

REMEDIATION ACTION WORK PLAN

876 Livonia Avenue (Block 4092, Lot 3)

Brooklyn, NY 11207

OER Project # 13CVCP070K

August 6, 2012

Prepared for:

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SUBSURFACE INVESTIGATION

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LIST OF ACRONYMS

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

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

CERTIFICATION

I, _____, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 876 Livonia Avenue Site (13CVCP070K).

I, David C Lorthioir am a Qualified Environmental Professional as defined in §43-1402. I have primary direct responsibility for implementation of the remedial action for the 876 Livonia Avenue Site (13CVCP070K).

I certify that this Remedial Action Work Plan (RAWP) 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 RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Name

NYS PE License Number

Signature

Date

David C Lorthioir

QEP Name

QEP Signature

Date



EXECUTIVE SUMMARY

Mr. Gary Caiozzo has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 800-square foot site located at 876 Livonia Avenue in Brooklyn, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). 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 Current Usage

The Site is located on the south side of Livonia Avenue, between Warwick Street and Jerome Street in the East New York section of Brooklyn and is identified as Section 4092, Lot 3. A Site Location Map is supplied as Figure 1. The Site is a 800 square foot parcel of land that is approximately 20 feet wide by 40 feet deep. The site is bounded by Livonia Avenue to the north, a single-story masonry commercial building to the east, a private residence to the south and vacant property to the west.

Summary of Proposed Redevelopment Plan

The proposed use of the Site will consist of single-story (with a partial second story) steel and masonry building constructed slab on grade. The proposed building will occupy approximately 93% of the site and will be utilized for the repair of automobiles. Full 100% build out of the site is not possible due to a one-foot setback required by code. The site is zoned for commercial usage.

The first floor of the building will be utilized for the purpose of automobile repair. The proposed partial second floor will be utilized as office space. There will be no basement. Given the slab on grade construction of the building, the only soils to be disturbed during construction activities will involve the installation of the building's foundation. Given that the building will occupy almost the entire property, the footings will require the excavation of an approximate four foot deep by three foot wide trench around the approximate perimeter of the site. Groundwater at the site is approximately 20 feet

below grade. The excavation required to erect the proposed building will not reach or disturb the groundwater beneath the site.

Summary of the Remedy

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 standard methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP citizen participation activities according to an approved Citizen Participation Plan (CPP);
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds
3. Establishment of Track 2 Restricted Commercial Use Soil Cleanup Objectives (SCOs);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
5. Excavation and removal of soil/fill that exceeds the site's SCOs;
6. Removal of any underground storage tanks (if encountered) and closure of any petroleum spills in compliance with applicable local, State and Federal laws and regulations;
7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID;
8. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of either SCOs;

9. Transportation and off-Site disposal of all soil/fill material at 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;
10. Installation of a vapor barrier system beneath the building slab;
11. Construction and maintenance of an engineered composite cover consisting of building slab and vapor barrier across the entire site to prevent human exposure to residual soil/fill remaining under the Site;
12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
13. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations;
14. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations;
15. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved and describes all Engineering and Institutional Controls (ECs & ICs) to be implemented at the Site, and lists any changes from this RAWP;
16. Submission of an approved Site Management Plan (SMP) in the RAR 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; and
17. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and a requirement that management of these controls must be in compliance with an approved SMP; and Institutional Controls including 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 Office of Environmental Remediation created the New York City Voluntary Cleanup Program (NYC VCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies that show the location of 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. This cleanup plan 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.

Remedial Investigation and Cleanup Plan. Under the NYC VCP, a thorough cleanup 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 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 the performance of 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 Health and Safety Plan that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration. This plan includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is David Lorthoir and can be reached at 1-631-924-3001

Worker Training. Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators 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 NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager, David Lorthoir at 1-631-924-3001 or NYC Office of Environmental Remediation Project Manager Breanna Gribble at 212-442-7126 or by email at Bgribble@dep.nyc.gov .

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 Action 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 are 7am to 5pm Monday through Friday.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a project Fact Sheet that states that the project is in the NYC Brownfield Cleanup Program, provides project contact names and numbers, and locations of 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 David Lorthoir at 1-631-924-3001, the NYC Office of Environmental Remediation Project Manager Breanna Gribble at 212-442-7126, or call 311 and mention the Site is in the NYC Brownfield Cleanup 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, odors 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 all 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-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 a Remedial Action Report) that will be available for you to review in the public document repositories located at New Lots Library, 665 New Lots Avenue (corner of Barbey Street), Brooklyn, NY 11207, (718) 649-0311 and at OER's website in document repository section at www.nyc.gov/oer .

Long-Term Site Management. To provide long-term protection after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined in the property's deed. 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 WORK PLAN

1.0 INTRODUCTION

Mr. Gary Caiozzo (owner) has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and, if required, remediate the property located at 876 Livonia Avenue, Brooklyn, New York, Block 4092, Lot 3 (herein referred to as the Site) OER Project number 13CVCP070K and E# 11EH-N272K have been assigned to the site by the OER. A Subsurface Investigation was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). 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.

1.1 Site Location and Current Usage

The Site is located on the south side of Livonia Avenue, between Warwick Street and Jerome Street in the East New York section of Brooklyn and is identified as Section 4092, Lot 3. A Site Location Map is supplied as Figure 1. The Site is 800 square foot parcel of land that is approximately 20 feet wide by 40 feet deep. The site is bounded by Livonia Avenue to the north, a single-story masonry commercial building to the east, a private residence to the south and vacant property to the west.

The Site is currently vacant and is not improved with any structures. To EnviroTrac's knowledge, the planned development of the site does not include any merging or subdividing of tax lots. To EnviroTrac's knowledge, other than the OER Project Number (11EH-N272K), no other project numbers (e.g. NYSDEC Spill, PBS, NYCDEP) are associated with the site.

1.2 Proposed Redevelopment Plan

The proposed use of the Site will consist of single-story (with a partial second story) steel and masonry building constructed slab on grade. The proposed building will occupy approximately 93% of the site and will be utilized for the repair of automobiles. Full 100% build out of the site is not possible due to a one-foot setback required by code. The site is zoned for commercial usage.

The first floor of the building will be utilized for the purpose of automobile repair. The proposed partial second floor will be utilized as office space. There will be no basement. Given the slab on grade construction of the building, the only soils to be disturbed during construction activities will involve the installation of the building's foundation. Given that the building will occupy almost the entire property, the footings will require the excavation of an approximate four foot deep by three foot wide trench around the perimeter of the site. As such, it is EnviroTrac's estimate that 40 to 50 cubic yards of material will be excavated to install the foundation. Groundwater at the site is approximately 20 feet below grade. The excavation required to erect the proposed building will not reach or disturb the groundwater beneath the site.

1.3 Description of Surrounding Property

Livonia Avenue is located to the north of the site. An elevated subway line runs along Livonia Avenue. An MTA electrical substation associated with the subway is located on the north side of Livonia Avenue. Other assorted commercial properties also occupy the north side of Livonia Avenue. A commercial building, occupied by a Laundromat and a gasoline station, is adjacent to the eastern boundary of the site. A private residence is located to the south of the site and vacant property is located to the west. Beyond the private residence and vacant property are apartment buildings.

The neighborhood surrounding the site appears to be mixed use. Residential apartments and houses occupy the side streets. Commercial buildings, such as warehouses, stores and automobile repair shops, are located along Livonia Avenue. An inspection of the site and a review of the OER website (SPEED application) indicated only one sensitive receptor within 500 feet of the site. This is the Schenck Playground, located approximately 400 feet west of the site. The Schenck Playground is located on the south side of Livonia Avenue between Barbey Street and Schenck Avenue.

Figure 2 shows the surrounding land usage.

1.4 Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, 876 Livonia Avenue", dated August 2012 (RIR).

Summary of Past Uses of Site and Areas of Concern

A review of ownership records indicated that Mr. Caiozzo has owner the site since 2010. In addition to Mr. Caiozzo, previous owners in the last 10 years include Spider Building Maintenance Inc. and the Urban Group Ltd. Other historical owners include several private individuals and the City of New York. Previous usage of the property includes a private residence, automobile repair and storage and, most recently, as a storage yard. The site is currently vacant, undeveloped land. No site specific Areas of Concern are known to exist.

Summary of Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 3 soil borings across the entire project Site, and collected 7 soil samples (including 1 duplicate sample) for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 1 groundwater monitoring well throughout the Site and collected 2 groundwater samples (includes 1 duplicate sample) for chemical analysis to evaluate groundwater quality;
4. Installed 3 soil vapor probes and collected 3 samples for chemical analysis.

Summary of Environmental Findings

1. The elevation of the site is approximately 20 feet above mean sea level.
2. The depth to groundwater at the site was approximately 19 feet below grade.
3. Site specific groundwater flow beneath the site was not determined, but regional groundwater flow is to the south.
4. Depth to bedrock was not determined.
5. Only shallow soil borings were installed, which indicated that fill material, consisting of a mixture of sand and demolition debris, was present to a depth of approximately eight feet below grade.

6. Soil/fill samples collected during the RI showed no PCBs at detectable concentrations. One of the soil samples exhibited detectable concentrations of VOCs, but all of the concentrations were below 40 ppb and were well below Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs). The other two soil samples showed no detectable VOCs. Up to 10 SVOC were identified in shallow samples, but none of these concentrations exceeded Track 1 Unrestricted Use SCOs. SVOC were primarily PAH compounds that are commonly associated with historic fill. No samples exhibited concentrations of metals above Track 1 SCOs with the exception of two samples that detected Zinc slightly above Track 1 SCOs but well below Track 2 Restricted Commercial SCOs. Two pesticides were detected above Track 1 SCOs but well below Track 2 Restricted Commercial SCOs.
7. The groundwater sample collected during the RI showed no detectable concentrations of PCBs, SVOCs or Pesticides. No VOCs were identified above Part 703.5 Class GA Groundwater Quality Standards (GQS) or Guidance Values. The only detected VOC was Tetrachloroethene at 1.8 ug/L, which is below its respective GQS of 5.0 ug/L. No other VOC's were detected. Three metals, Manganese, Selenium and Sodium were the only metals identified above their respective GQS.
8. Soil vapor samples collected during the RI showed petroleum and chlorinated VOCs at generally low concentrations. Low detections of compounds usually associated with gasoline, such as Ethanol, Benzene, Toluene, Ethylbenzene and Xylenes, were also detected. In two samples, Tetrachloroethene (PCE) was identified at concentrations of 102 ug/m³ and 117 ug/m³. The results for PCE are within the monitoring level ranges for the NYSDOH soil vapor guidance matrix. All three soil vapor samples exhibited concentrations of Acetone (ranging from 75 ug/m³ to 230 ug/m³) and Methyl Ethyl Ketone (ranging from 110 ug/m³ to 167 ug/m³). Since these compounds were not detected in the soil samples and generally not found in groundwater an offsite source is suspected.
9. It is EnviroTrac's conclusion that, based upon the evaluation of the data and the information obtained during the performance of the Remedial Investigation, the disposal of significant amounts hazardous waste, either through site specific activities or the use of historic fill material, has not taken place at the site. It does appear that neighboring properties are impacting upon the soil vapor beneath the site.

2.0 REMEDIAL ACTION OBJECTIVES

Based upon 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.

Soil Vapor

- Prevent exposure from contaminants in soil vapor.
- Prevent migration of soil vapor into onsite structure.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process under 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). A remedy is then developed based on the following nine 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; and
- Land use.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives are considered in this alternatives analysis for the site. Alternative 1 is Track 1 alternatives that involve establishment of Track 1 soil cleanup objectives (SCOs) and complete removal of all soil and fill material that exceeds the unrestricted Track 1 SCOs. Alternative 2 is Track 4 alternative that involves establishment of Track 4 SCOs and removal of the soil and fill material that exceed Track 4 SCOs. These Alternatives are:

- Alternative 1 involves
 - Achievement of Track 1 Unrestricted Use SCOs. Removal of soils exceeding Track 1 SCOs throughout the site and confirmation with post-excavation endpoint sampling.
 - Placement of a soil vapor barrier beneath the building slab and along foundation side walls to prevent intrusion of soil vapor;
- Alternative 2 involves

- Establishment of Track 4 Commercial SCOs and removal of all soils exceeding Track 4 SCOs;
- Placement of a soil vapor barrier beneath the building slab and along foundation side walls to prevent intrusion of soil vapor;
- Placement of a final cover over the entire site to eliminate exposure to remaining soil/fill;
- Establishment of use restrictions including prohibitions on the use of groundwater from the site and prohibitions on other sensitive site uses, such as farming or vegetable gardening, to eliminate future exposure pathways;
- 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; and
- Placement of a deed restriction to memorialize the remedial action and the Engineering and Institutional Controls to ensure that future owners of the site continue to maintain these controls as required.

The determination of which remedial alternative has been obtained will be based upon endpoint soil sample results, which will be obtained during the installation of the building foundation.

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 or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 will result in excavation of all soil with contaminant concentration above Track 1 SCOs and would:

- Eliminate the risk of ingestion exposures or other direct contact with contaminated on-Site soils consistent with remedial action objectives;
- Eliminate the risk of leaching into groundwater and ingestion exposures or direct contact with groundwater with contamination derived from the Site consistent with remedial action objectives; and
- Eliminate potential sources for on-Site production of soil vapors, and prevent migration of on-Site derived vapors into occupied structures and eliminate associated inhalation exposures consistent with remedial action objectives.

Alternative 2 will be protective of human health and the environment as all soils were with concentrations less than Track 4 SCOs during Phase II testing, building concrete slab and a vapor barrier placed beneath slab and foundation walls will eliminate the potential for human and environmental exposure to soils. The Track 4 alternative would:

- Eliminate any potential exposures to remaining soils by placement of a final cover consisting of concrete building slab;
- Install an vapor barrier to prevent migration of soil vapor into the new structure from offsite sources;
- Establish use restrictions to ensure that future ingestion or other exposures are eliminated;
- Establish a Site Management Plan to ensure long term management of Institutional and Engineering Controls;
- Place a deed restriction to memorialize these controls in order to decrease the risk of future exposures with contaminated media consistent with remedial action objectives to memorialize the remedial action and the existence of Engineering and Institutional Controls and will ensure that these controls will be appropriately managed by future site owners.

Track 1 remediation is most protective of public health and the environment by removing the contaminants from the site. The Track 4 alternative establishes site specific SCOs that are protective of public health and the environment for the proposed use but requires long term management of residual materials through implementation of engineering and institutional controls including a site cover, a deed notice and a site management plan.

During remedial and construction activity for both alternatives, workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors would be minimized through implementation of a Health and Safety Plan. Exposures to area residents from dust and/or vapors will be minimized through the use of engineering controls and through implementation of a Community Air Monitoring Plan (CAMP).

3.2. Balancing Criteria

Compliance with Standards, Criteria and Guidance (SCGs)

Both alternatives will be in compliance with their respective SCGs.

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 effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both alternatives have similar short term effectiveness and effects on public health and the environment during implementation of the remedial action, as each requires excavation. Short term impacts are likely to be higher for the Track 1 alternative due to excavation of greater amounts of historical fill material. However, focused attention to means and methods during the remedial action during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize or negate the overall impact of these activities and any differences between these alternatives.

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative's 1 or 2 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community under Alternatives 1 or 2, such as construction-related noise, vibrations and traffic, will be controlled and regulated under the terms of the NYC Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to offsite disposal facilities will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan would also be prepared to minimize disturbance to the local roads and community under these alternatives.

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 and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

Track 1 alternative is a permanent remedy and allows the property to be used for any purpose without restrictions. The Track 4 alternative is also effective but will require that the property be utilized for commercial purposes only pending future evaluation by OER. Both alternatives address offsite soil vapor intrusion through the installation of a soil vapor barrier.

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.

The Track 1 alternative provides the greatest reduction in toxicity, mobility or volume of contaminated material because all soils in excess of Track 1 Unrestricted SCOs are permanently removed from the property. Placement of a concrete cover and vapor barrier over the entire Site will eliminate potential for migration of soil vapor onto the site from offsite sources. The Track 4 alternative removes some historical fill material and manages the residual soils through cover and adherence to a site management plan. Placement of a concrete cover and vapor barrier over the entire Site will lower toxicity by eliminating potential contact with remaining soil above Track 1 SCOs. Groundwater use restrictions will reduce toxicity by ensuring that there is no direct contact with on-Site groundwater in the future. Establishment of a Site Management Plan and placement of a deed restriction to memorialize these controls will ensure long-term management of these Engineering and Institutional Controls and provide assurance that protective levels of toxicity and mobility will continue in perpetuity. Both alternatives address offsite soil vapor intrusion through the installation of a soil vapor barrier.

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.

Both alternatives are readily implementable and utilize standard methods that are commonly available and routinely applied by the industry. They use standard materials and services and well established technology. 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.

The capital costs for the Track 1 remedial alternative would entail higher costs overall as this

alternative is driven by high total volume of soil/fill that will be removed for development purposes. This material would be excavated and transported from the Site and disposed of at an off-Site location.

Both alternatives satisfy the threshold balancing criterion and other criterion listed here, and each is fully protective of public health and the environment, will control migration of contaminants, will comply with SCGs, are effective for the short-term and long-term, are implementable, and reduces both mobility and toxicity.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

Based on the overall goals of the remedial program and initial observations by the project team, both of the alternatives for the Site appear to be acceptable to the community. This RAWP will be subject to and undergo public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedial action. This public comment will be considered by OER prior to approval of this plan.

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 Institutional Controls applicable to the site.

Both alternatives provide protection of both public health and the environment for the proposed use of the Site. Both alternatives provide a remedial action that is beneficial to the surrounding

community and is consistent with the goals of the City for remediating and redeveloping brownfield sites.

Both alternatives for remedial action at the site are comparable with respect to the proposed use and to land uses in the vicinity of the Site. The proposed use is consistent with the existing zoning designation for the property and is consistent with recent development patterns. The Site is surrounded by commercial and residential properties and both alternatives provide comprehensive protection of public health and the environment for these uses. Improvements in the current brownfield condition of the property achieved by both alternatives are also consistent with the City's goals for cleanup of contaminated land and bringing such properties into productive reuse. Both alternatives are equally protective of natural resources and cultural resources. This RAWP will be subject to undergo public review under the NYC VCP and will provide the opportunity for detailed public input on the land use factors described in this section. This public comment will be considered by OER prior to approval of this plan.

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.

Both alternatives have the potential to utilize sustainable means to achieve the cleanup goals. This program contemplates the utilization of several green remediation methods that are compatible with the alternative. The full list of green remediation activities considered in this program is included in the Sustainability Statement.

4.0 REMEDIAL ACTION

4.1 Summary of Preferred Remedial Action

As previously discussed, both the Track 1 and Track 2 Remedial Actions are protective of human health and the environment, but the preferred remedial action alternative is the Track 2 Alternative. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative 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. Preparation of a Community Protection Statement and performance of all required NYC VCP citizen participation activities according to an approved Citizen Participation Plan (CPP);
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds;
3. Establishment of Track 2 Restricted Commercial Use Soil Cleanup Objectives (SCOs);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
5. Excavation and removal of soil/fill that exceeds the site's SCOs;
6. Removal of any underground storage tanks (if encountered) and closure of any petroleum spills in compliance with applicable local, State and Federal laws and regulations;
7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID;
8. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of either SCOs;
9. Transportation and off-Site disposal of all soil/fill material at 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;
10. Installation of a vapor barrier system beneath the building slab;
 11. Construction and maintenance of an engineered composite cover consisting of building slab and vapor barrier across the entire site to prevent human exposure to residual soil/fill remaining under the Site;
 12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
 13. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations;
 14. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations;
 15. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved and describes all Engineering and Institutional Controls (ECs & ICs) to be implemented at the Site, and lists any changes from this RAWP;
 16. Submission of an approved Site Management Plan (SMP) in the RAR 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; and
 17. Recording of a Declaration of Covenants and Restrictions that includes a listing of ECs and a requirement that management of these controls must be in compliance with an approved SMP; and ICs including 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

Track 2 Soil Cleanup Objectives (SCOs) are proposed for this project. Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix 3.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated and disposed off-Site is 30 to 40 cubic yards.

The proposed disposal locations for Site-derived impacted materials are listed below. Additional disposal locations established at a later date will be reported promptly to the OER Project Manager.

Disposal Facility	Waste Type	Estimated Quantities
Permitted facility to be named	Historic Fill (unrestricted)	30 – 40 cubic yards

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

End-Point Sampling

Removal actions under this plan will be performed in conjunction with remedial end-point sampling. End-point sampling frequency will consist of the following:

- Endpoint sampling will be completed at two locations within the confines of the foundation excavation.
- Endpoint samples will be analyzed for Volatile Organic Compounds, Semi-Volatile Organic Compounds, Pesticides, PCBs and TAL Metals.

Post remediation soil samples for laboratory analysis will be taken immediately after soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to the above.

Given the lack of major environmental impact documented in the RIR, all post-remediation sample locations and depth will be based upon field indicators, such as field instrument measurements or visual contamination identified during the excavation of the building foundation.

A New York State ELAP certified laboratory will be used for all end-point sample analyses. The chosen Laboratory for 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. End-point samples will be analyzed for the following compounds utilizing the following methodology:

- Volatile Organic Compounds by EPA Method 8260C (rev. 2006);
- Semi-volatile organic compounds by 8270D (rev. 2007);
- Pesticides/PCBs by EPA Method 8081B/8082A (rev. 2000); and
- Target Analyte List metals by EPA Method 6010C (rev. 2007).

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and “finger print analysis” and required regulatory reporting (i.e. spills hotline) will be performed.

Quality Assurance/Quality Control

Endpoint soil samples will be containerized in laboratory-prepared jars, labeled, sealed, and placed in a chilled cooler for shipment to the laboratory. Chain of Custody procedures outlined in the RIWP will followed. Soil samples were analyzed by an ELAP-certified laboratory approved by the NYSDOH. For every 20 soil samples, one duplicate and one lab blank soil sample will also be collected and analyzed for all parameters.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix 3. The estimated quantity of soil to be imported into the Site is 10 tons, which will consist of sand that will underlay the floor of the building. The estimated quantity of onsite soil/fill expected to be reused/relocated on Site is 0 tons.

4.3 Engineering Controls

Engineering Controls were employed in the remedial action to address residual contamination remaining at the site. The Site has two primary Engineering Control System, which are a cover and a soil vapor barrier.

The cover includes pavement and building slab over the entire property. The vapor barrier system design and installation will include the following:

- Vapor Block Plus 20 (VBP20) under slab vapor retarder / gas barrier will be installed beneath the floor of the building. This is a 20-mil, seven layer co-extruded barrier that is proven to provide a barrier to VOCs, radon and methane.
- Stamped design drawings detailing the installation will be submitted to OER prior to construction.

See Appendices for additional information regarding manufacturer documentation.

4.4 Institutional Controls

Institutional Controls (IC) have been incorporated in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Institutional Controls are listed below. Long-term employment of EC/ICs will be established in a Declaration of Covenant and Restrictions (DCR) assigned to the property by the title holder and will be implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR.

Institutional Controls for the Track 2 remedial action are:

- Recording of an OER-approved Declaration of Covenant and Restrictions (DCR) with the City Register or county clerk, as appropriate. The DCR will include a description of all ECs and ICs, will summarize the requirements of the Site Management Plan, and will note that the property owner and property owner's successors and assigns must comply with the DCR and the approved SMP. The recorded DCR will be submitted in the Remedial Action Report. The DCR will be recorded prior to OER issuance of the Notice of Completion;
- Submittal of a Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and

certification of ECs. 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 every 5 years and will comply with RCNY §43-1407(l)(3).

- Vegetable gardens and farming on the Site are prohibited;
- 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 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 Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by the DCR and this RAWP. The Site Management Plan is submitted as part of the RAR 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 DCR and the Site Management Plan 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 Brownfield Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2)

implementation of monitoring programs; (3) operation and maintenance of EC's; (4) inspection and certification of EC's; and (5) reporting.

Site management activities, reporting, and EC/IC certification will be scheduled on an periodic basis to be established in the SMP and will be subject to review and modification by OER. The Site Management Plan will be based on a calendar year and certification reports will be due for submission to OER by March 31 of the year following the reporting period.

4.6 Qualitative Human Health Exposure Assessment

The investigation reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). As part of the VCP process, 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 by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This EA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Potential Exposure Pathways

The five elements of an exposure pathway are: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population. An exposure pathway is considered complete when all five elements of an exposure pathway are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway cannot be documented. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future.

Known and Potential Sources & Nature, Extent, Fate and Transport of Contaminants

Based on the RIR, no known source areas exist onsite for the VOCs observed in the soil vapor. Historical fill is present to a depth of at least eight below grade.

Soil/fill samples collected during the RI showed SVOCs, VOCs, and PCBs were all below Track 1 SCOs. Zinc was present in two samples in a concentration that exceeded Track 1 SCOs but not Track 2 Restricted Commercial SCOs. Two pesticides were detected above Track 1 SCOs but well below Track 2 Restricted Commercial SCOs.

Groundwater samples collected during the RI did not exhibit VOCs, SVOCs, Pesticides or PCBs in concentrations that exceeded TOGS 1.1.1 Standards or Guidance Values. The only detected VOC was Tetrachloroethene at 1.8 ug/L, which is below its respective GQS of 5.0 ug/L. Three metals, Manganese, Selenium and Sodium, were present in concentrations that exceeded TOGS 1.1.1 Class GA Guidance Values in the one sample collected.

Soil vapor samples collected during the RI showed petroleum and chlorinated VOCs at generally low concentrations. Low detections of compounds usually associated with gasoline, such as Ethanol, Benzene, Toluene, Ethylbenzene and Xylenes, were detected. In two samples, Tetrachloroethene (PCE) was identified at concentrations of 102 ug/m³ and 117 ug/m³. All three soil vapor samples exhibited concentrations of Acetone (ranging from 75 ug/m³ to 230 ug/m³) and Methyl Ethyl Ketone (ranging from 110 ug/m³ to 167 ug/m³). Since these compounds were not detected in the soil samples and generally not found in groundwater an offsite source is suspected.

Potential Routes of Exposure

An exposure route is the mechanism by which a receptor comes into contact with a chemical. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of water, fill or soil;
- Inhalation of vapors and particulates; and
- Dermal contact with water, fill, or soil.

Existence of Human Health Exposure

Current Conditions: The Site is undeveloped, vacant and uncapped (overgrown with weeds). Under current Site conditions, exposure to surficial historic fill material is possible. Groundwater is marginally contaminated but is not exposed at the Site, and because the Site is served by the public water supply, groundwater is not used at the Site. There are no structures on Site where soil vapor could accumulate, and existing exposure to soil vapor is unlikely.

Construction/ Remediation Activities: The potential exposure pathways to onsite contamination are by ingestion, dermal, or inhalation exposure by onsite workers during the remedial action. Similarly, off-Site receptors could be exposed to dust from onsite activities. Groundwater is not expected to be encountered during construction/ remediation, and there will be no structures on Site where soil vapor could accumulate. During the remedial action, on-site exposure pathways will be eliminated by preventing access to the site, through implementation of soil/ materials management, stormwater pollution prevention, and dust controls, employment of a community air monitoring plan, and implementation of a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, the site will be fully capped, limiting potential direct exposure to soil and groundwater remaining in place, and engineering controls will prevent potential for inhalation via soil vapor intrusion. Any on-Site exposures to residual vapors and vapors from off-site sources will be prevented by installation of the vapor barrier. Long term assurance of these protections will be achieved by Site inspections and periodic certifications under an approved Site Management Plan. The site is served by the public water supply, 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.

Receptor Populations

On-Site Receptors – The Site is currently vacant and undeveloped, and an 8-foot high chain link fence restricts access to the Site. Therefore, the only potential on-Site receptors are Site Representatives and trespassers. During redevelopment of the Site, the on-Site potential receptors will include construction workers, site representatives, and visitors. Once the Site is redeveloped, the on-Site potential sensitive receptors will include adult employees and visitors.

Off-Site Receptors - Potential off-Site receptors within a 400 foot radius of the Site include: adult and child residents, commercial and construction workers, pedestrians, and cyclists, based on the following:

1. Commercial Businesses (up to 400 feet) – existing and future
2. Residential Buildings (up to 400 feet) – existing and future
3. Building Construction/Renovation (up to 400 feet) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to 400 feet) – existing and future

5. Schools (up to 400 feet) – existing and future

Overall Human Health Exposure Assessment

Current potential exposure pathways will be eliminated by the remedial action. During the remedial action, on-site and offsite exposure pathways will be eliminated by preventing access to the site, through implementation of soil/materials management, stormwater pollution prevention, dust controls, employment of a community air monitoring plan, and implementation of a Construction Health and Safety Plan. Under future conditions, dermal contact and ingestions exposures will be eliminated by removal of all soils above Track 2 Restricted Commercial Use SCOs. Inhalation exposures to potential offsite soil vapors will be prevented by construction of a vapor barrier and placement of a concrete slab.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 Project Organization and oversight

Principal personnel who will participate in the remedial action include David Lorthioir. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Dale Konas and David Lorthioir, respectively.

5.2 Site Security

Site access will be controlled by a gated entrance to the fenced property.

5.3 Work Hours

The hours for operation of remedial construction will be from 8 to 4. These hours conform to the New York City Department of Buildings construction code requirements.

5.4 Construction Health and Safety Plan

The Health and Safety Plan is included in Appendix 4. The Site Safety Coordinator will be David Lorthioir. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements

and 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 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, including 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 be required to sign an HASP acknowledgment. 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; 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 HASP. 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 volatile organic compounds (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.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (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. The following actions will be taken in response to high levels of dust:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m³ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m³ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m³ of the upwind level and in preventing visible dust migration.

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 RAWP 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

A pre-construction meeting will take place 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 to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout 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 RAWP. 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 RAWP.

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 roads 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. Before exiting the NYC VCP Site, trucks will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

5.8 Traffic Control

Drivers of trucks leaving the NYC VCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. When the disposal facility for the soil from the site is determined, a truck route will be submitted to OER.

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 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 day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of 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 excursions, if any;
- 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 RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

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 RAR 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 Work Plan

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

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

5.13 Data Usability Summary Report

The primary objective of a Data Usability Summary Report (DUSR) is to determine whether or not data meets the site specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data without third party data validation. Given the low concentrations of contaminants observed in the RIR, a DUSR for post-remedial samples will not be performed.

6.0 REMEDIAL ACTION REPORT

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Site Management Plan;
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end point sampling results and all material characterization results and the QA/QC results for end-point sampling.
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;

- Account 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.
- Recorded Declaration of Covenants and Restrictions (if required).
- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I, _____, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 876 Livonia Avenue Site, Site number. 13CVCP070K.

I, David Lorthioir, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 876 Livonia Avenue Site, Site number. 13CVCP070K.

I certify that the OER-approved Remedial Action Work Plan 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.

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 one month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Anticipated Duration (days)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	1	1
Remedial Excavation	1	3
Demobilization	2	1
Record Declaration of Covenants and Restrictions	NA	NA
Submit Remedial Action Report	4	1

Appendix A

Citizen Participation Plan

The NYC Office of Environmental Remediation and Mr. Gary Caiozzo have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, Mr. Gary Caiozzo will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Breanna Gribble, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841.

Project Contact List

OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List can include owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories

A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. David Lorthioir will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

New Lots Library

665 New Lots Avenue

Brooklyn, NY 11207

718-649-0311

10AM – 6PM M, T, Th, Fri

10AM – 8PM W

Digital Documentation

NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

Identify Issues of Public Concern

Mr. Gary Caiozzo is required to identify whether there are specific issues of concern to stakeholders proximate to the project site. Such issues include but are not limited to interests of Environmental Justice communities. Mr. David Lorthioir should list any site-specific issues of public concern and the method that they will be used resolved them. If needed, contact OER for additional guidance on how to identify issues of public concern.

Public Notice and Public Comment.

Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent

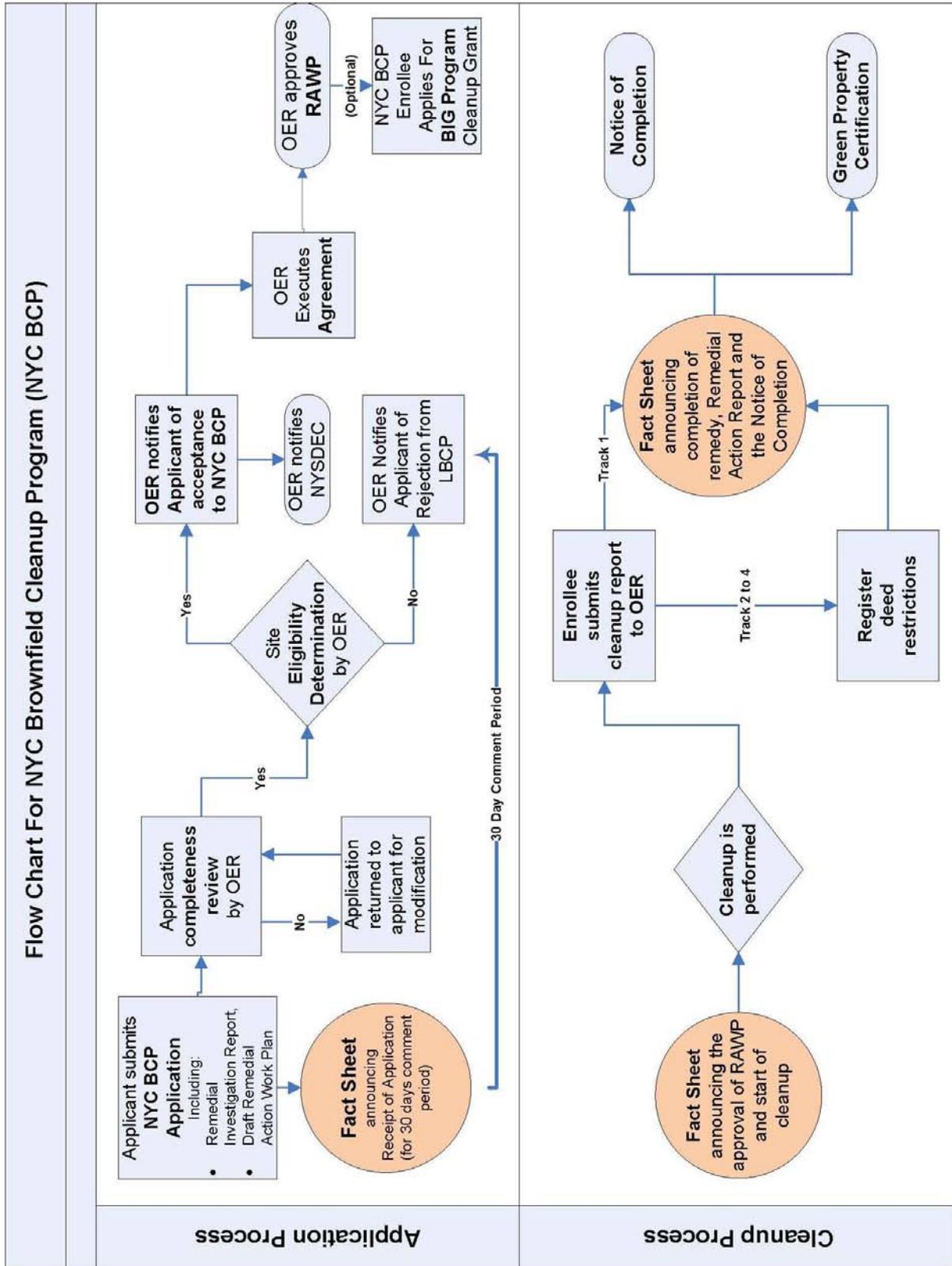
and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by David Lorthoir, reviewed and approved by OER prior to distribution and mailed by David Lorthoir. Public comment is solicited in public notices for all work plans developed under the NYC Brownfield Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Citizen Participation Milestones

Public notice and public comment activities occur at several steps during a typical NYC BCP project. See flow chart on the following page, which identifies when during the NYC BCP public notices are issued: These steps include:

- Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.
- Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.
- Public Notice announcing the approval of the RAWP and the start of remediation
- Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.
- Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion
- Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.

Flow Chart For NYC Brownfield Cleanup Program (NYC BCP)



APPENDIX B

Sustainability Statement

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

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 Remedial Action Report (RAR). 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.

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

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.

A vapor barrier and re-use of storm water on-site can reduce the likelihood of re-contamination at the site. An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Storm-water Retention

Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters. Special care to keep all storm-water on-site during the remediation will be taken.

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. Green building space will not be created as part of this project.

A skylight will be incorporated into the design of the building to reduce the energy consumption of the building from electrical usage.

Paperless Brownfield Cleanup Program.

The owner of the Site and his consultants are participating in OER's Paperless Brownfield Cleanup 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.

The owner of the Site and his consultants are 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.

APPENDIX C

Soil/Materials Management Plan

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 RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

1.2 Stockpile Methods

Excavated soil resulting from the installation of the building foundation will be stockpiled and 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 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 RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- Ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.
- Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.
- Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

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. Due to the small size of the Site, the queuing of trucks will be performed off-Site, along Livonia Avenue. All efforts will be made to minimize any off Site disturbance due to the queuing.

A disposal facility for the soil removed from the site has not been chosen at this time. Once the facility is determined an outbound truck transport route will be determined. This route will take 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 Brooklyn, New York 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, or equivalent correspondence, 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 RAR.

The Remedial Action 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 RAR.

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 RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-

Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.7 Materials Reuse On-Site

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan will not be reused on-Site.

1.8 Demarcation

Given that the only invasive work will consist of the installation of the building foundation, demarcation boundaries or layers will not be utilized at the Site.

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.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

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

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAWP. The RAR 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.

1.10 Source Screening and Testing

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

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

Composite samples of imported material 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 RAR. 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.

1.11 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the

groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

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

1.12 Storm-water Pollution Prevention

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (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.

1.13 Contingency Plan

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 NYS DEC 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 TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.14 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/QEPs certifying the Remedial Action Report.

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/QEPs responsible for certifying the Remedial Action Report.

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 D

Health and Safety Plan