties associated with any of the activities proposed.

### **Cost effectiveness**

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

Since historic fill at the Site was found to extend to a depth of up to 14 ft. bg. during the RI, and the new building requires excavation of the entire Site to a depth of 15 feet, the costs associated with both Alternative 1 and Alternative 2 will likely be comparable. Costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above Track 1 UUSCOs is encountered below the excavation depth required for development. Additional costs would include installation of additional shoring/underpinning, disposal of additional soil, and import of clean soil for backfill. However, long-term costs for Alternative 2 are likely higher than Alternative 1 based on implementation of an SMP as part of Alternative 2.

The remedial plan would couple the remedial action with the redevelopment of the Site, lowering total costs. The remedial plan will also consider the selection of the most appropriate disposal facilities to reduce transportation and disposal costs during cleanup and redevelopment of the Site.

### **Land use**

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to Section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current ICs applicable to the site.

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy of soil remediation. The proposed future use of the Site includes a ten-story affordable and supportive housing project to provide 166

rental units, along with on-Site parking, and retail establishments at grade. Following remediation, the Site will meet either Track 1 UUSCOs or Track 4 Site-Specific SCOs, both of which are protective of public health and the environment for its planned residential use. The proposed use is compliant with the property's zoning and is consistent with recent development patterns. The area surrounding the Site is urban and consists of predominantly mixed residential and commercial buildings in zoning districts designated for commercial and residential uses. The development would remediate a vacant/underutilized contaminated lot and provide a modern residential building. The proposed development would clean up the property and make it safer, create new employment opportunities, living space for affordable and supportive housing and associated societal benefits to the community, and other economic benefits from land revitalization.

Temporary short-term project impacts are being mitigated through site management controls and truck traffic controls during remediation activities. Following remediation, the Site will meet either Track 1 UUSCOs or Track 4 Site-Specific SCOs, both of which are protective of public health and the environmental for its planned use.

The Site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites, natural resources, waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species. The Site is located in an urban area and not in proximity to fish or wildlife and neither alternative would result in any potential exposure pathways of contaminant migration affecting fish or wildlife.

The remedial action is also protective of groundwater natural resources. The Site does not lie in a Federal Emergency Management Agency (FEMA)-designated flood plain.

Both alternatives are equally protective of natural resources and cultural resources. Improvements in the current environmental condition of the property achieved by both alternatives considered in this plan are consistent with the City's goals for cleanup of contaminated land.

## **Sustainability of the Remedial Action**

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in PlaNYC: A Greener, Greater New York. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

While Alternative 2 would potentially result in lower energy usage based on reducing the volume of material transported off-Site, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. The remedial plan for either alternative would take into consideration the shortest trucking routes during off-Site disposal of historic fill and other soils, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. The New York City Clean Soil Bank program is available for reuse of any clean native soils under either alternative. A complete list of green remedial activities considered as part of the NYC E-Designation Program is included in a Sustainability Statement.

## **4.0 REMEDIAL ACTION**

### **4.1 Summary of Preferred Remedial Action**

The preferred remedial action alternative is Alternative 2, the Track 4 remedial action. The preferred remedial action achieves protection of public health and the environment for the intended use of the property. The preferred remedial action will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Performance of a CAMP for particulates and volatile organic carbon (VOCs) compounds.
2. Establishment of Track 4 Site-Specific SCOs.
3. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s).
5. Excavation and removal of soil/fill Track 4 Site Specific SCOs. The entire footprint of the Site building will be excavated to a depth of approximately 15 ft. bg. for development purposes. A small portion of property will be excavated to the depths of 2-15 ft. bg. for construction of the access ramps leading to the sub-grade parking garage, and 17 ft. bg. for the elevator pit(s).

6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
7. 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.
8. Removal of all potential unknown underground storage tanks (USTs) that are encountered during soil/fill removal actions.

Registration of tanks and reporting of any petroleum spills associated with potential unknown USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.

9. Transportation and off-Site disposal of all soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.
10. Collection and analysis of five (5) post-excavation confirmation samples to determine the performance of the remedy with respect to attainment of SCOs.
11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
12. Construction of an engineered composite cover consisting of a 6-inch thick concrete building slab with an 8-inch clean granular sub-base beneath all building areas, 4-inch poured concrete on a 6-inch sub-base in sidewalk areas, and a paved parking and access ramp to the sub-grade parking garage.
13. Installation of a vapor barrier system consisting of waterproofing/vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate

- potential soil vapor migration into the building. The vapor barrier system will consist of a 21-mil Florprufe® 120 vapor barrier below the slab throughout the full building area and a 42-mil Preprufe® 300 R and 160R vapor barrier manufacturer outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an EC for the remedial action. The remedial engineer will certify in the RAR that the vapor barrier system was designed and properly installed to mitigate potential soil vapor migration into the building.
14. Construction and operation of a cellar - level parking garage with high volume air exchange in conformance with NYC Building Code.
  15. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
  16. Dewatering is not anticipated during the redevelopment since the groundwater table is approximately five feet below the bottom of the planned excavation.
  17. Implementation of storm water pollution prevention measures in compliance with applicable laws and regulations.
  18. Submission of a Remedial Closure Report (RCR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAP, and describes all ECs/ICs to be implemented at the Site.
  19. Submission of an approved SMP in the RCR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of ECs/ICs and reporting at a specified frequency.
  20. The property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of ECs/ICs in this RAP and a requirement that

management of these controls must be in compliance with an approved SMP. ICs 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.

## 4.2 Soil Cleanup Objectives and Soil/Fill Management

Restricted residential (Track 2) SCO's, modified by the following Site-Specific (Track 4) SCO's will be utilized for this project:

<u>Contaminant</u>	<u>Site-Specific SCO's</u>
Total SVOCs	100 ppm
Lead	800 ppm
Mercury	1.5 ppm

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the SMMP in **Appendix D**. Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by Global Positioning System (GPS) or surveyed. This information will be provided in the RCR.

### **Soil/Fill Excavation and Removal**

The proposed redevelopment includes excavating the entire building footprint to approximately 15 ft. bg., with a small portion of the property to be excavated to the depths of 2-15 ft. bg. for construction of the access ramps leading to the sub-grade parking garage, and 17 ft. bg. for the elevator pit(s). The location of planned excavations is shown in **Figure 5**. The total quantity of soil/fill expected to be excavated and disposed off-Site is 15,000 tons. For each disposal facility to be used in the remedial action, a letter from the developer/Qualified Environmental Professional (QEP) to the receiving facility requesting approval for disposal and a

letter back to the developer/QEP providing approval for disposal will be submitted to OER prior to any transport and disposal of soil at a facility.

Disposal facilities will be reported to OER when they are identified and prior to the start of remedial action.

### **End-point Sampling**

Post-excavation confirmation samples will be analyzed for compounds and elements as described below utilizing the following methodology:

- SVOCs by EPA Method 8270;
- Mercury by EPA Method 7473; and
- Target Analyte List metals

New York State Environmental Laboratory Approval Program (ELAP) certified labs will be used for all end-point sample analyses. Labs performing end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all end-point sample results and will include all data including non-detects and applicable standards and/or guidance values.

### **Confirmation End-point Sampling**

Removal actions for development purposes under this plan will be performed in conjunction with post-excavation confirmation end-point soil sampling. Five (5) confirmation samples will be collected from the base of the excavation at locations to be determined by OER. To evaluate attainment of Track 4 Site-specific SCOs, analytes will include those for which SCOs have been developed, including mercury and lead according to analytical methods described above.

## **Quality Assurance/Quality Control**

GEI will adhere to specifications referenced for quality assurance/quality control (QA/QC) procedures listed in the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (DER-10). QA/QC procedures will include the following:

- Field equipment (PID) will be calibrated on a daily basis, at a minimum;
- One blind duplicate sample for every 20 samples collected will be submitted to the approved laboratory for analysis of the same parameters;
- Sampling equipment will be decontaminated by wiping clean, washing with Alconox solution, rinsing with deionized water and air drying prior to each use in order to ensure that cross-contamination between sampling locations does not occur;
- Decontamination procedures will be performed in an area segregated from any sampling areas;
- Each sample will be collected in pre-cleaned, laboratory supplied glassware, containing the appropriate preservation for each requested analysis;
- Each sample will be appropriately labeled, stored in a cooler with ice and submitted for analysis under proper chain of custody procedures to a New York State Department of Health (NYSDOH) ELAP-certified laboratory;
- Dedicated disposable sampling material will be used for the collection of end-point samples, eliminating the need to prepare field equipment (rinsate) blanks;
- Samples will be analyzed per the required holding times for each respective analytical method;
- Trip blanks will be analyzed, at a frequency of one per cooler containing VOC samples;

- Soil analytical results will be compared to the NYSDEC Part 375-6.8(a) UUSCOs, and RRSCOs.

### **Import of Soils**

Soil import is not planned on this project.

### **Reuse of On-Site Soils**

Soil reuse is not planned on this project.

## **4.3 Engineering Controls**

ECs will be employed in the remedial action to address residual contamination remaining at the site. The Site has three (3) primary EC Systems. These are:

- (1) Composite Cover System
- (2) Waterproofing/Soil Vapor Barrier System
- (3) Sub-grade ventilated garage

### **Composite Cover System**

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system will be comprised of:

- 6 inches of reinforced concrete slab underlain by 8 inches of clean sub-base material in building areas;
- 4 inches of concrete slab underlain by 2-3 inches of clean sub-base material in sidewalk areas;
- 4 inches of asphalt pavement underlain by 6 inches of clean sub-base material in parking areas and ramps

**Figure 5** shows the location of each cover type built at the Site. **Figure 5** also shows the typical design for each remedial cover type used on this Site.

The composite cover system will be a permanent EC. The system will be inspected, and its performance certified at specified intervals as required by this RAP and the SMP. A SMMP will be included in the SMP 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 SMP in the RCR.

## Vapor Barrier System

Migration of soil vapor from on-Site or off-Site sources into the building will be mitigated with a combination of building slab and waterproofing/vapor barrier. The vapor barrier will consist of 21-mil Florprufe® 120 vapor barrier below the slab throughout the full building area and a 42-mil Preprufe® 300 R and 160R vapor barrier outside all sub-grade foundation sidewalls. The wrap will be installed under the building slab and outside all sub-grade foundation sidewalls over an aggregate, sand or tampered earth base. Seams will be overlapped at a minimum of 6 inches to prevent any leakage. All welds, seams and penetrations will be properly sealed per the manufacturers' specifications to prevent preferential pathways for vapor migration. Detailed certified drawings prepared by a Professional Engineer (PE) or Registered Architect (RA) of Record depicting the extent of the proposed waterproofing/vapor barrier membrane and the installation details (penetrations, joints, etc.) with respect to the proposed building foundation, footings, slab, and sidewalls, and product specification sheets are provided as **Appendix B**. The RCR will include photographs (maximum of two photos per page) of the installation process, PE/RA certified letter (on company letterhead) from primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturer's certificate of warranties.

The vapor barrier will extend throughout the area occupied by the footprint of the new building and up the foundation sidewalls and will be installed in accordance with manufacturer specifications.

A plan view showing the location of the proposed vapor barrier system is provided in **Figure 6**. Typical design sections for the vapor barrier on slab and sidewalls are provided in **Figure** number. Product specification sheets are provided in **Appendix B**. The RCR will include as-built drawings and diagrams; manufacturer documentation; and photographs.

The RCR will include a PE-certified letter (on company letterhead) from the primary contractor responsible for installation oversight and field inspections and a copy of the manufacturer's certificate of warranty.

The Vapor Barrier System is a permanent EC and will be inspected and its performance certified at specified intervals as required by this RAP and the SMP. A SMMP will be included in the SMP and will outline 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. Maintenance of these systems will be described in the SMP in the RCR.

### **Sub-Grade Parking Ventilation System**

As part of the redevelopment, the sub-grade parking garage will be equipped with the required high-volume air exchange that conforms to the NYC Building Code. Any potential migration of soil vapor into the building will be mitigated by normal operation of this system.

## **4.4 Institutional Controls**

A series of ICs are required under this RA 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. ICs would be implemented in accordance with a SMP included in the final RCR. ICs would be:

- Continued registration of the E-Designation for the property. This RAP includes a description of all ECs and ICs and summarizes the requirements of the SMP which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;
- Submittal of an SMP in the RCR for approval by OER that provides procedures for appropriate operation, maintenance, inspection, and certification of ECs and ICs. The SMP will require 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. OER retains the right to enter the Site in order to

evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determined by OER in the SMP and will comply with RCNY §43-1407(1)(3).

- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will be used for mixed residential and commercial use and will not be used for a higher level of use without prior approval by OER.

#### **4.5 Site Management Plan**

Site Management is the last phase of remediation and begins with the approval of the RCR and issuance of the Notice of Satisfaction (NOS) for the Remedial Action. The SMP describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAP. The SMP is submitted as part of the RCR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible to ensure that all Site Management responsibilities defined in the SMP are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the E-Designation Program with OER. This includes a plan for: (1) implementation of ECs and ICs; (2) operation and maintenance of ECs; (3) inspection and certification of ICs and ECs.

Site management activities and EC/IC certification will be scheduled by OER on a periodic basis to be established in the RCR and the SMP and will be subject to review and

modification by OER. The SMP will be based on a calendar year and certification reports will be due for submission to OER by July 30 of the year following the reporting period.

#### **4.6 Qualitative Human Health Exposure Assessment**

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Data and information reported in the RIR are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA) for this project. A QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk under current and future conditions by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the New York State Department of Environment Conservation (NYSDEC) DER-10 Technical Guidance for Site Investigation and Remediation.

##### **Known and Potential Contaminant Sources**

Based on the results of the RIR, the contaminants of concern are:

##### **Soil:**

- Several SVOCs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd) pyrene, were detected at concentrations exceeding the respective RRSCOs;
- Metals, including barium, lead, and mercury, were detected at concentrations exceeding the respective RRSCOs;

- Dieldrin was the only pesticide detected at concentrations exceeding the respective RRSCOs.

#### **Groundwater:**

- Several SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, and chrysene were detected at concentrations exceeding their respective Groundwater Quality Standards (GQS) in one sample location; and
- Unfiltered (total) metals including chromium, copper, lead, manganese, nickel, selenium, and sodium were identified above their GQS. Filtered (dissolved) metals including magnesium, manganese, and sodium were identified above their GQS. Subsequent groundwater samples collected from accessible permanent Site wells 19-MW-2 and 20-MW-1 indicated no exceedances of the GQS for metals in both the total and dissolved samples.

#### **Soil Vapor:**

- Tetrachloroethylene (PCE) was detected in all six soil vapor samples at a maximum concentration of 15 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), and trichloroethylene (TCE) at a maximum concentration of 1.9  $\mu\text{g}/\text{m}^3$ . Carbon tetrachloride was detected in one sample location at a concentration of 0.53  $\mu\text{g}/\text{m}^3$ . None of the remaining five compounds in the NYSDOH Soil Vapor Matrix were detected.
- Concentrations of PCE, TCE and carbon tetrachloride are below the NYSDOH Guidance matrix and do not require monitoring/mitigation.

#### **Nature, Extent, Fate, and Transport of Contaminants**

Relevant results regarding the vertical and horizontal nature and extent, fate and transport of contamination for on-Site soils, on-and off-Site groundwater and soil vapor are summarized below:

**Soil:** The majority of the soil exceedances were from samples collected within the historic fill present throughout the site. Based on the groundwater results, the identified soil contaminants may have migrated into groundwater.

**Groundwater:** The exceedances were found in both side gradient and downgradient wells and may be typical of background conditions resulting from both the presence of historic fill throughout the area, and local/regional conditions near the coastline, where groundwater may be impacted by saltwater intrusion from the Atlantic Ocean. Similar SVOCs and metals in soil were found in groundwater. These contaminants may be migrating into the groundwater from the soil. Subsequent groundwater samples collected from permanent monitoring wells 19-MW-2 and 20-MW-1 indicated total and dissolved metals results below the GQS.

**Soil Vapor:** Concentrations of PCE, TCE, and carbon tetrachloride are minimal and below the NYSDOH Guidance matrix. The remaining compounds included in the NYSDOH Soil Vapor Matrix were not detected. No VOCs were detected in any of the soil or groundwater samples collected during the RI, therefore the limited soil vapor detections appear to be the result of off-Site sources.

### **Receptor Populations**

Potentially exposed receptor populations include the following:

**On-Site Receptors:** The site is currently a vacant and undeveloped partially paved and dirt lot, primarily used for parking, vehicle and equipment storage and some light vehicle maintenance. Portions of the Site are restricted by a combination of a 6-8-foot-high, chain linked or 4-foot-high wrought iron perimeter fence. On-Site receptors are limited to individuals using the various designated parking lots and vehicle/equipment storage areas, site representatives and visitors granted access to the property. During construction, potential on-site receptors include construction workers, site representatives, and visitors. Under proposed future conditions, potential on-site receptors include adult and child building residents, workers and visitors.

**Off-Site Receptors:** Potential off-site receptors within a 500-foot radius of the Site include adult and child residents; commercial and construction workers; pedestrians; and trespassers based on the following land uses within 500 feet of the Site:

1. Commercial Businesses – existing and future
2. Residential Buildings – existing and future
3. Building Construction/Renovation – existing and future
4. Pedestrians, Trespassers, Cyclists – existing and future
5. Schools and/or day care facilities – existing and future

#### **Potential Routes of Exposure**

Three potential primary routes exist by which chemicals can enter the body: ingestion, inhalation, and dermal absorption. Exposure can occur based on the following potential media:

- Ingestion of groundwater or fill/ soil;
- Inhalation of vapors or particulates; and
- Dermal absorption of groundwater or fill/ soil.

#### **Potential Exposure Points**

The potential for human contact with Site-related contaminated media under current or reasonably foreseeable conditions is summarized below.

*Current Conditions:* The site is currently partially capped with asphalt. Significant portions of the lot are overgrown with vegetation, and some areas are bare dirt where vehicle traffic has worn pathways. There are potential exposure pathways from ingestion, inhalation, or dermal absorption of soil/fill in unpaved and unvegetated areas. Groundwater is not exposed at the site. The site is served by the public water supply and groundwater is not used at the site for

potable supply and there is no potential for exposure. Although the site is currently undeveloped, there are areas of paving that may lead to the accumulation of soil vapor. However; soil, groundwater, and soil vapor sampling during the RI indicated there are limited or no (soil and groundwater) detections of compounds identified in the NYSDOH Soil Vapor Matrix, and therefore soil vapor intrusion is not a concern for the Site.

*Construction/Remediation Conditions:* During the remedial action, on-Site workers will come into direct contact with surface and subsurface soils as a result of on-Site construction and excavation activities. On-Site construction workers potentially could ingest, inhale or have dermal contact with exposed impacted soil and fill. Similarly, off-Site receptors could be exposed to dust and vapors from on-Site activities. Due to the depth of groundwater, direct contact with groundwater is not expected. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through the SMMP, dust controls, and through the implementation of the CAMP and a CHASP.

*Proposed Future Conditions:* Under future remediated conditions, all soils in excess of Track 4 Site Specific SCOs will be removed. The site will be fully capped, preventing potential direct exposure to soil and groundwater remaining in place, and engineering controls (waterproofing /vapor barrier and ventilated parking garage) will prevent any potential exposure due to inhalation by preventing potential future soil vapor intrusion. The site is served by the public water supply, and groundwater is not used at the site. There are no plausible off-Site pathways for oral, inhalation, or dermal exposure to contaminants derived from the site.

### **Overall Human Health Exposure Assessment**

There are potential complete exposure pathways for the current site condition. There are potential complete exposure pathways that require mitigation during implementation of the remedy. There are no complete exposure pathways under future conditions after the site is developed. This assessment takes into consideration the reasonably anticipated use of the site, which includes a residential structure, site-wide surface cover, a subsurface waterproofing/vapor barrier system, and a subgrade ventilated parking garage for the building. Under current

conditions, on-Site exposure pathways exist for those with access to the Site and trespassers. During remedial construction, on-Site and off-Site exposures to contaminated dust from historic fill material will be addressed through dust controls, and through the implementation of the CAMP, the SMMP, and a CHASP. Potential post-construction use of groundwater is not considered an option because groundwater in this area of New York City is not used as a potable water source. There are no surface waters in close proximity to the Site that could be impacted or threatened.

## **5.0 Remedial Action Management**

### **5.1 Project Organization and Oversight**

Principal personnel who will participate in the remedial action include Nicholas J. Recchia, and Wendy Monterosso. The PE and QEP for this project are Gary Rozmus, P.E., and Wendy Monterosso.

### **5.2 Site Security**

Site access will be controlled by through gated entrances to the fenced property.

### **5.3 Work Hours**

The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. The hours of operation will be conveyed to OER during the pre-construction meeting.

### **5.4 Construction Health and Safety Plan**

The CHASP is included in **Appendix E**. The Site Safety Coordinator will be determined prior to the start of the remedial work. Remedial work performed under this RAP will be in full compliance with applicable health and safety laws and regulations, including Site and Occupational Safety & Health Administration (OSHA) worker safety requirements and Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the Health and Safety Plan (HASP) and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, such as 40-hour hazardous waste operator training and annual 8-hour

refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and will comply with all requirements of 29 CFR 1910.120. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; personal protective equipment (PPE) levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

## **5.5 Community Air Monitoring Plan**

Real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst

of a public park, or adjacent to a school or residence. Exceedances of action levels observed during performance of the CAMP will be reported to the OER Project Manager and included in the Daily Report.

### **VOC Monitoring, Response Levels, and Actions**

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

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

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

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

### **Particulate Monitoring, Response Levels, and Actions**

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

- If the downwind PM-10 particulate level is  $100 \mu\text{m}^3$  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  $150 \mu\text{m}^3$  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  $150 \mu\text{m}^3$  above the upwind level, work will be stopped, and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \mu\text{m}^3$  of the upwind level and in preventing visible dust migration.

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

## **5.6 Agency Approvals**

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

## **5.7 Site Preparation**

### **Pre-Construction Meeting**

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

### **Mobilization**

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes 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 will attend 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 will be 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). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations, including NYC Building Code, to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Mark-Out Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in

the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

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

### **Dewatering**

Dewatering is not anticipated during remediation and construction since the groundwater table is approximately seven feet below the proposed excavation depth. If dewatering is needed, all appropriate permits will be obtained.

### **Equipment and Material Staging**

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

### **Stabilized Construction Entrance**

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include 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 will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

### **Truck Inspection Station**

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be

removed. Brooms, shovels and clean water will be utilized for the removal of soil from vehicles and equipment, as necessary.

### **Extreme Storm Preparedness and Response Contingency Plan**

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for site preparedness prior to the event and response after the event.

#### **Storm Preparedness**

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

#### **Storm Response**

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A Site inspection report will be submitted to OER at the completion of Site inspection and after the Site security is assessed. Site

conditions will be compared to the inventory of Site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off-Site to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove, and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of Site access by the property owner. Impacted off-Site areas may require characterization based on Site conditions, at the discretion of OER. If on-Site petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYSDEC's spill hotline at DEC 800-457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

### **Storm Response Reporting**

A Site inspection report will be submitted to OER at the completion of Site inspection. An inspection report established by OER is available on OER's website ([www.nyc.gov/oer](http://www.nyc.gov/oer)) and will be used for this purpose. Site conditions will be compared to the inventory of Site conditions and material performed prior to the storm event and significant differences will be

noted. The Site inspection report will be sent to the OER project manager and will include the Site name, address, tax block and lot, Site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the Site was dislocated and whether any of the soil left the Site; estimates of the volume of soil that left the Site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of on-Site or off-Site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

## **5.8 Traffic Control**

Drivers of trucks leaving the Site with soil/fill will be instructed to proceed without stopping in the vicinity of the Site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is shown on **Figure 7**.

## **5.9 Demobilization**

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

## **5.10 Reporting and Record Keeping**

### **Daily reports**

Daily reports providing a general summary of activities for each day of active remedial work will be emailed to the OER Project Manager by the end of the following business day. Those reports will include:

- Project number and statement of the activities and an update of progress made, and locations of excavation and other remedial work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP results noting all excursions. CAMP data may be reported;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the RCR.

## **Record Keeping and Photo Documentation**

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RCR in digital format (i.e. jpeg files).

### **5.11 Complaint Management**

All complaints from citizens will be promptly reported to OER. Complaints will be addressed, and outcomes will also be reported to OER in daily reports. Notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

### **5.12 Deviations From The Remedial Action Plan**

All changes to the RAP will be reported to, and approved by, the OER Project Manager and will be documented in daily reports and reported in the RCR. The process to be followed if there are any deviations from the RAP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAP;
- Effect of the deviations on overall remedy; and
- Determination with basis that the remedial action with the deviation(s) is protective of public health and the environment.

## 6.0 Remedial Closure Report

A RCR will be submitted to OER following implementation of the remedial action defined in this RAP. The RCR will document that the remedial work required under this RAP has been completed and has been performed in compliance with this plan. The RCR will include:

- Information required by this RAP;
- Text description with thorough detail of all engineering and institutional controls (if Track 1 remedial action is not achieved)
- As-built drawings for all constructed remedial elements;
- Manifests for all soil or fill disposal;
- Photographic documentation of remedial work performed under this remedy;
- Site Management Plan (if Track 1 remedial action is not achieved);
- Description of any changes in the remedial action from the elements provided in this RAP and associated design documents;
- Tabular summary of all end-point sampling results (including all soil test results from the remedial investigation for soil that will remain on-Site) and all soil/fill waste characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all soil or fill material removed from the Site including a map showing the location of these excavations and hotspots, tanks or other contaminant source areas;

- Full accounting of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material;
- Account of the origin and required chemical quality testing for material imported onto the Site;
- Continue registration of the property with an E-Designation by the NYC Department of Buildings (if Track 1 remedial action is not achieved);
- The RAP and Remedial Investigation Report will be included as appendices to the RCR;
- Reports and supporting material will be submitted in digital form and final PDF's will include bookmarks for each appendix.

## Remedial Completion Report Certification

I, [Gary Rozmus], 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 Beach 19<sup>th</sup> at Cornaga Commons Phase I of II site, site number 18TMP0305Q/18EH-N127Q.

I certify to the following:

- 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 Plan (RAP) 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 RAP and (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Closure Report (RCR).
- The OER-approved RAP dated [date] and Stipulations in a letter dated [date] were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Name

PE License Number

Signature

PE Stamp

Date

I, [name], am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the [site name (address)] site, site number [VCP site number]. I certify to the following:

- The OER-approved RAP dated \_\_\_\_\_ and Stipulations in a letter dated \_\_\_\_\_ were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

QEP Name

QEP Signature

Date

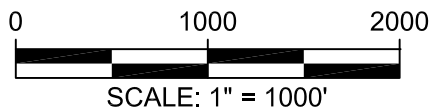
## 7.0 Schedule

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 3- to 4- month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAP	0	1-2
Mobilization	2	1
Remedial Excavation	3	3-12
Demobilization	13	2
Submit Remedial Completion Report	15	4

# Figures

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REMEDIAL ACTION PLAN  
19-38 CORNAGA AVENUE  
FAR ROCKAWAY, NY

RADSON DEVELOPMENT

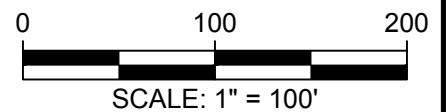


Project 1800480

SITE LOCATION MAP  
OER PROJECT  
18TMP0305Q

NOVEMBER 2018

Fig. 1



**SOURCE:**

MAP EXTRACTED FROM GOOGLE EARTH

REMEDIAL ACTION PLAN  
19-38 CORNAGA AVENUE  
FAR ROCKAWAY, NY

RADSON DEVELOPMENT



Project 1800480

SITE BOUNDARY MAP  
OER PROJECT  
18TMP0305Q

NOVEMBER 2018

Fig. 2



(Not all items in the legend may be visible on the map.)

NOTE: BASE MAP ADAPTED FROM NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM (OASIS)



REMEDIAL ACTION PLAN  
19-38 CORNAGA AVENUE  
FAR ROCKAWAY, NY

RADSON DEVELOPMENT

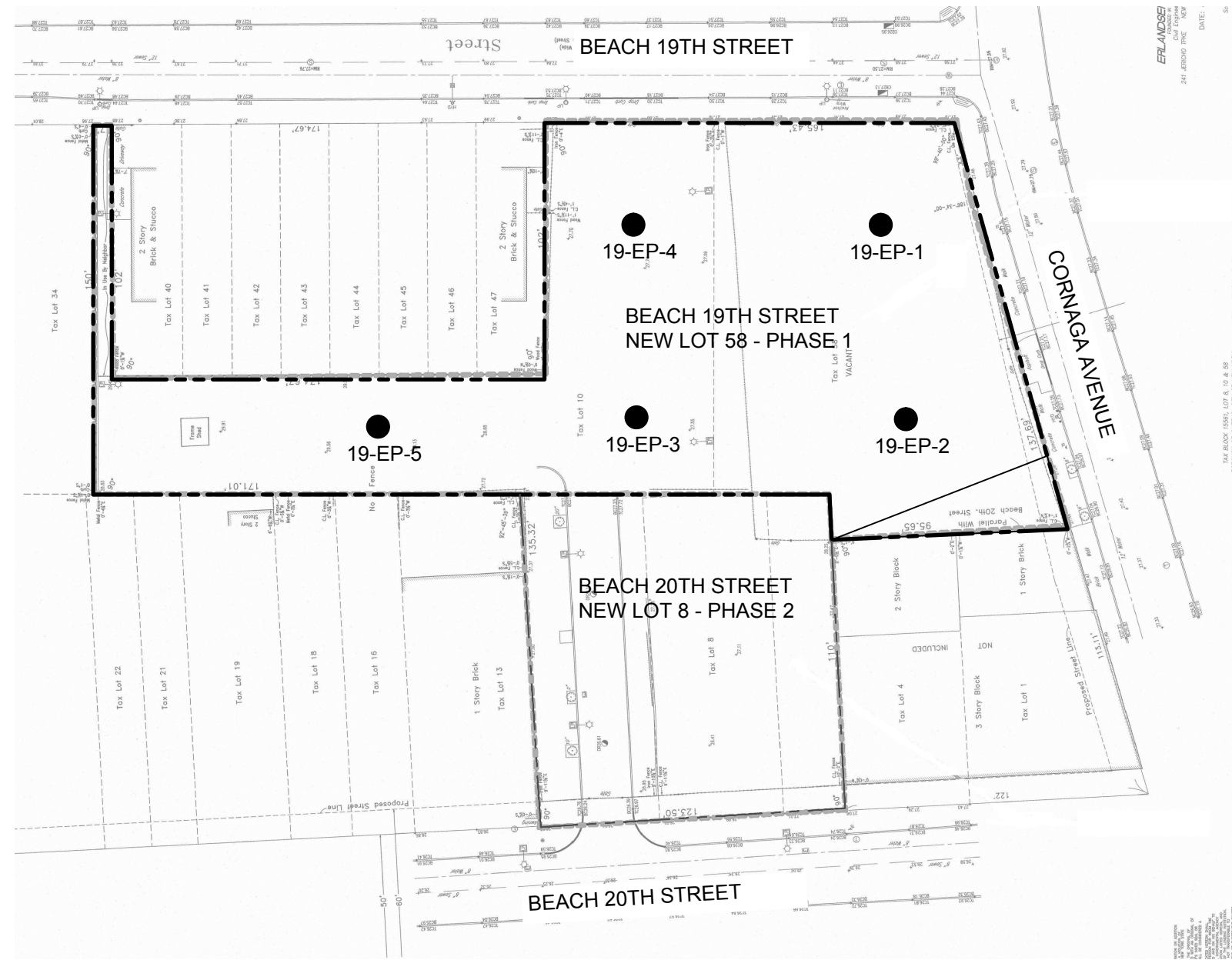


Project 1800480

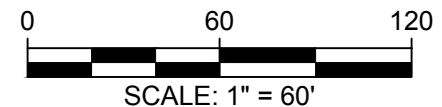
LAND USE MAP  
OER PROJECT  
18TMP0305Q

NOVEMBER 2018

Fig. 3



**LEGEND**  
● ENDPOINT SAMPLE LOCATION




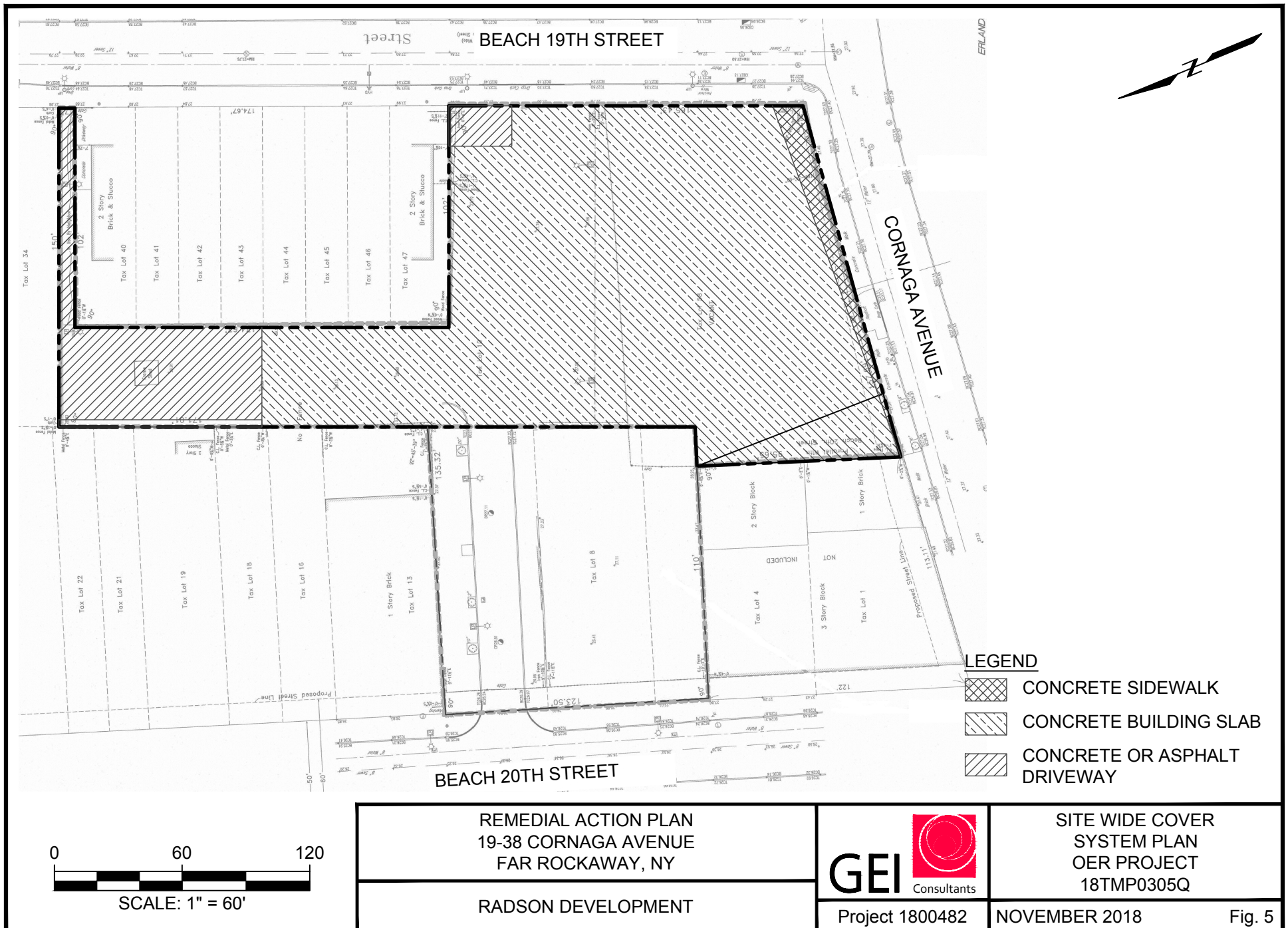
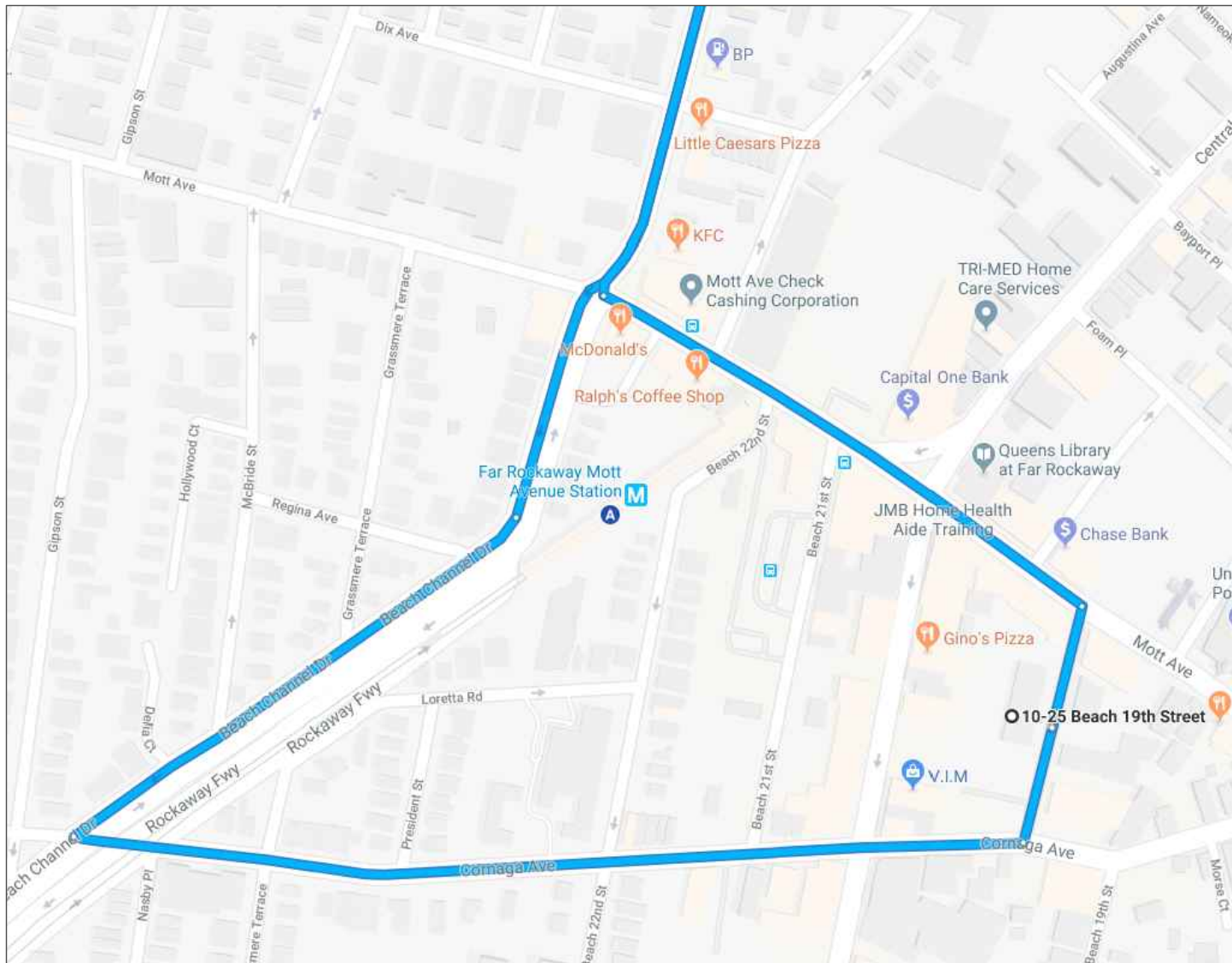
REMEDIAL ACTION PLAN 19-38 CORNAGA AVENUE FAR ROCKAWAY, NY		PROPOSED ENDPOINT SAMPLE LOCATIONS OER PROJECT 18TMP0305Q	
		Project 1800480	NOVEMBER 2018

Fig. 4







NOT TO SCALE

REMEDIAL ACTION PLAN  
19-38 CORNAGA AVENUE  
FAR ROCKAWAY, NY

RADSON DEVELOPMENT



Project 1800482

TRUCK ROUTE  
18TMP0305Q

NOVEMBER 2018

Fig. 7

## **Appendix A**

### **Proposed Development Plans**



**RADSON DEVELOPMENT**  
77 Cuttermill Road  
Green Neck NY 10024  
Tel (516) 730 9300  
BLOCK: 15561 LOT: 10, 8, 58  
NYC DOB #: 421562286

[illegible]

Revisions:

Architect:

**MAV**

**Magnusson Architecture & Planning PC**  
402 West 39th Street, 15th Floor  
New York, NY 10018  
Tel (212) 253 7860 Fax (212) 253 1276

Structural Engineer:

**CityScope Engineering PLLC**  
3 Haven Avenue, Suite 219  
Tel (313) 978 5000 NY 11050  
Tel (631) 978 5000 Fax (631) 978 0403

MEP Engineer:

**DiBarri Engineering, P.C.**  
199 Main Street  
Ossonge Ferry, NY 10522  
Tel (914) 479 7905 Fax (914) 479 1234

Draft Engineer:

**AKRF**  
140 Park Ave South, 7th Floor  
New York, NY 10016  
Tel (646) 388 9812 Fax (212) 313 9191

Sustainability Consultant:

**Bright Power**  
111 Hanover Square, 21st Floor  
New York, NY 10005  
Tel (212) 833 5868

Marketing Representative:

**Betro Expediting Services**  
191-19 179th Avenue, 2nd Floor  
Flushing, NY 11354  
Tel (718) 866 9355 Fax (718) 866 9358

Do Not Scale Plans  
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

CELLAR PLAN/LOWER  
LEVEL

SEAL &amp; SIGNATURE:

PROJECT No: 16012.00

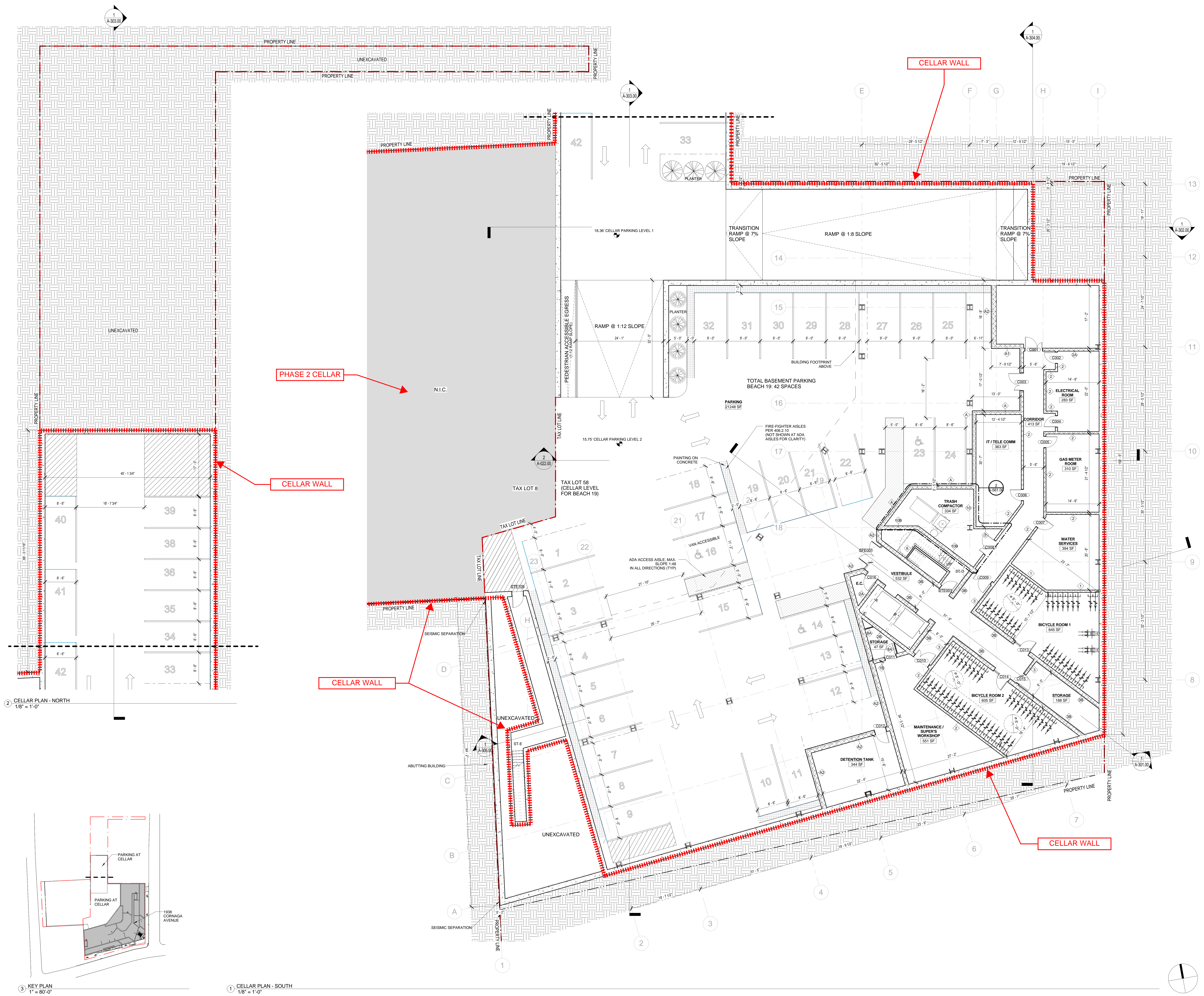
DRAWING BY: Author

CHK BY: \_\_\_\_\_ Checker \_\_\_\_\_  
DAG No: \_\_\_\_\_

A 104.00

A-101.00

SCALE:  
As indicated



Beach 19th at Cornaga Plaza

19-38 Cornaga Avenue  
Queens, NY 11691

Owner:



**RADSON DEVELOPMENT**  
77 Cuxemil Road  
Green Neck NY 10024  
Tel (516) 730 9300  
BLOCK: 15561 LOT: 10, 8, 58  
NYCDOB #: 421562286

Key Plan:

NUMBER	DATE	DESCRIPTION
1	09.01.17	BIDS SUBMISSION
2	09.28.17	DOB SUBMISSION
3	10.30.17	BIDS SUBMISSION
4	02.16.18	DOB SUBMISSION 2

Revisions:

Architect:  
**MAG**  
Magnusson Architecture & Planning PC  
42 West 39th Street, 15th Floor  
New York, NY 10018  
Tel (212) 253 7800 Fax (212) 253 1276

Structural Engineer:  
CityScape Engineering PLLC  
8 Haven Avenue, Suite 219  
Port Washington NY 11050  
Tel (631) 978 5000 Fax (631) 978 0403

MEP Engineer:  
DiBari Engineering, P.C.  
79 Main Street  
Dobbs Ferry, NY 10522  
Tel (914) 479 9705 Fax (914) 479 1234

Civil Engineer:  
AKRF  
440 Park Ave South, 7th Floor  
New York, NY 10016  
Tel (646) 388 9612 Fax (212) 213 3191

Sustainability Consultant:  
Bright Power  
11 Hanover Square, 21st Floor  
New York, NY 10005  
Tel (212) 803 5868

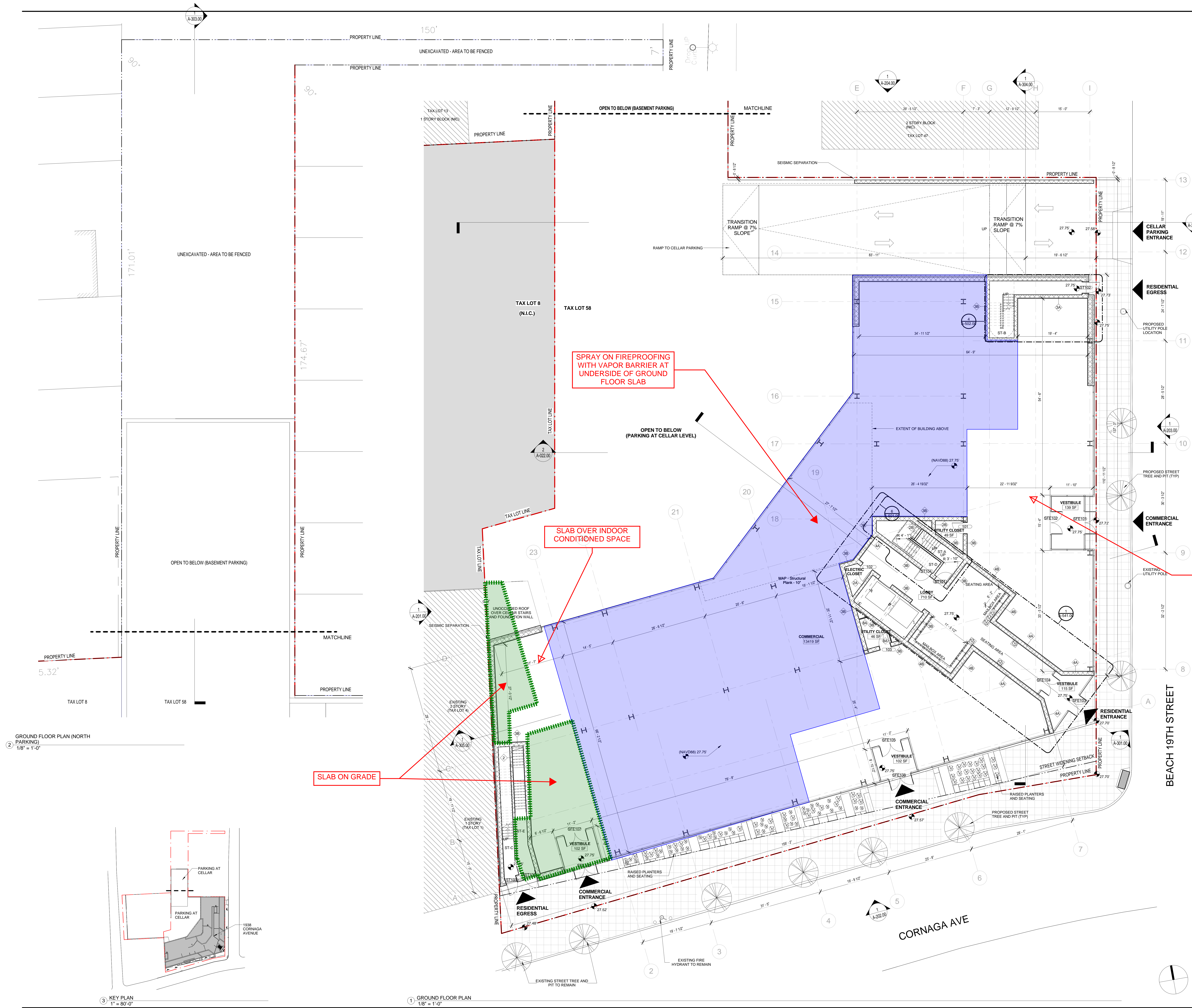
Filing Representative:  
Betro Expediting Services  
119-17 29th Avenue, 2nd Floor  
Flushing NY 11354  
Tel (718) 886 9355 Fax (718) 866 9358

Do Not Scale Plans  
Contractor to promptly notify Architect of any material  
variations between field conditions and existing  
conditions as indicated in Contract documents

GROUND FLOOR PLAN

SEAL & SIGNATURE:

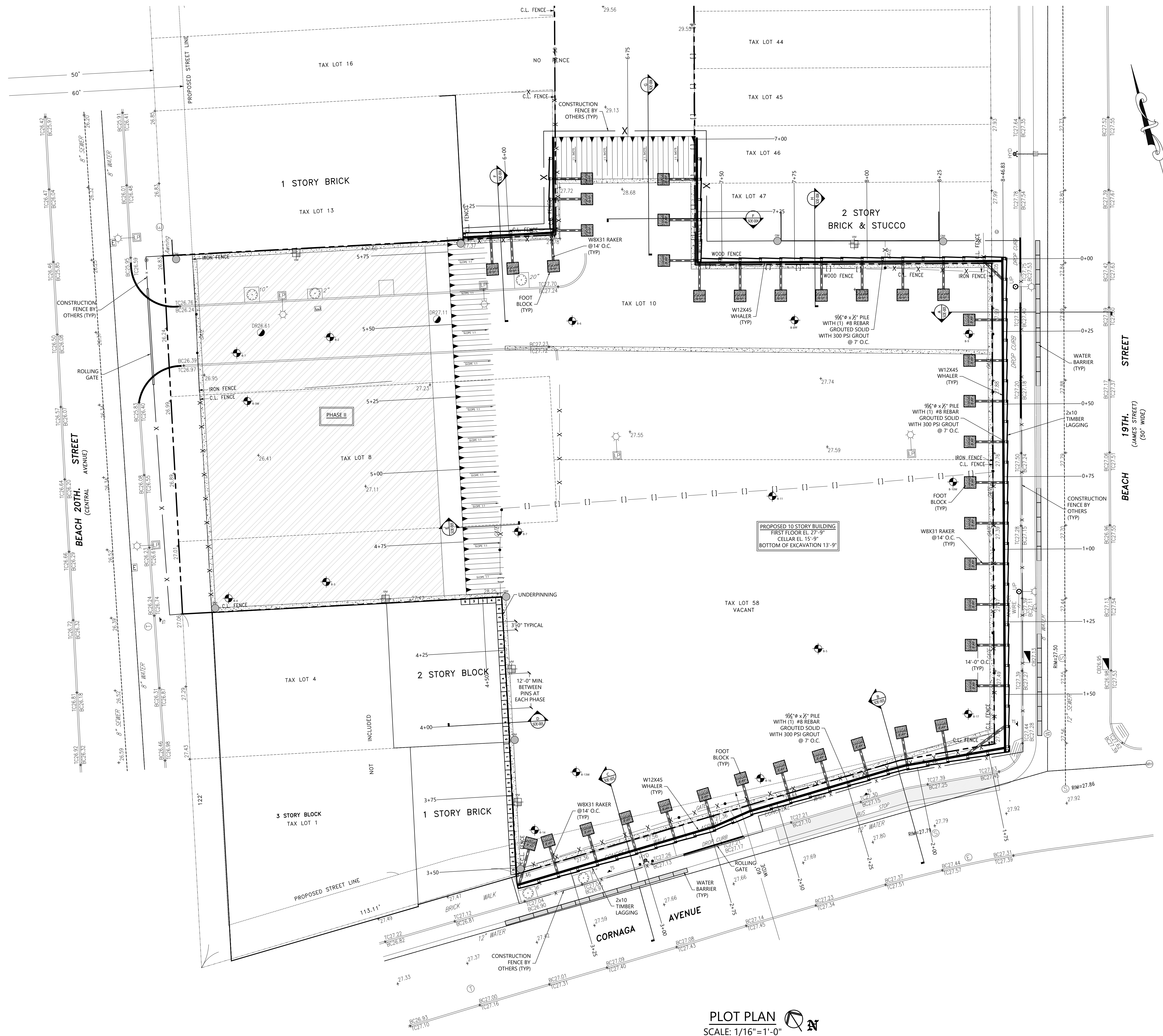
PROJECT No: 18012.00  
DRAWING BY: Author  
CHK BY: Checker  
DWG No: A-102.00  
SCALE: As indicated



CORNAGA PLAZA  
1938 CORNAGA AVENUE  
QUEENS, NEW YORK 11691

Owner:

**RADSON DEVELOPMENT**  
77 Guttermill Road  
Great Neck, NY 11024  
Tel: (516) 730 9300  
BLOCK: 15561 LOT: 10, 8, 58  
NYC DOB #: 421562286



PLOT PLAN  
SCALE: 1/16"=1'-0"

Key Plan:

NUMBER	DATE	DESCRIPTION
1	09.29.17	DOB SUBMISSION
2	03.13.18	DOB SUBMISSION

Revisions:

Architect:  
Magnusson Architecture & Planning PC  
42 West 39th Street, 15th Floor  
New York, NY 10018  
Tel: (212) 253 7820 Fax: (212) 253 1276

Structural Engineer:  
CityScape Engineering PLLC  
8 Haven Avenue, Suite 209  
Port Washington, NY 11050  
Tel: (516) 978 5000 Fax: (516) 978 0403

MEP Engineer:  
DiBari Engineering, P.C.  
99 Main Street  
Dobbs Ferry, NY 10522  
Tel: (914) 479 9705 Fax: (914) 479 1234

Civil Engineer:  
AKRF  
440 Park Ave South, 7th Floor  
New York, NY 10016  
Tel: (646) 388 9812 Fax: (212) 213 3191

Sustainability Consultant:  
Bright Power  
11 Hanover Square, 21st Floor  
New York, NY 10005  
Tel: (212) 803 5868

Filing Representative:  
Betro Expediting Services  
119-17 29th Avenue, 2nd Floor  
Flushing, NY 11354  
Tel: (718) 886 9355 Fax: (718) 866 9358

Do Not Scale Plans  
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

EXCAVATION PLAN

SEAL & SIGNATURE:

PROJECT No: 17050.1  
DRAWING BY: KS  
CHK BY: HD  
DWG No: SOE-002.00  
SCALE: AS NOTED 2 OF 6

## **Appendix B**

### **Manufacturer Specifications for Waterproofing/Vapor Barrier**

# PREPRUFE® 300R & 160R

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites

## Product Description

Preprufe® 300R & 160R membranes are unique composite sheets comprised of a thick HDPE film, pressure sensitive adhesive and weather resistant protective coating. Designed with Advanced Bond Technology™, Preprufe 300R & 160R membranes form a unique, integral bond to poured concrete, preventing both the ingress and lateral migration of water while providing a robust barrier to water, moisture and gas.

The Preprufe R System includes:

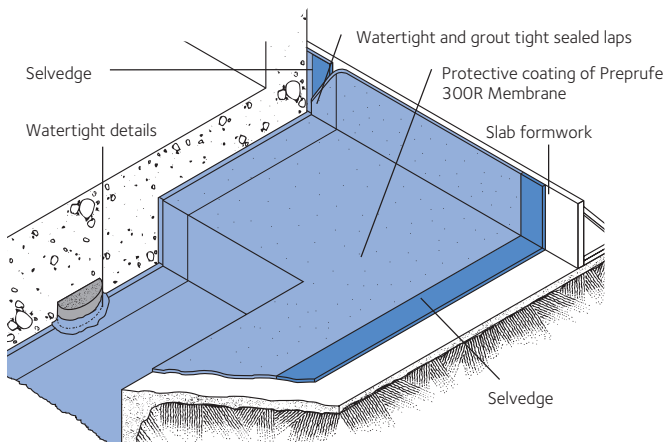
- **Preprufe 300R** – heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers
- **Preprufe 160R** – thinner grade for blindside, zero property line applications against soil retention systems. Vertical use only
- **Preprufe Tape LT** – for covering cut edges, roll ends, penetrations and detailing (temperatures between 25°F (-4°C) and 86°F (+30°C))
- **Preprufe Tape HC** – for covering cut edges, roll ends, penetrations and detailing (minimum 50°F (10°C))
- **Preprufe CJ Tape LT** – for construction joints and detailing (temperatures between 25°F (-4°C) and 86°F (+30°C))
- **Preprufe CJ Tape HC** – for construction joints and detailing (minimum 50°F (10°C))
- **Bituthene® Liquid Membrane** – for sealing around penetrations, etc.
- **Adcor® ES** – waterstop for joints in concrete walls and floors
- **Preprufe Tieback Covers** – preformed cover for soil retention wall tieback heads
- **Preprufe Preformed Corners** – preformed inside and outside corners

Preprufe 300R & 160R membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe products can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane or Procor fluid-applied membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.

## Advantages

- Forms a unique continuous adhesive bond to concrete poured against it – prevents water migration and makes it unaffected by ground settlement beneath slabs
- Fully-adhered watertight laps and detailing
- Provides a barrier to water, moisture and gas – physically isolates the structure from the surrounding ground
- BBA Certified for basement Grades 2, 3, & 4 to BS 8102:1990
- Zero permeance to moisture
- Solar reflective – reduced temperature gain
- Simple and quick to install – requiring no priming or fillets
- Can be applied to permanent formwork – allows maximum use of confined sites
- Self protecting – can be trafficked immediately after application and ready for immediate placing of reinforcement
- Unaffected by wet conditions – cannot activate prematurely
- Inherently waterproof, non-reactive system:
  1. not reliant on confining pressures or hydration
  2. unaffected by wet/dry cycling
- Chemical resistant – effective in most types of soils and waters, protects structure from salt or sulphate attack



Drawings are for illustration purposes only.  
Please refer to [gcpat.com](http://gcpat.com) for specific application details.

## Installation

The most current application instructions, detail drawings and technical letters can be viewed at [gcpat.com](http://gcpat.com). For other technical information contact your local GCP representative.

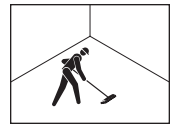
Preprufe 300R & 160R membranes are supplied in rolls 4 ft (1.2 m) wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of Preprufe Membrane and Preprufe Tape are interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

### Substrate Preparation

**All surfaces** – It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability (see Figure 1).

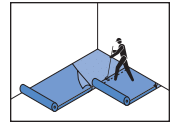
**Horizontal** – The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

Figure 1



**Vertical** – Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment.

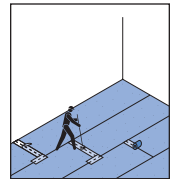
Figure 2



### Membrane Installation

Preprufe membranes can be applied at temperatures of 25°F (-4°C) or above. When installing Preprufe product in cold or marginal weather conditions 55°F (<13°C) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application. Alternatively, Preprufe Low Temperature (LT) membrane is available for low temperature condition applications. Refer to Preprufe LT data sheet and GCP tech letter 16 for more information.

Figure 3



**Horizontal substrates** – Place the membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed (see Figure 2).

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

Refer to GCP tech letter 15 for information on suitable rebar chairs for Preprufe products.

**Vertical substrates** – Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Immediately remove the plastic release liner.

Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Roll firmly to ensure a watertight seal.

**Roll ends and cut edges** – Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly (see Figure 3). Immediately remove printed plastic release liner from the tape.

## Details

Detail drawings are available at [gcpat.com](http://gcpat.com).

### Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (0.5 in. (12 mm) or less) and slices by applying Preprufe Tape centered over the damaged area. Repair holes and large punctures by applying a patch of Preprufe membrane, which extends 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with Preprufe Tape. Any areas of damaged adhesive should be covered with Preprufe Tape. Where exposed selvage has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape. All Preprufe Tape must be rolled firmly and the tinted release liner removed. Alternatively, use a hot air gun or similar to activate the adhesive using caution not to damage the membrane and firmly roll lap to achieve continuity.

### Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe membrane and tape.

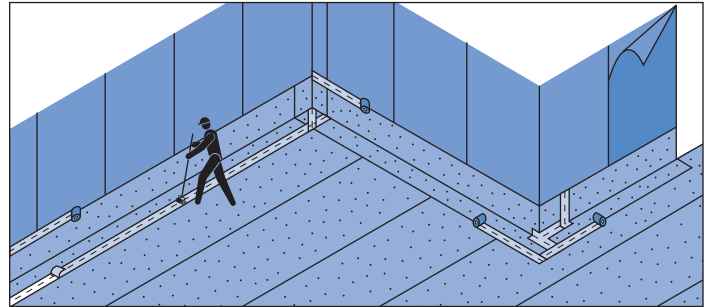
It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Following proper ACI guidelines, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

### Removal of Formwork

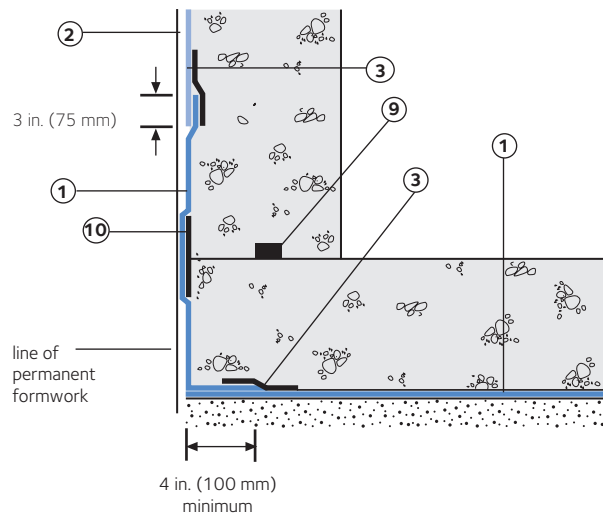
## Detail Drawings

Details shown are typical illustrations and not working details. For a list of the most current details, visit us at [gcpat.com](http://gcpat.com). For technical assistance with detailing and problem solving please call toll free at 866-333-3SBM (3726).

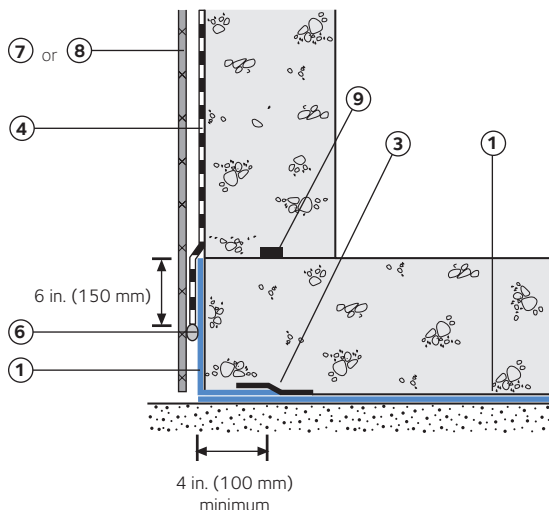
Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems, see GCP tech letter 13 for information on forming systems used with Preprufe products.



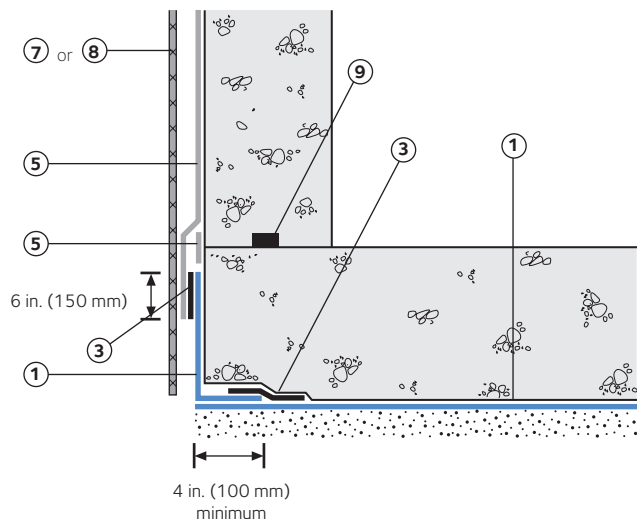
### Wall base detail against permanent shutter



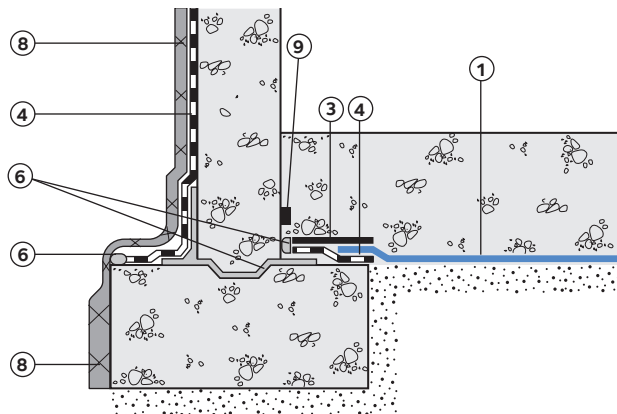
### Bituthene® wall base detail (Option 1)



### Procor® wall base detail (Option 1)



## Bituthene® wall base detail (Option 2)

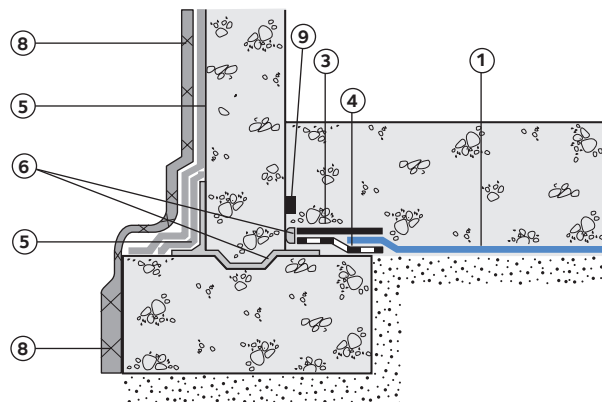


- 1 Preprufe® 300R
- 2 Preprufe® 160R
- 3 Preprufe® Tape
- 4 Bituthene®

- 5 Procor®
- 6 Bituthene® Liquid Membrane
- 7 Approved Protection Course

- 8 Hydroduct®
- 9 Adcor™ ES
- 10 Preprufe® CJ Tape

## Procor® wall base detail (Option 2)



## Supply

Dimensions (Nominal)	Preprufe 300R Membrane	Preprufe 160R Membrane	Preprufe Tape (LT or HC*)
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	
Roll size	4 ft x 98 ft (1.2 m x 30 m)	4 ft x 115 ft (1.2 m x 35 m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	392 ft <sup>2</sup> (36 m <sup>2</sup> )	460 ft <sup>2</sup> (42 m <sup>2</sup> )	
Roll weight	108 lbs (50 kg)	92 lbs (42 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)

## Physical Properties

Property	Typical Value 300R	Typical Value 160R	Test Method
Color	white	white	
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	ASTM D3767
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385, modified <sup>1</sup>
Low temperature flexibility	Unaffected at -20°F (-29°C)	Unaffected at -20°F (-29°C)	ASTM D1970
Resistance to hydrostatic head	231 ft (71 m)	231 ft (71 m)	ASTM D5385, modified <sup>2</sup>
Elongation	500%	500%	ASTM D412, modified <sup>3</sup>
Tensile strength, film	4000 psi (27.6 MPa)	4000 psi (27.6 MPa)	ASTM D412
Crack cycling at -9.4°F (-23°C), 100 cycles	Unaffected, Pass	Unaffected, Pass	ASTM C836
Puncture resistance	221 lbs (990 N)	100 lbs (445 N)	ASTM E154
Peel adhesion to concrete	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D903, modified <sup>4</sup>
Lap peel adhesion	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D1876, modified <sup>5</sup>
Permeance to water vapor transmission	0.01 perms (0.6 ng/(Pa x s x m <sup>2</sup> ))	0.01 perms (0.6 ng/(Pa x s x m <sup>2</sup> ))	ASTM E96, method B
Water absorption	0.5%	0.5%	ASTM D570

### Footnotes:

- Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
- Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 0.125 in. (3 mm) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
- Elongation of membrane is run at a rate of 2 in. (50 mm) per minute.
- Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
- The test is conducted 15 minutes after the lap is formed (per GCP published recommendations) and run at a rate of 2 in. (50 mm) per minute.

### Removal of Formwork (continued)

A minimum concrete compressive strength of 3000 psi (20 N/mm<sup>2</sup>) is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

Refer to GCP Tech Letter 17 for information on removal of formwork for Preprufe products.

### Specification Clauses

Preprufe 300R or 160R membrane shall be applied with its protective coating presented to receive fresh concrete to which it will integrally bond. Only GCP Applied Technologies approved membranes shall be bonded to Preprufe 300R/160R product. All Preprufe 300R/160R system materials shall be supplied by GCP Applied Technologies, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

**NOTE:** Use Preprufe Tape to tie-in Procor® fluid-applied membrane with Preprufe products.

### Health and Safety

Refer to relevant SDS (Safety Data Sheet). Complete rolls should be handled by a minimum of two persons.



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GCP Applied Technologies Inc., 62 Whittemore Avenue, Cambridge, MA 02140 USA.

In Canada, 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

GCP0083

PF-111-1216



# Florprufe® 120

Integrally bonded vapor protection for slabs on grade

## Product Description

Florprufe® 120 is a high performance vapor barrier with GCP's Advanced Bond Technology™ that forms a unique seal to the underside of concrete floor slabs.

Comprising a highly durable polyolefin sheet and a specially developed, non-tacky adhesive coating, Florprufe® 120 seals to liquid concrete to provide integrally bonded vapor protection.

Florprufe® exceeds ASTM E1745 Class A rating.

## Product Advantages

- Forms a powerful integral seal to the underside of concrete slabs
- Protects valuable floor finishes such as wood, tiles, carpet and resilient flooring from damage by vapor transmission
- Direct contact with the slab complies with the latest industry recommendations
- Remains sealed to the slab even in cases of ground settlement
- Ultra low vapor permeability
- Durable, chemical resistant polyolefin sheet
- Lightweight, easy to apply, kick out rolls
- Simple lap forming with mechanical fixings or tape

## Use

Florprufe® 120 is engineered for use below slabs on grade with moisture-impermeable or moisture-sensitive floor finishes that require the highest level of vapor protection.

Florprufe® complies with the latest recommendations of ACI Committees 302 and 360, i.e. for slabs with vapor sensitive coverings, the location of the vapor barrier should always be in direct contact with the slab<sup>1</sup>.

The membrane is loose laid onto the prepared sub-base, forming overlaps that can be either mechanically secured or taped. The unique bond of Florprufe® to concrete provides continuity of vapor protection at laps. Alternatively, if a taped system is preferred, self-adhered Preprufe® Tape can be used to overband the laps.

Slab reinforcement and concrete can be placed immediately. Once the concrete is poured, an integral bond develops between the concrete and membrane.

1 ACI 302.1R-96

## Installation

### Health & Safety

Refer to relevant Safety Data Sheet. Complete rolls should be handled by 2 persons.

Florprufe® 120 can be applied at temperatures of 25°F (-4°C) or above. Membrane installation is unaffected by wet weather.

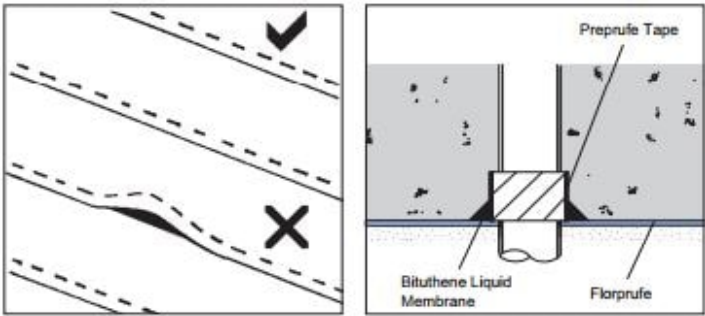
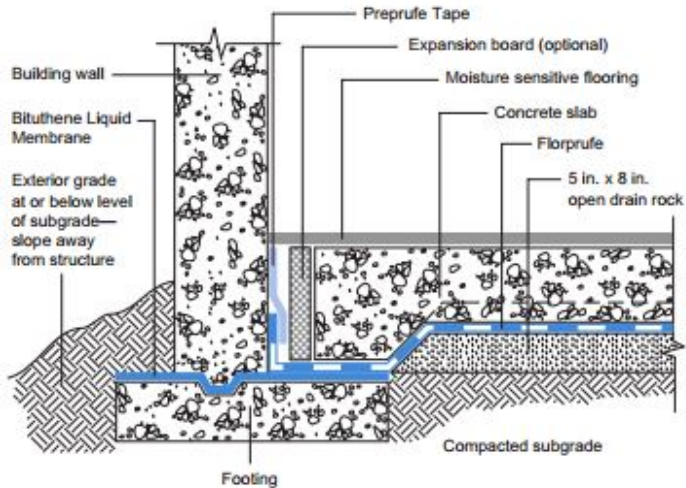
Installation and detailing of Florprufe® 120 are generally in accordance with ASTM E1643-98.

Prepare substrate in accordance with ACI 302.1R Section 4.1. Install Florprufe® 120 over the leveled and compacted base. Place the membrane with the smooth side down and the plastic release liner side up facing towards the concrete slab. Remove and discard plastic release liner. End laps should be staggered to avoid a build up of layers. Succeeding sheets should be accurately positioned to overlap the previous sheet 2 in. (50 mm) along the marked lap line.

Laps

1. Mechanical fastening method

To prevent the membrane from moving and gaps opening, the laps should be fastened together at 39 in. (1.0 m) maximum centers. Fix through the center of the lap area using 0.5 in.(12 mm) long washer-head, self-tapping, galvanized screws (or similar) and allowing the head of the screw to bed into the adhesive compound to self-seal. It is not necessary to fix the membrane to the substrate, only to itself. Ensure the membrane lays flat and no openings occur. (See Figure 1.) Additional fastening may be required at corners, details, etc. Continuity is achieved once the slab is poured and the bond to concrete develops.



OR

2. Taped lap method

For additional security use Preprufe® Tape to secure and seal the overlaps. Overband the lap with the 4 in. (100 mm) wide Preprufe® Tape, using the lap line for alignment. Remove plastic release liner to ensure bond to concrete.

Penetrations

Mix and apply Bituthene® Liquid Membrane detail-ing compound to seal around penetrations such as drainage pipes, etc. (See Figure 2 and refer to the Bituthene® Liquid Membrane data sheet, BIT-230.)

Concrete Placement

Place concrete within 30 days. Inspect membrane and repair any damage with patches of Preprufe® Tape. Ensure all liner is removed from membrane and tape before concreting.

Supply

FLORPRUFE® 120	
Supplied in rolls	4 ft x 115 ft (1.2 m x 35 m)
Roll area	460 ft <sup>2</sup> (42 m <sup>2</sup> )
Roll weight	70 lbs (32 kg) approx.
ANCILLARY PRODUCTS	
Preprufe® Tape is packaged in cartons containing 4 rolls that are 4 in. x 49 ft (100 mm x 15 m).	
Bituthene® Liquid Membrane is supplied in 1.5 gal (5.7 L) pails.	

Physical Properties: Exceeds ASTM E1745 Class A rating

PROPERTY	TYPICAL VALUE	TEST METHOD
Color	White	
Thickness (nominal)	0.021 in. (0.5 mm)	ASTM D3767—method A
Water vapor permeance	0.03 perms	ASTM E96—method B1
Tensile strength	65 lbs/in.	ASTM E1541
Elongation	300%	ASTM D412
Puncture resistance	3300 gms	ASTM D17091
Peel adhesion to concrete	>4 lbs/in.	ASTM D903

1. Test methods that comprise ASTM E1745 standard for vapor retarders

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Last Updated: 2018-03-06

**[gcpat.com/solutions/products/florprufe-bonded-vapor-barrier/florprufe-120](http://gcpat.com/solutions/products/florprufe-bonded-vapor-barrier/florprufe-120)**



## Appendix C

### Sustainability Statement

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

**Reuse of Clean, Recyclable Materials and Reduced Consumption of Non-Renewable Resources:** Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

No soil import is anticipated for this project, however, in the event soil import is required, an estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RCR.

**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, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the RCR. Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

**Conversion to Clean Fuels:** Use of clean fuel improves NYC's air quality by reducing harmful emissions.

Natural gas will be utilized for fuel in the new building.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RCR.

**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 or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

Site proposed development will be underlain by a waterproofing/vapor barrier and subgrade parking garage with high volume air exchange. These building design elements will eliminate the risk of future migration of soil vapor contamination from off-Site. An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RCR in square feet.

**Stormwater Retention:** Stormwater retention improves water quality by lowering the rate of combined stormwater and sewer discharges to NYC's sewage treatment plants during periods of precipitation and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced stormwater retention capability of the redevelopment project will be included in the RCR.

**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 number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RCR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

**Paperless Voluntary Cleanup Program:** Radson Development is participating in OER's Paperless E-Designation Program. Under this program, submission of electronic documents will

replace submission of hard copies for the review of project documents, communications and milestone reports.

**Low-Energy Project Management Program:** Radson Development is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

**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.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RCR.

## **Appendix D**

### **Soil/Materials Management Plan**

#### **1.1 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 in the final remedial report. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by OER.

#### **1.2 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.

### **1.3 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.

### **1.4 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 this RAP;
- 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.

## **1.5 Off-Site 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. Off-Site queuing will be minimized.

Outbound truck transport routes are described in the remedial report. 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.

## **1.6 Materials Disposal Off-Site**

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. These documents will be included in the final remedial report.

The Remedial Closure Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the final remedial report.

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. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the final remedial report. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the final remedial report. 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.

## **1.7 Materials Reuse On-Site**

Soil and fill that is derived from the property that meets the SCOs established in this plan may be reused on-Site. The SCOs for on-Site reuse are listed in Section 4.2 of this cleanup plan. 'Reuse On-Site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on land with comparable levels

of contaminants in soil/fill material, compliant with applicable laws and regulations, and addressed pursuant to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this remedial plan are followed. Material reuse is not anticipated for this project. In the event that material is reused, the details of placement of reused material will be included in the RCR.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

## **1.8 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 SMP.

## **1.9 Import of Backfill Soil From Off-Site 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 SCOs.

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 NYSDEC.
- All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this remedial plan. The final remedial report will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.
- 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 NYSDEC 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.

### **1.10 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. Dewatering is not anticipated for this project. In the event that dewatering is necessary, the details will be included in the RCR. 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 State Pollution Discharge Elimination System (SPDES) permit issued by NYSDEC.

### **1.11 Stormwater 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 this remedial plan (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area 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.

### **1.12 Contingency Plan for Unknown Contamination Sources**

This contingency plan is developed for the remedial construction 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 NYSDEC Spill Hotline. These

findings will be included in the daily report. 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 Target Analyte List (TAL) metals, Target Compound List (TCL) VOCs and SVOCs, TCL pesticides and Polychlorinated Biphenyls (PCBs), as appropriate.

### **1.13 Odor, Dust, and Nuisance Control**

#### **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 otherwise be controlled, 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.

This odor control plan is 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 remedial 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 stockpiles.
- Exercise extra care during dry and high-wind periods.

- Use of 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 dusts 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.

### **Other Nuisances**

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

Rodent control will be provided during Site clearing and grubbing and during the remedial program, as necessary, to prevent nuisances.

## **Appendix E**

### **Construction Health and Safety Plan**



Consulting  
Engineers and  
Scientists

## **Construction Health and Safety Plan (CHASP)**

**Beach 20<sup>th</sup> Street at Cornaga Commons  
19-38 Cornaga Avenue  
Queens, New York  
NYC VCP Site Number: 18TMP0305Q**

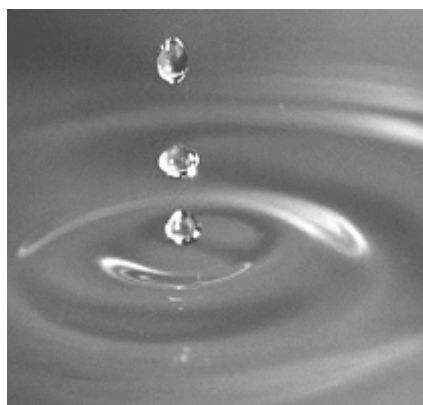
**Submitted to:**

Radson Development  
77 Cuttermill Road  
Great Neck, NY 11021

**Submitted by:**

GEI Consultants, Inc., P. C.  
110 Walt Whitman Road  
Huntington Station, NY 11746  
631.760.9300

November 2018  
Project 1800482



Wendy Monterosso  
Senior Hydrogeologist/Project  
Manager

Nicholas J. Recchia, P.G.  
Senior Environmental Practice  
Leader/Hydrogeologist

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## **Appendices**

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- B. Cold Stress Guidelines
- C. Heat Stress Guidelines
- D. Safety Data Sheets (SDS)
- E. Incident Reporting Form

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# 1. Background Information

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## 1.1 General

<b>Engineer/Contractor</b>	Radson Development 77 Cuttermill Road, Great Neck, New York 11021
<b>Project Name</b>	Beach 19 <sup>th</sup> & Beach 20 <sup>th</sup> at Cornaga Commons Queens, New York

This Construction Health and Safety Plan (CHASP) establishes policies and procedures to protect Radson Development personnel from the potential hazards posed by the activities at the Beach 19<sup>th</sup> & Beach 20<sup>th</sup> at Cornaga Commons site located in Queens, New York (**Appendix A** – Hospital and Clinic Directions).

Reading of and adherence to the CHASP is required of all on-Site Radson Development personnel. Subcontractors for this project will be required to develop their own CHASP for protection of their employees, but at a minimum must adhere to applicable requirements set forth in this CHASP. Additionally, federal, state, and local representatives, as well as Radson Development representatives may be required to sign and adhere to this CHASP, depending on the nature of their presence on-Site during activities conducted by Radson Development.

The plan identifies measures to minimize accidents and injuries, which may result from project activities, emergencies, or during adverse weather conditions. Activities performed under this CHASP will comply with applicable parts of the United States Occupational Health and Safety Administration (OSHA) Regulations, primarily 29 Code of Federal Regulations (CFR) Parts 1910 and 1926.

Included in **Appendix A** is a route to the nearest medical facility to the site with directions and contact information. **Appendix B** and **Appendix C** detail the signs, symptoms, care and procedures to both cold and heat stress, respectively. **Appendix D** contains the safety data sheets. **Appendix E** contains the incident reporting form to be filled out in the event of an injury, accident or near-miss on-Site.

## 1.2 Property Description

The Site is located at 19-38 Cornaga Avenue in the Far Rockaway section in Queens, New York and is identified as Block 15561 and Lot(s) 8, 10, and 58 on the New York City Tax Map. The Site is 1.26 acres (54,897-square feet) and is bounded by residential dwellings and a commercial strip mall to the north, Cornaga Avenue and commercial properties to the south, Beach 19<sup>th</sup> Street and commercial properties to the east, and commercial properties and Beach 20<sup>th</sup> Street to the west. Currently, the Site is used for off-site parking associated with a nearby grocery store and is also rented out to several landscaping companies for storage of their respective fleet of trucks and vehicles.

The Site is in the Far Rockaway section of Queens and is identified as Block 15561 and Lot(s) 8, 10, and 58. The current zoning is C4-2 and R5 with a C2-2 overlay and the lots are currently vacant. According to aerial photographs, it appears the primary usage of the three vacant lots is for automobile storage with visual signs of vegetation growth along the perimeters of Lots 8, 10, and 58.

The proposed development will occur in two stages (Phase I and Phase II) and includes redefining the existing three lots into two new lots, Lot 8 and Lot 58. The new Lot 8 will include the portions of both Lot 58 and Lot 10 that front on Beach 20th Street. The new Lot 58 will include the remaining portions of Lot 10 that front on Beach 19th Street. The two phases of the construction will take place as follows:

- Phase I: Beach 19<sup>th</sup> at Cornaga Commons (Beach 19<sup>th</sup>) is the first phase of a two-phase, mixed-use new construction project located at 19-38 Cornaga Avenue in Far Rockaway, Queens. Beach 19<sup>th</sup> is comprised of 166 rental units, which will be 100% affordable housing, parking, and commercial space. The single building will occupy Block 15561, new Lot 58 (which includes a significant portion of the former Lot 10). Residential amenities include laundry, a community room for tenant use, bicycle storage, and landscaped terraces. The building will also contain below-grade and above-grade parking with 81 spaces. Parking will be available to tenants for a fee. Beach 19<sup>th</sup> will also include a large retail space on the ground floor which could be occupied by a healthy grocery option or medical user. Beach 19<sup>th</sup> at Cornaga Commons will maintain 144,441 gross square feet (GSF) of residential; 14,327 GSF of Community Space; 38,980 GSF of parking at grade; and 7,012 GSF of below grade Parking. Excavation depth for the below grade parking will be 12 feet below grade (ft. bg.). The layout of the proposed development for Phase I is included in Appendix A.
- Phase II: The second phase of Cornaga Commons known as Beach 20<sup>th</sup> Street at Cornaga Commons (Beach 20<sup>th</sup>) will have 81 units of 100% affordable rental housing and 8,650

square feet of commercial and/or community facility and will be constructed on new Lot 8 (which encompasses portions of the former Lots 10 and 58). Including the second phase, there will be a total of 247 rental units in Cornaga Commons. The excavation depth of Beach 20<sup>th</sup> street will be 12 ft. bg.

Although project construction will occur in the two phases described above, the remedial investigation was conducted in a single mobilization, and as such, the results for all three parcels are detailed in this Remedial Investigation Report (RIR). Due to the nature of the construction schedule, the remedial actions to be undertaken for each Phase will be presented in separate Remedial Action Plans (RAPs).

### **1.3 Site Activities**

The proposed plan achieves the remedial action goals established for the project. The proposed remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants, and uses standard methods that are well established in the industry.

The proposed remedial action will consist of:

1. Performance of a Community Air Monitoring Program (CAMP) for particulates and volatile organic carbon (VOCs) compounds.
2. Establishment of Track 4 Site-specific Soil Cleanup Objectives (SCOs).
3. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s).
5. Excavation and removal of soil/fill Track 4 Site Specific SCOs. The entire footprint of the Site building will be excavated to a depth of approximately 15 ft. bg. for development purposes. A small portion of property will be excavated to the depths of 2-15 ft. bg. for construction of the access ramps leading to the sub-grade parking garage, and 17 ft. bg. for the elevator pit(s).

6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a photoionization detector (PID).  
Appropriate segregation of excavated media on-Site.
7. 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.
8. Removal of all potential unknown USTs that are encountered during soil/fill removal actions. Registration of tanks and reporting of any petroleum spills associated with potential unknown USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
9. Transportation and off-Site disposal of all soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.
10. Collection and analysis of five (5) end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
12. Construction of an engineered composite cover consisting of a 6-inch thick concrete building slab with an 8-inch clean granular sub-base beneath all building areas, 4-inch poured concrete on a 6-inch sub-base in sidewalk areas, and a paved parking and access ramp to the sub-grade parking garage.
13. Installation of a vapor barrier system consisting of waterproofing/vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate potential soil vapor migration into the building. The vapor barrier system will consist

of a 21-mil Florprufe® 120 vapor barrier below the slab throughout the full building area and a 42-mil Preprufe® 300 R and 160R vapor barrier manufacturer outside all sub-grade foundation sidewalls. All welds, seams, and penetrations will be properly sealed to prevent preferential pathways for vapor migration. The vapor barrier system is an Engineering Control (EC) for the remedial action. The remedial engineer will certify in the Remedial Closure Report (RCR) that the vapor barrier system was designed and properly installed to mitigate potential soil vapor migration into the building.

14. Construction and operation of a cellar - level parking garage with high volume air exchange in conformance with NYC Building Code.
15. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
16. Dewatering is not anticipated during the redevelopment since the groundwater table is approximately five feet below the bottom of the planned excavation.
17. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
18. Submission of a RCR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAP, and describes all ECs/Institutional Controls (ICs) to be implemented at the Site.
19. Submission of an approved Site Management Plan (SMP) in the RCR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of ECs/ICs and reporting at a specified frequency.

20. The property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of ECs/ICs in this RAP and a requirement that management of these controls must be in compliance with an approved SMP. ICs 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.

## **1.4 Hazard/Risk Analysis**

### **1.4.1 Physical Hazards**

Physical hazards associated with heavy equipment operations may be present during site activities. These activities would require the use of heavy equipment by subcontractors such as a backhoe or a drill rig, which is associated with, but not limited to, the following hazards:

- bodily injuries
- slipping, tripping, or falling
- heavy lifting
- caught in-between injuries
- struck by injuries
- cold/heat stress
- noise

### **1.4.2 Fire and Explosion**

Fire extinguishers are located on heavy equipment operating on-Site and within any work vehicles on-Site. All fires should be reported to 911 emergency services. The Construction Management (CM) Contractor and the Construction Health & Safety Officer (CHSO) will determine if it is necessary to shut down site work for the day due to fire related issues.

### **1.4.3 Cold Stress**

During the winter months, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia as well as slippery surfaces, brittle equipment, and poor judgment. The

procedures to be followed regarding the avoidance of cold stress are provided in **Appendix B – Cold Stress Guidelines**.

#### **1.4.4 Heat Stress**

A heat stress prevention program will be implemented when ambient temperatures exceed 70°F. The procedures to be followed are provided in **Appendix C – Heat Stress Guidelines**.

#### **1.4.5 Noise**

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps, generators, and other equipment associated with earthwork tasks. Site workers who will perform suspected or established high noise tasks and operations shall wear hearing protection. Other workers who do not need to be in proximity of the noise should distance themselves from the equipment generating the noise.

#### **1.4.6 Hand and Power Tools**

In order to complete the various tasks for the project, personnel will use hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Work gloves, safety glasses, and hard hats will be worn by the operating personnel at all times when using hand and power tools. Ground Fault Circuit Interrupter (GFCI)-equipped circuits will be used for all power tools.

The CM Contractor is responsible for the safe condition of tools and equipment used by employees, but the employees have the responsibility for properly using and maintaining tools.

Saw blades, knives, or other tools should be directed away from aisle areas and other employees working in close proximity. Knives and scissors must be sharp. Dull tools can be more hazardous than sharp ones.

Appropriate personal protective equipment (PPE), e.g., safety goggles, gloves, etc., should be worn due to hazards that may be encountered while using portable power tools and hand tools. Floors must be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.

Around flammable substances, sparks produced by iron and steel hand tools can be a potential ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide for safety.

The following general precautions should be observed by power tool users:

- Never carry a tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- All observers should be kept at a safe distance away from the work area.
- Secure work with clamps or a vise, freeing both hands to operate the tool.
- Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.
- Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
- Be sure to keep good footing and maintain good balance.
- The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
- All portable electric tools that are damaged shall be removed from use and tagged "Do Not Use."

Staff and subcontractors should follow all associated OSHA standards (29 CFR 1926), the most updated of which can be found at <http://www.osha.gov>. OSHA standards supersede any guidelines stated within this CHASP.

#### **1.4.7 Slips, Trips, and Falls**

Working in and around the site will pose slip, trip, and fall hazards due to slippery surfaces. Excavation at the sites will cause uneven footing in the trenches and around the spoil piles. Employees will wear proper footwear (i.e. steel toe/shank boots) and will employ good work practice and housekeeping procedures to minimize the potential for slips, trips, and falls.

#### **1.4.8 Manual Lifting**

Manual lifting of objects and equipment may be required. Failure to follow proper lifting technique can result in back injuries and strains. Site workers should use power equipment to lift heavy loads whenever possible and should evaluate loads before trying to lift them (i.e., they should be able to easily tip the load and then return it to its original position). Carrying heavy loads with a buddy and proper lifting techniques include:

- 1) make sure footing is solid

- 2) make back straight with no curving or slouching
- 3) center body over feet
- 4) grasp the object firmly and as close to your body as possible
- 5) lift with legs
- 6) turn with your feet, don't twist

#### **1.4.9 Projectile Objects, Debris and Overhead Dangers**

Overhead dangers, including but not limited to falling debris and equipment, can occur while heavy machinery is in operation or work is taking place overhead. Staff will be instructed to maintain a minimum distance from large overhead operations. Staff must also maintain proper communication with heavy equipment operators and their handlers, especially if work necessitates their presence beyond the minimum safe distance. Additionally, employees should be cognizant of low-hanging overhead power lines, as these can snag on vehicles entering and exiting the site. Vehicles that are large enough to damage overhead power lines require spotters when entering and exiting the site. Proper PPE will be worn always during these types of activities including steel-toed or equivalent boots, safety vests, and hard hats.

#### **1.4.10 Heavy Equipment Operation**

Heavy equipment may be present on-Site. Staff should be cautious when working near or operating heavy equipment and maintain a safe distance from the equipment. Personnel should maintain eye contact with the vehicle spotter or operator before traversing any paths that may cross that of the machinery. Safety vests are to be worn when working near operating heavy equipment.

#### **1.4.11 Confined Spaces**

If any work in confined spaces is required, it will be performed in accordance with 29 CFR 1910.146 (effective April 15, 1993), as applicable. Copies of the standards will be kept on file in the CM Contractor's main office, if work in confined spaces will be performed. Confined space work will not be performed without first notifying and receiving approval from the CM, if applicable.

#### **1.4.12 Illumination**

Illumination requirements identified by OSHA are directed to work efforts inside buildings and/or during non-daylight hours. OSHA illumination requirements will be followed when work is taking place inside the buildings. All exterior site activities at the site will occur during

daylight hours. However, if yard areas are used after dark they will be equipped with illumination that meets or exceeds requirements specified in 29 CFR 1926.56, Illumination.

#### **1.4.13 Lockout/Tagout**

Site personnel will assume that all electrical equipment at surface and overhead locations is energized, until the equipment has been designated as de-energized by a representative from the utility company. If the equipment cannot be de-energized, work will stop, and the CM and appropriate contacts will be consulted. The CM will notify the client prior to working adjacent to this equipment and will verify that the equipment is energized or de-energized in the vicinity of the work being conducted.

All power lines which have been indicated to be de-energized must be locked out, such that the lines cannot be energized when personnel are working near them. The lines shall not be unlocked and re-energized until the CM notifies the client that they have completed work in the area and that all personnel are clear of the area. Client representatives will thoroughly familiarize personnel with site-specific lockout/tagout procedures during the site orientation, if applicable.

If power lines cannot be de-energized, the CM will consult with utility safety personnel to determine the safe working distance from the energized line. Work tasks will only commence after determination that a safe working distance can be maintained and all personnel working in the area have been informed of the limitation.

#### **1.4.14 Fall Hazards**

Fall hazards exist on-Site in several areas. Workers must follow all safeguards for fall protection as defined in OSHA 29 CFR 1926, Subpart M-Fall Protection. In general, workers should use the following guidelines:

- Use at least one of the following whenever employees are exposed to a fall of 6 feet or more above a lower level:
  - [Guardrail Systems](#)
  - [Safety Net Systems](#)
  - [Personal Fall Arrest Systems](#)
- Cover or guard floor holes as soon as they are created during new construction.
- For existing structures, survey the site before working and continually audit as work continues. Guard or cover any openings or holes immediately.

- Construct all floor-hole covers so they will effectively support two times the weight of employees, equipment, and materials that may be imposed on the cover at any one time. Floor-hole covers are to be secured so they are not moved off of the hole and labeled so workers are aware what is under the cover.
- In general, it is better to use fall *prevention* systems, such as guardrails, than fall *protection* systems, such as safety nets or fall arrest devices, because they provide more positive safety means.
- Construct all scaffolds according to the manufacturer's instructions and 29 CFR 1926.451.
- Install guardrail systems along all open sides and ends of platforms.
- Use at least one of the following for scaffolds more than 10 feet above a lower level:
  - [Guardrail Systems](#)
  - [Personal Fall Arrest Systems](#)
- Provide safe access to scaffold platforms [*For additional information, see [Scaffold Access](#)*].
- Do not climb cross-bracing as a means of access.
- Guard all protruding ends of steel rebar with rebar caps or wooden troughs, *or* bend rebar so exposed ends are no longer upright.
- When employees are working at any height above exposed rebar, fall protection/prevention is the first line of defense against impalement.

#### **1.4.15 Ladder Safety**

Portable ladders must be safely positioned each time they are used. Staff and subcontractors should follow all associated OSHA standards (CFR 1926.1053), the most updated of which can be found at <http://www.osha.gov>. OSHA standards supersede any guidelines stated within this CHASP.

#### **1.4.16 Scaffolding Safety**

Scaffolding presents significant fall hazards and various types of scaffolds may be present on-Site. Staff and subcontractors should follow all associated OSHA standards (CFR 1926 Subpart L – Scaffolds), the most updated of which can be found at <http://www.osha.gov>.

#### **1.4.17 Welding**

The intense light associated with welding operations can cause serious and sometimes permanent eye damage if operators do not wear proper eye protection. Additionally, sparks from the

welding process present a risk to the employee conducting welding and nearby employees. Any flammable or combustible materials that may be exposed to sparks or other heat sources must be protected or relocated to prevent fire hazards. Fire extinguishers will be located in areas where welding or hot work will be taking place. Staff must wear helmets that comply with ANSI Z49.1, with filter lenses that comply with ANSI Z87.1. Boots must comply with ASTM F2412 and ASTM F2413 for fire resistance. Welding operators must also wear flame-resistant welder's gloves.

Several chemicals may be used in the process of welding. Staff must be aware of the variety of chemicals used and must possess appropriate welding training to perform welding activities. Additionally, compressed gas cylinders used in welding must be stored, placed, and transported according to OSHA standards. Staff and subcontractors should follow all associated OSHA standards (CFR 1926), the most updated of which can be found at <http://www.osha.gov>.

#### **1.4.18 Asbestos-Containing Material**

Although the site does not contain asbestos-containing materials (ACM), workers should be aware of the risks associated with asbestos exposure. Chronic exposure to asbestos may cause asbestosis and mesothelioma. The primary route of exposure for asbestos is inhalation during the disturbance and/or removal of asbestos from pipe insulation and cement pipes.

Asbestos is strictly regulated under OSHA 29 CFR 1910.1001/1926.1101. Employees that may be potentially exposed to ACM must participate in a medical surveillance program, have specific training in the hazards and controls of exposure to asbestos and wear respirators with high efficiency particulate (HEPA) filters. All work must be conducted in demarcated regulated areas to minimize the number of people within the exposure area. Employers must conduct air sampling and provide signs and labels regarding the presence of asbestos. Staff and subcontractors should follow all associated OSHA standards (CFR 1926), the most updated of which can be found at <http://www.osha.gov>.

The potential hazards for this project are listed in the following Activity Hazard Analysis and Site Hazards sections.

SITE HAZARDS	
Potential Hazard	Control Measures
Construction Safety	<ul style="list-style-type: none"> <li>▪ Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. Coordinate hand signals with operators.</li> <li>▪ Stay Alert! Pay attention to equipment backup alarms and swing radii.</li> <li>▪ Wear a high visibility vest when working near equipment or motor vehicle traffic.</li> <li>▪ Position yourself in a safe location when filling out logs and talking with the contractor.</li> <li>▪ Notify the contractor immediately if any problems arise.</li> <li>▪ Do not stand or sit under suspended loads or near any pressurized equipment lines.</li> <li>▪ Do not use cellular telephones near operating equipment.</li> <li>▪ Follow general traffic safety guidelines</li> </ul>

<b>SITE HAZARDS</b>	
<b>Potential Hazard</b>	<b>Control Measures</b>
Scaffolding Safety and Power Tools	<ul style="list-style-type: none"> <li>▪ Follow OSHA Construction Safety Requirements 29 CFR 1926 Subpart L - Scaffolds.</li> <li>▪ Do not use impact tools (i.e. chisels, hammers) with mushroomed heads.</li> <li>▪ Do not use wooden-handled tools if the handle is damaged, splintered, loose or cracked.</li> <li>▪ Inspect, maintain and replace tools as needed.</li> <li>▪ Do not use wrenches if jaws are sprung.</li> <li>▪ Tools should be directed away from aisles, other employees and trafficked areas.</li> <li>▪ Wear appropriate PPE when using tools.</li> <li>▪ Floors must be kept clean and as dry as possible to prevent slips, trips and falls around tools.</li> <li>▪ Never carry a tool by the cord or hose.</li> <li>▪ Never yank the cord or the hose to disconnect it from the receptacle.</li> <li>▪ Keep cords and hoses away from heat, oil, and sharp edges.</li> <li>▪ Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.</li> <li>▪ All observers should be kept at a safe distance away from the work area.</li> <li>▪ Secure work with clamps or a vise, freeing both hands to operate the tool.</li> <li>▪ Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.</li> <li>▪ Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.</li> <li>▪ Be sure to keep good footing and maintain good balance.</li> <li>▪ The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.</li> <li>▪ All portable electric tools that are damaged shall be removed from use and tagged "Do Not Use."</li> <li>▪ Keep all tools in good condition with regular maintenance.</li> <li>▪ Use the right tool for the job.</li> <li>▪ Examine each tool for damage before use.</li> <li>▪ Operate according to the manufacturer's instructions.</li> <li>▪ Provide and use the proper protective equipment.</li> </ul>
Heavy Equipment Operation	<ul style="list-style-type: none"> <li>▪ Maintain awareness of location of equipment.</li> <li>▪ Subcontractor use of a spotter for equipment operation.</li> <li>▪ Safety vest is to be worn around all operating equipment.</li> <li>▪ Maintain eye contact with the operator.</li> <li>▪ Stay out of the swing radii of the apparatus.</li> </ul>
Slips, Trips, Falls	<ul style="list-style-type: none"> <li>▪ Keep trafficked areas clear of debris and tools. Keep work areas and traffic areas dry.</li> </ul>
Lock Out/Tag Out	<ul style="list-style-type: none"> <li>▪ Maintain contact with utility to determine if energized lines or equipment has been de-energized.</li> <li>▪ Follow OSHA Lock Out/Tag Out requirements in 29 CFR 1910.147.</li> </ul>

<b>SITE HAZARDS</b>	
<b>Potential Hazard</b>	<b>Control Measures</b>
Welding	<ul style="list-style-type: none"> <li>Wear appropriate PPE (welding helmet, apron, fire-resistant gloves and boots, leggings) as needed.</li> <li>Follow OSHA Construction Safety Requirements 29 CFR 1926 Subpart J – Welding and Cutting.</li> </ul>
Fire	<ul style="list-style-type: none"> <li>Keep fire extinguishers in working order by inspecting on a regular basis.</li> <li>Keep the appropriately rated and sized fire extinguishers on site as specified by 29 CFR 1926.150.</li> <li>Keep flammable materials away from ignition sources.</li> <li>Follow OSHA Construction Safety Requirements 29 CFR 1926 Subpart F – Fire Protection and Prevention and NPFA standards.</li> <li>Wear appropriate PPE when working around flammable materials.</li> </ul>
Ladder Safety	<ul style="list-style-type: none"> <li>Follow safety guidelines for safe ladder use.</li> <li>Follow OSHA Construction Safety Requirements 29 CFR 1926.1053.</li> </ul>
Fall Hazards	<ul style="list-style-type: none"> <li>Use appropriate fall protection at heights of 6 feet or greater.</li> <li>Avoid working in areas with a drop off of more than 2 feet.</li> <li>Erect appropriate barriers and guard rails.</li> <li>Wear appropriate fall protection PPE.</li> <li>Mark fall hazards so they are visible to employees.</li> <li>Follow OSHA Construction Safety Requirements 29 CFR 1926 Subpart M – Fall Protection.</li> </ul>
Physical Injury	<ul style="list-style-type: none"> <li>Wear work boots in good condition with non-slip soles.</li> <li>Maintain good visibility of the work area.</li> <li>Avoid walking on uneven or debris ridden ground surfaces.</li> <li>Use proper lifting techniques. Ask fellow worker for help.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>Wear hearing protection when near loud noises.</li> <li>Wear hearing protection whenever you need to raise your voice above normal conversational speech due to a loud noise source; this much noise indicates the need for protection.</li> </ul>
Vehicular Traffic	<ul style="list-style-type: none"> <li>Wear traffic safety vest at all times.</li> <li>Use cones, flags, barricades, and caution tape to define work area.</li> <li>Use a "spotter" to locate oncoming vehicles.</li> <li>Use vehicle to block work area.</li> <li>Engage police detail if needed.</li> </ul>
Utilities	<ul style="list-style-type: none"> <li>Check that contactor has cleared underground utilities before any intrusive activities, and that contractor has coordinate with utility locating services, property owner(s) or utility companies.</li> <li>Utilities are to be considered live or active until documented otherwise.</li> <li>For overhead utilities within 50 feet, have contractor determine with the utility company the appropriate safe distance. Minimum distance for clearance is based on voltage of the line.</li> <li>An observer will be established when operating drilling rigs near overhead utilities.</li> </ul>

<b>ACTIVITY HAZARDS</b>		
<b>Activity</b>	<b>Potential Hazards</b>	<b>Protective Equipment</b>
Entering Construction Site	Heavy equipment, dust, noise.	Hardhat, reflective safety vest, steel-toed, steel-shank boots, safety glasses, protective leather work gloves, and earplugs. Follow general traffic safety guidelines. Employ dust suppression controls (i.e. watering) to keep dust levels down to prevent inhalation of excavated materials.
General Construction (Foundation Work, Earthwork, Soil Vapor Barrier System Installation)	Heavy equipment, dust, noise. Contact with excavated soils.	Hardhat, reflective safety vest, steel-toed, steel-shank boots, safety glasses, protective leather work gloves, and earplugs. Follow general traffic safety guidelines. Employ dust suppression controls (i.e. watering) to keep dust levels down to prevent inhalation of excavated materials.
Personal Protective Equipment (PPE) is the <i>initial level of protection</i> based on the activity hazards and Site conditions which have been identified.		

## 1.5 Evaluation of Potential Chemical Hazards

The characteristics of potential compounds at the Site are discussed below for information purposes. Adherence to the safety and health guidelines in this CHASP should reduce the potential for exposure to the compounds discussed below.

Potential exposure to contaminants at the Site included encounters with groundwater, soil, and soil vapor.

### 1.5.1 Remedial Investigation (RI) Results

A remedial investigation was performed, and the results are documented in a companion document called “Remedial Investigation Report, Beach 19<sup>th</sup> and Beach 20<sup>th</sup> At Cornaga Commons (Phase I)”, dated August 2018 (RIR). Soil/fill samples collected during the RI were compared to the New York State Department of Environmental Conservation (NYSDEC) 6NYCRR Part 375 Section 6.8 Unrestricted Use and Restricted Residential Use SCOs.

A summary of the findings is as follows:

1. Elevation of the property is relatively flat and is approximately 29 feet.
2. Depth to groundwater ranges from 22.23 ft. bg. to 24.91 ft. bg. at the Site.

3. Groundwater flow is generally from northeast to southwest beneath the Site.
4. Bedrock was not encountered during the RI.
5. The stratigraphy of the site, from the surface down, consists of approximately 0-5 feet of urban fill underlain by natural glacial sands, with varying degrees of silt, gravel, and cobbles.
6. Soil/fill samples collected during the RI showed soil chemistry results consistent with parking areas and typical urban fill and construction demolition fill quality conditions found throughout the metropolitan area. Exceedances of the Part 375 Unrestricted Use (UU) and Restricted Residential Soil Cleanup Objectives (RRSCO) were detected for semi-volatile organic (SVOCs), pesticides, and metals. The majority of the RRSCO exceedances are confined to the 0-2-foot interval, with the exception of borings 19-B-3, 19-B-8, and 19-B-10, where mercury exceeded the RRSCO in the 12-14-foot interval. There were no visual, olfactory, or PID screening observations or evidence indicating any petroleum spill releases have occurred at the site.
7. Groundwater samples collected during the RI showed groundwater chemistry results for (magnesium and sodium) consistent with local/regional conditions near the coastline, where groundwater may be impacted by saltwater intrusion from the Atlantic Ocean. The SVOC, pesticide, and remainder of the metal detections are typical of groundwater within parking areas and areas underlain by urban fill and construction demolition fill found throughout the metropolitan area. There was no visual (sheen) or olfactory observations or evidence indicating any petroleum spill releases have occurred at the site.
8. Soil vapor samples collected during the RI showed detections that do not indicate an onsite source of contamination contributing to soil vapor concentrations. Since there are no buildings on the Site, the full vapor intrusion pathway could not be evaluated; however, the observed soil vapor concentrations are not likely to cause a vapor intrusion condition into any future buildings constructed at the Site.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and the RAP, disposal of significant amounts of hazardous waste is not suspected at this site.

### **1.5.2 Asbestos-Containing Materials**

As asbestos-containing materials (ACM) have not been identified on-Site, they are not currently monitored for at the site. However, in the course of earthwork, staff should be cognizant of potential ACM and report any suspected ACM to the CM Contractor and the CHSO, who will then determine the appropriate course of action.

## **1.6 Biological Hazards**

During the course of the project, there is a potential for workers to come into contact with biological hazards such as animals, insects and plants. Workers will be instructed in hazard recognition, health hazards, and control measures during site-specific training.

### **1.6.1 Animals**

During the conduct of site operations, wild animals such as stray dogs or cats, raccoons, and mice may be encountered. Workers will use discretion and avoid all contact with wild animals. If these animals present a problem, efforts will be made to remove these animals from the site by contacting a licensed animal control technician.

### **1.6.2 Insects**

Insects, including bees, wasps, hornets, and spiders, may be present at the site making the chance of a bite possible. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life-threatening condition. Any individuals who have been bitten or stung by an insect should notify the Site Safety Officer (SSO). The following is a list of preventive measures:

- Apply insect repellent prior to performing any field work and as often as needed throughout the work shift.
- Wear proper protective clothing (work boots, socks and light-colored pants).
- Field personnel who may have insect allergies should have bee sting allergy medication on-Site and should provide this information to the SSO prior to commencing work.

### **1.6.3 Tick Borne Illnesses**

**Lyme disease** is caused by infection from a deer tick that carries a spirochete. During the painless tick bite, the spirochete may be transmitted into the bloodstream that could lead to the worker contracting Lyme disease.

Lyme disease may cause a variety of medical conditions including arthritis, which can be treated successfully if the symptoms are recognized early and medical attention is received. Treatment with antibodies has been successful in preventing more serious symptoms from developing. Early signs may include a flu-like illness, an expanding skin rash, and joint pain. If left untreated, Lyme disease can cause serious nerve or heart problems, as well as a disabling type of arthritis.

Symptoms can include a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. This flu-like illness is out of season, commonly happening between May and October when ticks are most active. A large expanding skin rash may develop around the area of the bite. More than one rash may occur. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. It's easy to miss the rash and the connection between the rash and a tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be an early sign of Lyme disease. These aches and pains may be easy to confuse with the pain that comes with other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint.

Lyme disease can affect the nervous system. Symptoms include stiff neck, severe headache, and fatigue usually linked to meningitis. Symptoms may also include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease may also mimic symptoms of multiple sclerosis or other types of paralysis.

The disease can also cause serious, but reversible heart problems, such as irregular heartbeat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Often, the effects of Lyme disease may be confused with other medical problems.

It is recommended that personnel check themselves when in areas that could harbor deer ticks, wear light color clothing and visually check themselves and their buddy when coming from wooded or vegetated areas. If a tick is found biting an individual, the PM should be contacted immediately. The tick can be removed by pulling gently at the head with tweezers. The affected area should then be disinfected with an antiseptic wipe. The employee will be offered the option for medical treatment by a physician, which typically involves prophylactic antibiotics. If personnel feel sick or have signs similar to those above, they should notify the PM immediately.

The deer tick can also cause **Babesiosis**, an infection of the parasite *Babesia Microti*. Symptoms of Babesiosis may not be evident, but may also include fever, fatigue and hemolytic anemia lasting from several days to several months. Babesiosis is most commonly diagnosed in the elderly or in individuals whose immune systems are compromised.

**Ehrlichiosis** is a tick-borne disease which can be caused by either of two different organisms. Human monocytic ehrlichiosis (HME) is caused by *Ehrlichia chaffeensis*, which is transmitted by the lone star tick (*Amblyomma americanum*). Human granulocytic anaplasmosis (HGA),

previously known as human granulocytic ehrlichiosis (HGE), is caused by *Anaplasma phagocytophilia*, which is transmitted by the deer tick (*Ixodes scapularis*).

In New York State, most cases of ehrlichiosis have been reported on Long Island and in the Hudson Valley. Ehrlichiosis is transmitted by the bite of infected ticks, including the deer tick and the lone star tick. The symptoms of HME and HGE are the same and usually include fever, muscle aches, weakness and headache. Patients may also experience confusion, nausea, vomiting and joint pain. Unlike Lyme disease or Rocky Mountain spotted fever, a rash is not common. Infection usually produces mild to moderately severe illness, with high fever and headache, but may occasionally be life-threatening or even fatal. Symptoms appear one to three weeks after the bite of an infected tick. However, not every exposure results in infection.

**Rocky Mountain spotted fever (RMSF)** is a tick-borne disease caused by a rickettsia (a microbe that differs somewhat from bacteria and virus). Fewer than 50 cases are reported annually in New York State. In the eastern United States, children are infected most frequently, while in the western United States, disease incidence is highest among adult males. Disease incidence is directly related to exposure to tick-infested habitats or to infested pets. Most of the cases in New York State have occurred on Long Island. RMSF is characterized by a sudden onset of moderate to high fever (which can last for two or three weeks), severe headache, fatigue, deep muscle pain, chills and rash. The rash begins on the legs or arms, may include the soles of the feet or palms of the hands, and may spread rapidly to the trunk or rest of the body. Symptoms usually appear within two weeks of the bite of an infected tick.

\*(Information on Ehrlichiosis, Babesiosis, and Rocky Mountain Spotted Fever was derived from the New York State Department of Health).

#### **1.6.4 Wasps and Bees**

Wasps (hornets and yellow-jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either below or above the ground. Yellow-jackets tend to build their nests in the ground, but hornets tend to build their nests in trees and shrubbery. Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once while wasps are capable of stinging multiple times because of a barbed stinger. Wasps sting when they feel threatened. By remaining calm and not annoying wasps by swatting, you lessen the chance of being stung.

Wasps and bees inject a venomous fluid under the skin when they sting. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it

with tweezers. Some people may develop an allergic reaction (i.e. anaphylactic shock) to a wasp or bee sting. If such a reaction develops, seek medical attention at once. Employees should inform the SSO if they are allergic to bees or wasps and inform the SSO if an epi-pen is required treatment and the location of the pen.

### **1.6.5 Plants**

The potential for contact with poisonous plants exists when performing field work in undeveloped and wooded areas. Poison ivy, sumac, and oak may be present on-Site. Poison ivy can be found as vines on tree trunks or as upright bushes. Poison ivy consists of three leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison ivy is red in the early spring and turns shiny green later in the spring. Poison sumac can be present in the form of a flat-topped shrub or tree. It has fern-like leaves, which are velvety dark green on top and pale underneath. The branches of immature trees have a velvety "down." Poison sumac has white, "hairy" berry clusters. Poison oak can be present as a sparingly branched shrub. Poison oak is similar to poison ivy in that it has the same leaflet configuration; however, the leaves have slightly deeper notches. Prophylactic application of Tecnu may prevent the occurrence of exposure symptoms. Post exposure over the counter products are available and should be identified at the local pharmacist. Susceptible individuals should be identified to the Project Manager (PM).

Contact with poison ivy, sumac, or oak may lead to a skin rash, characterized by reddened, itchy, blistering skin which needs first aid treatment. If a field worker believes they have contacted one of these plants, immediately wash skin thoroughly with soap and water, taking care not to touch your face or other body parts.

## **1.7 Sun Exposure**

Employees are encouraged to liberally apply sunscreen, with a minimum sun protection factor (SPF) of 15, when working outdoors to avoid sunburn and potential skin cancer, which is associated with excessive sun exposure to unprotected skin. Additionally, employees should wear safety glasses that offer protection from UVA/UVB rays.

## **1.8 Personal Safety**

Field activities have the potential to take site workers into areas which may pose a risk to personal safety. The following website (source) has been researched to identify potential crime activity in the area of the project:

[http://www.nyc.gov/html/nypd/html/crime\\_prevention/crime\\_statistics.shtml](http://www.nyc.gov/html/nypd/html/crime_prevention/crime_statistics.shtml)

Type of Crime	Subject Property and Vicinity	New York City Total*
Murder	2	176
Rape	13	1,105
Robbery	98	7,717
Felony Assault	178	6,911
Burglary	51	16,765
Grand Larceny	132	25,805

\*New York City Total includes values from the 101<sup>st</sup> Precinct

2018 crime statistics from this website report that the 101<sup>st</sup> Precinct, which is closest to the subject property, is shown above in comparison to the current New York City total.

To protect yourself, take the following precautions:

- If deemed necessary, use the buddy system (teams of a minimum of two persons present);
- Let the Site Safety Officer (SSO) know when you begin work in these areas and when you leave;
- Call in regularly;
- Pay attention to what is going on around you; and
- If you arrive in an area and it does not look safe to get out of your vehicle, lock the doors and drive off quickly, but safely.

Site workers must not knowingly enter a situation where there is the potential for physical and violent behaviors to occur. If site workers encounter hostile individuals or a confrontation develops in the work area, suspend work activities, immediately leave the area of concern, and contact local 911 for assistance. Notify the SSO and CHSO of any incidents once you are out of potential danger.

In the event of an emergency, prompt communications with local emergency responders is essential. At least one charged and otherwise functioning cell phone to facilitate emergency communications will be on site.

## 2. Community Air Monitoring Plan

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Radson Development will implement a Community Air Monitoring Plan (CAMP) in compliance with New York State Department of Environmental Protection (NYSDEP) requirements. Radson Development will contract with GEI Consultants, Inc., P.C. to implement the plan.

The CM Contractor will provide the following equipment to implement the CAMP, if deemed necessary:

- Photoionization Meter (PID)
- Dust Meter
- Sound Level Meter by the CHSO, type to be appropriate to the activities performed

All monitoring equipment will be calibrated and maintained in accordance with manufacturer's requirements. All calibrations will be recorded in the project notes daily or on a daily calibration form.

### 3. Project Personnel/Responsibilities and Lines of Authority

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GEI Personnel		
Wendy Monterosso	Project Manager	Office: 631-759-2962 Cell: 516-253-9357
Thomas Johansen	Site Safety Officer (SSO), Field Representative (FR)	Office: 631-759-2976 Cell: 516-519-2872

Lines of Authority will be as follows:

On-Site – The CM Contractor will have responsibility for safety of its employees during the work performed at the site. The Field Representative (FR) will have a cell phone available to contact the appropriate local authorities, in the event of an emergency. The FR will be available for communication with the SSO and CM and with the client representative. The FR and/or SSO may change due to the nature of work being conducted on-Site.

#### 3.1 Construction Manager (CM)

Responsibilities of the CM include the following:

- Verifies implementation of the CHASP
- Conducts periodic inspections and documents these in the field book
- Participates in incident investigations
- Verifies the CHASP has the required approvals before any site work is conducted
- Verifies that the client and/or CM site manager is informed of project changes, which require modifications of the CHASP
- Has overall responsibility for project health and safety
- Acts as the primary point of contact with the client for site related activities and coordination with non-project related site operations
- Overseeing of performance of project tasks as outlined in the scope of work
- Plans field work using appropriate safe procedures and equipment
- Verifies and documents current OSHA construction training compliance for all construction trades
- Verifies that subcontractors acknowledge and sign the projects CHASP

### **3.2 Construction Health and Safety Officer (CHSO)**

The CHSO is a qualified health and safety professional with experience in construction activities. Responsibilities of the CHSO include the following:

- Serves as the primary contact to review health and safety matters that may arise
- Approves revised or new safety protocols for field operations
- Coordinates revisions of this CHASP with field personnel
- Coordinates upgrading or downgrading of PPE with the site manager
- Leads the investigation of all accidents/incidents
- Provide the necessary training of subcontractor trade field crews in accordance with OSHA regulations and provides proof of training to the SSO prior to subcontractor trade personnel entering the site

### **3.3 Site Safety Officer (SSO)**

Responsibilities of the SSO include the following:

- Verifies that the CHASP is implemented and that all health and safety activities identified in the HASP are conducted and/or implemented
- Verifies that field work is scheduled with adequate personnel and equipment resources to complete the job safely and enforces site health and safety rules
- Verifies that adequate communications between trade crews and emergency response personnel is maintained during emergency situations
- Verifies that field site personnel are adequately trained and qualified to work at the site and that proper PPE is utilized
- Report all accidents/incidents to the CHSO and CM
- Stop work if necessary
- Identifies operational changes which require modifications to the CHASP and ensures that the procedure modifications are implemented and documented through changes to the CHASP, with CHSO approval
- Determines upgrades or downgrades of PPE based on site conditions and/or real-time monitoring results with CHSO approval
- Reports to the CHSO and provides summaries of field operations and progress

### **3.4 Field Representative (FR)**

The FR is responsible for carrying out field work on a monthly, quarterly, or as-needed basis. Responsibilities of the FR include:

- Conducts routine safety inspection of the work area
- Documenting occurrences of unsafe activity and what actions were taken to rectify the situation
- Reports any unsafe or potentially hazardous conditions to the SSO and CM
- Maintains familiarity of the information, instructions, and emergency response actions contained in the CHASP
- Complies with rules, regulations and procedures set forth in the CHASP
- Prevents admittance to work site by unauthorized personnel
- Inspects all tools and equipment, including PPE, prior to use and documents inspection on the daily safety meeting form or in the appropriate field book
- Verifies that monitoring instruments are calibrated
- Stops work if necessary

## **4. Subcontractors**

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The CM Contractor may subcontract with various companies to conduct various work on-Site on an as-needed basis. Contact information for these subcontractors will be available when such work is being conducted.

The CM Contractor requires its subcontractors to work in a responsible and safe manner. Subcontractors for this project may be required to develop their own CHASP for protection of their employees and must adhere to applicable requirements set forth in this CHASP.

## 5. Emergency Contact List

Important Phone Numbers	
Local Police:	911
Fire Department:	911
Ambulance:	911
Nicholas Recchia	(516) 395-8763
Hospital and Occupational Clinic Information (See Attached Maps and Directions in <b>Appendix A</b> )	
<b>Enter Local Hospital:</b> St. John's Episcopal Hospital 327 Beach 19 <sup>th</sup> Street Far Rockway, NY 11691	(718) 869-7000
<b>Enter Occupational Health Clinic:</b> Seagirt Medical Plaza 2004 Seagirt Boulevard Far Rockway, NY 11691	(718) 868-8668
Contacts	
Project Manager: Wendy Monterosso	(631) 759-2962 office (516) 253-9357 cell
Corporate Health and Safety Officer: Steve Hawkins	(860) 368-5348 office (860) 916-4167 cell
Regional Health and Safety Officer: Jenna Sheppard	(856) 608-5663 office (856) 298-7138 cell
GEI People Team:	(781) 721-4117 Boston (916) 631-4596 Sacramento
Medcor Triage	1-800-775-5866
Client Contact: Dan Rad	516-730-9300 office 917-520-3658 cell
Other Information	
Nearest Telephone Location (or alternate means of communication)	On-site Cellular

## **6. Training Program**

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### **6.1 Hazard Communication**

In accordance with 29 CFR 1926, site workers shall, at the time of job assignment, have received hazard communication training. All hazardous materials used on the site will be properly labeled, stored, and handled. Safety Data Sheets (SDS) will be available to on-Site staff.

### **6.2 On-Site Safety Briefings**

Other on-Site personnel will be given health and safety briefings by a FR to assist personnel in safely conducting work activities. The briefings will include information on new operations to be conducted, changes in work practices or changes in the site's conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. These safety briefings will be documented on a daily safety briefing form or other appropriate media.

## 7. Medical Support

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In case of minor injuries, on-Site care shall be administered with the Site first aid kit. For serious injuries, call 911 and request emergency medical assistance. Seriously injured persons should not be moved, unless they are in immediate danger.

Section 5 contains detailed emergency information and **Appendix A** contains directions to the nearest hospital and their telephone numbers. Field personnel will carry a cellular telephone.

## 8. Personal Protective Equipment

PPE required for each level of protection is as follows.

Safety Equipment	Level A	Level B	Level C	Level D
Hard hats with splash shields or safety glasses			•	•
Steel-toe boots with overboots as appropriate for work being performed and materials handled			•	•
Protective Leather Work Gloves or Chemical-resistant gloves as needed			•	•
Reflective Vest			•	•
Half- or full-face respirators with HEPA cartridges as approved by the CHSO as needed			•	
Long Pants	•	•	•	•
Welding Helmet				•
Welding Gloves, apron, leggings (as needed)				•
Flame-resistant boots for welding				•

PPE can include hardhats, safety glasses or face shields, steel toe/steel shank boots, hearing protection, nitrile gloves, and leather gloves as necessary.

### OSHA Requirements for PPE

All PPE used during the course of this field investigation must meet the following OSHA standards:

Type of Protection	Regulation	Source
Eye and Face	29 CFR 1910.133	ANSI Z87.1 1968
Respiratory	29 CFR 1910.134	ANSI Z88.1 1980
Head	29 CFR 1910.135	ANSI Z89.1 1969
Foot	29 CFR 1910.136	ANSI Z41.1 1999 or ASTM F-2412-2005, and ASTM F-2413-2005

CFR = Code of Federal Regulations

ANSI = American National Standards Institute

ASTM = American Society for Testing and Materials

Any on-Site personnel who have the potential to don a respirator must have a valid fit test certification and documentation of medical clearance. The CHSO will maintain such information on file for on-Site personnel. The CM will obtain such information from the subcontractor's site supervisor prior to the initiation of any such work. Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.134). Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency;
- Immediately Dangerous to Life and Health (IDLH) concentrations; and
- If contaminant levels exceed designated use concentrations.

For most work conducted at the site, Level D PPE will include long pants, hard hats, safety glasses with side shields, and steel toe safety boots with steel shanks. The CHSO will determine if site works deems an upgrade in PPE. The use of respirators is not anticipated.

Use of Level A or Level B PPE is not anticipated. If conditions indicating the need for Level A or Level B PPE are encountered, personnel will leave the work zone and this CHASP will be revised with oversight of the CHSO, personnel will not re-enter the work zone until conditions allow.

## **9. Supplemental Contingency Plan Procedures**

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### **9.1 Fire**

In the event of a fire, all personnel will evacuate the area. The FR will contact the local fire department and report the fire. Notification of evacuation will be made to the client, the CM and the CHSO. The FR or appropriate staff member will account for subcontractor personnel and report their status to the CM.

### **9.2 Severe Weather**

The contingency plan for severe weather includes reviewing the expected weather to determine if severe weather is in the forecast. Severe weather includes high winds over 30 miles per hour, heavy rains or snow squalls, thunderstorms, hurricanes, and lightning storms. If severe weather is approaching, the decision to evacuate staff and subcontractor personnel from the site is the responsibility of the FR. Notification of evacuation will be made to the Project Manager, the Construction Project Manager and the CHSO. The FR will account for on-Site staff and report their status to the CM. If safe, work can resume 30 minutes after the last flash of lightening or clap of thunder.

### **9.3 Spills or Material Release**

If a hazardous waste spill or material release occurs, the SSO or their representative, if safe, will immediately assess the magnitude and potential seriousness of the spill or release based on the following:

- SDS, if applicable, for the material spilled or released
- Source of the release or spillage of hazardous material
- An estimate of the quantity released and the rate at which it is being released
- The direction in which the spill or air release is moving
- Personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result
- Potential for fire and/or explosion resulting from the situation
- Estimates of area under influence of release

If the spill or release is determined to be within the on-Site emergency response capabilities, the SSO will ensure implementation of the necessary remedial action. If the release is beyond the

capabilities of the site personnel, all personnel will be evacuated from the immediate area and the local fire department will be contacted. The SSO will notify the CM and the CHSO.

## **9.4 Alcohol and Drug Abuse Prevention**

Alcohol and drugs will not be allowed on the work site. Project personnel under the influence of alcohol or drugs will not be allowed to enter the site.

## **10. Decontamination Procedures**

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### **10.1 Personnel Decontamination Station**

As needed, a personnel decontamination station where workers can drop equipment and remove PPE will be set up as needed by the Contractor. The PPE area will be equipped with basins for water and detergent, and trash bag(s) or cans for containing disposable PPE and discarded materials. Once personnel have decontaminated at this station and taken off their PPE, they will proceed to a portable sink where they will wash themselves wherever they have potentially been exposed to any contaminants (e.g., hands, face, etc.).

Contaminated PPE (gloves, suits, etc.) will be decontaminated and stored for reuse or placed in plastic bags (or other appropriate container) and disposed of in an approved facility.

Decontamination wastewater and used cleaning fluids will be collected and disposed of in accordance with all applicable state and federal regulations.

### **10.2 Decontamination Equipment Requirements**

If heavily contaminated soils are encountered during intrusive work, the following equipment, as needed, will be in sufficient supply to implement decontamination procedures for equipment.

- Buckets
- Alconox™ detergent concentrate
- Hand pump sprayers
- Long handle soft bristle brushes
- Large sponges
- Cleaning wipes for respirators
- Bench or stool(s)
- Methanol
- Liquid detergent and paper towels
- Plastic trash bags

## 11. Construction Health and Safety Plan Sign-Off

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All personnel conducting site activities must read this Construction Health and Safety Plan, be familiar with its requirements, and agree to its implementation.

All other personnel on-Site for regulatory, observational and other activities not directly associated with site activities must read this Health and Safety Plan for hazard communication purposes.

Once the Construction Health and Safety Plan has been read, complete this sign-off sheet, and return it to the Project Manager.

**Site Name:**

Beach 19<sup>th</sup> & Beach 20<sup>th</sup> at Cornaga Commons, Queens, New York

**Activity:**

- Building demolition
- Foundation excavation, loading, and removal of site soils
- Site grading
- Building construction

CONSTRUCTION HEALTH AND SAFETY PLAN  
BEACH 20<sup>TH</sup> STREET AT CORANAGA COMMONS  
19-38 CORNAGA AVENUE  
QUEENS, NEW YORK  
NYC VCP SITE NUMBER: 18TMP0305Q  
NOVEMBER 2018

I have received and read the Construction Health and Safety Plan, been briefed on it, and agree to its implementation.

[illegible]

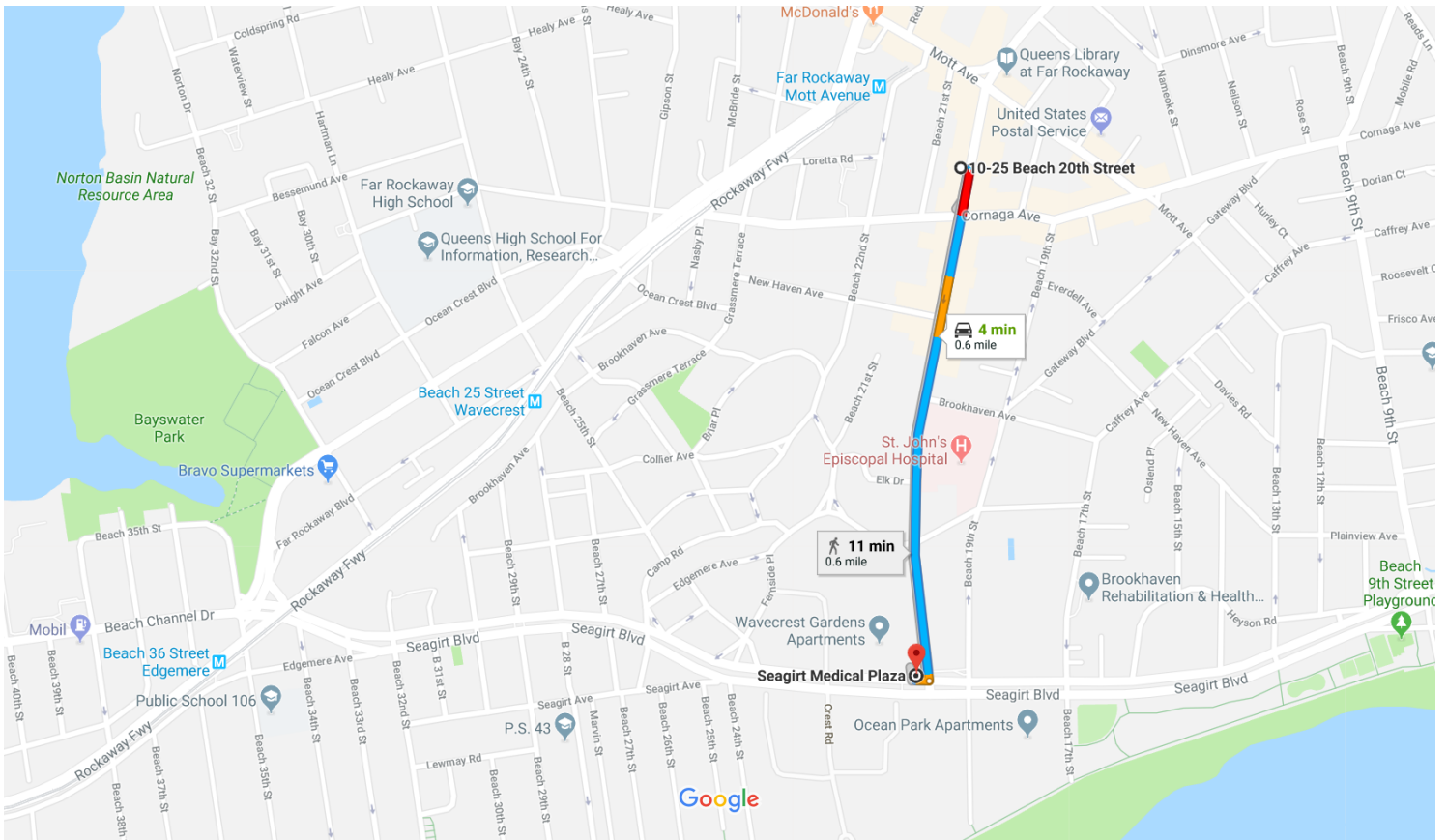
CONSTRUCTION HEALTH AND SAFETY PLAN  
BEACH 20<sup>TH</sup> STREET AT CORANAGA COMMONS  
19-38 CORNAGA AVENUE  
QUEENS, NEW YORK  
NYC VCP SITE NUMBER: 18TMP0305Q  
NOVEMBER 2018

## **APPENDIX A**

### **HOSPITAL AND CLINIC DIRECTIONS**







Map data ©2018 Google 500 ft

## 10-25 Beach 20th St

Far Rockaway, NY 11691

1. Head south on Beach 20th St toward Cornaga Ave

0.5 mi

2. Turn right onto Seagirt Blvd  
Destination will be on the right

75 ft

## Seagirt Medical Plaza

2004 Seagirt Blvd, Far Rockaway, NY 11691

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

CONSTRUCTION HEALTH AND SAFETY PLAN  
BEACH 20<sup>TH</sup> STREET AT CORANAGA COMMONS  
19-38 CORNAGA AVENUE  
QUEENS, NEW YORK  
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NOVEMBER 2018

## **APPENDIX B**

### **COLD STRESS GUIDELINES**

## Cold Stress Guidelines

	Symptoms	What to do
Mild Hypothermia	<ul style="list-style-type: none"> <li>Body Temp 98-90°F</li> <li>Shivering</li> <li>Lack of coordination, stumbling, fumbling hands</li> <li>Slurred speech</li> <li>Memory loss</li> <li>Pale, cold skin</li> </ul>	<ul style="list-style-type: none"> <li>Move to warm area</li> <li>Stay active</li> <li>Remove wet clothes and replace with dry clothes of blankets</li> <li>Cover the head</li> <li>Drink warm (not hot) sugary drink</li> </ul>
Moderate Hypothermia	<ul style="list-style-type: none"> <li>Body temp 90-86°F</li> <li>Shivering stops</li> <li>Unable to walk or stand</li> <li>Confused irrational</li> </ul>	<ul style="list-style-type: none"> <li>All of the above, plus:</li> <li>Call 911</li> <li>Cover all extremities completely</li> <li>Place very warm objects, such as hot packs on the victim's head, neck, chest and groin</li> </ul>
Severe Hypothermia	<ul style="list-style-type: none"> <li>Body temp 86-78°F</li> <li>Severe muscle stiffness</li> <li>Very sleepy or unconscious</li> <li>Ice cold skin</li> <li>Death</li> </ul>	<ul style="list-style-type: none"> <li>Call 911</li> <li>Treat victim very gently</li> <li>Do not attempt to re-warm</li> </ul>
Frostbite	<ul style="list-style-type: none"> <li>Cold, tingling, stinging or aching feeling in the frostbitten area, followed by numbness</li> <li>Skin color turns red, then purple, then white or very pale skin</li> <li>Cold to the touch</li> <li>Blisters in severe cases</li> </ul>	<ul style="list-style-type: none"> <li>Call 911</li> <li>Do not rub the area</li> <li>Wrap in soft cloth</li> <li>If help is delayed, immerse in warm, not hot, water</li> </ul>
Trench Foot	<ul style="list-style-type: none"> <li>Tingling, itching or burning sensation</li> <li>Blisters</li> </ul>	<ul style="list-style-type: none"> <li>Soak feet in warm water, then wrap with dry cloth bandages</li> <li>Drink a warm sugary drink</li> </ul>

CONSTRUCTION HEALTH AND SAFETY PLAN  
BEACH 20<sup>TH</sup> STREET AT CORANAGA COMMONS  
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QUEENS, NEW YORK  
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NOVEMBER 2018

## **APPENDIX C**

### **HEAT STRESS GUIDELINES**

<b>HEAT STRESS GUIDELINES</b>			
<b>Form</b>	<b>Signs &amp; Symptoms</b>	<b>Care</b>	<b>Prevention<sup>3</sup></b>
Heat Rash	Tiny red vesicles in affected skin area. If the area is extensive, sweating can be impaired.	Apply mild lotions and cleanse the affected area.	Cool resting and sleeping areas to permit skin to dry between heat exposures
Heat Cramps	Spasm, muscular pain (cramps) in stomach area and extremities (arms and legs).	Provide replacement fluids with minerals (salt) such as Gatorade.	Adequate salt intake with meals <sup>1</sup> ACCLIMATIZATION <sup>2</sup>
Heat Exhaustion	Profuse sweating, cool (clammy) moist skin, dizziness, confusion, pale skin color, faint, rapid shallow breathing, headache, weakness, muscle cramps.	Remove from heat, sit or lie down, rest, replace lost water with electrolyte replacement fluids (water, Gatorade) take frequent sips of liquids in amounts greater than required to satisfy thirst.	ACCLIMATIZATION <sup>2</sup> Adequate salt intake with meals 1 only during early part of heat season. Ample water intake, frequently during the day
Heat Stroke	HOT Dry Skin. Sweating has stopped. Mental confusion, dizziness, nausea, severe headache, collapse, delirium, coma.	HEAT STROKE IS A MEDICAL EMERGENCY - Remove from heat. - COOL THE BODY AS RAPIDLY AS POSSIBLE by immersing in cold (or cool) water, or splash with water and fan. Call for Emergency Assistance. Observe for signs of shock.	ACCLIMATIZATION <sup>2</sup> Initially moderate workload in heat (8 to 14 days). Monitor worker's activities.

**Footnotes:**

- 1) American diets are normally high in salt, sufficient to aid acclimatization. However, during the early part of the heat season, (May, June), one extra shake of salt during one to two meals per day may help, so long as this is permitted by your physician. Check with your personal physician.
- 2) ACCLIMATIZATION - The process of adapting to heat is indicated by worker's ability to perform hot jobs less fluid loss, lower concentrations of salt loss in sweat, and a reduced core (body) temperature and heart rate.
- 3) Method to Achieve Acclimatization - Moderate work or exercise in hot temperatures during early part of heat season. Adequate salt (mineral) and water intake. Gradually increasing work time in hot temperatures. Avoid alcohol. Normally takes 8 to 14 days to achieve acclimatization. Lost rapidly, if removed from strenuous work (or exercise) in hot temperature for more than approximately five days.

CONSTRUCTION HEALTH AND SAFETY PLAN  
BEACH 20<sup>TH</sup> STREET AT CORANAGA COMMONS  
19-38 CORNAGA AVENUE  
QUEENS, NEW YORK  
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NOVEMBER 2018

## **APPENDIX D**

### **SAFETY DATA SHEETS (SDS)**

# MATERIAL SAFETY DATA SHEET

**ALCONOX®**

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Union REACH Regulations



## SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **ALCONOX®**  
CHEMICAL FAMILY NAME: Detergent.  
PRODUCT USE: Critical-cleaning detergent for laboratory, healthcare and industrial applications  
U.N. NUMBER: Not Applicable  
U.N. DANGEROUS GOODS CLASS: Non-Regulated Material  
SUPPLIER/MANUFACTURER'S NAME: Alconox, Inc.  
ADDRESS: 30 Glenn St., Suite 309, White Plains, NY 10603. USA  
EMERGENCY PHONE: **TOLL-FREE in USA/Canada** 800-255-3924  
**International calls** 813-248-0585  
BUSINESS PHONE: 914-948-4040  
DATE OF PREPARATION: May 2011  
DATE OF LAST REVISION: February 2008

## SECTION 2 - HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** This product is a white granular powder with little or no odor. Exposure can be irritating to eyes, respiratory system and skin. It is a non-flammable solid. The Environmental effects of this product have not been investigated.

US DOT SYMBOLS

Non-Regulated

CANADA (WHMIS) SYMBOLS



EUROPEAN and (GHS) Hazard Symbols



Signal Word: **Warning!**

### EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008 Annex 1

EC# 205-633-8 This substance is not classified in the Annex I of Directive 67/548/EEC

EC# 268-356-1 This substance is not classified in the Annex I of Directive 67/548/EEC

EC# 231-838-7 This substance is not classified in the Annex I of Directive 67/548/EEC

EC# 231-767-1 This substance is not classified in the Annex I of Directive 67/548/EEC

EC# 207-638-8 Index# 011-005-00-2

EC# 205-788-1 This substance is not classified in the Annex I of Directive 67/548/EEC

### GHS Hazard Classification(s):

Eye Irritant Category 2A

### Hazard Statement(s):

H319: Causes serious eye irritation

### Precautionary Statement(s):

P260: Do not breath dust/fume/gas/mist/vapors/spray

P264: Wash hands thoroughly after handling

P271: Use only in well ventilated area.

P280: Wear protective gloves/protective clothing/eye protection/face protection/

### Hazard Symbol(s):

[Xi] Irritant

# MATERIAL SAFETY DATA SHEET

**ALCONOX®**

**Risk Phrases:**

R20: Harmful by inhalation  
R36/37/38: Irritating to eyes, respiratory system and skin

**Safety Phrases:**

S8: Keep container dry  
S22: Do not breath dust  
S24/25: Avoid contact with skin and eyes

**HEALTH HAZARDS OR RISKS FROM EXPOSURE:**

**ACUTE:** Exposure to this product may cause irritation of the eyes, respiratory system and skin. Ingestion may cause gastrointestinal irritation including pain, vomiting or diarrhea.

**CHRONIC:** This product contains an ingredient which may be corrosive.

**TARGET ORGANS:**

ACUTE: Eye, respiratory System, Skin

CHRONIC: None Known

## SECTION 3 - COMPOSITION and INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS:	CAS #	EINECS #	ICSC #	WT %	HAZARD CLASSIFICATION; RISK PHRASES
Sodium Bicarbonate	144-55-8	205-633-8	1044	33 - 43%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	268-356-1	Not Listed	10 – 20%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium Tripolyphosphate	7758-29-4	231-838-7	1469	5 - 15%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Tetrasodium Pyrophosphate	7722-88-5	231-767-1	1140	5 - 15%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Sodium Carbonate	497-19-8	207-638-8	1135	1 - 10%	HAZARD CLASSIFICATION: [Xi] Irritant RISK PHRASES: R36
Sodium Alcohol Sulfate	151-21-3	205-788-1	0502	1 – 5%	HAZARD CLASSIFICATION: None RISK PHRASES: None
Balance of other ingredients are non-hazardous or less than 1% in concentration (or 0.1% for carcinogens, reproductive toxins, or respiratory sensitizers).					

**NOTE:** ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard JIS Z 7250: 2000.

## SECTION 4 - FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

**EYE CONTACT:** If product enters the eyes, open eyes while under gentle running water for at least 15 minutes. Seek medical attention if irritation persists.

**SKIN CONTACT:** Wash skin thoroughly after handling. Seek medical attention if irritation develops and persists. Remove contaminated clothing. Launder before re-use.

**INHALATION:** If breathing becomes difficult, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if breathing difficulty continues.

**INGESTION:** If product is swallowed, call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Seek medical advice. Take a copy of the label and/or MSDS with the victim to the health professional.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing skin, or eye problems may be aggravated by prolonged contact.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and reduce over-exposure.

# MATERIAL SAFETY DATA SHEET

ALCONOX®

## SECTION 5 - FIRE-FIGHTING MEASURES

**FLASH POINT:**

Not Flammable

**AUTOIGNITION TEMPERATURE:**

Not Applicable

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): NA Upper (UEL): NA

**FIRE EXTINGUISHING MATERIALS:**

As appropriate for surrounding fire. Carbon dioxide, foam, dry chemical, halon, or water spray.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

This product is non-flammable and has no known explosion hazards.

Explosion Sensitivity to Mechanical Impact:

Not Sensitive.

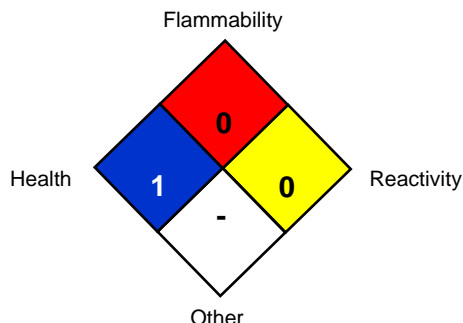
Explosion Sensitivity to Static Discharge:

Not Sensitive



**SPECIAL FIRE-FIGHTING PROCEDURES:**

Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

### NFPA RATING SYSTEM



### HMIS RATING SYSTEM

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH HAZARD (BLUE)			1
FLAMMABILITY HAZARD (RED)			0
PHYSICAL HAZARD (YELLOW)			0
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	See Sect 8		See Sect 8
For Routine Industrial Use and Handling Applications			

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

**SPILL AND LEAK RESPONSE:** Personnel should be trained for spill response operations.

**SPILLS:** Contain spill if safe to do so. Prevent entry into drains, sewers, and other waterways. Sweep, shovel or vacuum spilled material and place in an appropriate container for re-use or disposal. Avoid dust generation if possible. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

## SECTION 7 - HANDLING and STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing dusts generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** Containers of this product must be properly labeled. Store containers in a cool, dry location. Keep container tightly closed when not in use. Store away from strong acids or oxidizers.

# MATERIAL SAFETY DATA SHEET

ALCONOX®

## SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

### EXPOSURE LIMITS/GUIDELINES:

Chemical Name	CAS#	ACGIH TWA	OSHA TWA	SWA
Sodium Bicarbonate	144-55-8	10 mg/m <sup>3</sup> Total Dust	15 mg/m <sup>3</sup> Total Dust	10 mg/m <sup>3</sup> Total Dust
Sodium (C10 – C16) Alkylbenzene Sulfonate	68081-81-2	10 mg/m <sup>3</sup> Total Dust	15 mg/m <sup>3</sup> Total Dust	10 mg/m <sup>3</sup> Total Dust
Sodium Tripolyphosphate	7758-29-4	10 mg/m <sup>3</sup> Total Dust	15 mg/m <sup>3</sup> Total Dust	10 mg/m <sup>3</sup> Total Dust
Tetrasodium Pyrophosphate	7722-88-5	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Sodium Carbonate	497-19-8	10 mg/m <sup>3</sup> Total Dust	15 mg/m <sup>3</sup> Total Dust	10 mg/m <sup>3</sup> Total Dust
Sodium Alcohol Sulfate	151-21-3	10 mg/m <sup>3</sup> Total Dust	15 mg/m <sup>3</sup> Total Dust	10 mg/m <sup>3</sup> Total Dust

Currently, International exposure limits are not established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use local exhaust ventilation to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

*The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.*

**RESPIRATORY PROTECTION:** Based on test data, exposure limits should not be exceeded under normal use conditions when using Alconox Detergent. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states.

**EYE PROTECTION:** Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

**HAND PROTECTION:** Use chemical resistant gloves to prevent skin contact.. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

**BODY PROTECTION:** Use body protection appropriate to prevent contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards.

## SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

<b>PHYSICAL STATE:</b>	Solid
<b>APPEARANCE &amp; ODOR:</b>	White granular powder with little or no odor.
<b>ODOR THRESHOLD (PPM):</b>	Not Available
<b>VAPOR PRESSURE (mmHg):</b>	Not Applicable
<b>VAPOR DENSITY (AIR=1):</b>	Not Applicable.
<b>BY WEIGHT:</b>	Not Available
<b>EVAPORATION RATE (nBuAc = 1):</b>	Not Applicable.
<b>BOILING POINT (C°):</b>	Not Applicable.
<b>FREEZING POINT (C°):</b>	Not Applicable.
<b>pH:</b>	9.5 (1% aqueous solution)
<b>SPECIFIC GRAVITY 20°C: (WATER =1)</b>	0.85 – 1.1
<b>SOLUBILITY IN WATER (%)</b>	>10% w/w
<b>COEFFICIENT OF WATER/OIL DIST.:</b>	Not Available
<b>VOC:</b>	None
<b>CHEMICAL FAMILY:</b>	Detergent

# MATERIAL SAFETY DATA SHEET

ALCONOX®

## SECTION 10 - STABILITY and REACTIVITY

**STABILITY:** Product is stable

**DECOMPOSITION PRODUCTS:** When heated to decomposition this product produces Oxides of carbon (COx)

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong acids and strong oxidizing agents.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Contact with incompatible materials and dust generation.

## SECTION 11 - TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** Toxicity data is available for mixture:

CAS# 497-19-8 LD50 Oral (Rat)	4090 mg/kg
CAS# 497-19-8 LD50 Oral (Mouse)	6600 mg/kg
CAS# 497-19-8 LC50 Inhalation (Rat)	2300 mg/m <sup>3</sup> 2H
CAS# 497-19-8 LC50 Inhalation (Mouse)	1200 mg/m <sup>3</sup> 2H
CAS# 7758-29-4 LD50 Oral (Rat)	3120 mg/kg
CAS# 7758-29-4 LD50 Oral (Mouse)	3100 mg/kg
CAS# 7722-88-5 LD50 Oral (Rat)	4000 mg/kg

**SUSPECTED CANCER AGENT:** None of the ingredients are found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Contact with this product can be irritating to exposed skin, eyes and respiratory system.

**SENSITIZATION OF PRODUCT:** This product is not considered a sensitizer.

**REPRODUCTIVE TOXICITY INFORMATION:** No information concerning the effects of this product and its components on the human reproductive system.

## SECTION 12 - ECOLOGICAL INFORMATION

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

**ENVIRONMENTAL STABILITY:** No Data available at this time.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** No evidence is currently available on this product's effects on plants or animals.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life.

## SECTION 13 - DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

## SECTION 14 - TRANSPORTATION INFORMATION

**US DOT; IATA; IMO; ADR:**

**THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:** Non-Regulated Material

**HAZARD CLASS NUMBER and DESCRIPTION:** Not Applicable

**UN IDENTIFICATION NUMBER:** Not Applicable

**PACKING GROUP:** Not Applicable.

**DOT LABEL(S) REQUIRED:** Not Applicable

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2004):** Not Applicable

**MARINE POLLUTANT:** None of the ingredients are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

**U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:**

This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

**TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:**

This product is not classified as Dangerous Goods, per regulations of Transport Canada.

**INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):**

This product is not classified as Dangerous Goods, by rules of IATA:

**INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:**

This product is not classified as Dangerous Goods by the International Maritime Organization.

**EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):**

# MATERIAL SAFETY DATA SHEET

**ALCONOX®**

This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

## SECTION 15 - REGULATORY INFORMATION

### UNITED STATES REGULATIONS

**SARA REPORTING REQUIREMENTS:** This product is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows: None

**TSCA:** All components in this product are listed on the US Toxic Substances Control Act (TSCA) inventory of chemicals.

#### SARA 311/312:

Acute Health: Yes                      Chronic Health: No                      Fire: No                      Reactivity: No

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** None

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** None of the ingredients are on the California Proposition 65 lists.

### CANADIAN REGULATIONS:

**CANADIAN DSL/NDL INVENTORY STATUS:** All of the components of this product are on the DSL Inventory

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** No component of this product is on the CEPA First Priorities Substance Lists.

**CANADIAN WHMIS CLASSIFICATION and SYMBOLS:** This product is categorized as a Controlled Product, Hazard Class D2B as per the Controlled Product Regulations

### EUROPEAN ECONOMIC COMMUNITY INFORMATION:

#### EU LABELING AND CLASSIFICATION:

Classification of the mixture according to Regulation (EC) No1272/2008. See section 2 for details.

### AUSTRALIAN INFORMATION FOR PRODUCT:

**AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS:** All components of this product are listed on the AICS.

**STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS:** Not applicable.

### JAPANESE INFORMATION FOR PRODUCT:

**JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS:** The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

### INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac:	Listed
Australian Inventory of Chemical Substances (AICS):	Listed
Korean Existing Chemicals List (ECL):	Listed
Japanese Existing National Inventory of Chemical Substances (ENCS):	Listed
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Listed
Swiss Giftlist of Toxic Substances:	Listed
U.S. TSCA:	Listed

## SECTION 16 - OTHER INFORMATION

**PREPARED BY:** Paul Eigbrett      Global Safety Management, 10006 Cross Creek Blvd. Suite 440, Tampa, FL 33647

# MATERIAL SAFETY DATA SHEET

ALCONOX®

**Disclaimer:** To the best of Alconox, Inc. knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type either express or implied are provided. The information contained herein relates only to this specific product.

## ANNEX:

### IDENTIFIED USES OF ALCONOX® AND DIRECTIONS FOR USE

**Used to clean:** Healthcare instruments, laboratory ware, vacuum equipment, tissue culture ware, personal protective equipment, sampling apparatus, catheters, tubing, pipes, radioactive contaminated articles, optical parts, electronic components, pharmaceutical apparatus, cosmetics manufacturing equipment, metal castings, forgings and stampings, industrial parts, tanks and reactors. Authorized by USDA for use in federally inspected meat and poultry plants. Passes inhibitory residue test for water analysis. FDA certified.

**Used to remove:** Soil, grit, grime, buffing compound, slime, grease, oils, blood, tissue, salts, deposits, particulates, solvents, chemicals, radioisotopes, radioactive contaminations, silicon oils, mold release agents.

**Surfaces cleaned:** Corrosion inhibited formulation recommended for glass, metal, stainless steel, porcelain, ceramic, plastic, rubber and fiberglass. Can be used on soft metals such as copper, aluminum, zinc and magnesium if rinsed promptly. Corrosion testing may be advisable.

**Cleaning method:** Soak, brush, sponge, cloth, ultrasonic, flow through clean-inplace. Will foam—not for spray or machine use.

**Directions:** Make a fresh 1% solution (2 1/2 Tbsp. per gal., 1 1/4 oz. per gal. or 10 grams per liter) in cold, warm, or hot water. If available use warm water. Use cold water for blood stains. For difficult soils, raise water temperature and use more detergent. Clean by soak, circulate, wipe, or ultrasonic method. Not for spray machines, will foam. For nonabrasive scouring, make paste. Use 2% solution to soak frozen stopcocks. To remove silver tarnish, soak in 1% solution in aluminum container. RINSE THOROUGHLY—preferably with running water. For critical cleaning, do final or all rinsing in distilled, deionized, or purified water. For food contact surfaces, rinse with potable water. Used on a wide range of glass, ceramic, plastic, and metal surfaces. Corrosion testing may be advisable.

CONSTRUCTION HEALTH AND SAFETY PLAN  
BEACH 20<sup>TH</sup> STREET AT CORANAGA COMMONS  
19-38 CORNAGA AVENUE  
QUEENS, NEW YORK  
NYC VCP SITE NUMBER: 18TMP0305Q  
NOVEMBER 2018

**APPENDIX E**

**INCIDENT REPORT FORM**

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# Accident/Incident Report Form

Please complete this form and send it to your Branch Manager, HR and CHSO **within 24 hours** of the incident.

SECTION A				ACCIDENT/INCIDENT DETAILS			
<b>EMPLOYEE INFORMATION:</b>				<b>OTHER INJURED (IF APPLICABLE):</b>			
<b>Name:</b> _____  <b>Home Address:</b> _____ <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Street Address</span> <span>City</span> <span>State</span> <span>Zip Code</span> </div> <b>Contact Information:</b> (    ) (    ) <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>Primary</span> <span>Secondary</span> </div> <b>Date of Birth:</b> _____ <b>Date of Hire:</b> _____ <b>Branch:</b> _____ <b>Supervisor:</b> _____				<b>Name:</b> _____  <b>Home Address:</b> _____ <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Street Address</span> <span>City</span> <span>State</span> <span>Zip Code</span> </div> <b>Contact Information:</b> (    ) (    ) <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>Primary</span> <span>Secondary</span> </div> <b>Date of Birth:</b> _____ <b>Date of Hire:</b> _____ <b>Branch:</b> _____ <b>Supervisor:</b> _____			
<b>Date and Time Accident/Incident</b>		<b>Date and Time Reported</b>		<b>LOCATION OF INCIDENT/ACCIDENT</b>			
____ / ____ / ____ <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>Month</span> <span>Day</span> <span>Year</span> </div> ____ A.M. ____ P.M.		____ / ____ / ____ <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>Month</span> <span>Day</span> <span>Year</span> </div> ____ A.M. ____ P.M.		<b>Project Name:</b> _____ <b>Client and Location:</b> _____ <b>or</b> _____ <b>Office Location:</b> _____			
<b>INCIDENT TYPE:</b> <b>(Check All That Applies)</b>				<b>WITNESS INFORMATION</b>			
<input type="checkbox"/> Personal Injury/Illness <input type="checkbox"/> Vehicle Accident <input type="checkbox"/> Property Damage <input type="checkbox"/> Environmental Spill <input type="checkbox"/> Other				<b>Name:</b> _____ <b>Contact Number:</b> _____ <b>Company:</b> _____			
<b>WHAT HAPPENED TO THE INJURED PARTY:</b> <input type="checkbox"/> First Aid Administered <input type="checkbox"/> Refused Treatment/Transport <input type="checkbox"/> Transported to Hospital <input type="checkbox"/> Returned to Work <input type="checkbox"/> Went Home <input type="checkbox"/> Went to Physician <input type="checkbox"/> Unknown  Clinic/Hospital or Treating Physician: _____ Phone: _____ <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>Name</span> <span>Street Address</span> <span>City</span> <span>State</span> <span>Zip Code</span> </div>							
SECTION B				PERSONAL INJURY			
<b>Cause of Injury:</b> _____							
<b>Part of Body Injured:</b> _____ <b>Multiple Injuries:</b> <input type="checkbox"/> Y <input type="checkbox"/> N							
<b>Was PPE worn when injured? :</b> <input type="checkbox"/> Y <input type="checkbox"/> N <b>What PPE was worn?</b> _____							
<b>WAS INJURY A RESULT OF THE USE A MOTOR VEHICLE:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO (If yes, complete Section C)							

# Accident/Incident Report Form

Please complete this form and send it to your Branch Manager, HR and CHSO **within 24 hours** of the incident.

## SECTION C

### AUTO ACCIDENT ONLY

#### DRIVER/VEHICLE INFORMATION

Name of Insured: \_\_\_\_\_  
 Department: \_\_\_\_\_  
 Driver's License Number: \_\_\_\_\_  
 DOB: \_\_\_\_/\_\_\_\_/\_\_\_\_ State: \_\_\_\_\_  
 Description of Vehicle: License Plate Number: \_\_\_\_\_  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_ Year: \_\_\_\_\_ Color: \_\_\_\_\_  
 Owner: \_\_\_\_\_

Name of Other Driver: \_\_\_\_\_  
 Driver's License Number: \_\_\_\_\_  
 State: \_\_\_\_\_  
 Description of Vehicle: License Plate Number: \_\_\_\_\_  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_ Year: \_\_\_\_\_ Color: \_\_\_\_\_  
 Insurance Carrier: \_\_\_\_\_  
 Policy Number: \_\_\_\_\_ Ph. Number: \_\_\_\_\_

## SECTION D

### PROPERTY DAMAGE OR CHEMICAL RELEASE ONLY

Type of Damage(s): \_\_\_\_\_  
 Cause of Damage(s): \_\_\_\_\_  
 Type of Chemical Released (if known): \_\_\_\_\_  
 Quantity of Chemical Released: \_\_\_\_\_  
 Spill Measures Employed: \_\_\_\_\_

## SECTION E

### NATURE OF ACCIDENT/INCIDENT AND EXTENT OF INJURIES/DAMAGES

*(Please give a detailed description of what happened. Attach a sketch or picture if applicable)*

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I hereby certify that the above information is true and correct to my understanding of this accident/incident.

\_\_\_\_\_  
Employee/Preparer's Name

\_\_\_\_\_  
Date and Time