

131 BERRY STREET

BROOKLYN, NEW YORK

Remedial Action Work Plan

NYC VCP Number: 13CVCP112K

E-Designation Site Number: 12EHAZ318K

Prepared for:

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REMEDIAL ACTION WORK PLAN

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LIST OF ACRONYMS

| Acronym | Definition |
|----------------|--|
| AOC | Area of Concern |
| AS/SVE | Air Sparging/Soil Vapor Extraction |
| BOA | Brownfield Opportunity Area |
| CAMP | Community Air Monitoring Plan |
| C/D | Construction/Demolition |
| COC | Certificate of Completion |
| CQAP | Construction Quality Assurance Plan |
| CSOP | Contractors Site Operation Plan |
| DCR | Declaration of Covenants and Restrictions |
| ECs/ICs | Engineering and Institutional Controls |
| HASP | Health and Safety Plan |
| IRM | Interim Remedial Measure |
| BCA | Brownfield Cleanup Agreement |
| MNA | Monitored Natural Attenuation |
| NOC | Notice of Completion |
| NYC VCP | New York City Voluntary Cleanup Program |
| NYC DEP | New York City Department of Environmental Protection |
| NYC DOHMH | New York State Department of Health and Mental Hygiene |
| 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 DOH | New York State Department of Health |
| NYS DOT | New York State Department of Transportation |
| ORC | Oxygen-Release Compound |
| OSHA | United States Occupational Health and Safety Administration |
| PE | Professional Engineer |

| | |
|-------|--|
| PID | Photo Ionization Detector |
| QEP | Qualified Environmental Professional |
| QHHEA | Qualitative Human Health Exposure Assessment |
| RAOs | Remedial Action Objectives |
| RAR | Remedial Action Report |
| RAWP | Remedial Action Work Plan or Plan |
| RCA | Recycled Concrete Aggregate |
| RD | Remedial Design |
| RI | Remedial Investigation |
| RMZ | Residual Management Zone |
| SCOs | Soil Cleanup Objectives |
| SCG | Standards, Criteria and Guidance |
| SMP | Site Management Plan |
| SPDES | State Pollutant Discharge Elimination System |
| SVOC | Semi-Volatile Organic Compound |
| USGS | United States Geological Survey |
| UST | Underground Storage Tank |
| VOC | Volatile Organic Compound |

CERTIFICATION

I, Harry Tenenbaum am a Professional engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 131 Berry Street Site, (NYC OER Site Nos. 13CVCP112K and 12EHAZ318K).

I, Matthew Boeckel am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 131 Berry Street Site, (NYC OER Site Nos. 13CVCP112K and 12EHAZ318K).

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.

Harry Tenenbaum

QEP Name

Signature

Date

Harry Tenenbaum
March 15, 2013



Matthew Boeckel

QEP Name

Signature

3/14/2013

Date

Matthew Boeckel

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Harry Tanenbaum

PE Name

PE Signature

Date

Matthew Boeckel

QEP Name



QEP Signature

3/14/2013

Date

EXECUTIVE SUMMARY

Tibetan LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate an 8,500-square foot site located at 125-137 Berry Street 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 at 125-137 Berry Street in the Williamsburg section in Brooklyn, New York and is identified as Block 2327 and Lot 5 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is 8,500-square feet and is bounded by North 7th Street to the north, a commercial building to the south, residential apartment buildings to the east, and Berry Street to the west. A map of the site boundary is shown in **Figure 2**. Currently, the Site is vacant and contains one (1) one-story building which measures 2,460 square feet the remainder of the property is undeveloped.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a restaurant with seasonal exterior areas for dining. The current building rests on a poured concrete slab foundation. As part of the redevelopment the interior slab is going to be removed and approximately 15,440 cubic feet (ft³) of soil from below the current slab will be removed. The proposed final depth of the basement area is eight (8) feet bgs. The exterior surface will be completed with asphalt pavement or one foot of clean soil and paving stones. Approximately 3,600 ft³ of soil will be removed from the exterior areas. The proposed exterior subsurface grading is depicted on **Figure 3**. The proposed exterior surface areas are depicted on **Figure 4**. Layout of the proposed site development is presented in **Figure 5**. The current zoning designation is R6B-General Residence District. The proposed use is consistent with existing zoning for the property.

Summary of the Remedy

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 implementation of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establish Track 4 Soil Cleanup Objectives.
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Excavation and removal of soil/fill exceeding SCOs, including a hotspot area identified in the exterior rear yard. Excavation for development purposes to a depth of approximately 8 feet in the area of the existing building area and less than 1 foot in the exterior yard area.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
8. 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. Appropriate segregation of excavated media onsite.
9. Installation of a vapor barrier and and installation and operation of an active sub-slab depressurization system.
 10. Construction and maintenance of an engineered composite cover including the concrete building slab, and asphalt pavement or one foot of clean soil and paving stones in outdoor areas. The cover will prevent human exposure to residual soil/fill remaining under the Site;
 11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
 12. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
 13. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
 14. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.
 15. 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 Engineering and Institutional Controls and reporting at a specified frequency.
 16. Continued registration as an E-Designated property and 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 Rick Wilson and can be reached at 917-294-6028.

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 Rick Wilson or NYC Office of Environmental Remediation Project Manager William Wong 212-341-0659.

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 8 a.m. to 3 p.m.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the 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 Rick Wilson, the NYC Office of Environmental Remediation Project Manager William Wong at 212-341-0659, 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 repository.

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 SITE BACKGROUND

Tibetan LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 125-137 Berry Street in the Williamsburg section of Brooklyn, New York and is identified as Block 2327. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternative analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 125-137 Berry Street in the Williamsburg section in Brooklyn, New York and is identified as Block 2327 and Lot 5 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 8,500-square feet and is bounded by North 7th Street to the north, a commercial building to the south, residential apartment buildings to the east, and Berry Street to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is vacant and contains one (1) one-story building which measures 2,460 square feet the remainder of the property is undeveloped.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of a restaurant with seasonal exterior areas for dining. The current building rests on a poured concrete slab foundation. As part of the redevelopment the interior slab is going to be removed and approximately 15,440 cubic feet (ft³) of soil from below the current slab will be removed. The proposed final depth of the basement area is eight (8) feet bgs. The exterior surface will be completed with asphalt pavement or on

foot of clean soil and paving stones. Approximately 3,600 ft³ of soil will be removed from the exterior areas. The proposed exterior subsurface grading is depicted on Figure 3. The proposed exterior surface areas are depicted on Figure 4. Layout of the proposed site development is presented in Figure 5. The current zoning designation is R6B-General Residence District. The proposed use is consistent with existing zoning for the property.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The adjacent properties to the north and east of the Site consist of mixed-use multiple story residential apartment buildings with commercial/retail space on the first floor. The adjacent properties located to the west of the site consist of multiple story residential apartment buildings. The adjacent properties to the south of the Site consist of a commercial building and multiple story residential apartment buildings. There are no sensitive receptors such as schools, hospitals, and day care facilities within a 250 to 500-foot radius.

1.4 REMEDIAL INVESTIGATION

A remedial investigation was performed and the results are documented in a companion document called “*Remedial Investigation Report, 131 Berry Street*”, dated August, 2012 (RIR).

Summary of Past Uses of Site and Areas of Concern

The Site was originally developed sometime prior to 1887 with five (5) residential dwellings and one (1) store building. By 1951 the Site was improved with only three (3) residential dwellings and the one (1) store building. By 1965 the site was developed for use as a gasoline “filling station” and remained as such until approximately 2000 when the underground storage tanks (USTs) were removed. The site has remained mostly unoccupied since that time.

The AOCs identified for this site include:

- Former site usage as gas station. (Interior of the subject building based upon former underground hydraulic lifts as well as repair bays and exterior property areas due to former gasoline underground storage tanks, dispenser pumps and associated piping).

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed nine (9) soil borings across the entire project Site, and collected twelve (12) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed three (3) groundwater monitoring wells throughout the Site to establish groundwater flow and collected three (3) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed three (3) soil vapor probes around Site perimeter and collected three (3) samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property is approximately 35 feet above mean sea level.
2. Depth to groundwater ranges from 26.40 to 29.71 feet at the Site.
3. Groundwater flow is generally from east to west beneath the Site.
4. Depth to bedrock varies from approximately 15 to 30 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of 15 feet of brown medium to fine sands with some clay and cobbles.
6. VOCs were not detected above Unrestricted Use SCOs in any of the soil samples collected. Tetrachloroethene (PCE), Trichloroethene (TCE), and TCA were not detected in any soil sample. Several SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene were detected above Track 1 RSCOs in one shallow soil sampling location. Of these, benzo(a)anthracene, benzo(a)pyrene and dibenzo(a,h)anthracene also exceeded Restricted Residential SCOs. Total concentrations of these SVOCs ranged from 687 ppb to 5,870 ppb. Two pesticides, 4,4'-DDE and 4,4'-DDT were detected above their respective Unrestricted SCO values in two shallow soil

samples, but were below Track 2 Restricted Residential SCOs. Metals including lead (485 ppm), mercury (0.71 ppm), nickel (54 ppm) and zinc (156 ppm) were detected at concentrations above site specific RSCOs in shallow borings. None of these concentrations exceeded Restricted Residential SCOs. Deeper soil samples were all below Unrestricted SCOs for all contaminants.

7. Groundwater samples collected during the RI showed that methylene chloride was detected in one groundwater sample at a concentration of 5.16 ppb, which is above its GQS of 5.0 ppb. One chlorinated VOC, tetrachloroethene (PCE) was detected at 6.88 ppb, above its GQS. TCE was detected at 2.99 ppb. TCA and carbon tetrachloride were not detected in any groundwater sample. SVOCs, pesticides and PCBs were not detected in any groundwater sample. Metals including iron, magnesium, manganese and sodium were detected above GWQS in all dissolved groundwater samples.
8. Several chlorinated and petroleum related VOCs were detected above the NYSDOH guidance values in all three soil vapor samples. Ethanol (855 ug/m³), Hexane (54 ug/m³), propylene (1960 ug/m³) and toluene (43 ug/m³) were detected in soil vapor. Chlorinated VOCs were detected above NYSDOH guidance values in all soil vapors and included Carbon disulphide (detected at a maximum value of 57 ug/m³), PCE ranged from 106 ug/m³ to 2,380 ug/m³ and Trichloroethylene (TCE) ranged from 4 ug/m³ to 98.3 ug/m³. Vinyl Chloride was not detected in any sample. For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 REMEDIAL ACTION OBJECTIVES

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

Groundwater

- Prevent direct exposure to contaminated groundwater.

Soil

- Prevent direct contact with contaminated soil.

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

Soil Vapor

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

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process 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 exceedence of applicable standards, criteria and guidance values (SCGs). A remedy is then developed based on the following ten criteria:

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

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 (including a Track 1 scenario) are evaluated, as follows:

- Alternative 1 involves
 - Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. Based on the results of the remedial investigation, it is expected that this alternative would require excavation to a depth of 3 feet across the Site. Excavation for development purposes would take place to a depth of approximately 8 feet within the interior of existing building which would effectively remove all soil above Unrestricted Use SCOs from beneath the building, but only

limited excavation would be performed on the exterior of the building other than a small hotspot area. Therefore, additional excavation in the rear yard would be necessary to excavate all soil/fill containing analytes at concentrations above Track 1 Unrestricted Use SCOs.

- Installation of an active sub slab depressurization system beneath the basement slab of the existing building and installation of a vapor barrier application of sealant (commercial grade 50-year caulking sealant) to seal all foundation cracks and voids to prevent exposures from soil vapor. This remedial action is required for management of soil vapor and the site management required for this system is not compatible with a Track 1 remedial action and this remedy would become a Track 2 remedial action.
- Alternative 2 involves
 - Removal of all soil/fill exceeding Track 4 site specific SCOs and confirmation that Track 4 has been achieved with post-excavation endpoint sampling. Based on the results of the remedial investigation, it is expected that in addition to planned excavation for development, this alternative would require excavation of a small hotspot area (10' by 10') to a depth of three feet. However, if soil/fill containing analytes at concentrations above Track 4 SCOs are still present at the base of the excavation, additional excavation would be performed to ensure complete removal of soil that does not meet SCOs. Excavation for development purposes would take place to a depth of approximately 8 feet in the interior of the building.
 - Placement of a final building slab in the interior of building and asphalt pavement, gravel and pavers over the exterior of building to eliminate exposure to remaining soil/fill;
 - Application of a vapor barrier and installation an active sub-slab depressurization system beneath the basement slab to prevent exposures from soil vapor;
 - Establishment of use restrictions including prohibitions on the use of groundwater from the Site and prohibitions on sensitive site uses, such as farming or vegetable gardening, to eliminate future exposure pathways; and

- Establishment of an approved Site Management Plan 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.

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 would be protective of human health and the environment by removing the historic fill at the Site, thus eliminating the potential for human and environmental exposure to contaminated soil/fill once construction is complete and eliminating the risk of contamination leaching into groundwater. Potential exposure to contaminated soils during construction would be minimized by implementing an approved Soil/Materials Management Plan and Community Air Monitoring Plan (CAMP). There is minimal potential for contact with contaminated groundwater as it is neither used nor anticipated to be encountered during construction and the remedial action. Potential post-remediation exposures to soil vapors would be addressed by installing an active sub slab depressurization system (SSDS) beneath the foundation slab of the new building as part of development.

Alternative 2 would achieve comparable protections of human health and the environment by excavating most soils at the Site and ensuring that all remaining soil/fill meets Track 4 SCOs, as well as by placing institutional and engineering controls, including a composite cover system. Based upon the findings of the RIR it was determined that SCOs were exceeded in one (1) soil sample collected from the exterior shallow soil borings designated as SSB-3 (SVOCs). It is anticipated that excavation of soil to a depth of at least three (3) feet will be required. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. Implementing institutional controls including continued registration as an "E" designated

property and a Site Management Plan would ensure that the composite cover system remains intact and protective. Attainment of Track 4 SCOs would minimize the risk of contamination leaching into groundwater. Potential exposure to contaminated soils during construction would be minimized by implementing an approved Soil/Materials Management Plan and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be prevented as it would be prohibited by institutional controls, and it is not anticipated to be encountered during construction. Potential migration of soil vapors into the new building would be prevented by installing an active SSDS.

3.2. BALANCING CRITERIA

Compliance with Standards, Criteria and Guidance (SCGs)

Alternative 1 would achieve compliance with the remedial goals, SCGs and RAOs for soil through removal to Track 1 Unrestricted Use SCOs. Compliance with SCGs for soil vapor would also be achieved by installing an active SSDS beneath the new building's basement slab, although this would render this a Track 2 remedial action. Focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs.

Alternative 2 would achieve compliance with the remedial goals, SCGs and RAOs for soil through removal of soil to meet Track 4 SCOs. Compliance with SCGs for soil vapor would also be achieved by active SSDS installation beneath the new building's basement slab. A site management plan would ensure that these controls remained protective for the long term. Similar to the Track 1 alternative, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs.

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 1 and 2 have similar-short term effectiveness during their respective implementations, as each requires excavation of historic fill material. Short term impacts are likely to be higher for alternative 1 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. Alternatives 1 and 2 would both employ appropriate measures to prevent short term impacts, including a Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would effectively prevent the release of significant contaminants into the environment. Both alternatives provide short term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a Health and Safety Plan (CHASP) will be protected from on-Site contaminants (personal protective equipment would be worn consistent with the documented risks within the respective work zones).

Long-term effectiveness and permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill and enabling unrestricted usage of the property.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 SCOs; establishing engineering controls, including a composite cover system; establishing institutional controls to ensure long-term management including use restrictions, a Site Management Plan, and continuing the “E” designation to memorialize these controls for the long term. The SMP will ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and use restrictions continue to be in place and are functioning as they were intended assuring that protections designed into the remedy will provide continued high level of protection in perpetuity.

Reduction of toxicity, mobility, or volume of contaminated material

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

Alternative 1 would permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Unrestricted Use SCOs.

Alternative 2 would remove most of the impacted soil present on the Site and any remaining soil beneath the new building and within the exterior yard area would meet Track 4 SCOs. Alternative 1 would eliminate a greater total mass of contaminants on Site.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the

selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement Alternatives 1 and 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. They use standard materials and services that are 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.

Initial costs associated with alternative 1 will be significantly higher than alternative 2 based on both the volume of soil that requires excavation and off-Site disposal and the volume of clean soil imported to the Site that would be required to raise the elevation of the rear yard for installation of a grade level lawn. Alternative 2 would be conducted as part of the redevelopment activities and does not alter the development plans to any significant degree as such the alternatives are cost effective.

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. Both of the alternatives for the Site would provide a remedial action that is protective of public health and the environment and would be safe to achieve and should be acceptable to the community. This RAWP will be subject to a public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedy. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Attachment B.

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.

The site is proposed to be developed for use as a restaurant. The surrounding neighborhood is comprised of mainly mixed use retail/residential buildings and restaurants/eateries. It is anticipated that the intended land use will be acceptable to the community. The proposed redevelopment of the Site is compatible with its current zoning and is consistent with recent development patterns. Following remediation, the Site will meet Track 4 SCOs, which is appropriate for its planned use. 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.

Sustainability of the Remedial Action

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

While Alternative 2 would potentially result in lower energy usage based on reducing the volume of material transported off-Site, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. Alternative 2 proposes the removal of soil from below the building to install a basement. Approximately 40 tons of soil from this area will be utilized as backfill for the perimeter retaining wall.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedial action in Alternative 2, the Track 4 remedial action. 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 implementation of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establish Track 4 Soil Cleanup Objectives.
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Excavation and removal of soil/fill exceeding SCOs, including a hotspot area identified in the exterior rear yard. Excavation for development purposes to a depth of approximately 8 feet in the area of the existing building area and less than 1 foot in the exterior yard area.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.

8. 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. Appropriate segregation of excavated media onsite.
9. Installation of a vapor barrier and and installation and operation of an active sub-slab depressurization system.
10. Construction and maintenance of an engineered composite cover including the concrete building slab, and asphalt pavement or one foot of clean soil and paving stones in outdoor areas. The cover will prevent human exposure to residual soil/fill remaining under the Site;
11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
12. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
13. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
14. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.
15. 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 Engineering and Institutional Controls and reporting at a specified frequency.
16. Continued registration as an E-Designated property and 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.

4.2 SOIL CLEANUP OBJECTIVES AND SOIL/FILL MANAGEMENT

Track 4 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. The location of planned excavation is shown in Figure 6.

Table 1: Track 4 SCOs

| Contaminant | Track 4 SCO | Units |
|-------------|-------------|-------|
| Total SVOCs | 500 | mg/kg |
| Lead | 1000 | mg/kg |
| Zinc | 200 | mg/kg |
| Nickel | 310 | mg/kg |
| Mercury | 2.0 | mg/kg |

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 937 tons.

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.

| <u>Disposal Facility</u> | <u>Waste Type</u> | <u>Estimated Quantities</u> |
|--|-----------------------------|-----------------------------|
| PT Consultants 629 Creek Road Bellmawr, NJ 08031 856-251-9980 | Historic fill, native soil. | 937 tons |

End-Point Sampling

Removal actions under this plan will be performed in conjunction with remedial end-point sampling. For assessment of attainment of Track 4 SCOs (and Track 1 SCOs under the building) after soil removal, five end point samples will be collected at locations determined by OER. To evaluate attainment of Track 4 SCOs, listed analytes in Table 1 will be tested. To evaluated attainment of Track 1 Unrestricted Use SCOs, if pursued, endpoint samples will be analyzed for the full list of VOCs, SVOCs, PCBs, Pesticides, and Metals. Samples will be taken within 24 hours of excavation, and will be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours will be taken at six to twelve inches in depth.

If hotspots are identified during the remedial action or construction, hotspot removal actions under this plan will be performed in conjunction with remedial end-point sampling. Remedial end-point sampling frequency will consist of the following:

1. For excavations 20 to 300 feet in perimeter:

- For subsurface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
2. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.
 3. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1 above.

Post-remediation sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

New York State ELAP certified labs will be used for all end-point sample analyses. Labs 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.

Soil analytical methods will include:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270;
- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081/8082.

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

The primary QA objective in reference to accuracy, precision and sensitivity of analysis for the laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

The samples collected will be appropriately packaged, placed in coolers and delivered directly to the analytical laboratory by the field personnel. Samples will be collected in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice to maintain a temperature of 4°C.

Dedicated disposable sampling materials will be used for the collection of endpoint samples, eliminated the need to prepare field equipment (rinsate) blanks. However if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil
- Rinse with tap water
- Wash withalconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Field blanks will be prepared by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will be used whenever samples are transported to the laboratory for analysis of VOCs. Trip blanks will not be used for samples analyzed for metals, SVOCs or pesticides.

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 for backfill and cover soil is 185 tons. The estimated quantity of onsite soil/fill expected to be reused/relocated on Site is 40 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 (2) primary Engineering Control Systems. These are:

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system is comprised of asphalt pavement, gravel and pavers.

Figure 3 shows the typical design for each remedial cover type used on this Site. **Figure 4** shows the location of each cover type built at the Site.

The composite cover system is a permanent engineering control for the Site. The system will be inspected and reported at specified intervals as required by this RAWP and the SMP. A Soil Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the RAR.

Vapor barrier and sub-slab depressurization

- Future migration of soil vapor from beneath the Site and off-site will be mitigated with a combination of building slab and vapor barrier.
- Migration of soil vapor will be mitigated with the application of a 20-mil vapor barrier and an active sub-slab depressurization system. The SSDS for the building will consist of one loop installed within porous granular material beneath the entire concrete slab. The SSDS system will provide the correct coverage in accordance with the USEPA sub-slab depressurization design specifications which recommend a separate vent loop for every 4,000 ft² of slab area. The layout plan for the SSDS is provided in Figure 7.

- The horizontal vent line will be constructed of a continuous loop of perforated 4-inch HDPE smooth interior pipe fitted with a filter sock. Fill material around the horizontal vent piping will be RCA or virgin mined, 1/2 inch to 3/4 inch gravel. The horizontal pipe will extend to an adjacent utility chase-way where it will be piped to the roof via a 6-inch schedule 40 PVC line. The exhaust stack will be located a minimum of 10 feet from windows and ventilation inlets.

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 implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR and through continued registration of the E-Designation for the property.

Institutional Controls for this remedial action are:

- Continued registration of the E-Designation for the property. Description of all ECs and ICs in an OER-approved Site Management Plan, Property owner and property owner's successors and assigns must comply with the approved SMP;
- Site Management Plan approved 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 yearly and will comply with RCNY §43-1407(1)(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 specifically as a restaurant 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 in 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 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 a 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

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA).

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

Investigations 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 QHHEA 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.

Known and Potential Sources

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

Soil:

1. SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene were detected above Track 1 SCOs;
2. Pesticides: 4,4'-DDE and 4,4'-DDT were detected above their respective Unrestricted SCO values in two shallow soil;
3. Metals: lead, mercury, nickel and zinc were detected at concentrations above Track 1 SCOs in shallow borings.

Groundwater:

1. VOCs: methylene chloride and tetrachloroethene (PCE) were detected slightly above GQS.
2. Metals including iron, sodium, and manganese, exceeding GQS.

Soil vapor:

1. Petroleum associated compounds.
2. Chlorinated VOCs including: PCE (106 ug/m³ to 2,380 ug/m³) and TCE (4 ug/m³ to 98.3 ug/m³).

Nature, Extent, Fate and Transport of Contaminants

SVOCs and metals are present in the historic fill materials throughout the Site at depths consistent with the presence of historic fill material. Chlorinated VOCs detected at low levels in groundwater may be related to historic on site operations. The metal contaminants that were found dissolved in on-site groundwater included iron, manganese and sodium and are linked with regional impacts such as saline intrusion.

Potential Routes of Exposure

An exposure route is the mechanism by which a receptor comes into contact with a chemical. There are three potential routes by which the chemicals can enter the body from this property:

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

Existence of Human Health Exposure

The immediate area surrounding the Site is mixed use residential and commercial, and is anticipated to remain as such. The building at the site will be utilized as a commercial facility. Potential receptor populations are as follows:

On-Site Receptors - The Site is developed as a restaurant. Therefore, on-Site receptors consist of employees, customers, visitors 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 and child customers, workers, and other visitors.

Off-Site Receptors - Potential offsite receptors within a 0.25-mile radius of the Site include: adult and child residents, commercial and construction workers, pedestrians, trespassers, and cyclists, based on the following:

1. Commercial Businesses (up to 0.25 mile) – existing and future
2. Residential Buildings (up to 0.25 mile) – existing and future
3. Building Construction/Renovation (up to 0.25 mile) – existing and future
4. Pedestrians, Cyclists (up to .25 mile) – existing and future
5. Schools (up to 0.25 mile) – existing and future
6. Community (up to .25 mile) – existing and future

Overall Human Health Exposure Assessment

Based upon this analysis, complete on-Site exposure pathways appear to be present only during the current unremediated phase and the remedial action phase. Under current conditions, on-Site exposure pathways are minimized by preventing access to the Site. During remedial construction, on-Site and off-Site exposures to contaminated dust and metals from historic fill material and contaminated soil will be addressed through dust controls and through the implementation of the Community Air-monitoring Program and a Construction Health Safety Plan. After the remedial action is complete, there will be no remaining exposure pathways to any identified contaminants, as the building slab will have a vapor barrier and an active SSDS covered with a concrete slab and a composite cover in exterior yard areas consisting of asphalt, gravel and pavers over the entire property.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

Principal personnel who will participate in the remedial action include Matthew Boeckel, Project Manager; Theresa Burkard, Environmental Scientist I; John Lagoudes, Environmental Technician I AND Rick Wilson the site manager. The Qualified Environmental Professional (QEP) for this project is Matthew Boeckel.

5.2 SITE SECURITY

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

5.3 WORK HOURS

The hours for operation of remedial construction will be from 8 am to 3 pm. 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 Rick Wilson. 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.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedences of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

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.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

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

5.6 AGENCY APPROVALS

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this 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

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

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations 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.

Dewatering

Dewatering is not proposed as part of this project. Groundwater is located approximately twenty-eight (28) feet below grade.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The location of proposed equipment and material staging areas, truck

inspection station, stockpile areas, and other pertinent remedial management features is shown in **Figure 8**.

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.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and 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 Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is heading northwest on Berry Street to the intersection of Berry Street and North 10th Street head southeast to the intersection of Union Avenue make a right and continue onto Brooklyn Queens Expressway. The truck route is included on **Figure 9**.

5.9 DEMOBILIZATION

Demobilization will include:

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

- General refuse disposal.

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

5.10 REPORTING AND RECORD KEEPING

Daily Reports

Daily reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following 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. The DUSR for post-remedial

samples collected during implementation of this RAWP will be included in the Remedial Action Report (RAR).

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, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action and DUSR;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- 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.
- 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, Matthew Boeckel, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 131 Berry Street Site 12EHAZ318K.al)

I certify that the OER-approved Remedial Action Work Plan dated December 2012 was 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 six month remediation period is anticipated.

| Schedule Milestone | Weeks from Remedial Action Start | Duration (weeks) |
|--|---|-------------------------|
| OER Approval of RAWP | 0 | - |
| Fact Sheet 2 announcing start of remedy | 0 | - |
| Mobilization | 0 | 0.5 |
| Remedial Excavation | 0.5 | 24 |
| Demobilization | 24.5 | 0.5 |
| Record Declaration of Covenants and Restrictions | 25 | 2 |
| Submit Remedial Action Report | 25 | 4 |

FIGURES

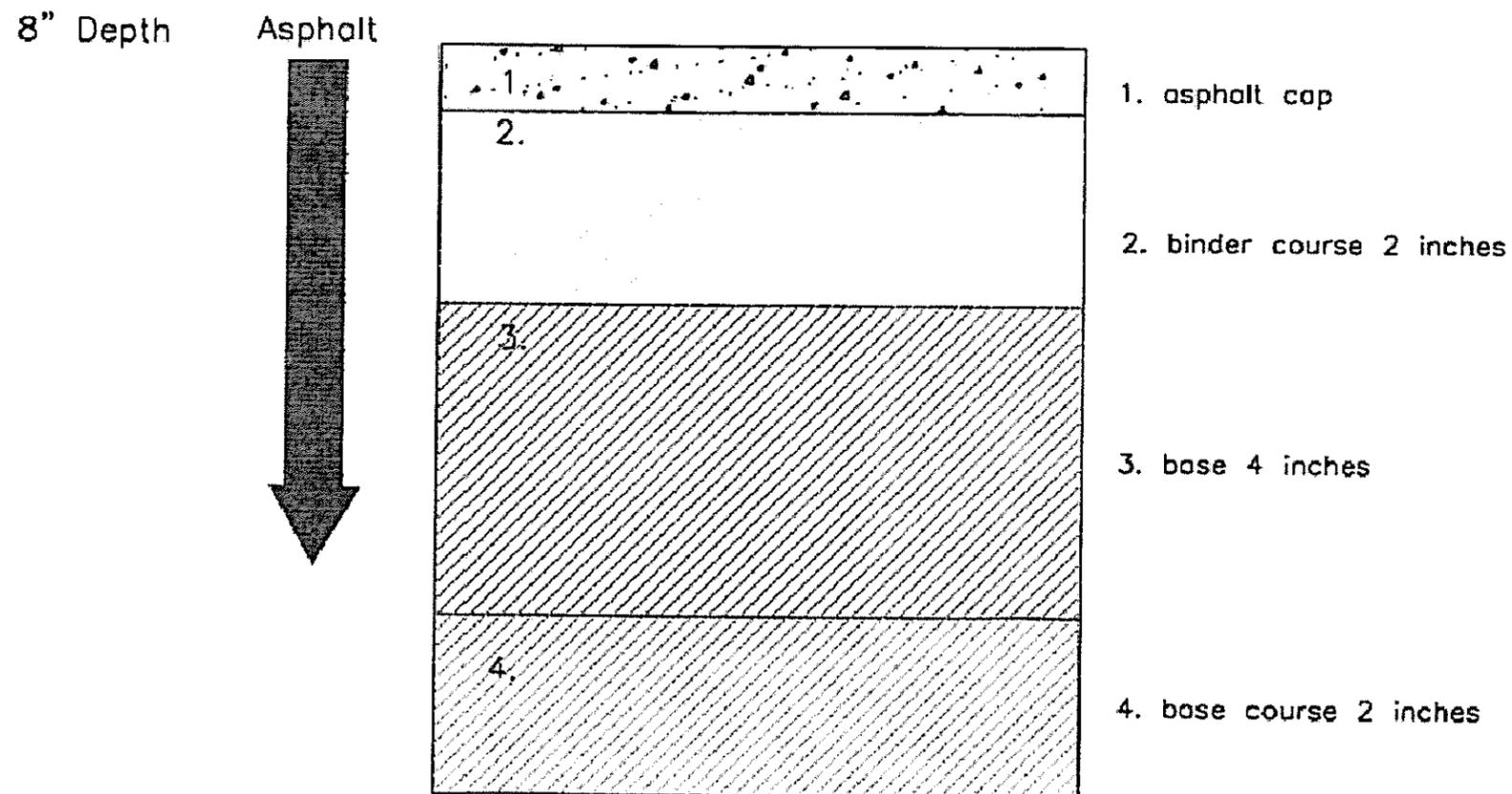
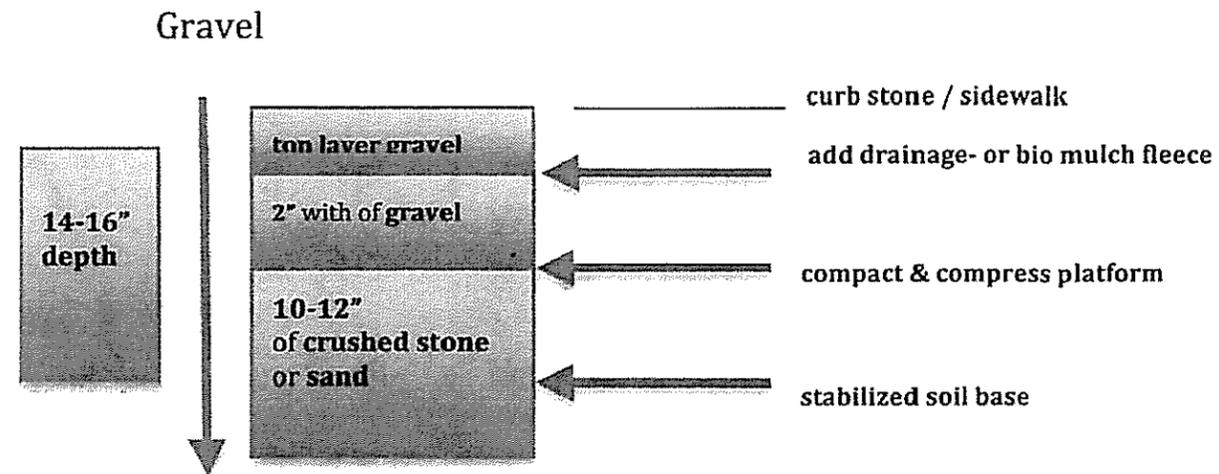
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| Tyree Environmental Corporation  Phone: (631) 249-3150 Fax: (631) 249-3281 208 Route 109 Farmingdale, New York 11735 | |
| Figure 1 – Location Map | Project No. 12EHAZ318K |
| Commercial Property 125-137 Berry Street Brooklyn, New York | Date: December 20, 2012 Client: Tibetan LLC |
| | |



| | |
|--|--|
| Tyree Environmental Corporation  Phone: (631) 249-3150 Fax: (631) 249-3281 208 Route 109 Farmingdale, New York 11735 | |
| Figure 2 – Site Boundary Map | Project No. 12EHAZ318K |
| Commercial Property 125-137 Berry Street Brooklyn, New York | Date: December 21, 2012 Client: Tibetan LLC |
| | |



Project
131 BERRY STREET,
 BROOKLYN-11211

BLOCK:# 2327
 LOT:# 5
 ZONING: R6B(COMMERCIAL OVERLAY-C2-4)
 ZONING MAP# 12C

EAB ENGINEERING PC
 408 JAY STREET, SUITE-304,
 BROOKLYN,NY-11201
 Tel: 718-643-9610 ;
 FAX: 718-643-9608
 email: eabconsultants@aol.com

REVISIONS

| NO. | DESCRIPTION | DATE |
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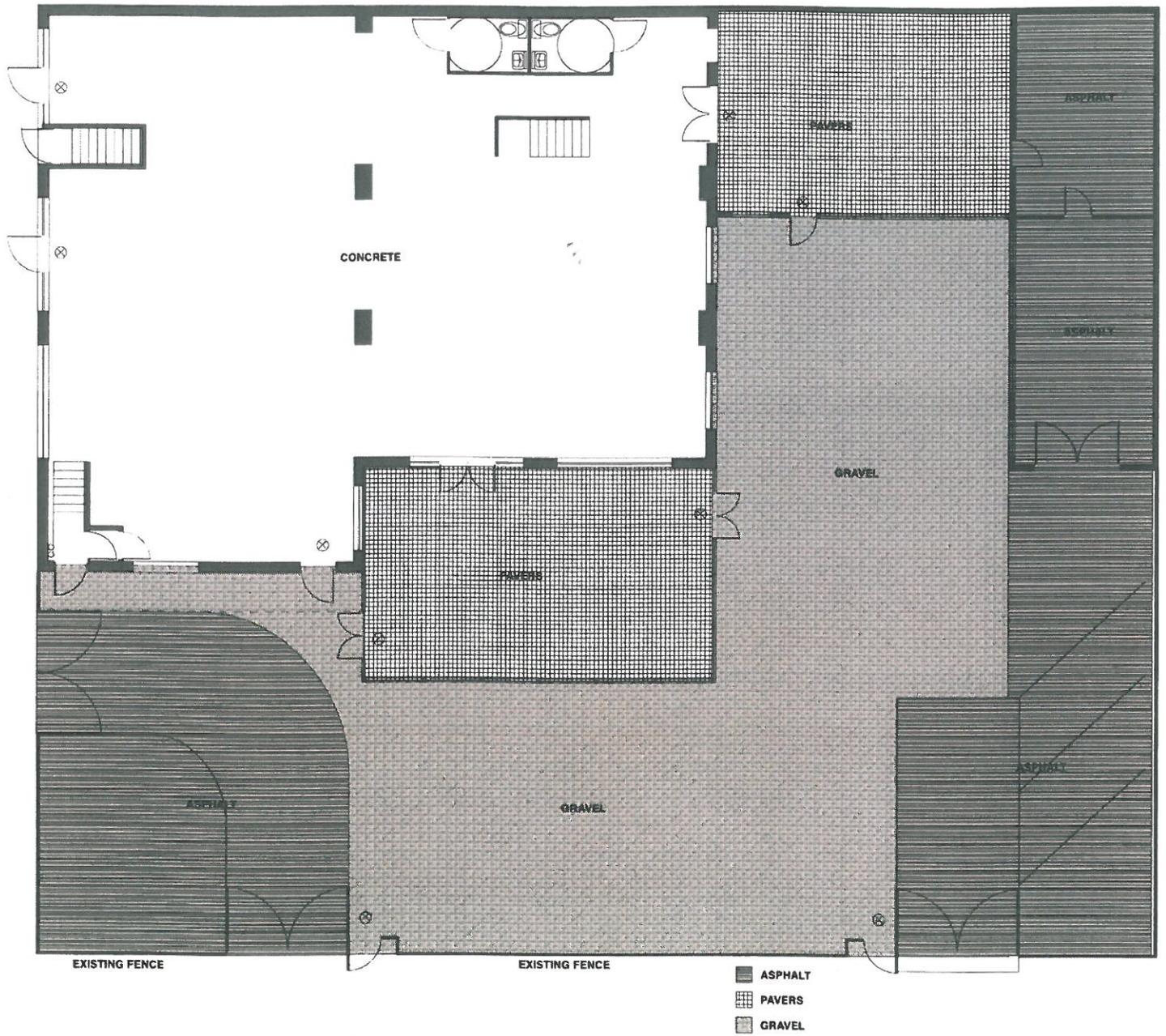
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 PROJ. # 00.13
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 Chk by I.I

SEAL & SIGNATURE:



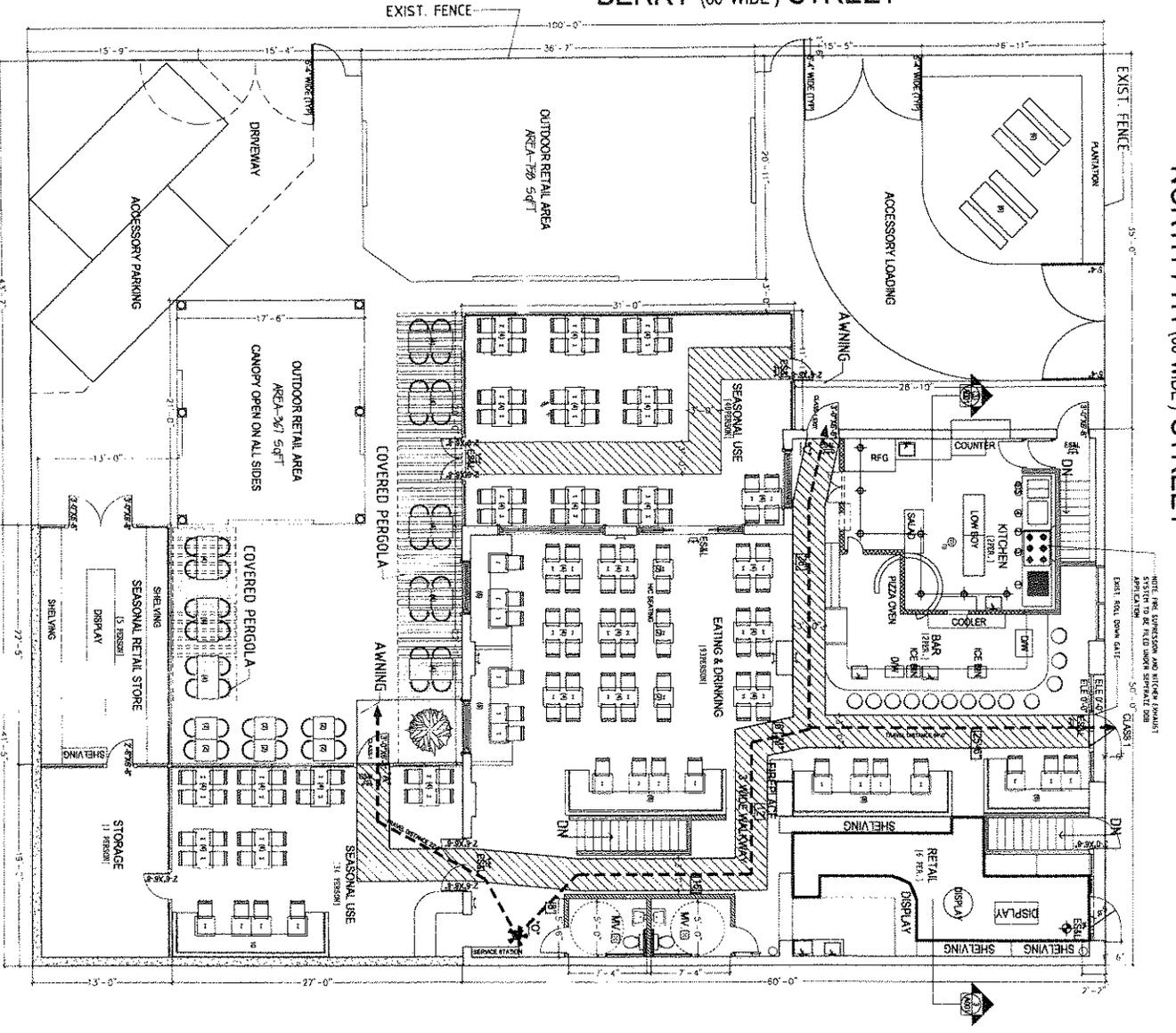
NORTH 7TH STREET



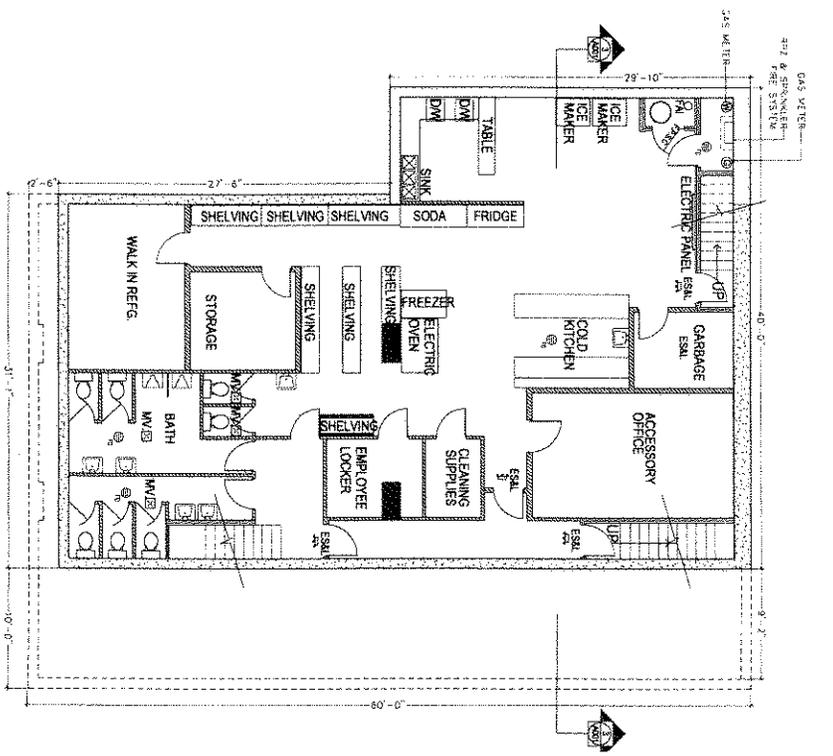
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|---|------------------------|
| Tyree Environmental Corporation | |
|  | |
| Phone: (631) 249-3150 | Fax: (631) 249-3281 |
| 208 Route 109 | |
| Farmingdale, New York 11735 | |
| Figure 4 – Exterior Surface Plan | Project No. 12EHAZ318K |
| Commercial Property | Date: August 13, 2012 |
| 125-137 Berry Street | Client: Tibetan LLC |
| Brooklyn, New York | |

NORTH 7TH (60' WIDE) STREET

BERRY (60' WIDE) STREET



1 FIRST FLOOR PLAN

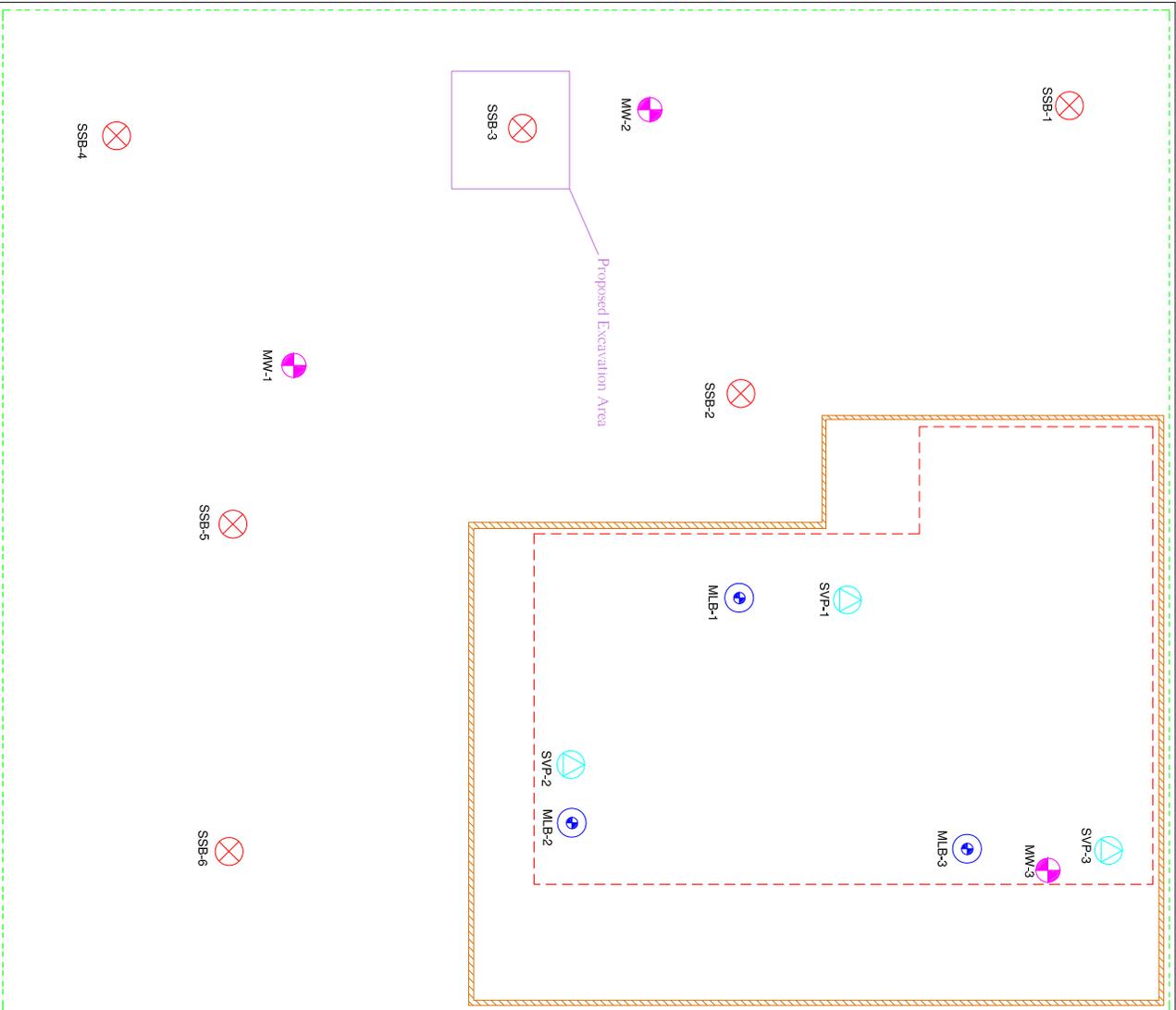


1 CELLAR FLOOR PLAN

| | |
|--|---------------------|
| Tyce Environmental Corporation | |
| 208 Route 109 Farmingdale, New York 11735 | |
| Phone: (631) 249-3150 | Fax: (631) 249-3281 |
| | |
| Figure 5 - Site Development Plan | |
| Commercial Property | |
| 125-137 Berry Street | |
| Brooklyn, New York | |
| Project No. 12EHAZ318K | |
| Date: August 13, 2012 | |
| Client: Tibetan LLC | |

NORTH 7TH STREET

BERRY STREET



LEGEND

-  Monitoring Well
-  Multi-Level Soil Boring (0-2' & 10-12')
-  Surface Soil Boring (0-2')
-  Soil Vapor (10-12')
-  Groundwater Elevation (amsl) 8.26
-  Property Boundary
-  Proposed Basement
-  Current Building
-  Proposed Excavation Area

| | |
|---|------------------------|
| Tyree Environmental Corporation | |
| Phone: (631) 249-3150 | Fax: (631) 249-3281 |
| 208 Route 109 FARMINGDALE, NY 11735 | |
|  | |
| FIGURE 6 - Excavation Plan | |
| PROJECT NO. 12EHA2318K | |
| 131 BERRY STREET BROOKLYN, NEW YORK | |
| DATE: 8/15/2012 | DRAWN BY: MATT BOECKEL |
| SCALE: 1" = 15' | CLIENT: OLIVER STUMM |
| PLATE: | |

BERRY STREET

NORTH 7TH STREET

Equipment Staging Area

Soil Staging Area

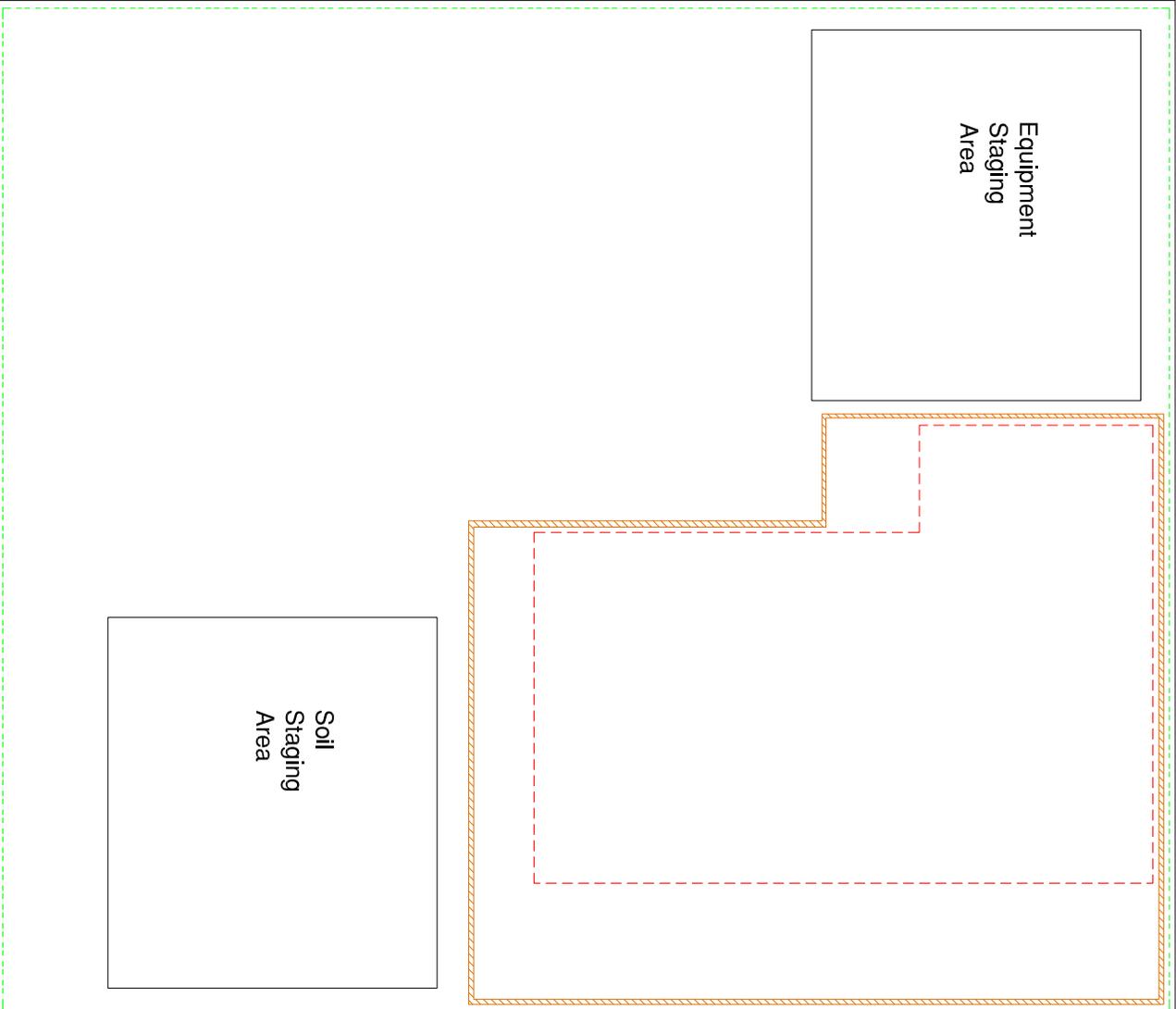
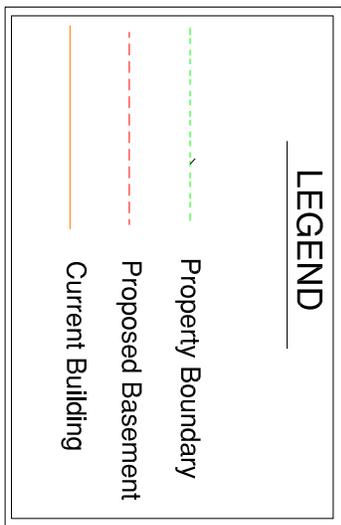


LEGEND

Property Boundary

Proposed Basement

Current Building



Tyree Environmental Corporation

Phone: (631) 249-3150

208 Route 109
FARMINGDALE, NY 11735

Fax: (631) 249-3281



FIGURE 8 - Staging Plan

PROJECT NO. 12EHA2318K

131 BERRY STREET
BROOKLYN, NEW YORK

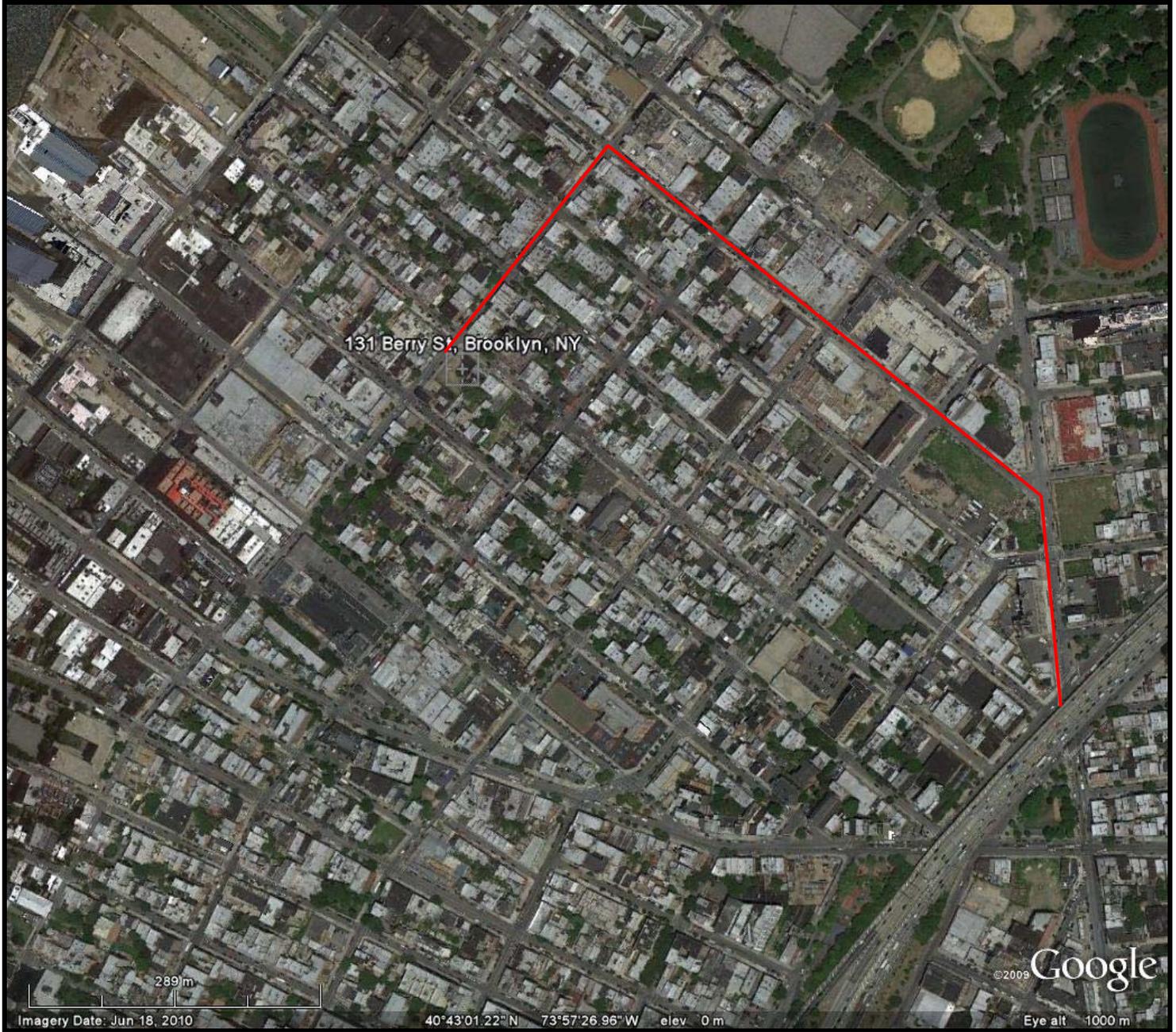
Drawn By: MATT BOECKEL

Date: 8/15/2012

Scale: 1" = 15'

Client: OLIVER STUMM

Plate:



| | |
|--|-------------------------|
| Tyree Environmental Corporation  | |
| Phone: (631) 249-3150 | Fax: (631) 249-3281 |
| 208 Route 109 Farmingdale, New York 11735 | |
| Figure 9 – Traffic Control Plan | Project No. 12EHAZ318K |
| Commercial Property | Date: December 20, 2012 |
| 125-137 Berry Street | Client: Tibetan LLC |
| Brooklyn, New York | |



APPENDIX A
CITIZEN PARTICIPATION PLAN

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Tibetan LLC have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Brownfield 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 BCP, Tibetan LLC 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, William Wong, 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 includes 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. Tibetan LLC will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

Greenpoint Library

107 Norman Ave. at Leonard Street

Brooklyn, NY 11222

718-349-8504

Monday, Tuesday & Friday – 10:00 AM – 6:00 PM

Wednesday – 10:00 AM – 8:00 PM

Thursday – 1:00 PM – 8:00 PM

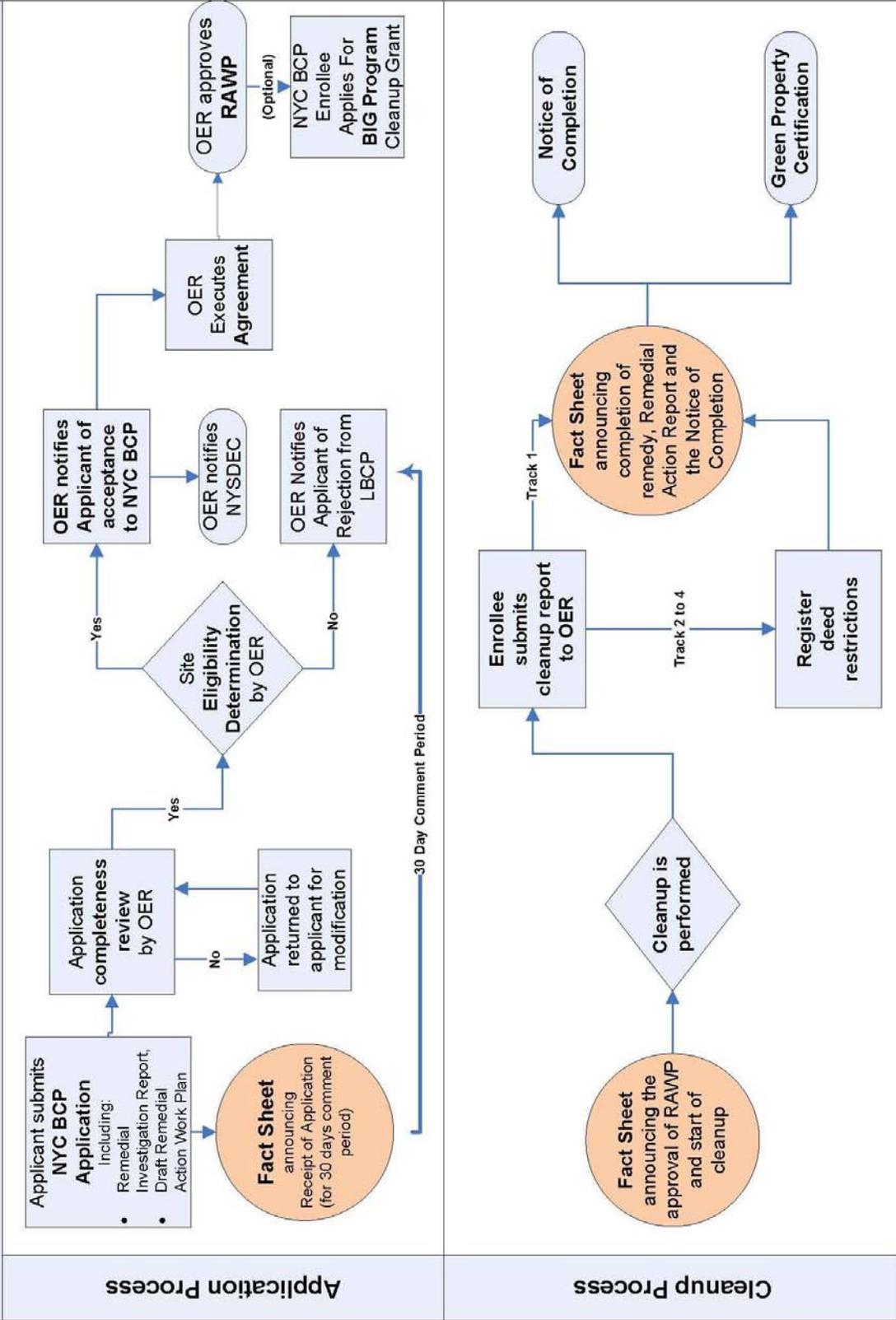
Saturday – 10:00 AM – 5:00 PM

Sunday – Closed

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.

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 Tibetan LLC, reviewed and approved by OER prior to distribution and mailed by Tibetan LLC. 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.

Flow Chart For NYC Brownfield Cleanup Program (NYC BCP)



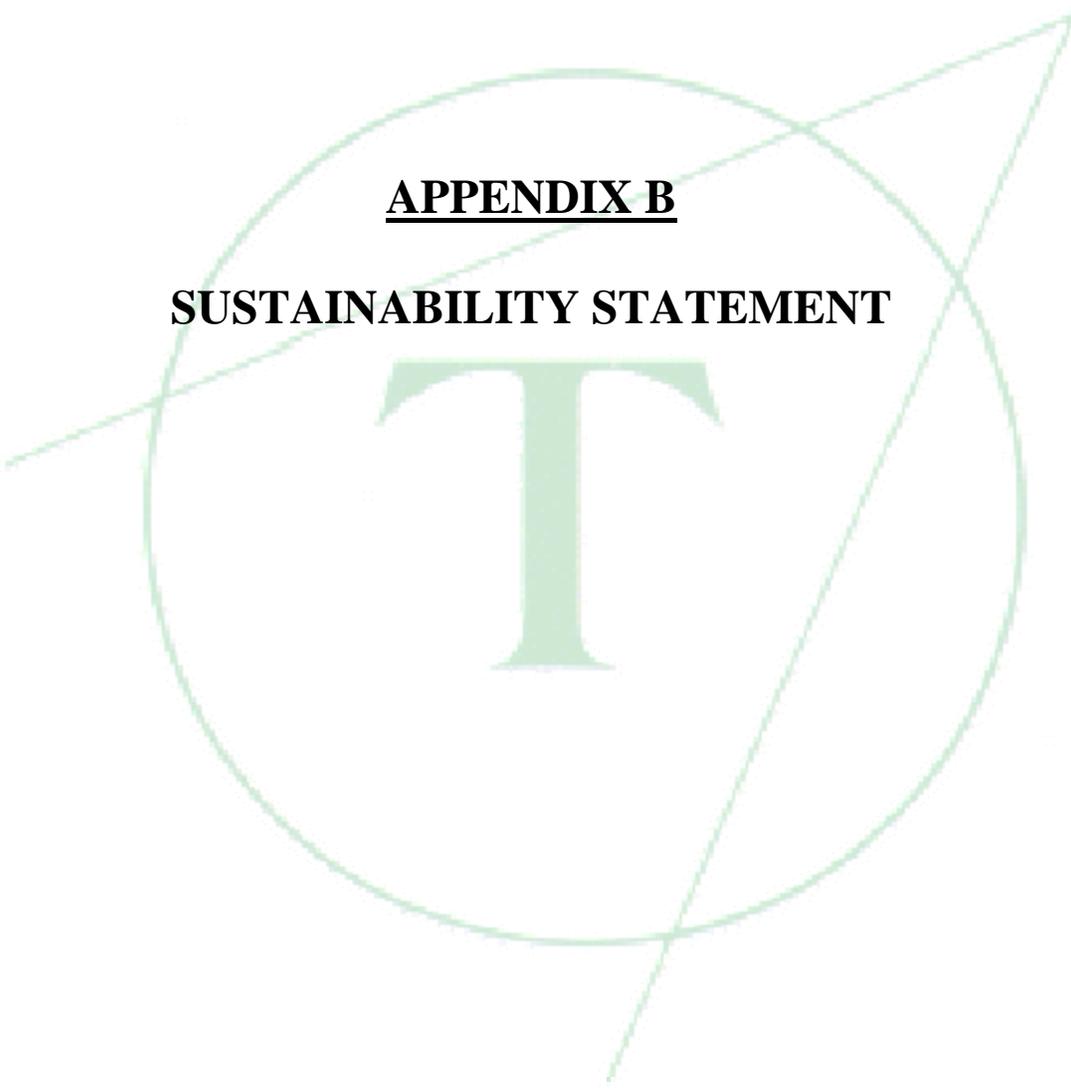
Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes 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.



APPENDIX B
SUSTAINABILITY STATEMENT

SUSTAINABILITY STATEMENT

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

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction. Approximately 40 tons of soil is planned to be reused on site.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR.

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.

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. The site is proposed to be developed as a restaurant as such there is minimal concern for recontamination at the site.

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. Storm water currently and going forward is diverted to the municipal service line.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance. Planters will be utilized for shrubs and small trees to be placed throughout the site specifically in the outside dining areas.

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



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

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

1.3 CHARACTERIZATION OF EXCAVATED MATERIALS

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

1.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE

The QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this 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. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are shown on **Figure 9**. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 MATERIALS DISPOSAL OFF-SITE

The following documentation will be established and reported by the 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 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 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 may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in Table 1. 'Reuse on-Site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to the NYC BCP agreement subject to Engineering and Institutional Controls. The QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed. The expected location for placement of reused material is along the perimeter of the site boundary.

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

1.8 DEMARCATION

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three

methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

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. The backfill and cover soil quality objectives are listed in Table 1.

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 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.

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.

1.10 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. 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.

1.11 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.

1.12 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.

1.13 ODOR, DUST AND NUISANCE CONTROL

Odor Control

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

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

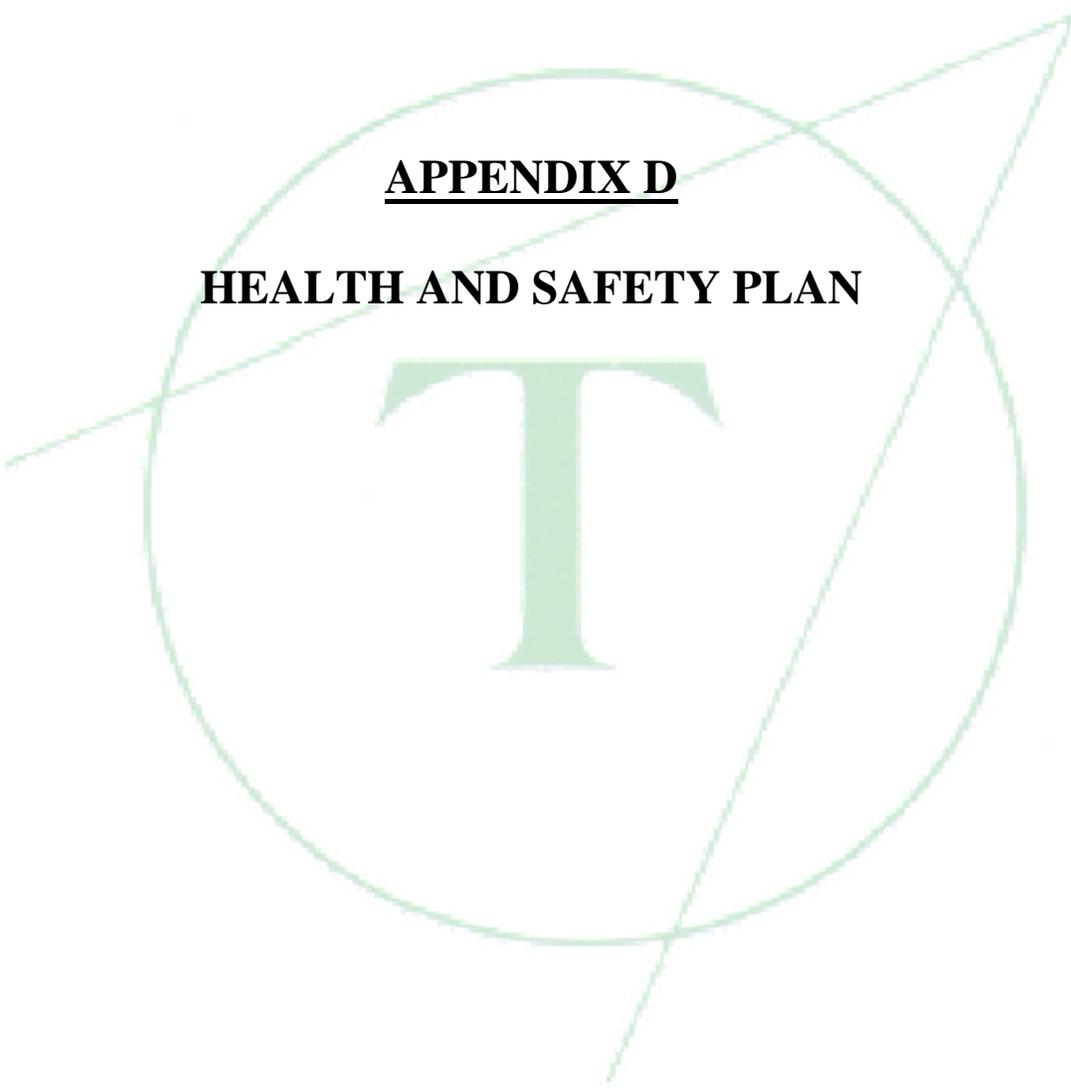
This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and

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/QEP's 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

Site Health and Safety Plan

PROJECT NAME:
131 BERRY STREET

PROJECT NUMBER:
12EHAZ318K

PROJECT LOCATION:
125-137 BERRY STREEET
BROOKLYN, NEW YORK

DATE:
December 2012

PREPARED FOR:
TIBETAN LLC
417 LAFAYETTE STREET, 2ND FLOOR
NEW YORK, NEW YORK 10003

PREPARED BY:
TYREE ENVIRONMENTAL CORP.
208 ROUTE 109
FARMINGDALE, NEW YORK 11735
(631) 249-3150

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1.0 INTRODUCTION

The purpose of this Health and Safety Plan (HASP) is to define the requirements and designate protocols to be followed during investigative activities. Applicability extends to all Tyree employees, subcontractors, and visitors.

All personnel on site shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards of the operation. This plan must be reviewed and acknowledged, by all personnel prior to entering the exclusion zone or contamination reduction zone.

A well-ordered flow of information is essential to a good safety program. Tyree, through a program of safety meetings at all levels, intends to accomplish the goals of safety awareness, education, and participation. Each meeting shall include instruction and discussion of safe working methods and applicable rules required for the safe performance of work scheduled during the period following the meeting. In addition to the standard weekly safety meeting the Health and Safety Department will maintain and distribute outlines covering various topics of importance to the safety of company employees. The outlines will be flexible, they will be intended to be adapted to the widest range of situations and groups.

Safety will be included in the agenda of all staff and project meetings. The health and safety personnel will keep department heads and supervisory personnel informed of safety performance developments in the area of accident prevention, and safety. Department heads and supervisory personnel will ensure the information is transmitted to supervisors for inclusion in weekly safety meetings. Department heads and supervisory personnel may request that health and safety personnel provide safety briefings as required.

Daily “tool-box” talks shall be held to instruct all employees in safety precautions applicable to the day’s hazardous work. Prior to start of such work, a walk through of the site shall be conducted, if required to point out locations. Copies of the Daily “Tool-Box Safety Briefing Sheet shall be kept on site. Daily **“Tool-Box Safety Briefing Sheet”** may be found in **Attachment I –Daily Tool Box Talks**.

During development of this plan consideration was given to current safety standards as defined by EPA/OSHA/NIOSH, health effects and standards for known contaminants, and procedures designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

- ◆ OSHA Regulations: 29 CFR 1910 and 1926
- ◆ USEPA Standard Operating Safety Guides, June 1992
- ◆ NIOSH/OSHA/USCG/EPA “Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities”
- ◆ NIOSH Pocket Guide to Chemical Hazards, June 1994
- ◆ Introduction to Fall Protection, J.Nigel Ellis, Second Edition
- ◆ Hazardous Waste Handbook for Health & Safety, Martin, Lippitti, Prothero, 1987
- ◆ Handbook of Toxic and Hazardous Chemicals and Carcinogens, Sittig, 1985

In addition, to the above referenced documents, Tyree has establish a comprehensive and realistic Health and Safety Program, based on past experience, sound engineering practice, employee training and enforcement of health and safety regulations to prevent unreasonable health and safety risks.

This Health and Safety Plan will be complemented by the existing Tyree Health and Safety Program. This plan will be a living document in that it will be continually update or revised as the site conditions and knowledge of the treatment process develops further.

Tyree as part of the overall Company Health and Safety Program maintains written individual procedures for the types of hazards/issues that our employees will or could potentially be exposed to.

This program will be reviewed/revised on annual basis or as required by the respective governing OSHA Standard. Each program insofar as possible will be maintained as an independent program to avoid situations where it is unclear where responsibility for given issues belong. Effective implementation of this program requires support from top management to every employee within the company. Written program will be communicated to personnel that are affected by it through training.

In the event that a person does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All nonconformance incidents will be recorded in the site log.

The development and preparation of this Health and Safety Plan has been based on past experience and site specific information at the time of preparation. If actual site conditions or operations vary from the data used to prepare this Health and Safety Plan, amendments shall be made to reflect those changes.

2.0 STAFF ORGANIZATION AND RESPONSIBILITIES

While the Health and Safety Department directs and supervises the overall Health and Safety Program, the responsibility for health and safety extends throughout our organization from top management to every employee. The following outlines the Tyree personnel and responsibilities during investigative activities.

- ◆ Division Health Safety Representative: Tom Witheral
- ◆ Superintendent: Tom Witheral
- ◆ Project Manger: Matthew Boeckel

2.1 Division Health and Safety Representative

Responsible to the Health and Safety Manager. The Site Safety Representative shall be jointly responsible for the implementation and enforcement of the Organization's Health and Safety Program and the Site Specific Health and Safety Plan along with the Project Managers and Superintendents. Under the direction of the Health and Safety Manager the Site Safety Representative ensures that the proper personal protective equipment is available and utilized by all workers (as required). The Site Safety Representative is responsible for continuously inspecting the job site to ensure that no unsafe acts or conditions exist and keep records of findings and corrective action taken.

2.2 Superintendent

The Project Superintendent has the operational responsibility for the implementation of this HASP on this project; including establishing an attitude of concern for Safety matters by initiating prompt corrective action of hazards brought to his attention and ensuring that the project health and safety requirements are initiated and followed by all project personnel.

Plan and require that all work be done in compliance with this HASP and the Tyree Organization's Health and Safety Program and/or the Client's safety program including all applicable local, state and federal regulations. Impress upon all subcontractors' supervisory personnel a responsibility and accountability of each individual to maintain a safe workplace and work in a safe manner.

2.3 Project Manager

The Project Manager has full responsibility for ensuring that the policies and procedures outlined in the Health and Safety Program are adhered to on the project. The Project Superintendent, by example, establishes an attitude of concern for Safety matters and assists the site safety officer to recognize and resolve safety violations and items of non-compliance.

2.4 Work Force

It is the responsibility of all employees to work in a manner that will prevent injury and exposure to themselves and to other employees. Every employee is responsible for obeying safety rules and regulations, and reporting unsafe conditions or acts to their supervisors.

3.0 SITE CHARACTERIZATION AND ANALYSIS

Construction sites can cause a multitude of health and safety concerns any of which can result in serious injuries and/or illnesses of workers. Some hazards are a function of the physical or chemical nature of the site itself. Others are a direct result of the work being done.

3.1 General Site Hazards

While it is important to identify and be aware of potential physical hazards and the means by which to reduce the risks from the same, a detailed discussion of these is an insurmountable task. As such, the recognition, evaluation and control of site activities associated with the potential hazards is best accomplished by the development, use and implementation of standard operating procedures and guidelines, as well as ongoing consultation of applicable standards and regulations.

Injuries in the workplace often occur because employees are not adequately trained in the proper job procedure. Establishing proper job procedures is accomplished by conducting a job hazard analysis. Improving how work is performed reduces injuries, improves absenteeism rates promotes an increase in productivity. Job hazards pose a serious problem for exposed workers. Tyree will ensure that operations having a potential for employee injury are evaluated and controlled. We understand that engineering solutions, where feasible, are the preferred method of control for workplace hazards. The focus of the Job Safety Analysis is to eliminate hazards from the workplace. This is accomplished whenever possible by redesigning the workstation, work methods, or tool(s) to reduce the hazards associated with the demands of the job. This program will whenever possible research into currently available controls and technology. PPE will be a last choice.

Job Safety Analysis consists of recording the steps required to accomplish the job, if the job is complex, it should be broken down into detailed segments. Each step will be reviewed in the order of occurrence as the employee is observed performing the job. Each segment will be reviewed in proper sequence.

3.2 Physical Hazards

Physical hazards include, noise, electrical, excavation, safety hazards, slip/trip/hit/fall, hand and power tools and heavy lifting.

3.2.1 Noise

The field activities will include the use of a Geoprobe® drill rig which uses a hydraulic hammer and produces a significant amount of noise. Noise has been defined as unwanted sounds. The human ear can tolerate a certain amount of sound without any harmful effects. The OSHA standard allows 90 dB(A) for a full 8 hours and for a lesser time when the levels exceed 90 dB(A). It is usually safe to assume that if you need to shout to be heard at arms length, the noise level is at 90 dB(A) or above. Hearing protection will be utilized by personnel operating or working around the drill rig.

3.2.2 Electrical

Overhead power lines, electrical wires, electrical fixtures, and buried cables all pose a danger of shock or electrocution if contacted or severed during site operations. A safe distance will be maintained between overhead wires. Electrical equipment used on site may also pose a hazard to workers. Whenever possible, low-voltage equipment with ground-fault interrupters and water-tight, corrosion-resistant connecting cables to minimize this hazard will be used. In addition, lightning is a hazard during outdoor operation, particularly for workers handling metal containers or equipment. In the event of a lightning storm, drilling operations will cease for the duration of the storm.

No employee shall be permitted to work in the proximity of any part of an electrical power circuit unless the person is protected against electric shock by de-energizing the circuit and grounding it, or it has been locked and tagged out. These procedures will be utilized when work has to be performed on energized equipment.

All electrical wiring and equipment shall be intrinsically safe for use in potentially explosive environments and atmospheres. Ground fault circuit interrupters shall be used in the absence of properly grounded circuitry or when portable tools must be used around wet areas.

3.2.3 Safety Hazards

A site may contain numerous safety hazards of which workers should be aware such as:

- Holes and ditches.
- Precariously positioned objects, such as drums or boards that may fall.
- Sharp objects, such as nails, metal shards, and broken glass.
- Slippery surfaces.
- Steep grades.
- Uneven terrain.
- Unstable surfaces, such as walls that may cave in or flooring that may give way.
- Contaminated soil, refuse and/or buried drums.

3.2.4 Slip/Trip/Hit/Fall

Slip/trip/hit/fall injuries are the most frequent of all injuries to workers. They occur for a wide variety of reasons, but can be minimized by the following prudent practices:

- Spot check the work area to identify hazards.
- Establish and utilize a pathway which is most free of slip and trip hazards.
- Beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain.
- Carry only loads which you can see over.
- Keep work areas clean and free of clutter, especially in storage rooms and walkways.
- Communicate hazards to on-site personnel
- Secure all loose clothing, ties, and remove jewelry while around machinery.
- Report and/or remove hazards.
- Keep a safe buffer zone between workers using equipment and tools.

3.2.5 Hand and Power Tools

Hand and power tools are used for various site activities. Procedures for using hand and power tools are as follows:

- Persons using power tools shall be trained in their use.
- Only tools in good condition shall be used.
- Tools shall be kept clean.
- Guards and shields shall be kept on all tools.
- Air coupling shall be secured.
- Non-sparking tools shall be used in hazardous areas.

3.2.4 Heavy Lifting

First, use a pushcart or other material-handling device! Second, ask a co-worker for help if no device is available! If you must lift alone here are some tips. Before starting to lift or carry anything, check your entire walkway to make sure your footing will be solid. Your shoes should give you good balance, support and traction. Keep loads as close to your body as possible. The following situations show basic lifting techniques to avoid injury:

- Keep your feet shoulder width apart to get the best footing possible.
- Grasp the object at opposite corners.
- Lift with the legs instead of the back muscles.
- Keep the back upright and avoid twisting.
- Most importantly, think before lifting.
- Bend at the knees, not at the waist.
- Tighten stomach muscles to offset the force of the load.

3.2.6 Fall Hazards

To prevent falls and injuries when employees work in areas where fall hazards cannot be eliminated by reasonable means, personnel will be required to use a full body harness or safety belt and shock absorbing lanyard. Personnel will make maximum use of primary fall protection systems, such as scaffolding and scissors lifts. These systems will be equipped with standard guard rails and safe means of access/egress.

Before any employee attempts to work in an area where a high risk of falls exists, they must equip themselves with suitable fall-arresting equipment. Personnel riding on or working from scissors lift must secure their safety lanyards to the basket at all times.

The fall protection equipment shall be properly fitted and shall not restrict the movements of the worker. Full safety harnesses or safety belts are required for any work performed over six (6) feet in elevation.

Tail lines or lanyards of the shortest workable length must be attached to a secure point in the vicinity of the work area. The line shall be long enough not to restrict the worker's movements, but short enough to prevent tripping over the line and falls beyond the worker's extended reach for self-rescue; in any case, not over six (6) feet.

3.2.7 Excavation Hazards

In, general, the hazards encountered during soil excavation are: the sides of excavation can cave in, possibly burying or crushing workers due to (a) Absence of shoring, (b) Misjudgment of stability, (c) Defective shoring, and (d) Undercut sides; falling during access/egress, while monitoring or dismounting equipment, or stumbling into excavation. An overhead hazard can result from material, tools, rock, and/or soil falling into the excavation. Flammable atmospheres may also be encountered in excavation.

Tyree shall provide adequate shoring or sloping of sides of the excavation. Excavation/trenches will be inspected daily for changing conditions. Air monitoring for airborne contaminants shall be performed in areas where contaminated soils are encountered.

Excavation spoils will be stockpiled and covered at a designated area away from the work area. Excavation/Trenches regardless of the depth or width shall be barricaded or covered. The use of raised berms, caution signs and caution tape will be used to protect both the public and other personnel on the site. The excavation area will be delineated with caution tape during operations and barricaded/secured with safety fence at the end of each work day. Adequate means of exit, such as ladders, steps, ramps or other safe means of egress, will be provided and be within 25 feet of lateral travel.

3.2.8 Heavy Equipment Operations

Considerations for controlling the movement of personnel and equipment are important to any project, as injuries may occur while working with or adjacent to such equipment. This category includes all operations which utilize moving heavy equipment including: drill rigs, cranes and hoists, back-hoes, loaders, graders, dozers, vacuum trucks and dump trucks. The following controls, in addition to relative standard operating procedures will be implemented throughout the project:

All Workers will adhere to all applicable standards and regulations while operating heavy equipment at the site. Operators will be trained and experienced in the use and maintenance of the equipment they are operating. Equipment will be inspected on a daily basis to identify any worn parts, and/or unsafe conditions, these findings will be documented on the vehicle inspection report. Any unsafe equipment will be removed from service until safety defects can be corrected. Equipment operators will not leave their machine unattended while it is running. All equipment will have electronic backup alarms. No vehicles or equipment will be operated in a careless or unsafe manner. Personnel will wear high visibility reflective vests when working. All personnel will stay a minimum of 4 ft clear of the operational area of the equipment. Signals will be given to the operators of both equipment and vehicles in any work area by one designated person.

3.2.9 Crane Operations

Cranes play an important role when we have to move certain types of materials. OSHA permits only trained and qualified employees to use this equipment. There are two main hazards when we use cranes, one is dropping the load and the other hitting someone with the load or the equipment. We also want to avoid damaging the load or the equipment itself. These hazards are present any time we skip a step or ignore a problem at any point in the inspection, maintenance, and use of this equipment. To avoid danger to the operator and others in the crane's vicinity, we all have to understand the safety procedures and follow them closely. Anyone who works around an operating crane has to be constantly aware of its movements. Stay out of the way of the machine and its moving parts. If the operator sounds the crane's warning signal, get out of the way and fast. It's also a good idea to become familiar with the crane signalman's hand signals.

The other key to potential crane and sling hazards is the equipment's rated capacity, or the maximum load it can handle safely. Cranes and slings are designed and built to help protect both operators and those in the area from hazards.

To prevent overload, the operator has to check equipment load capacity and the weight and shape of the load. Before lifting, the operator brings the hook over the load, making sure that it's not swinging. Then the operator checks that the hoist chain or rope has no kinks or twists and isn't wrapped around the load. If the load has sharp edges, it has to be padded to prevent cutting the slings. If the load is close to the rated capacity, the operator has to test the brakes by raising the load a few inches and then braking. Tools, oil cans, waste, etc., must be kept in the tool box. The operation must be very smooth and careful, avoiding sudden starts and stops as well as any contact with other equipment, materials, or people

3.3 Engineering Controls

The use of engineering controls for the protection of personnel is the first means of mitigation. This involves the elimination of hazards and the isolation of the workers from the hazards.

3.3.1 Sheeting, Shoring or Slopping

The use of sheeting, shoring, slopping or other means meeting OSHA Standards shall be used in excavations of five feet or deeper when a worker has to enter the excavation. Covering a trench or stockpiled material will separate the workers from contaminants. Forced air ventilation is another means of mitigating hazards during utility operations.

3.3.2 Dust Control

The Superintendent will be constantly alert to the possibility of unacceptable dust levels being generated by activity. Real-time monitoring for aerosol will also be performed periodically within the exclusion zone when conducting intrusive activities. Dust will be controlled primarily by careful project planning and implementation.

4.0 SITE CONTROL MEASURES

This section outlines site control measures to be implemented to minimize potential exposure to and accidental spread of hazardous substances during the construction activities at the BP Amoco Service Station. The outer boundary of the site shall be delineated with a safety fence. The site may be subdivided into different areas based upon the expected type and degree of hazard. Modification to the size and boundary of these zones will be made in the field based on operations. The primary zone will be along the inside perimeter of the excavation during intrusive activities.

4.1 Personal Hygiene and General Safety Requirements

Any Tyree employee, subcontractor or authorized visitor found to consistently disregard the provisions of this HASP may be barred from the site.

Eating, drinking, smoking, chewing gum or tobacco or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited, except in a designated eating area outside the exclusion and contaminant reduction zones.

Tyree employees, subcontractor employees, and service personnel are required to thoroughly decontaminate themselves prior to entering the support zone. No alcoholic beverages or controlled dangerous substances are allowed on site.

No facial hair, which interferes with the effectiveness of a respirator, shall be permitted on personnel required or potentially required to wear respirators.

Personal Protective Equipment (PPE) must be utilized by on - site personnel when deemed necessary. Each individual will be responsible to properly inspect his or her PPE. Hard Hats and Safety Glasses with side shields will be worn on-site at all times.

No open flames or smoking will be permitted in the on site unless a HotWork Permit has been initiated. When possible, avoid contact with contaminated materials.

5.0 PERSONAL PROTECTIVE EQUIPMENT

This section provides an outline of the personal protective equipment and guidelines that will be implemented to minimize chemical, and physical exposures and accidents during activities at the site.

Where engineering controls and job hazard analyses do not eliminate all job hazards, employees will (where appropriate) wear personal protective equipment (PPE).

These include items such as, hard hats, face shields, safety goggles, glasses, hearing protection, footguards, gloves etc. The project manager under the direction of the Tyree Corporate Health and Safety Manager will ensure that equipment selected will meet the following requirements:

- It will be appropriate for the particular hazard.
- It will be maintained in good condition.
- It will be properly stored when not in use, to prevent damage or loss.
- It will be kept clean, fully functional and sanitary.

Protective clothing and PPE can present additional safety hazards. Supervisors will ensure workers wear appropriate clothing and PPE. These items will be worn so as not to create additional hazards.

All PPE will be selected in accordance with 29 CFR 1910.132. Tyree will provide proper PPE to all employees. All protective clothing will be properly used, stored, selected, and maintained.

5.1 Head Protection

All personnel shall wear a hard hat that meets the requirements and specifications in ANSI Safety Requirements for Industrial Head Protection Z89.1-1969. Exceptions to this requirement are personnel utilizing eating/break areas.

5.2 Hand Protection

Outer gloves used on the site for remedial activities shall be either chemical resistant or general purpose. The appropriate glove shall be determined for a specific work task. Inner gloves shall always be chemical resistant, shall be selected using appropriate chemical degradation guides and shall be disposed of as PPE waste. Chemical resistant gloves shall be selected using appropriate chemical degradation guides. Welder's gloves or any other special type of glove are considered outer gloves and are worn over inner gloves.

5.3 Eye/Face Protection

All personnel at the site shall wear Eye/Face protection. All eye/face protection provided shall be ANSI Z87-1989 approved.

5.4 Footwear

Footwear shall be steel-toed safety shoes or steel-toed boots. Chemical-resistant outer boot covers are to be worn when necessary.

5.5 Respiratory Protection

The primary objective of the respiratory protection program shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

To control and or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, respirators shall be provided to all employees, when such equipment is necessary to protect the health of the employee.

Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A physician shall determine what health and physical conditions are pertinent.

Only NIOSH approved or accepted respirators shall be used. The respirator furnished shall provide adequate respiratory protection against the particular hazard for which it is designed.

Each respirator shall be individually assigned and not interchanged between workers without cleaning and sanitizing. The cartridges/filters shall be changed at least weekly. More frequent changes shall occur at the first sign of breakthrough based on contaminant warning properties or the user experiences excessive breathing resistance. Respirators shall be cleaned and stored in a uncontaminated atmosphere after each use. Self-contained breathing apparatus/Supplied-air respirators shall be inspected before and after use and at least once monthly, if in storage for emergency use.

All employees who have the potential of wearing a respirator shall be fit tested to ensure they utilize the proper size respirator. The fit test is conducted according to the manufacturer's suggestions. The test shall consist of a taste and odorous vapor qualitative test. Personnel that are unable to pass a fit test as a result of facial hair or facial configuration shall not enter a work area where respiratory protection may be required.

5.6 Levels of Protection

The level of Personal Protective Equipment must correspond to the level of hazards known, or suspected during a specific activity. **Level C Protection** consists of a full-face, air purifying, canister equipped respirators utilizing Organic Vapor/Acid Gas and HEPA cartridges/filters, disposable chemical resistant coverall, Outer gloves: leather, cotton, neoprene or nitrile, Inner gloves: latex or nitrile, Chemical

resistant boots over the safety shoes, Steel-Toed Safety Shoes, Hard hat, and Safety glasses (if half-mask is utilized). **Level D Modified Protection** consist of regular Tyvek coveralls, Outer gloves: leather, cotton, neoprene or nitrile, Inner gloves: latex or nitrile, Chemical resistant boots over the safety shoes, Steel-Toed Safety Shoes, Hard hat, and Safety glasses. **Level D Protection** consists of Hard hat and Safety glasses work uniform, and Steel-Toed Safety Shoes.

Based upon the nature of the construction activities at the BP Amoco Service Station, the initial level of protection to be used is Level D with a contingency upgrade to Level D Modified. All decisions concerning the level of protection will be based upon a conservative interpretation of the information provided by site-specific information.

6.0 EMERGENCY CONTINGENCY PLAN

This section describes the emergency response plan that shall be implemented by Tyree employees to handle emergencies. It is expected that modifications may be necessary upon actual site set-up and conditions. During the site safety meetings held periodically, all employees will be trained in and reminded of the location of this plan, the procedures outlined in this plan, the communication systems and evacuation routes used during an emergency.

On a continual basis, individual personnel should be alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency.

All on-site employees have a role in mitigating an emergency incident. The Project Super has primary responsibility for responding to and directing emergency response operations to correct emergency situations.

This includes taking appropriate measures to ensure the safety of site personnel and the public. He/She is additionally responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed.

6.1 Evacuation Routes and Procedures

In the event of an emergency, which necessitates an evacuation of the site, on-site personnel shall be notified to evacuate the area by immediate emergency exit. The Project Manager shall control the scene until the appropriate municipal and state agencies arrive onsite.

In the event of a chemical release into the atmosphere, safe distances of evacuation will be determined, based on a combination of site- and incident-specific factors.

6.2 Medical Treatment/First Aid

On-site supervisory personnel are trained in CPR and First Aid and shall have a first aid kits for use in a medical emergency. First Aid Kits and eye wash station will be located in the main support areas. Community emergency services (EMS, Fire, and Police) shall be notified immediately if deemed their resources are needed on site. If necessary the injured or sick party shall be taken to a local area hospital. Please refer to **Route to Area Hospital** below for direction to the area hospital.



Head Northeast on Berry Street towards North 7th Street, take the first right onto North 7th Street take the first left onto Bedford Avenue and slight Right to 66 Nassau Avenue.

6.3 Emergency Equipment

Equipment shall be available on-site to handle emergencies such as injuries, fires and spills. This equipment includes first aid supplies, fire extinguishers, and personal protective equipment and spill response equipment.

6.4 Emergency Alarms/Notifications and Procedures

When any emergency occurs on-site, the on-site Project Superintendent shall be notified immediately. The Project Superintendent shall notify the client and his representatives. Please refer to table below for **Emergency Telephone Numbers**. In the event of a medical emergency, fire or spill, personnel will notify the appropriate emergency organization.

Emergency Telephones Numbers

| | |
|---|--------------|
| Police Department: | 911 |
| Fire Department: | 911 |
| Ambulance Services: | 911 |
| Tyree Organization, LTD Division Health Safety Rep: Tom Witherel Project Manager/ Superintendent: Matt Boeckel | 631-249-3150 |

6.5 Spill Confinement and Containment

Where spills, leaks or ruptures may occur adequate quantities of spill containment equipment (ground clay, vermiculite, pads, booms, pillows, etc.) shall be kept available and used in areas where minor or major spills, leaks or ruptures may occur. Once a spill has been discovered, the first step is to determine the nature of the spill, its size, and its direction of travel. The Project Manager shall be notified immediately and he will determine what actions will be taken to contain the spill.

Prior to entering a spill area, it is necessary to protect oneself from the adverse effects of the spilled material. Do not enter the area alone.

The decision to use confinement techniques, such as diversion, diking, and retention, should be based on the availability of time, personnel, equipment and supplies.

After a spill is contained, the Project Manager shall determine the appropriate cleanup and disposal methods with input from the client and their representatives. Material spills could occur during line breaking and draining, removing liquids and sludges from Tanks. Additionally, equipment-fueling operations could produce spills. Ultimately, a spill could contaminate sewer systems or cause a release of vapors to the air. A spill of fuel could also ignite. Should an on site spill occur, the immediate response will include closing off the source of the spill, if possible, application of the sorbent material or sand bagging, and street sweeping, as appropriate. All spills will be investigated, and a written report will be provided to the regulatory agencies in accordance with applicable regulations (as required).

7.0 GENERAL CODE OF SAFE WORK PRACTICES

All employees shall follow these safe practices rules, render every possible aid to safe operations, and report all unsafe conditions or practices to their supervisors and/or the Health and Safety Department.

No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that it might unnecessarily expose the employee or others to injury. Never start on any hazardous job without being completely familiar with the safety techniques which apply to it. Check with your supervisor if in doubt.

Reporting for work or performing work under the influence of drugs or intoxicating substances such that the employee's job performance or safety of the employee or of others may be adversely affected is strictly prohibited.

All injuries are to be reported to your immediate supervisor promptly so that adequate medical attention may be given. An Incident Report/Investigation Form shall be completed and faxed the representative division within 24 hours.

Employees shall not operate equipment unless they are authorized and training to do so and shall ensure that all guards and other protective devices are in proper places and adjusted prior to operation, and shall report deficiencies promptly to their supervisors. Safeguards are not to be altered or removed from tools and equipment.

Approved eye and/or face protection suitable for the conditions encountered are to be worn when working near welding operations, grinding, chipping, or wire brushing, or when working with acids or other harmful substances. Hearing protection shall be worn whenever a noise hazard is present at the work site. Hard Hats are to be worn at all times on site.

No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the supervisor (Hot Work Permit).

All tools and equipment shall be maintained in good condition. Broken or defective equipment shall be taken out of service and/or replace. Employees will inspect equipment prior to using them. Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used. Electric cords shall not be exposed to damage from vehicles.

Never repair or adjust any machine or equipment unless you are specifically authorized to do so. Never oil, clean, repair, or fuel any machine while it is in operation. Never repair or adjust any electrically driven machine without properly locking/tagging the main switch.

Loose or frayed clothing, or long hair, dangling ties, finger rings, etc., shall not be worn around moving machinery or other sources of entanglement. Do not place equipment and materials so as to block emergency exit routes, fire boxes, sprinkler shutoffs, machine or electrical control panels, or fire extinguishers.

Good housekeeping must be maintained at all times. Smoking is not permitted on any site or office, except in designated areas. Appropriate respirators are to be worn whenever materials or working conditions may create a health hazard.