Appendix E
Construction Specifications

SECTION 02 61 13

EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. This site contains an E-Designation for Hazardous Materials and is currently enrolled in the New York State Brownfield Cleanup Program (NYSBCP); therefore, the project will be completed under the jurisdiction of the New York State Department of Environmental Conservation (NYSDEC) and the New York City Office of Environmental Remediation (OER). All work shall be performed in accordance with (1) the Contract Documents to be prepared for the project; (2) the documents listed in Article 1.4[B][1-2]; (3) the Governing Authorities and Agencies; and (4) applicable federal, state, and local regulations.

B. This Section provides requirements for the testing, excavating, stockpiling, on-site handling, transport, and disposal of solid waste (i.e., fill material, unrestricted soil, non-hazardous contaminated soil and fill material, C&D debris, solid waste, hazardous waste, liquids, etc.). The Contractor shall provide all labor, materials, tools, and equipment to perform the work.

C. A waste characterization study was completed at the site in March 2018 (see Section 1.9[A]). Any additional waste characterization data required for the handling, transport and disposal of excavated material, including any buried construction and demolition debris, will be the responsibility of the Contractor.

D. The Contractor shall accept the site "as-is" and shall inspect the site and review all drawings, reports, and documents applicable to this work before submitting a bid.

E. The Contractor must verify the accuracy and existence of, and abide by applicable codes, ordinances, and other regulations by obtaining and interpreting state, county, city, or local laws for removal and disposal of solid waste.

F. The Contractor shall be responsible for the health and safety of his workers and his Subcontractors in accordance with Occupational Safety and Health Administration (OSHA) regulations, including Title 29 Code of Federal Regulations (CFR) Part 1910.120, and Section 0135 29.13 – Health, Safety, and Emergency Response Procedures for Contaminated Sites. The Contractor shall prepare a site-specific Health and Safety Plan as required by this specification.

G. No soil or fill material derived from the site is expected to be reused on-site. However, if plans change, on-site reuse will be conducted in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP), and NYSDEC laws and regulations, and other applicable agency requirements. Reuse of soil or fill material on-site will require NYSDEC approval.

H. Excavation and other intrusive work shall be documented by the Remedial Engineer (RE) on behalf of the Owner. The Contractor shall allow the RE to screen excavated soil. The RE will document Contractor compliance with the requirements set forth herein. The Contractor shall handle solid waste as specified herein and shall strictly adhere to all requirements of the NYSDEC-approved RAWP.

I. Where discrepancies exist in the Contract Documents, the most stringent shall apply.

1.2 SCOPE OF WORK

A. The Contractor shall be responsible for providing all labor, materials, equipment and services and perform all operations required of this Section;

B. The Contractor shall attend a pre-construction meeting with the Owner's Representative, RE, Construction Manager, and the NYSDEC and/or the OER. The meeting shall occur at least 2 weeks prior to site mobilization. At the meeting, the Contractor's proposed plan, methods, and schedule for this work will be discussed. Requirements discussed at this meeting shall be incorporated into the specification for this work;

C. The Contractor shall manage soil during all excavation, grading, and foundation construction work. General excavation elevations are established within the Contract Drawings. Over-excavation beyond elevations required for development may be required;

D. The Contractor shall properly characterize, excavate, stockpile, transport and dispose of solid waste in accordance with the NYSDEC-approved RAWP and Title 6 New York Codes, Rules, and Regulations (6 NYCRR) Part 360. This includes additional testing required for disposal classification of any previously unidentified contaminated materials including, but not limited to oil, sludge, water or water containing oil or separate phase product, soil, rock, concrete or concrete products, brick, and fill to be removed from the site;

E. The former concrete foundation slab and any remnant demolition debris will be removed from the site by the Contractor. The concrete slab and any remnant demolition debris will be segregated from other excavated site material. The demolition debris shall be transported off-site to a registered or permitted C&D debris handling and recovery facility authorized to accept C&D debris. Sampling of the remnant demolition debris may be required by the facility; this sampling will be the responsibility of the Contractor. Because the site is enrolled in the NYSDEC BCP, the NYSDEC must issue written approval to the C&D debris handling and recovery facility if the facility has obtained a permit or registration under 6 NYCRR Part 361-5 before any C&D debris is exported to this facility. This written approval requirement does not apply to C&D debris handling and recovery facilities with registrations or permits under 6 NYCRR Part 360 until May 2019;

F. The Contractor, by careful examination, shall inform himself as to the nature and location of the work; the nature of the subsurface conditions; the elevation of the groundwater table; the character, quality, and quantity of the materials to be encountered; the character of the equipment and facilities needed prior to and during the execution of the work; and all other matters which can in any way affect the work. The Contractor shall also have visited the site and have familiarized himself with the existing conditions of adjoining properties, utilities, and buildings;

G. The Contractor shall develop a system acceptable to the RE for defining waste classification cells based on all existing analytical data for the site and the disposal facility requirements. Grids/cells must be laid out in the field by the Contractor's surveyor. Grid/cell demarcations must be maintained throughout the excavation phase of the project to allow excavated material to be accurately tracked;

H. If encountered, the Contractor shall furnish all labor and materials, equipment and incidentals

required for proper decontamination, removal and closure of any Underground Storage Tanks (USTs);

I. The Contractor shall assist the RE in the collection of post-excavation documentation soil, groundwater, and/or soil vapor samples and leave sampling areas open until lab results are received and reviewed;

J. The Contractor shall provide necessary shoring/sheeting required to stabilize and protect the sidewalls of the excavation and other structures, utilities, pavement, etc. adjacent to the work area in accordance with NYC and other applicable Codes;

K. The Contractor shall only use backfill approved by the RE and NYSDEC that meets environmental quality criteria specified herein and in the RAWP. The provisions of the New York City Building Code relating to site earthwork and backfill shall govern the placement and compaction of backfill;

L. The Contractor shall investigate the conditions of public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affecting transportation to, ingress to, and egress from the site;

M. The Contractor shall prepare necessary plans, obtain necessary permits, including approvals from the New York City Transit Authority (NYCTA), and provide necessary plans, notifications and submittals to the RE, New York City, and the State of New York (as required) before, during, and after performance of the site work.

N. The Contractor shall not perform any work that involves soil disturbance or construction of a remedial measure, as defined in the RAWP, without the oversight of the RE. The Contractor shall notify the RE at least two weeks before performing any work covered by the RAWP;

O. The RE is on the site to document implementation of the RAWP for the Owner. The RE will prepare the Final Engineering Report (FER) as required by the RAWP. The Contractor shall provide any necessary backup documentation to support the preparation of the FER including but not limited to disposal facility applications, pre-approval letters, facility-signed solid waste manifests, analytical data and source certifications for imported materials, and tickets for imported materials.

P. Deviations from the RAWP or this specification will be brought to the attention of the Contractor. The Contractor shall immediately rectify any deviations. In no way is the RE responsible for any part of the generation, handling, management, characterization, transport or disposal of contaminated soil, water, materials, underground storage tanks, etc.

1.3 RELATED SECTIONS

The Contractor shall examine Contract Documents for requirements that directly affect or are affected by work of this Section. A list of those Sections includes, but is not limited to, the following:

- 31 00 00 Earthwork
- 31 50 00 Support of Excavation and Protection

1.4 STANDARDS AND REFERENCES

A. Site Information:

- *Site Closure Report for NYSDEC Spill 89-00371, dated August 30, 2002, prepared by Northeast Environmental Solutions, Inc.*
- *Heating Oil UST Closure Letter for Spill 04-11345, dated February 10, 2005, prepared by Northeast Environmental Solutions, Inc.*
- *Heating Oil UST Additional Investigation Letter for Spill 04-11345, dated March 31, 2005, prepared by Northeast Environmental Solutions, Inc.*
- *Spill Closure Request for NYSDEC Spill 07-02470, dated October 19, 2007, prepared by Groundwater & Environmental Services, Inc.*
- *Phase II Site Investigation Report for 231-235 St. Nicholas Avenue, dated August 2009, prepared by S&W Redevelopment of North America, LLC.*
- *Interim Remedial Measure Completion Report for the Former Shell Service Center and Parking Garage Site, dated November 2013, prepared by Environmental Business Consultants (EBC)*
- *Remedial Investigation Report for the Former Shell Service Center and Parking Garage Site, dated February 2014, prepared by EBC*
- *Remedial Action Work Plan for the Former Shell Service Center and Parking Garage Site, dated February 2014, prepared by EBC*
- *Decision Document for the Former Shell Service Center and Parking Garage Site, dated February 2014, prepared by NYSDEC*
- *Remedial Design Work Plan, dated March 16, 2018, prepared by Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. (Langan)*
- *Waste Characterization Report, dated April 2, 2018, prepared by Langan*

B. Regulatory Requirements and Reference Standards

1. The Contractor shall comply with all the laws, ordinances, codes, rules and regulations of the federal, state and local authorities having jurisdiction over any of the work specified herein. The Contractor shall meet federal, state and local Department of Transportation regulations for shipping of regulated substances to off-site disposal facilities, and meet all regulatory requirements imposed by the selected disposal facility(ies). Regulations pertaining to the handling, transport and disposal of regulated substances/materials include, but are not limited to the following:

    - 6 NYCRR Part 360 General Requirements
    - 6 NYCRR Part 361 Material Recovery Facilities
    - 6 NYCRR Part 362 Combustion, Thermal Treatment, Transfer, and Collection Facilities
    - 6 NYCRR Part 363 Landfills
    - 6 NYCRR Part 364, Waster Transporter Permits
    - 6 NYCRR Part 371 Identification and Listing of Hazardous Waste
    - 6 NYCRR Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
    - 6 NYCRR Part 373 Hazardous Waste Management Facilities
    - 6 NYCRR Part 374 Management of Specific Hazardous Waste
    - 6 NYCRR Part 375 Environmental Remedial Programs, 2006.
    - 6 NYCRR Part 376 Land Disposal Restrictions

- 6 NYCRR Part 612 Registration of Petroleum Storage Facilities
- 6 NYCRR Part 613 Handling and Storage of Petroleum
- 6 NYCRR Part 614 Standards for New and Substantially Modified Petroleum Storage Facilities
- American Petroleum Institute, API-2015A, "A Guide for Controlling the Lead Hazard Associated with Tank Entry and Cleaning."
- American Petroleum Institute, API-2217A, "Guidelines for Work in Inert Confined Spaces in the Petroleum Industry."
- American Petroleum Institute, API-2015, "Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks."
- American Petroleum Institute, API-2016, "Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks."
- American Petroleum Institute, API-1604, "Closure of Underground Petroleum Storage Tanks."
- American National Standard Institute, ANSI 22882, "Standard Practice for Respiratory Protection."
- American Society of Testing Materials, ASTM D 5088 (1990), Decontamination of Field Equipment Used at Non-Radioactive Waste Sites.
- Department of Transportation 49 CFR 172 through 179
- Department of Transportation 49 CFR 387 (46 FR 30974)
- Department of Transportation DOT-E 8876
- Resource Conservation and Recovery Act (RCRA)
- Resource Conservation and Recovery Act, 40 CFR Parts 260-265, Safe Entry and Cleaning of Petroleum Storage Tanks.
- Rule 21-02 of the City of New York
- Test Methods for Evaluating Solid Waste, USEPA Office of Solid Waste, SW-846 (latest revision)
- National Fire Prevention Association, Volume 30, "Flammable and Combustible Liquids Code."
- National Fire Prevention Association, Volume 327, "Cleaning or Safeguarding Small Tanks and Containers without Entry."
- National Institute for Occupational Safety and Health, NIOSH, "Working in Confined Space."
- NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.
- New York City Fire Department, FP Directive 3-73 Division of Fire Protection, NYCAC Title 27, New York City Fire Prevention Code, Chapter 4 et seq.
- NYCDEP, Rules of the City of New York (RCNY), Title 15, Chapter 19, Use of the Public Sewers.
- NYCDEP, Limitations for Effluent to Sanitary or Combined Sewers.
- NYCDEP, Dewatering Sampling and Testing Requirements.
- NYS Uniform Fire Prevention and Building Code (UFPBC) 1164.5.
- NYSDEC, TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values.
- NYSDEC, CP-51 Soil Cleanup Guidance
- NYSDEC Site Assessment at Bulk Storage Facilities, August 1, 1994, SPOTS Memo No 14.
- NYSDEC Petroleum-Contaminated Soil Guidance Policy, August 1992, STARS Memo No. 1.

- The City of New York Building Code.
- Title 29 Code of Federal Regulations (CFR) Part 1926
- Title 29 Code of Federal Regulations (CFR) Part 1910
- Title 40 Code of Federal Regulations (CFR) Part 136
- Title 40 Code of Federal Regulations (CFR) Part 261
- Title 40 Code of Federal Regulations (CFR) Part 761
- US Department of Transportation (US DOT) 49 CFR Section 172.500 et seq.
- USEPA Regulation 40 CFR Part 280, Underground Storage Tanks: Technical Requirements Final Rule and Office of Emergency and Remedial Response, Standard Safety Guides, PB92-983414.

2. Any transporter of materials removed from the site shall be appropriately licensed or permitted in the state in which handling and transportation shall take place in accordance with all applicable regulations.
3. The Contractor must comply with OSHA (Occupational Safety and Health Administration) Standards and Regulations contained in Title 29 CFR Part 1910.120 "Hazardous Waste Operations and Emergency Response."
4. Where reference is made to one of the above standards, the revision in effect at the time of the performance of the work shall apply.
5. In case of conflict between codes, regulations and specifications, the Contractor shall comply with the most stringent applicable codes, regulations or specifications.
6. If conditions indicative of a petroleum discharge or chemical spill are encountered during any aspect of the performance of the work, the NYSDEC will be notified, as required by law.

C. DEFINITIONS

1. Unrestricted Soil: Soil not exceeding any limits of 6 NYCRR 375-6.8(a) Unrestricted Use Soil Cleanup Objectives (SCOs), has not been in contact with a spill of petroleum, hazardous waste or industrial waste, and is not included in any other category and has no restrictions on reuse or disposal provided approval has been granted by the destination facility or project and the appropriate regulatory agency.
1. Reusable Soil and Fill Material: Excavated on-site material not exceeding the lower of 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs and the NYSDEC 6 NYCRR Part 375-6.8(b) Protection of Groundwater SCOs, which does not contain any construction and demolition (C&D) debris, does not exhibit any observable indicators of contamination (i.e., petroleum-staining and odors), and has not been in contact with a spill of petroleum, hazardous waste or industrial waste. The Protection of Groundwater SCOs apply only to compounds or analytes detected in groundwater at concentrations that exceed the Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water. Excavated on-site material is not anticipated to be reused for this project.
2. Imported Backfill: Soil and fill material imported from off-site sources must not exceed the 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs. Imported backfill shall also meet geotechnical requirements (if any). In addition, imported backfill shall not contain any construction & demolition (C&D) debris, other than recognizable concrete aggregate as described herein, exhibit any observable indicators of contamination (i.e., petroleum-staining and odors), or have been in contact with a spill of petroleum, hazardous waste or industrial waste.
3. Clean Cover Material: Soil and fill material imported from off-site sources used in landscaped and planted areas must not exceed the lower of 6 NYCRR Part 375-6.8(a)

Unrestricted Use SCOs and 6 NYCRR Part 375-6.8 Protection of Groundwater SCOs. Clean cover material shall also meet landscape requirements, geotechnical requirements (if any). In addition, imported backfill shall not contain any C&D debris, other than recognizable concrete aggregate as described herein, exhibit any observable indicators of contamination (i.e., petroleum-staining and odors), or have been in contact with a spill of petroleum, hazardous waste or industrial waste. Clean cover material is not anticipated to be needed for this project.

4. Recycled Concrete Aggregate (RCA): RCA can only be imported from facilities permitted or registered by the NYSDEC or the applicable state of origin. The Contractor is responsible for verifying that the facility is compliant with 6 NYCRR Part 360 and its subparts for the period of acquisition of the RCA. RCA imported from compliant facilities will not require additional testing unless required by the NYSDEC under its terms for operation of the facility. RCA imported to the site must be derived from clean, recognizable concrete. RCA material is not acceptable for and will not be used as clean cover material. To avoid the requirement for import material laboratory analytical testing, recycled concrete aggregate (RCA) must have no more than 10% by weight passing through a No. 80 sieve.
5. Virgin Sand, Gravel, Rock or Stone: Virgin sand, gravel, rock or stone can only be imported from mines, quarries or facilities permitted or registered by the NYSDEC or the applicable state of origin. Virgin sand, gravel, rock or stone imported from compliant mines, quarries or facilities will not require additional testing unless required by the NYSDEC (or other regulatory agency) under its terms for operation of the mine or facility. To avoid the requirement for import material laboratory analytical testing, native rock or stone must have no more than 10% by weight passing through a No. 80 sieve.
6. Petroleum Contaminated Soil: As defined in NYSDEC Commissioner Policy (CP)-51 Soil Cleanup Guidance or material associated with a known release or open NYSDEC Petroleum spill number.
7. Construction and Demolition (C&D) Debris: As defined in 6 NYCRR Part 360-2(b)(61) and Part 360-2(b)(61) construction and demolition (C&D) debris means waste resulting from construction, remodeling, repair and demolition of structures, buildings and roads. C&D debris includes fill material, demolition wastes, and construction wastes. Materials that are not C&D debris (even if generated from construction, remodeling, repair and demolition activities) include municipal solid waste, friable asbestos-containing waste, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, furniture, appliances, tires, drums, fuel tanks, containers greater than ten gallons in size, and any containers having more than one inch of residue remaining on the bottom.
8. Hazardous Waste: As defined in 6 NYCRR Part 371 or 40 CFR Part 261. Under NYSDEC hazardous waste regulations, materials containing polychlorinated biphenyls (PCBs) at concentrations of 50 ppm or greater are considered state hazardous waste (6 NYCRR § 371.4(e)). USEPA regulations pertaining to the management of PCBs are codified in 40 CFR Part 761.
9. Industrial waste: Industrial waste is defined as solid waste generated by manufacturing or industrial processes. Such processes may include, but are not limited to the following: electric power generation; fertilizer/agricultural chemicals; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay and concrete products; textile manufacturing; transportation equipment; and water treatment. The forms of such wastes are exemplified by but not limited to: liquids such as acids, alkalis, caustics,

leachate, petroleum (and its derivatives), and processes or treatment wastewaters; sludges which are semi-solid substances resulting from process or treatment operations or residues from storage or use of liquids; solidified chemicals, paints or pigments; and dredge spoil generated by manufacturing or industrial processes, foundry sand, and the end or by-products of incineration or other forms of combustion. This term does not include oil or gas drilling, production, and treatment wastes (such as brines, oil, and frac fluids); overburden, spoil, or tailings resulting from mining; or solution mining brine and insoluble component wastes.

1.5 QUALIFICATIONS

A. The Contractor shall be approved by the Owner. The Contractor shall be any person or persons, corporation, or proprietorship deemed competent and experienced to perform work involving the closures of USTs, hauling, disposal, transportation, or remediation of solid waste, including non-hazardous and hazardous waste. For the purposes of this contract, the Contractor shall possess the following:

1. Access to valid 6 NYCRR Part 364 permits for transport and disposal of fill material, C&D debris, oil/petroleum waste, non-hazardous contaminated soil, hazardous waste, and all other solid wastes;
2. Access to facilities to handle, transport, characterize, treat and dispose of solid waste, including C&D debris, non-hazardous waste, or hazardous waste;
3. Access to documented, certified personnel for tank closure, spill responses, hazardous materials operations, and confined space entry;
4. Access to a tank removal Subcontractor licensed by the City of New York Fire Department;
5. Labor and materials to immediately execute work under this contract;
6. Experience directly related to work under this contract;
7. An adequate understanding of all the regulations and requirements governing this contract; and
8. Any item pertinent to work described in this contract.

B. The Contractor shall provide the Owner with evidence of the successful completion of at least five similar projects in scope and execution and/or a minimum of five years of experience of the same. Verification shall include letters of recommendation, references, owners/clients for whom the work was performed, dates, project durations, project cost, experience of personnel, licenses, etc.

C. When it is necessary for the Contractor to utilize the services of a Subcontractor to perform work, the Contractor shall be responsible for the Subcontractor. The Subcontractor shall meet the requirements of this Section and be submitted by the Contractor for approval by the Owner. The Contractor shall provide evidence of the successful completion of at least five projects similar in scope and execution and/or a minimum of five years of experience of the same for the Subcontractor(s). Verification shall include letters of recommendation, references, owners/clients for whom the work was performed, dates, project durations, project cost, experience of personnel, licenses, certifications, etc.

1.6 SUBMITTALS

A. Pre-Construction Submittals: The Contractor shall submit the following submittals for review a minimum of three weeks prior to proceeding with the work:

1. Confirmation of the Contractor's qualifications, licenses, permits, and items listed in Article 1.3 of this Section.
2. Confirmation of any Subcontractor's qualifications, licenses, permits, and items listed in Article 1.3 of this Section.
3. A Sequence of Operations Plan with a detailed project schedule.
4. All required insurance certificates and bonds, and proof that all required permits have been obtained.
5. A site-specific or task-specific Health and Safety Plan (HASP):

    - Each Contractor and Subcontractor performing work on site shall comply with its own site-specific or task-specific HASP for its organization, which includes analysis of protective measures for identified and reasonably anticipated site contaminants.
    - Each site-specific or task-specific HASP must meet the minimum requirements established in 29 CFR 1910 and 1926.
    - If required, the Contractor and Subcontractor shall maintain staff that has received the OSHA 40-hour hazardous waste training (29 CFR 1910.120), the 8-hour supervisor training, and the associated annual 8-hour refresher course, to supervise excavation work and soil handling activities involving hazardous materials.
    - If hazardous waste is encountered, the Contractor and Subcontractor shall provide documentation acceptable to the Owner's Engineer of OSHA 40-hour training, refresher training, respiratory fit testing, and medical monitoring of workers that will complete work under the OSHA 1910.120 requirements, as necessary.

6. A Field Sampling Plan (FSP):

    - Waste characterization must be performed prior to off-site disposal of solid waste. The Contractor shall submit to the RE for review, before any sampling occurs, a Field Sampling Plan (FSP). The FSP shall provide the following:

        1. A description of the analytical and non-analytical requirements and sampling frequency requirements of the proposed disposal facilities;
        2. The specific frequency of samples per unit volume as required by the disposal facility(ies) chosen by the Contractor. The area to be excavated in accordance with the specifications will be divided by the FSP into distinct vertical and horizontal segments, identifying the volume of soil or fill that each sample will represent. The actual sampling frequency will be determined based on the requirements of the proposed disposal facility(ies);
        3. A scaled map of the site showing the proposed excavation limits and proposed sampling locations. The map shall also show an identification number for each sampling location and sampling depth intervals;
        4. A description of the sampling methodology, sampling equipment, decontamination procedures, and field quality and laboratory assurance and quality control (QA/QC) procedures to be implemented during the sampling event;
        5. Name and address of analytical laboratory(ies) and copy of the NYSDOH-ELAP certification; and
        6. Listing of all analyses to be performed, including QA/QC samples required by the disposal facility(ies) or host state(s), by sample identification number.

- No sampling shall be conducted until the RE completes its review of the FSP.

- Sample frequency, collection, preservation, and handling shall be performed as specified herein, and in accordance with the most recent version of NYSDEC DER-10.

- Samples shall be placed in laboratory-supplied sample containers.

- Detailed field notes shall be maintained by the Contractor during sampling to allow identification of sample analysis results with the respective grids that the data represent, and to verify quantities of materials to be disposed of as hazardous or non-hazardous. The field notes made during the sampling shall at a minimum consist of: (1) boring, probe, test pit or stockpile logs from each sampling location that will contain a continuous stratigraphic description of all material encountered to the excavation depth in the material. Each description will include but will not be limited to, color, odor, relative grain size distribution, material composition (including, but not limited to, ash, organic-free silt, sand, gravel and clay), moisture content, cohesive properties, and relative density; (2) the location of each sampling point on a scaled map; (3) depth intervals for each sample, whether a grab or composite, and any special notes which are included on the laboratory chain of custody forms; and (4) copies of all laboratory chain-of-custody forms for samples that are selected for analysis.

- Each sample container shall be labeled to document project location, Contractor name, sample location, sample depth, date and time of sampling, sample inventory number as it correlates to sampling pile or grid and parameters to be analyzed. A chain-of-custody form shall accompany all samples. The chain-of-custody form shall repeat all information in the sample label and any special instructions to the laboratory. The chain-of-custody form shall be signed, as well all changes in sample custody (with date and time). After collection and labeling, each sample container shall be properly sealed to ensure its integrity through receipt at the laboratory.

- If the proposed receiving facility(ies) are not available when the disposal operations begin, the Contractor will be fully responsible for procuring additional approved disposal sites at no additional cost. Any additional sampling, analysis, delay in approval, and labor involved in submitting disposal facilities will be at the Contractor's expense.

7. A Field Sampling Summary Report (FSSR):

    - The Contractor shall prepare and submit a Field Sampling Summary Report to the RE for review. The FSPR shall include, at a minimum, the following information:

        1. A description of the sampling methodology, sampling equipment, decontamination procedures, and field quality and laboratory assurance and quality control (QA/QC) procedures implemented during the sampling event;
        2. A description of visual observations;
        3. A scaled map of the site showing actual sampling locations;
        4. Copies of all boring, probe, test pit or stockpile logs;
        5. A tabular and figure-type presentation of the analytical results compared to regulatory and/or facility-specific criteria;
        6. A description and figure-type presentation of the classification of the sampled

media based on its analytical results and non-analytical characteristics;
7. The laboratory analytical results in hardcopy and electronic format. The laboratory analytical data deliverables must be dated within three (3) months of submission;
8. The name and address of the analytical laboratory(ies) and copy of the NYSDOH-ELAP certification; and
9. Copies of laboratory chain-of-custody forms

8. An Excavated Material Disposal Plan (EMDP):

- The Contractor shall prepare an Excavated Material Disposal Plan (EMDP) and submit it to the RE for review. The EMDP shall be reviewed before any excavating, handling, and transporting activities begin at the site. The EMDP shall outline the detailed procedures for operations and construction activities related to excavation, handling, transport and disposal including, but not limited to, the following:

    1. The name and address of the receiving facility(ies) that shall accept the excavated material (i.e., C&D debris, unrestricted soil and fill material, non-hazardous contaminated soil and fill material, solid waste, hazardous waste, liquids, etc.) for treatment, storage, disposal, reuse, or recycling.
    2. Pre-approval request letters addressed to the receiving facility(ies) prepared by the Contractor. The pre-approval request letter shall include the following information:

        a. The full address of the site;
        b. The NYSBCP project number for the site, C231067;
        c. The full address of the receiving facility;
        d. A statement identifying the site as the "originating source" of the material(s);
        e. A statement that the excavated material is generated at an environmental remediation site under a government remediation program;
        f. A description of the excavated material proposed for acceptance at the receiving facility;
        g. References to the analytical waste characterization data (i.e., sample identification number and laboratory report number) representing the excavated material proposed for acceptance at the receiving facility;
        h. A list of all relevant and available environmental correspondence and reports for the site; digital or hardcopies of all relevant and available environmental correspondence and reports shall be sent to the receiving facility with the pre-approval request letter for review;
        i. The volume of material requested for pre-approval; and
        j. A statement requesting that the receiving facility will provide written pre-approval for the excavated material to be accepted at the receiving facility.

    3. Pre-approval letters issued by the receiving facility on facility letterhead. The pre-approval letter shall include the following information:

        a. The full address of the site;

b. The NYSBCP site number for the site, C231067;
c. The full address of the receiving facility;
d. A statement identifying the site as the "originating source" of the material(s);
e. A description of the nature of the excavated material accepted by the receiving facility;
f. The facility's valid and current operating permit number;
g. A statement that the facility is in compliance with its valid and current operating permit;
h. A statement that the facility received and reviewed the pre-approval request letter prepared by the Contractor (include date of pre-approval request letter);
i. A statement that the facility is authorized to accept the excavated material subject to the pre-approval;
j. A list of non-analytical or other conditions that would cause the facility to reject inbound material(s);
k. References to the analytical waste characterization data (i.e., sample identification number and laboratory report number) the pre-approval is based on;
l. The volume of material subject to the pre-approval; and
m. The volume of material that can be accepted by the receiving facility each day.

4. Copies of valid, current, operating permits for each proposed receiving facility from the applicable regulatory agencies.
5. A copy of a completed (i.e., generator-signed) Resource Conservation and Recovery Act (RCRA) Subtitle C Site Identification Form, including the USEPA-issued generator identification number, for hazardous waste disposal activities.
6. Analytical testing requirements (i.e., sample type, sampling frequency, analyses, analytical methods, etc.) and analytical and non-analytical acceptance criteria for each proposed receiving facility.
7. A list of the maximum concentrations allowed for inbound material(s) under the valid and current operating permit. If no maximum concentrations are available, the facility will indicate by indicating "no maximum concentration". This document will be submitted to the contractor with a signed approval from a facility manager or person authorized to make a statement of this type.
8. The name and address of the licensed tank disposal facility or recycling facility that shall accept tanks, piping, and appurtenances should they be encountered.
9. A copy of the tank removal contractor's FDNY license and certification.
10. Name and address of all proposed waste transporters for all excavated material (i.e., unregulated soil and fill material, non-hazardous contaminated soil and fill material, solid waste, hazardous waste, liquids, etc.).
11. All applicable local, state and federal permits required for the transport of regulated excavated material, including proof of permit, license or authorization to transport waste material in the state of New York, the state in which the receiving facility is located, and any other state through which the waste will travel. The licenses and permits that may apply include, but are not limited to: 6 NYCRR Part 364 permits, hazardous waste transporter permits issued under 6 NYCRR Part 372.3 (if applicable), NJDEP A-901 licenses, and PADEP Act 90

permits.

12. USEPA and/or state identification number and license expiration dates for receiving facilities and waste transporters.

B. Construction-Phase Submittals

1. Reuse of Excavated On-site Material:

- No soil/fill material derived from the site is expected to be reused on-site. However, if development plans change and soil/fill material derived from the site will be reused on-site, on-site reuse will be conducted in accordance with the NYSDEC-approved RAWP and NYSDEC laws and regulations. Reuse of on-site material will require NYSDEC approval.
- The Contractor shall submit to the RE for review submittals for all excavated on-site material proposed for reuse at the site. The submittals shall be reviewed by the RE before the material is reused at the site. The submittals shall include, at a minimum, the following information:

    1. A field sampling plan (see Article 1.6[A][6]);
    2. A field sampling summary report (see Article 1.6[A][7]);
    3. A scaled map of the site showing where the excavated on-site material was extracted from and where the excavated on-site material will be placed on the site;
    4. Tabulated laboratory analytical data compared to the lower of 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs and the NYSDEC 6 NYCRR Part 375-6.8(b) Protection of Groundwater SCOs;
    5. The laboratory analytical results in hardcopy and electronic format. The laboratory analytical data deliverables must be dated within three (3) months of submission.

2. Import of Soil and Fill Material:

- The Contractor shall submit to the RE for review a soil and fill material import submittal for all soil and fill material proposed for import to the site. The submittal shall be reviewed by the RE before soil or fill material is imported to the site. The submittal shall include, at a minimum, the following information:

    1. The name and address of the borrow source that shall supply the soil and fill material proposed for import;
    2. Any operating permits issued by regulatory agencies associated with the source;
    3. Any beneficial use determinations for soil and fill material issued by a regulatory agency;
    4. Clean source letter(s) for all virgin sand, gravel, rock or stone proposed for import to the site. The clean source letter(s) shall be prepared by the originating source (e.g., mine, quarry, or facility) or supplier/distributor of the material and shall identify the source and physical characteristics of the virgin material.
    5. A summary of the number of samples collected and analyzed consistent with the requirements of the RAWP;
    6. Tabulated laboratory analytical data compared to the NYSDEC 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs;

7. The laboratory analytical results in hardcopy and electronic format. The laboratory analytical data deliverables must be dated within three (3) months of submission;
8. Photographs of the segregated stockpiles of the soil and fill material proposed for import at the source with sampling locations identified;
9. A letter or affidavit from the source on company letterhead stating 1) that the stockpile of the segregated soil and fill material proposed for import has been properly maintained at the source, 2) that the segregated soil and fill material proposed for import does not contain any C&D debris, exhibit any observable indicators of contamination (i.e., petroleum-staining and odors), and has not been in contact with a spill of petroleum, hazardous waste or industrial waste, 3) the laboratory analytical data (by sample identification number and laboratory report number) representing the segregated soil and fill material proposed for import; and
10. Figures, drawings, and/or plans showing the location of the source, the location of the segregated stockpile(s) at the source and location of the sample(s) collected from the segregated stockpile(s).
11. The resume of the environmental professional retained by the Contractor must be submitted to the RE for review prior to collection of any samples

- The proposed borrow source and analytical results will be submitted to the NYSDEC by the RE upon receipt. The NYSDEC must review the proposed borrow source and the soil and fill material proposed for import before the soil or fill material is imported to the site. Any change in source or soil type throughout the job requires approval of the Owner, the RE and the NYSDEC and may require additional submittals.

- Once sampled, the stockpile must remain isolated and dedicated to import to this project and may not be comingled with any other material.

C. On-Going Submittals: The Contractor shall produce and submit the following documents promptly after completion of each task:

1. All completed manifests, receipts, weight tickets, and analytical data for all C&D debris, soil and fill material and contaminated liquids exported from the site. Manifests and weight tickets shall be countersigned by the transporter and receiving facility;
2. All manifests, receipts, weight tickets, and analytical data for any borrow soil or fill material (e.g., virgin sand, gravel, rock and stone, RCA, etc.) imported to the site;

D. Underground Storage Tank (UST) Submittals

1. If USTs are encountered during construction, the Contractor shall submit the following promptly after completion of each tank removal:

- All documentation required for the preparation of a written FER by the RE including, but not limited to the following:

1. A copy of the tank removal affidavit(s) signed by a FDNY-licensed tank contractor;
2. Proof that the tank removal affidavit(s) signed by a FDNY-licensed tank contractor were provided to the FDNY;
3. Proof of notification of tank removal and closure to the NYSDEC;

4. NYSDEC Petroleum Bulk Storage (PBS) tank registration forms (applications, certificate, facility report, etc.);
5. Waste disposal documentation (i.e., manifests) for tank contents and wastewater signed by the receiving facility(ies);
6. Waste disposal documentation (i.e., scrap tickets) for the USTs, piping and associated appurtenances;
7. Waste disposal documentation for all other wastes (i.e., 'tank bottoms', petroleum-contaminated soil, absorbent pads, PPE) generated as part of UST removal/closure activities, signed by the receiving facility(ies), as necessary;
8. Completed waste profiles and receiving facility forms/applications;
9. Approval letters from the receiving facility(ies);
10. Waste transporter permits or licenses;
11. Valid, current operating permits for the receiving facility(ies);
12. Description of observed condition of the tank, piping, and appurtenances and any contents of the tank system;
13. Daily field logs or reports;
14. Photographs of tank removal activities;
15. Description of any endpoint sampling events;
16. Waste characterization analytical laboratory data deliverables in hardcopy and electronic format;
17. End-point analytical laboratory data deliverables in hardcopy and electronic format;
18. Copies of all regulatory agency permits and approvals; and
19. Confirmation that all site utilities including, but not limited to, electrical, steam, product supply and return lines, in the work area were identified, marked, locked, and tagged out and that work was performed in a manner to protect the utilities from damage.

1.7 PROTECTION

A. To prevent damage, injury or loss, the Contractor's actions shall include, but not be limited to, the following:

1. Storing apparatus, materials, supplies, and equipment in an orderly and safe manner that shall not unduly interfere with the progress of the work;
2. Providing suitable storage facilities for all materials;
3. Placing upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work; and
4. Handling of all refuse, rubbish, scrap materials, and debris caused by on-site operations. The site work shall be conducted in a safe, orderly fashion and maintain a work-man-like appearance at all times.

B. The work shall be executed so that no damage or injury will occur to the existing public and adjoining or adjacent structures, streets, paving, sewers, gas, water, electric or any other pipes. Should any damage or injury caused by the Contractor, or anyone in Contractor's employ, or by the work under this Contract, the Contractor shall repair such damage and shall assume all responsibility for such injury.

C. The above shall include the protection of all existing utilities (including sewers, water lines, electrical lines and telecommunication lines) to remain in use within and adjacent to the area

affected by the work of this project.

D. Monuments, benchmarks and other reference features shall be protected. Should these be disturbed in any manner, the Contractor shall have them replaced.

E. Contractor shall support excavation and project-adjacent structures in accordance with all regulations including NYC Code. The Contractor is solely responsible for the stability, safety and protection of excavation sides.

F. The Contractor shall provide barricades and warning lights and barriers to prevent accidents, to avoid all necessary hazards and protect the public, the work and property at all times, including Saturdays, Sundays and holidays.

G. Erosion and sediment control and dust control shall be in accordance with Contract Documents.

H. The Contractor shall maintain the cleanliness of paved streets immediately adjacent to the site through regular sweeping and moistening as required to remove any excess mud, dirt, or rocks tracked from the site. Trucks hauling non-hazardous excavated material (e.g., soil and fill material, C&D debris, etc.) from the site will be covered with a tarpaulin. Trucks hauling hazardous waste material from the site will be equipped with protective bed liners.

I. The Contractor shall assume full responsibility for the preservation of all public and private property. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the work by the Contractor, it shall be restored promptly by the Contractor, at his expense, to a condition equal to or better than that existing before the damage was done. The Contractor may take photographs to document damage that existed prior to work.

1.8 NOTIFICATION

A. The Contractor shall notify all utilities prior to the work as necessary, and arrange for and confirm completion of mark-outs of underground utilities in accordance with all applicable local, state and federal regulations.

B. The Contractor shall notify the RE at least two weeks prior to performing work described by this specification.

1.9 PROJECT CONDITIONS

A. Site Description

1. The site is located at 300 West 122nd Street in the Harlem neighborhood of New York, New York on the eastern part of the city block bound by West 122nd Street to the north, St. Nicholas Avenue on the east, West 121st Street to the south, and Manhattan Avenue to the west. The site is identified as Borough of Manhattan Tax Block 1948, Lots 30 and 35. The site is adjoined by a five-story residential building to the northwest (302 West 122nd Street), a four-story residential building to the southwest (307 West 121st Street), and a five-story mixed-use building to the southeast (301 West 121st Street).
2. According to a survey completed by Joseph Nicoletti Associates dated April 24, 2010, surface elevations at the site range from about 26 feet to 29 feet Borough of Manhattan Highway Datum, which is about 28 to 31 feet in the North American Vertical Datum of 1988

(NAVD88). The topography of the site slopes gently toward the north.

3. The site is currently vacant and was most recently occupied by a gas station/service center under the Shell brand (Lot 35) and a parking garage with a full cellar level (Lot 30). Site buildings were demolished in 2016.
4. The site is located in an urban setting that is characterized by residential and commercial buildings, vacant lots, public parks, and school facilities. The area is urbanized with underground infrastructure, including water, gas, electric, telecommunications, sewer utilities, and subways. A New York City Transit Authority (NYCTA) subway structure for the B/D subway line adjoins the site to the east below St. Nicholas Avenue. The subway structure is located about 3 to 24 feet from the eastern property line based on existing NYCTA drawings.
5. Bespoke Harlem West LLC will remediate the site concurrent with the construction of a new development under the NYSBCP pursuant to a Brownfield Cleanup Agreement (BCA) with the NYSDEC.
6. The site is also under the regulatory oversight of the OER pursuant to E-Designations for Hazardous Materials (E-120) that were placed on the site by the New York City Department of City Planning (DCP). This project was assigned OER Project Number 14EHAZ282M.
7. Additional project information and site background is provided in the documents referenced in Article 1.4(A).

B. Site Usage and Environmental Conditions

1. The site was developed as early as early 1900. Lot 30 was historically used as a coal yard from 1902 to 1922 and a junk yard from 1912 to 1922. The former parking garage building was constructed in 1922 and demolished in 2016. Lot 35 was historically occupied by a factory that manufactured livery carriages from 1902 to 1912. In 1912, the site was developed into a boarding house with a repair garage. The gas station was built in 1965 and ceased operations in 2009. Site buildings were demolished in 2015. The former cellar of the parking garage building is expected to be full of remnant demolition debris.
2. The site was the subject of several environmental investigations dating back to 2002 and completed by several different consultants. A summary of each investigation is provided in EBC's RIR.
3. The stratigraphy underlying Lot 35 consists of a 11- to 14-foot thick layer of historic fill composed of varying amounts of sand, gravel, slag, brick, coal, concrete, and timber below surface grade. The historic fill is underlain by native soil consisting of brown to reddish-brown medium sand with varying amounts of coarse sand and fine gravel. The stratigraphy underlying Lot 30 is expected to contain building demolition debris to about 13 feet bgs; historic fill followed by native soil was encountered below 13 feet bgs. .
4. The depth to groundwater at the site is about 18 to 22 feet bgs and its elevation ranges from about el. 7.5 feet to el. 11.5 feet NAVD88. According to EBC's RIR and RAWP, groundwater flows to the north.
5. Three 4,000-gallon and twelve 550-gallon gasoline USTs (previously abandoned-in-place) were removed from the former gas station/service center in 2011 by Island Pump and Tank, Inc. under the supervision of Sovereign Consulting, Inc. as part of an Interim Remedial Measure (IRM). Excavated petroleum-contaminated soil was exported off-site as a non-hazardous waste for disposal. According to EBC's RIR and RAWP, three USTs of unknown size and contents may still be present below the former cellar of the parking garage building. The tank closure activities are documented in the Interim Remedial Completion Report prepared by EBC dated November 2013.

6. Fill material contains volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals above the Unrestricted Use SCOs according to EBC's RIR and Langan's Waste Characterization Report.
7. According to Langan's Waste Characterization Report, VOCs exceeded the lower of Restricted Use Residential (RUR) and Protection of Groundwater (PGW) SCOs in three grab samples (including the duplicate). SVOCs exceeded the lower of the RUR and PGW SCOs in five composite samples. Two metals, lead and mercury, exceeded the lower of the RUR and PGW SCOs in one or more composite samples. No polychlorinated biphenyls (PCBs), pesticides, or herbicides exceeded the lower of the RUR and PGW SCOs. No metals exceeded the maximum concentration for the toxicity characteristic in any composite sample.
8. According to Langan's Remedial Design Investigation, residual subsurface petroleum contamination (i.e., stained and odorous soil) was present in native soil in the east central part of the site from about 20 feet to 36 feet bgs. Samples of this material collected for laboratory analysis did not exhibit concentrations of VOCs and SVOCs above the Unrestricted Use SCOs. Soil samples collected just below excavation depth (16-18 feet bgs) did not exhibit concentrations of VOCs and SVOCs above the Unrestricted Use SCOs with the exception of one soil sample collected from boring LB08.
9. Chlorinated VOCs are present in groundwater and soil vapor at the site. No on-site source was identified. The source of chlorinated VOC groundwater and soil vapor contamination is likely an off-site source. Groundwater exhibited a petroleum-like sheen during sampling completed as part of the Langan's Waste Characterization Study. The groundwater sampling results from Langan's Waste Characterization Study indicated no analytical parameters exceeded the New York City Department of Environmental Protection (NYCDEP) Limitations for Effluent to Sanitary or Combined Sewers.
10. Material excavated as part of construction, represented within the limits of Langan's Waste Characterization Study, should be managed as a non-hazardous solid waste in New York State. No hazardous waste was identified by Langan's Waste Characterization Study. The expected remnant demolition debris in Lot 30 was not sampled as part of Langan's Waste Characterization Study.
11. For a more detailed description of environmental findings for the site, please refer to the RIR, RAWP, Waste Characterization Report, and other reports referenced in Article 1.4(A).

PART 2 EXECUTION

2.1 SAFETY

A. The Contractor shall prepare and adhere to a HASP that, at a minimum, meets OSHA requirements and the requirements of the CHASP included in the NYSDEC-approved RAWP. The Contractor is solely responsible for the health and safety of their workers, the public, and their subcontractors.

B. Personnel directly handling or managing hazardous materials shall be trained and certified according to Occupational Health and Safety Administration Regulations Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements contained in 29 CFR 1910.120.

2.2 SITE PREPARATION

A. The Contractor shall furnish all labor, equipment and materials required to prepare the site and to excavate all materials of whatever type encountered to the lines and grades shown on the Contract Drawings and as specified.

B. The Contractor is to obtain and pay for all necessary permits to perform the work from the appropriate authorities and agencies prior to start of such work.

C. The Contractor shall install all necessary protection equipment, structures such as fences, signs, and scaffolding etc. prior to start of work.

D. The Contractor shall remove all existing structures, utilities, pavement in accordance with the Contract Documents.

E. The Contractor shall protect all utility lines that are not to be abandoned. The Contractor shall be responsible for any damage to utilities resulting from the Contractor's actions.

F. The Contractor shall provide the RE with equipment storage areas in a trailer, field office, or other means that are available for 24-hour access, secure, and equipped with power for charging the CAMP equipment.

G. The Contractor shall provide all necessary erosion and sediment control in accordance with Contract Documents.

2.3 EXCAVATION, STOCKPILING AND SEDIMENT/EROSION CONTROL

A. The Contractor shall remove any concrete, brick, asphalt, and stone surface cover prior to mass excavation at the site to avoid mixing soil with C&D debris. In addition, any identified subsurface structures shall be removed prior to excavation to avoid mixing soil with C&D debris. The Contractor shall cut, split, break, and/or crush the C&D debris into a manageable size and stockpile the C&D debris on-site until proper off-site transport and disposal is arranged.

B. During the removal activities, the Contractor shall have equipment and manpower available at all times to assist the RE with screening of soil and fill material.

C. Different categories of excavated soil and fill material, including C&D debris, non-hazardous and hazardous waste, shall be stockpiled separately.

D. Excavated soil and fill material shall be segregated and stockpiled on double layers and covered

with one layer of polyethylene sheeting (8-mil minimum). The polyethylene sheeting cover shall be securely anchored in place by weights, stakes, or both. The Contractor shall routinely inspect all stockpiles and promptly replace broken or damaged polyethylene sheeting. Stockpiles of excavated soil and fill material shall be located at least 50 feet from the site boundary, where possible. Hay bales, silt fences, or approved equivalents shall surround all stockpiles of excavated soil and fill material 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 adjacent to stockpiles of excavated soil and fill material.

E. The Contractor shall locate stockpiled material, especially regulated material, in areas away from surface drainage features and control surface drainage from stockpiles to prevent erosion and sedimentation.

F. The amount of stockpiled soil uncovered and exposed at any one time shall be minimized.

G. The Contractor will provide the appropriate equipment to contain stormwater runoff associated with stockpiled material. Stormwater runoff from excavated soil/material will be controlled.

H. The Contractor shall install and maintain silt fencing around the perimeter of the work area, as necessary, to control erosion.

I. The Contractor shall inspect site entrances and exits daily for evidence of off-site sediment tracking. The existing conditions of the adjacent city streets shall be maintained. If necessary, Contractor shall clean adjacent streets within 100 feet of the site entrance/exit as directed by the RE.

J. All removal operations shall be conducted in a manner as required to prevent the emission of dust, vapor and odor. If dust, vapor or odor is observed or as deemed necessary by the RE, the Contractor shall provide control measures including but not limited to application of water or foam, control of vehicle speed on site, covering excavation areas or stockpiles with poly sheeting, and/or limiting open excavation areas.

K. A community air monitoring program (CAMP) will be implemented by the RE and will include site perimeter real-time monitoring for VOCs and particulates (dust). The Contractor shall protect the RE monitoring stations and implement dust and odor control measures as required to eliminate dust, vapor and odor detections at the site perimeter. RE monitoring will be limited to the site perimeter for the protection of the community, air/HASP monitoring for the protection of site workers within the work area is solely the responsibility of the Contractor.

2.4 DEWATERING

A. Construction dewatering operations shall be managed by the Contractor in accordance with federal, state and local regulations. The Contractor shall be responsible for handling, treating, and disposing of all contaminated groundwater removed from the site. The methods of dewatering shall be at the option of the Contractor, provided that dewatering complies with applicable regulations and the NYSDEC-approved RAWP. The Contractor is responsible for obtaining, maintaining, and complying with all necessary permits, including renewals, required for dewatering and discharging and/or managing effluent.

B. Dewatering may be conducted via a sump or well-point system. Dewatering fluids will either be containerized for off-site disposal or discharged to a New York City sewer in accordance with a

NYCDEP permit, but will not be recharged back to the land surface or subsurface of the site without a Non-Jurisdictional Determination or State Pollutant Discharge Elimination System (SPDES) permit issued by the NYSDEC.

2.5 DEMARCATION

A. No demarcation is expected as all fill material will be removed from the site as part of the proposed Track 1 remedy. However, if a Track 1 remedy is not achieved, residual soil exceeding Track 1 SCOs will be managed in place and demarcated at the discretion of the RE.

B. The demarcation protocol includes the following actions:

1. A highly visible demarcation barrier (i.e., orange geosynthetic fencing or approved equivalent) is be placed on the surface of the residual soil to provide an observable reference layer at the discretion of the RE. The highly visible demarcation barrier will be photographed by the RE.
2. The final location of and elevation of the demarcation barrier will be surveyed by a NYS-licensed surveyor retained by the Contractor; a copy of this survey must be provided to the RE.

2.6 POST-EXCAVATION SAMPLING AND GROUNDWATER TREATMENT

A. The Contractor shall have equipment and manpower available at all times to assist the RE with the collection of post-excavation soil documentation and groundwater samples, as necessary.

1. To evaluate attainment of the Unrestricted Use SCOs, post-excavation documentation soil samples will be collected by the RE after reaching foundation subgrade. The documentation soil samples shall be collected from the top of foundation subgrade within the footprint of the new building. The documentation endpoint samples will be submitted by the RE to a NYSDOH-ELAP certified laboratory for analysis as set forth in the RAWP.
2. If the post-excavation documentation soil sample results exceed the Unrestricted Use SCOs, the Contractor may be required to excavate and remove areas represented by the soil sample(s) to the extent practicable until Unrestricted Use SCOs are achieved at the direction of the RE
3. After the removal of the historic fill layer and petroleum-impacted soil, the Contractor or RE will hire a subcontractor to install temporary groundwater monitoring wells to allow the RE to collect groundwater samples for laboratory analysis and evaluate groundwater conditions. In addition, the Contractor or RE will hire a subcontractor to construct injection wells to facilitate the injection of chemical oxidants into the subsurface and groundwater table and apply activated chemical oxidant directly into any residual petroleum-impacted areas in accordance with the NYSDEC-approved RAWP. The RE will observe and document the Contractor's work.
4. The RE will contract with a driller to installed monitoring wells around the site perimeter for quarterly groundwater treatment performance monitoring.

B. The Contractor shall make provisions for leaving the excavation open where samples are collected or groundwater monitoring wells in place until the RE and/or the NYSDEC deems the work complete. No claims of delay by the Contractor shall be permitted for assisting the RE in the collection of post-excavation documentation soil samples and groundwater samples, for installing injection well and groundwater monitoring wells and associated equipment, for chemical injection to groundwater or for keeping the excavation open until the requirements of the RE and/or the NYSDEC are met.

2.7 REUSE OF ON-SITE MATERIAL

A. No soil/fill material derived from the site is expected to be reused on-site. However, if development plans change and soil/fill material derived from the site will be reused on-site, on-site reuse will be conducted in accordance with the NYSDEC-approved RAWP, NYSDEC laws and regulations, and this specification. Reuse of on-site material will require NYSDEC approval. Approved reusable on-site material may be directly placed into service.

B. Excavated soil and fill material derived from the site may be reused on-site (with NYSDEC approval) provided it does exceed the lower of 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs and the NYSDEC 6 NYCRR Part 375-6.8(b) Protection of Groundwater SCOs, does not contain any C&D debris, does not exhibit any observable indicators of contamination (i.e., petroleum-staining and odors), and has not been in contact with a spill of petroleum, hazardous waste or industrial waste.

C. On-site material proposed for reuse may be sampled in-situ or staged in properly managed and controlled stockpiles pending sampling and laboratory analysis. Stockpiles of excavated soil and fill material designated for reuse shall be kept segregated from stockpiles containing materials excavated from hotspots or other excavations of gross contamination.

D. Grab and composite samples of on-site material will be collected at a frequency described in Table 4 of CP-51 Soil Cleanup Guidance and analyzed for target compound list (TCL) VOCs, SVOCs, polychlorinated biphenyls (PCBs), pesticides, and herbicides, target analyte list (TAL) metals, trivalent and hexavalent chromium, and cyanide.

E. Organic matter (i.e., wood, stumps, roots, or other organic matter subject to decay or disintegration) or other waste derived from clearing and grubbing of the site will not be buried on the site.

2.8 IMPORT OF MATERIAL FROM OFF-SITE SOURCES

A. A process will be established by the Contractor to evaluate sources of backfill and clean cover material to be imported to the site. The process will include an examination of source location, photographs of the soil and fill material, current and historical use(s), and any available documentation from government or regulatory agencies. Material from industrial sites, spill sites, environmental remediation sites, or other potentially contaminated sites shall not be imported to the site.

B. Soil and fill material proposed for import as backfill or clean cover material will be segregated at the source and kept separate from other material. Soil and fill material proposed for import as backfill or clean cover material shall not contain any C&D debris (including, but not limited to, concrete, brick, asphalt, wood), combustible materials, stumps, roots, and other organic matter subject to decay or disintegration, as well as ash, petroleum, and other oils, exhibit any observable indicators of contamination (i.e., petroleum-staining and odors), or have been in contact with a spill of petroleum, hazardous waste and/or industrial waste.

C. The Contractor shall retain a qualified environmental professional to screen the soil and fill material proposed for import at the source for visual, olfactory, and instrumental (PID) evidence of contamination and collect samples of the soil and fill material using industry-standard sample collection procedures. Sampling frequencies shall be implemented in accordance with Table 4 of CP-51 Soil Cleanup Guidance. The samples shall be submitted to a NYSDOH ELAP-certified laboratory under standard chain of custody protocol and analyzed for TCL VOCs, SVOCs, PCBs,

pesticides, and herbicides, TAL metals, trivalent and hexavalent chromium, and cyanide. EnCore™ or TerraCore™ kits will be used to collect soil samples for VOCs analysis. The analytical data received from an NYSDOH-ELAP-certified laboratory will be tabulated and provided to the RE for review.

D. Documentation for all soil and fill material proposed for import as backfill or clean cover material will be provided to the NYSDEC by the RE for review and approval. Soil and fill material can only be imported to the site after receiving approval from the NYSDEC. The documentation required by the NYSDEC for review will be provided to the RE by the Contractor. The list of required items is described in Section 1.6(B)(2).

2.9 DISPOSAL OF EXCAVATED MATERIAL OFF-SITE

A. The Contractor shall provide the RE with all waste disposal documentation, including permits, manifests, weight tickets, and receipts for soil, fill material, C&D debris, and liquids exported from the site necessary for closure reporting.

B. Because the site is enrolled in the NYSDEC BCP, the NYSDEC must issue written approval to a New York State registered or permitted facility to accept C&D debris from the site before any C&D debris is exported to the facility;

C. The Contractor shall keep an accurate record of all material exported from the site and maintain a file of all manifests countersigned by the receiving facility for all material transported off-site. The updated record shall be submitted to the RE daily, as needed. The manifests countersigned by the transporter and receiving facility with the associated weight ticket shall be promptly submitted to the RE by the Contractor. The Contractor shall immediately resolve any discrepancies that occur and determine the probable cause for the discrepancy.

D. The Contractor shall be responsible for the collection and analysis of all soil, fill material, and liquid samples for waste characterization, and as required by the receiving facility and the NYSDEC. Lab testing conducted for this project shall be performed by a NYSDOH-ELAP certified laboratory. Samples shall be analyzed by a laboratory that is certified by the state which the facility is located and shall be collected at a frequency specified by the selected disposal facility. The Contractor shall provide to the RE in the FSP and EMDP the testing requirements and acceptance criteria of the proposed receiving facility(ies).

E. Transport vehicles shall be inspected prior to leaving the site by the Contractor to ensure that no soil and fill material adheres to the wheels, undercarriage, tailgates, covers or other areas of transport vehicles. All vehicles shall be cleaned by washing tires, undercarriage, and any other contaminated parts before leaving the site using a high-pressure water and/or steam spray, as necessary to maintain a clean egress. Contractor shall collect all wastewater from truck washing operations for treatment and disposal, as required.

F. The Contractor shall transport and deliver to the receiving facilities only the material to which the RE takes no exception.

G. The Contractor shall be solely responsible for any and all actions necessary to remedy situations involving material spilled in transit. Costs for the work to remedy these situations shall be solely borne by the Contractor and shall be performed to the satisfaction of the RE, applicable regulatory agency and disposal facility (as applicable).

H. The Contractor shall be solely responsible for any and all material transported to an incorrect receiving facility or a receiving facility not previously reviewed by the RE. Costs for work to remedy these situations shall be solely borne by the Contractor and shall be performed to the satisfaction of the RE, applicable regulatory agency and disposal facility (as applicable).

I. The Contractor shall have access to back-up vehicles and equipment to ensure that there is no downtime in connection with soil transport operations.

J. The disposal containers shall be International Organization for Standardization (ISO) type, dump trailers, or approved equal, constructed of sufficient metal, have watertight bodies and sealed tailgates equipped with positive locking devices and provisions for control of free liquids. No liquid shall leak from any part of the loaded container or trailer. The Contractor shall furnish and install a metal or tarpaulin cover on each container immediately after the container is full. The cover shall be secured in an approved manner and shall remain in place until the container reaches the receiving facility.

K. The Contractor shall be responsible for transportation safety. All vehicles shall be properly maintained, driven properly, follow all rules and regulations, observe all speed limits, etc. The on-site speed limit shall be five miles per hour (5 mph). All vehicles shall be inspected before every trip as part of Contractor's preventive maintenance program. The Contractor shall inspect each vehicle to ensure that all doors, covers, etc. are secure and that no material can spill or otherwise be released or leak. Each vehicle shall be uniquely numbered in lettering at least four inches high and shall be placarded in accordance with appropriate federal, state, local, and NYSDOT requirements (or other applicable transportation requirements). Likewise, each trailer or container shall be so labeled on both sides and the tailgate if possible.

L. Trucks leaving the site containing soil and fill material for disposal off-site will be covered with tight-fitting covers, and will be checked by the Contractor to ensure that no solid material or liquids are leaking from the truck bed.

M. Saturated soil and fill material will be dried, dewatered or mixed with an inert drying agent (e.g., lime) prior to loading into a transport vehicle for off-site disposal as required by the receiving facility.

N. RCA imported to the site for temporary construction purposes will be removed and transported to an off-site 6 NYCRR Part 360 registered and/or permitted facility provided the RCA is not visibly commingled with non-hazardous contaminated soil or fill material or another solid waste and has not been in contact with a spill of petroleum, hazardous waste or industrial waste.

2.10 CONTINGENCY FOR CLEANING, REMOVAL AND DISPOSAL OF UNDERGROUND STORAGE TANKS (UST)

A. The Contractor shall provide proper notification to all local and state agencies and utility companies and furnish all labor, materials, equipment and incidentals required for the proper registration, cleaning, removal and disposal of any USTs and their contents in accordance with existing NYSDEC guidance and regulatory policy and local, state, and federal regulations.

B. USTs will be decommissioned in accordance with applicable NYSDEC UST closure requirements. The Contractor shall retain the services of a FDNY-licensed tank contractor to oversee the cleaning and removal of the tank, concrete encasements, piping and appurtenances in accordance with applicable laws and regulations. The tank will be exposed, excavated, cut open and cleaned on polyethylene sheeting, as necessary. The Contractor shall carefully remove the fill material

surrounding the tank using proper tools (i.e. shovels, vacuum truck) to ensure the USTs and piping are not damaged during this process. Waste characterization samples of the tank contents (including oil, sludge, and wastewater) will be collected and analyzed, as necessary, in accordance with the permit requirements of the proposed disposal facility(ies) and in accordance with 6 NYCRR Part 372.2(a)(2). Tank contents will be disposed of off-site in accordance with applicable laws and regulations. The cleaned tank, piping and appurtenances will be transported off-site to a scrap metal facility for recycling.

C. The Contractor shall have equipment and manpower available at all times to assist the RE with the collection of post-excavation endpoint, groundwater, and/or soil vapor samples, as necessary.

D. The Contractor shall make provisions for leaving the excavation open until the RE and/or the NYSDEC deems the work complete. No claims of delay shall be permitted for assisting the RE in the collection of samples or for keeping the excavation open until the requirements of the RE and/or the NYSDEC are met.

E. Petroleum-contaminated soils will be removed in accordance with the NYSDEC-approved RAWP and this specification. The USTs will be registered and closed with the NYSDEC Petroleum Bulk Storage unit, as necessary.

F. The Contractor also shall be responsible for providing to the RE all required closure documentation specified in Article 1.6(D).

2.11 SPILL PREVENTION AND CONTROL

A. The Contractor shall be responsible for following procedures for spill prevention and control. To prevent spills from occurring at the site, the Contractor shall perform the following actions:

1. Weekly Equipment Inspections shall be completed by the Contractor to account for fluids carried on and used to operate equipment and ensure that they are not leaking, and to account for overall function of equipment to protect against malfunction during operation or handling of excavated materials.
2. On-site materials handling inspections shall be performed to account for material quantities and proper methods of storage to help reduce the chance of a spill or release.
3. Safety equipment inspections shall be performed to account for the quantity, location, and working condition of safety equipment on-site. Safety equipment and supplies will be kept accessible and in good working order.
4. Any discrepancies or inadequacies discovered as a result of these inspections will be corrected immediately.
5. Results of the inspections shall be recorded in a field log and shall be made available to the RE upon request.
6. The Contractor shall follow the following list of actions that should be taken in the event of a spill:

    - Account for site personnel and make proper notifications, including to the Owner and RE;
    - Evaluate the hazard(s), identify the source of the discharge, and stop the spill or leak;
    - Remove any source of ignition from the spilled material if flammable;
    - Isolate and contain the spill in the smallest area possible;
    - Keep personnel upwind of the spill area. Evaluate potential vapor and dust hazards, and implement appropriate suppression operations;
    - At no time will personnel be allowed to come in contact with unidentified spilled materials;

and

- If conditions indicative of a petroleum discharge or chemical spill are encountered during any aspect of the performance of the work, the NYSDEC will be notified, if required by law.

2.12 CONTINGENCY FOR PETROLEUM-IMPACTED, SOLVENT-IMPACTED OR OTHER IMPACTED MATERIAL

A. During any additional sampling, excavation, and/or earthwork activities, soil and fill material will be monitored by the RE using a photoionization detector (PID) and visual and olfactory field screening techniques to identify soil and fill material containing petroleum, solvents or other indicators of contamination. If petroleum- or solvent-impacted material is identified, samples may be collected and analyzed for one or more analytical parameters based on the nature of the identified contamination consistent with the requirements of the RAWP. Analytical data will be compared to the SCOs. If the petroleum-impacted, solvent-impacted, or other impacted material is present at concentrations that exceed the Unrestricted Use SCOs, the material will be considered a hotspot. At the direction of the RE, the hotspot will be excavated to the extent practical and transported off-site for disposal. Endpoint samples will be collected by the RE to document removal of the petroleum-impacted, solvent-impacted, or other impacted material in accordance with the RAWP.

B. The Contractor shall have equipment and manpower available at all times to assist the RE with the collection of post-excavation endpoint and groundwater samples, as necessary.

C. The Contractor shall make provisions for leaving the excavation open until the RE and/or the NYSDEC deems the work complete. No claims of delay shall be permitted for assisting the RE in the collection of soil samples or for keeping the excavation open until the requirements of the RE and/or the NYSDEC are met.

2.13 CONTINGENCY FOR HAZARDOUS MATERIAL

A. If hazardous material is identified by sampling or other remedial activities, the hazardous material will be considered a hotspot. The hotspot will be delineated and removed during foundation construction. Hazardous material will not be reused on-site and will be transported off-site for disposal at a facility permitted to accept hazardous waste. Endpoint samples will be collected to document removal of the hazardous material in accordance with the RAWP.

B. The Contractor shall have equipment and manpower available at all times to assist the RE with the collection of post-excavation endpoint and groundwater samples, as necessary.

C. The Contractor shall make provisions for leaving the excavation from where samples were collected open until the RE and/or the NYSDEC deems the work complete. No claims of delay shall be permitted for assisting the RE in the collection of soil samples or for keeping the excavation open until the requirements of the RE and/or the NYSDEC are met.

2.14 DECONTAMINATION OF EQUIPMENT AND MATERIALS

A. Decontamination procedures for equipment and materials shall conform to the requirements of applicable USEPA and NYSDEC regulations, as appropriate.

B. Recoverable equipment and materials that have been in contact with excavated soil shall be decontaminated prior to removal from the site. As used herein "recoverable" shall mean all items which are non-absorptive in nature and which can be successfully decontaminated. All items for which decontamination is difficult or uncertain shall be considered non-recoverable, as determined

by the RE.

C. The Contractor shall use an approved biodegradable cleaning solution, suitable for removal of petroleum, to clean all residual material and soil from the interior and exterior surfaces of the construction equipment. Solutions containing chlorinated solvents or volatile organic compounds are not acceptable. The Contractor shall submit applicable MSDS sheets to the RE and obtain approval for the cleaning solution in advance.

D. Cleaning shall be done in an area specifically set up by the Contractor for that purpose, curbed, and lined with an impermeable membrane, to contain the used cleaning solution, including any overspray, and any contaminated debris removed during the cleaning process. All cleaning related materials and operations, and disposal of used cleaning solution and associated contaminated debris, shall be provided and performed by the Contractor at no additional cost.

E. Deposit non-liquid non-recoverable materials into USDOT containers as directed by the RE and dispose of off-site properly.

F. Mark and placard drummed decontamination materials and place in the contaminated stockpile area. The waste shall be sampled and classified by the Contractor in accordance with the approved disposal facilities' requirements. Once classified and accepted by the approved facility in accordance with all federal, state, and local requirements, the Contractor shall provide the RE with a photocopy of any required manifests.

END OF SECTION