# FORMER
# TOMAT SERVICE STATION
**1815-1825 OCEAN AVENUE**
**BROOKLYN, NEW YORK**
**Block 7656 Lot 55 & 58**

---

# LIMITED FOUNDATION ELEMENT WORK PLAN

November 2015

*Prepared for:*

Ocean Units LLC
1274 49th Street; Suite 443
Brooklyn, NY 11219

**AMC Engineering, PLLC**
99 Jericho Turnpike, Suite 300J
Jericho, NY 11753

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## 1.0 INTRODUCTION

This Work Plan was prepared on behalf of Ocean Units LLC for the property known as the Former Tomat Service Station Site, located at 1815-1825 Ocean Avenue, Brooklyn, New York (**Figure 1**). An application for acceptance into the New York State Brownfield Cleanup Program (BCP) was submitted to the New York State Department of Environmental Conservation (NYSDEC) on May 5, 2015. The application was determined to be complete on May 15, 2015. On June 29, 2015, the DEC notified Ocean Units LLC that the Site had been accepted to the BCP (Site No. C203052) with the applicant defined as a Volunteer. The Brownfield Cleanup Agreement was executed by DEC on July 13, 2015.

This Work Plan addresses the excavation of soil for the installation of a single foundation element at the Site. This work will allow the developer to meet its oblications under the 421a program for the project, while the process of developing a comprehensive remedial plan for the entire Site proceeds.

## 1.1 SITE LOCATION AND DESCRIPTION

The address of the Site is 1815-1825 Ocean Avenue (Figure 1) Brooklyn, New York. The Site to be remediated and redeveloped is located in the Midwood section of Brooklyn (Kings County) and is comprised of two tax parceles (Block 7656, Lots 55 & 58) totaling 16,555 square feet (0.38 acres). The subject property is located in the City of New York and Borough of Brooklyn (Kings County). The Site is 150.5 feet wide and 110 feet deep.

The lot is currently developed with a one-story gasoline service station building and a parking lot (**Figure 2**). The building has a footprint of approximately 2,190 s.f. which, according to the NYC Department of Buildings, was constructed in 1931.

The elevation of the Site is approximately 25 feet above the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes to the southwest. The depth to groundwater beneath the Site, as determined from field measurements, is approximately 20-23 feet below grade. Groundwater flow is expected to be northwest based on surveys included in the prior investigations.

The surrounding land use is primarily residential or a mix of multifamily residential buildings to the north east, west and south.

## 1.2 SITE GEOLOGY / HYDROGEOLOGY

The geologic setting of Long Island is well documented and consists of crystalline bedrock overlain by layers of unconsolidated deposits. According to geologic maps of the area created by the United States Geologic Survey (USGS), the bedrock in this area of Brooklyn is an igneous intrusive classified as the Ravenswood grano-diorite of middle Ordovician to middle Cambrian age. Unconsolidated sediments overlie the bedrock and consist of Pleistocene aged sand, gravel and silty clays, deposited by glacial-fluvial activity. Non-native fill materials consisting of dredge spoils, rubble and / or other materials have historically been used to reinforce and extend shoreline areas and to raise and improve the drainage of low lying areas.

According to the USGS topographic map for the area (Coney Island Quadrangle), the elevation of the property is approximately 25 feet above mean sea level. The topography within the immediate area is relatively flat with a slight slope to the southwest.

Based on previous investigations at the Site, urban fill materials are present just belkow the asphalt cap and range in thickness from 6 to 12 inches. Native silty sand is present below the fill. Groundwater is present under water table conditions at a depth of approximately 20-23 feet below grade and flows to the northwest.

# 2.0 FOUNDATION ELEMENT INSTALLATION

The work proposed for the Site consists of the excavation and stockpiling of urban fill and / or native soils at a single location to allow the installation of the minimum foundation requirement as needed to meet the 421a program. The proposed foundation element, which consists of a single footing is not located near any of the identified source areas.

The footing installation will be performed in accordance with the methods and specifications as described under the NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (May, 2010).

## 2.1 GOVERNING DOCUMENTS

Governing documents and procedures included in the Work Plan include a Site-specific HASP, a CAMP and a Soil Management Plan (SMP). Highlights of these documents and procedures are provided in the following sections.

### 2.1.1 Health & Safety Plan (HASP)

The HASP takes into account the specific hazards inherent to the site and presents the minimum requirements which are to be met by the excavation subcontractor, and other on-site personnel in order to avoid and, if necessary, protect against health and/or safety hazards. A general HASP was previously prepared for the project and will be forwarded to the foundation contractor.

The foundation contractor will have the option of adopting this HASP or developing their own site-specific document. If a contractor or subcontractor chooses to prepare their own HASP, the Project Remedial Engineer will ensure that it meets the minimum requirements as detailed in the site HASP.

### 2.1.2 Soil Management Plan (SMP)

An SMP was prepared for excavation, handling and storage of all soils/materials that are disturbed/excavated at the Site. The SMP includes all of the controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SMP developed for this site is presented in **Section 2.6** of this Work Plan.

### 2.1.3 Community Air Monitoring Plan (CAMP)

The CAMP provides measures for protection of the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the excavation work) from potential airborne contaminant releases resulting from excavation activities.

The action levels specified require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the excavation work did not spread contamination off-site through the air. The primary concerns for this site are vapors,

nuisance odors and dust particulates. The CAMP prepared for installation of the footing is provided in **Attachment A**.

## 2.2 GENERAL INFORMATION

### 2.2.1 Project Organization

The Remedial Engineer for the excavation activity is Mr. Ariel Czemerinski, P.E. The Owner's representative in charge of the redevelopment project is NY Developers. Mr. Ramez Kabbani of NY Developers will serve as the project's Construction Manager for site preparation and redevelopment.

### 2.2.2 Remedial Engineer

The Remedial Engineer for this project will be Mr. Ariel Czemerinski, P.E.. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the overall remedial program for the Site. The Remedial Engineer will certify that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in conformance with that Plan.

The Remedial Engineer will oversee all aspects of the Work Plan, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal.

### 2.2.3 Work Plan Schedule

The estimated duration of the excavation of soil and the installation of the single footing is one week.

### 2.2.4 Work Hours

The hours for operation of excavation activity will conform to the NYCDOB construction code requirements or according to specific variances issued by that agency. DEC will be notified by the Volunteer of any variances issued by the NYCDOB.

### 2.2.5 Site Security

The lot on which the work will be perofrmed, currently has an 8 ft high brick wall located along the north and south lot lines and a 6 ft high chain link fence along the rear of the property (east side). A 6 ft high chain link fence and gate is present along Ocean Avenue (west property line). The fences and gate will be maintained during the excavation / footing installation activity and properly secured at the end of the day.

### 2.2.6 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in **Table 1**. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

## 2.3 REPORTING

### 2.3.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of each day in which remedial activity takes place. Daily reports will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP readings;
- An explanation of notable Site conditions.

Emergency conditions and changes to the Work Plan will be addressed directly to the NYSDEC Project Manager via personal communication. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

### 2.3.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within 10 days following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

### 2.3.3 Complaint Management Plan

Complaints from the public regarding nuisance or other Site conditions including noise, odor, truck traffic etc., will be recorded in the Site field book and reported to the NYSDEC in the daily status report.

### 2.3.4 Documentation Report

Following completion of all Work Plan activity, a Documentation Report will be prepared to document all aspects of the work performed under the Work Plan. This report will be summarized in the Remedial Action Work Plan (RAWP), and included in the Final Engineering Report (FER). The CCR will be prepared in accordance with DER-10 guidelines and will include:

- A summary of the removal action including a detailed description of the extent and volume of soil excavated.
- All fully executed manifests documenting any off-site transport of waste material.
- Scaled site plan showing the location of all confirmation samples
- "As-built" drawings showing the final extents of excavations, backfill and pier installations
- Results of all analyses, including summary tables, laboratory data sheets and the required laboratory data deliverables.
- Photographic documentation of the excavation and the overall removal process.
- Information on backfill imported onto the Site including amount, type and origin and copies of transport tickets from the supplier.
- Certification of the Report by a P.E. as required.

## 2.4 MOBILIZATION

Mobilization will include the delivery of excavation equipment and materials to the site. All on-site personnel engaged in the footing installation will receive site orientation and training in accordance with the site specific HASP, CAMP and established policies and procedures to be followed during the implementation of the Work Plan. The foundation contractor and construction manager will each receive a copy of the Work Plan and the site specific HASP and will be briefed on their contents.

## 2.5 SITE PREPARATION

### 2.5.1 Erosion and Sedimentation Controls

During mobilization, a continuous line of silt fence or hay bales will be established around the perimeter of the work area as necessary to minimize off-site sediment transport during storm events. Silt fences and hay bales will also be used as needed to protect any storm drains outside the excavation areas. The silt fences will be inspected by the Contractor at the start and end of each workday and repaired immediately as needed.

### 2.5.2 Stabilized Construction Entrance(s)

The construction entrance is stabilized with existing asphalt paving and will be maintained as necessary to provide a safe egress and ingress to the Site.

### 2.5.3 Utility Mark-outs, Easements and Permits

The Excavation Contractor and its sub-contractors are solely responsible for the identification of utilities that might be affected by work under the Work Plan and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this Work Plan. The Excavation Contractor and its sub-contractors are solely responsible for safe execution of all invasive and other work performed under this Work Plan. The Excavation Contractor and its sub-contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this Work Plan including but not limited to NYC Department of Buildings work permits. Approval of this Work Plan by NYSDEC does not constitute satisfaction of these requirements.The presence of utilities and easements on the Site will be investigated by the Contractor and it must be determined that no risk or impediment to the planned work under this Work Plan is posed by utilities or easements on the Site. The Contractor will provide copies of all permits and documentation of the utlility investigation to the Remedial Engineer prior to the start of work.

### 2.5.4 Sheeting and Shoring

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities including excavation is the sole responsibility of the Excavation Contractor and its sub-contractors. The Excvation Contractor and its sub-contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Excavation Contractor and its sub-contractors must obtain any local, State or Federal permits or approvals that may be required to perform work under this Plan. Further, the Excavation Contractor and its sub-contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved Plan.

### 2.5.5 Equipment and Material Staging

Equipment and materials used for excavation work and installation of the footing will be staged on Site within the fenced perimeter.

## 2.6 SOIL / MATERIAL MANAGEMENT PLAN

### 2.6.1 Excavation of Footing Area

A single area as shown on **Figure 3** will be excavated to accommodate a single concrete footing as required under the 421a program. The dimensions of the footing are 20 inches thick, 3 ft wide and 11 ft long. The footing will be installed by excavating a trench with a 1 to 1 slope to a depth of 11 ft. See **Figure 4** for a detail of the planned footing excavation.

*Excavation and Stockpiling of Urban fill and Uncontaminated Native Soill*
A thin layer of urban fill has been identified throughout most of the site at depths ranging from 6 inches to approximately 12 inches below grade. The fill material may contain several SVOCs, metals and pesticides above unrestricted and /or restricted residential objectives in some areas. Based on the excavation depth of 11 feet, it is anticipated that the majority of soil excavated for the footing will consist of clean native soil.

Urban fill which is present in the area of the Site which is scheduled for the excavation of the footing, will be segregated from non-contaminated native soils and stockpiled on-site for later off-site disposal with soils to be excavated for remediation and development of the Site under an approved Remedial Action Work Plan.

It is anticipated that urban fill and native soil will be classified as non-hazardous materials. The excavation of fill materials and native soil will be performed by the excavation contractor for the construction project.

*Excavation of Contaminated Soils*
The footing is not located in the vicinity of the known source area and as such, it is expected that excavated soils will not be contaminated with petroleum. This was confirmed during the on-going RI. However, if contaminated soil is discovered during the excavation of the footing, the contamination will be segregated and temporarily stockpiled for classification and proper off-site disposal.

The following procedure will be used for the excavation of historic fill and impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the HASP;

- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated;
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile or dispose of separate from the impacted soil;

- Maintain a written description and photographic documentation of the excavation.

- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc), it will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separate dedicated plastic sheeting. Removal of the impacted soils will continue as practical, until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present. Contaminated soil, if present, will be characterized and properly disposed of at a permitted New Jersey disposal facilty;

- Excavated soils which are temporarily stockpiled on-site will be covered with 6-mil polyethylene sheeting while disposal options are determined. Sheeting will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property;

### 2.6.2 Post Excavation Confirmation Sampling

A post excavation soil sample will be collected from the base of the excavation to document the quality of soil below the footing with respect to soil cleanup objectives (SCOs) for unrestricted use, restricted residential use and the protection of groundwater. The confirmation sample will be submitted to a NYSDOH certified analytical laboratory for analysis of full TCL / TAL with category B deliverables.

*2.6.2.1 Reporting of Results*
Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format.

*2.6.2.2 QA/QC*
The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for 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 confirmation sample will be collected and analyzed in accordance with the Quality Assurance Project Plan prepared for the remedial investigation of the Site (EBC, 11/15).

### 2.6.3 Estimated Removal Quantities

The total quantity of soils expected to be stockpiled for later off-site disposal is 17 cubic yards of urban dfill and 53 cubic yards of non-contaminated native soil. The estimated quantity of soil/fill expected to be reused/relocated on Site is 0 cubic yards.

### 2.6.4 Soil Screening Methods

Visual, olfactory, soil screening and assessment will be performed by an environmental professional during all remedial and development excavations into known or potentially contaminated material. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC. Soil screening will include physical observation for odors and staining of soils and bedrock materials and scanning with a photoionization detector.

### 2.6.5 Stockpile Methods

Excavated materials will be stockpiled for characterization prior to off-site disposal at a later date. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

### 2.6.6 Materials Reuse On-Site

There is no plan to re-use any site materials on the property, however, clean native soil may be used to backfill around foundation walls. Re-use of on-Site clean native soil will only be allowed if the material is found to be acceptable through a verification testing program in accordance with CP51. The Remedial Engineer will ensure that procedures defined for materials reuse in this Work Plan are followed and that unacceptable material will not remain on-Site.

Concrete crushing or processing on-Site is prohibited. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on-Site. Contaminated on-Site material, including historic fill and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

### 2.6.7 Backfill from Off-Site Sources

There are no plans to backfill any portions of the installed footing. In addition, since soils excavated under this plan are to be stockpiled and since the site includes a paved construction entrance, there will be no need to stabilize the entrance - exit areas with off-site materials during implementation of this plan.

Under no circumstances will fill materials be imported to the site without prior approval from the Remedial Engineer and NYSDEC Project Manager.

### 2.6.8 Community Air Monitoring Plan

The CAMP provides measures for protection for the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities at construction sites.

The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air. The primary concerns for this site are nuisance odors and dust particulates.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report. The complete CAMP developed for this site is included in **Attachment A** of this Work Plan.

### 2.6.9 Odor, Dust and Nuisance Control Plan

*2.6.9.1 Odor Control Plan*
This odor control plan is capable of controlling emissions of nuisance odors off-Site. 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. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project.

All necessary means will be employed to prevent on- and off-Site 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) using foams to cover exposed odorous soils; If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

*2.6.9.2 Dust Control Plan*

A dust suppression plan that addresses dust management during invasive on-Site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of wetting.
- On-Site roads will be limited to paved areas.

*2.6.9.3 Other Nuisances*

A plan for rodent control will be developed and utilized by the contractor prior to and during Site demolition and clearing, and during all remedial work. A plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to NYCDEP noise control standards.

## 4.0 SCHEDULE

The Work is anticipated to begin approximately 1 week following NYSDEC approval of the Work Plan. The estimated duration of the soil excavation / soil handling activity and footinginstallation is one week.

The anticipated schedule of events is as follows:

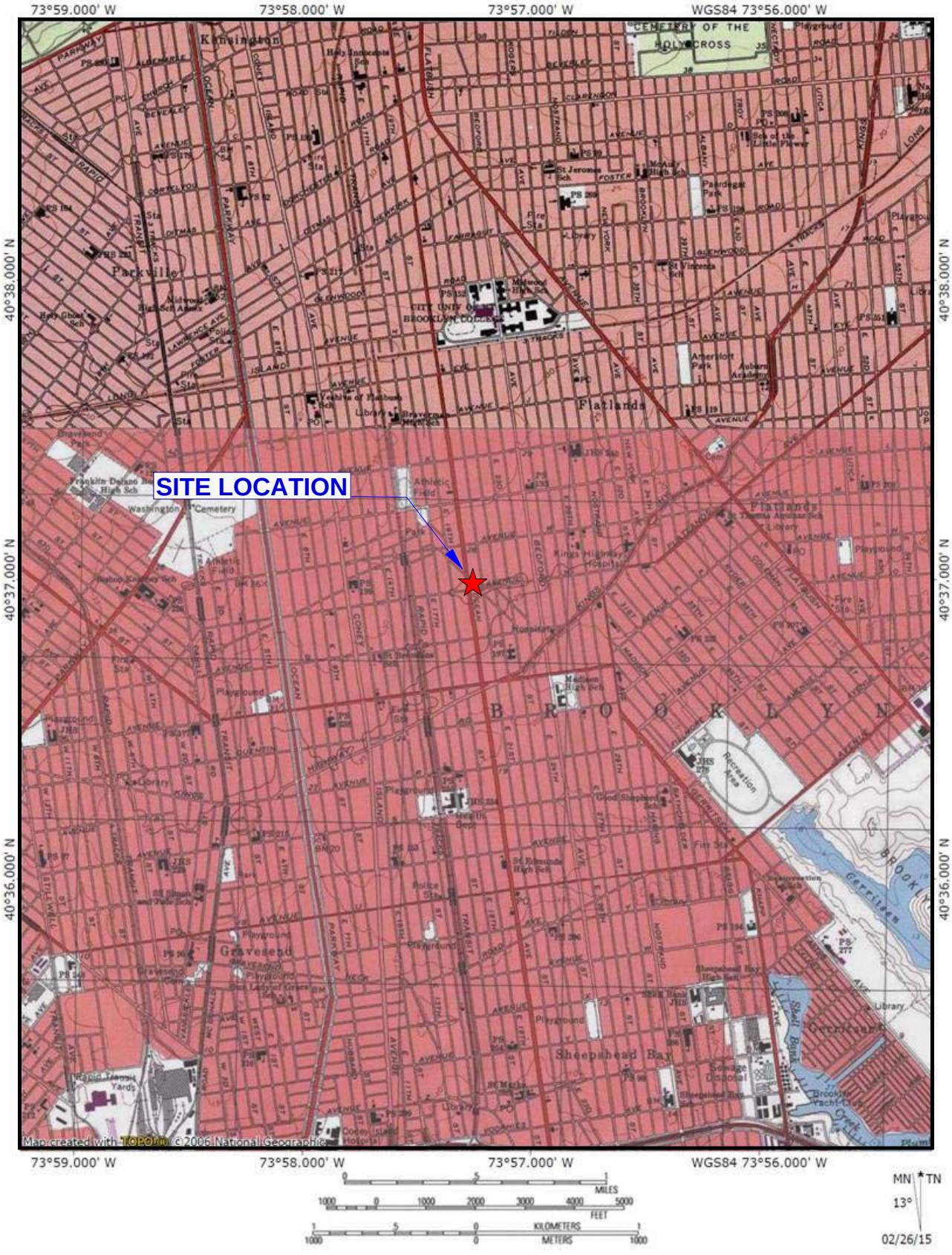
| Schedule Task | Estimated Date |
|---|---|
| NYSDEC Approval of Work Plan | Week of November 30, 2015 |
| Mobilize equipment to the Site (begin) | Week of December 14, 2015 |
| Invasive activity - begin excavation of footing | Week of December 14, 2015 |
| Complete installation of footing | 1 Week Following Mobilization |
| Receive Laboratory Results of Endpoint Sample | 7 to 10 days following delivery to laboratory |
| Receive DUSR | Approximately 3 weeks from reciept of laboratory results |
| Submit Documentation Report | 30 days from reciept of DUSR |

# ***TABLES***

**Table 1**
**Emergency Contact List**

| | | |
|---|---|---|
| General Emergencies | | 911 |
| NYC Police | | 911 |
| NYC Fire Department | | 911 |
| New York Community Hospital | | (718)-692-5300 |
| NYSDEC Spills Hotline | | 1-800-457-7362 |
| NYSDEC Project Manager | | (518) 402 - 9621 |
| NYSDOH Project Manager | | (518) 402-7860 |
| NYC Department of Health | | (212) 676-2400 |
| National Response Center | | 1-800-424-8802 |
| Poison Control | | 1-800-222-1222 |
| EBC Project Manager | Chawinie Reilly | (631) 504-6000 |
| EBC BCP Program Manager | Charles Sosik | (631) 504-6000 |
| EBC Site Safety Officer | Kevin Waters | (631) 504-6000 |
| Remedial Engineer | Ariel Czemerinski | (516) 987-1662 |
| Construction Manager | Ramez Kabbani | (516) 260-8940 |

# ***FIGURES***




USGS Central Park, NY Quadrangle 1995, Contour Interval = 10 feet

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
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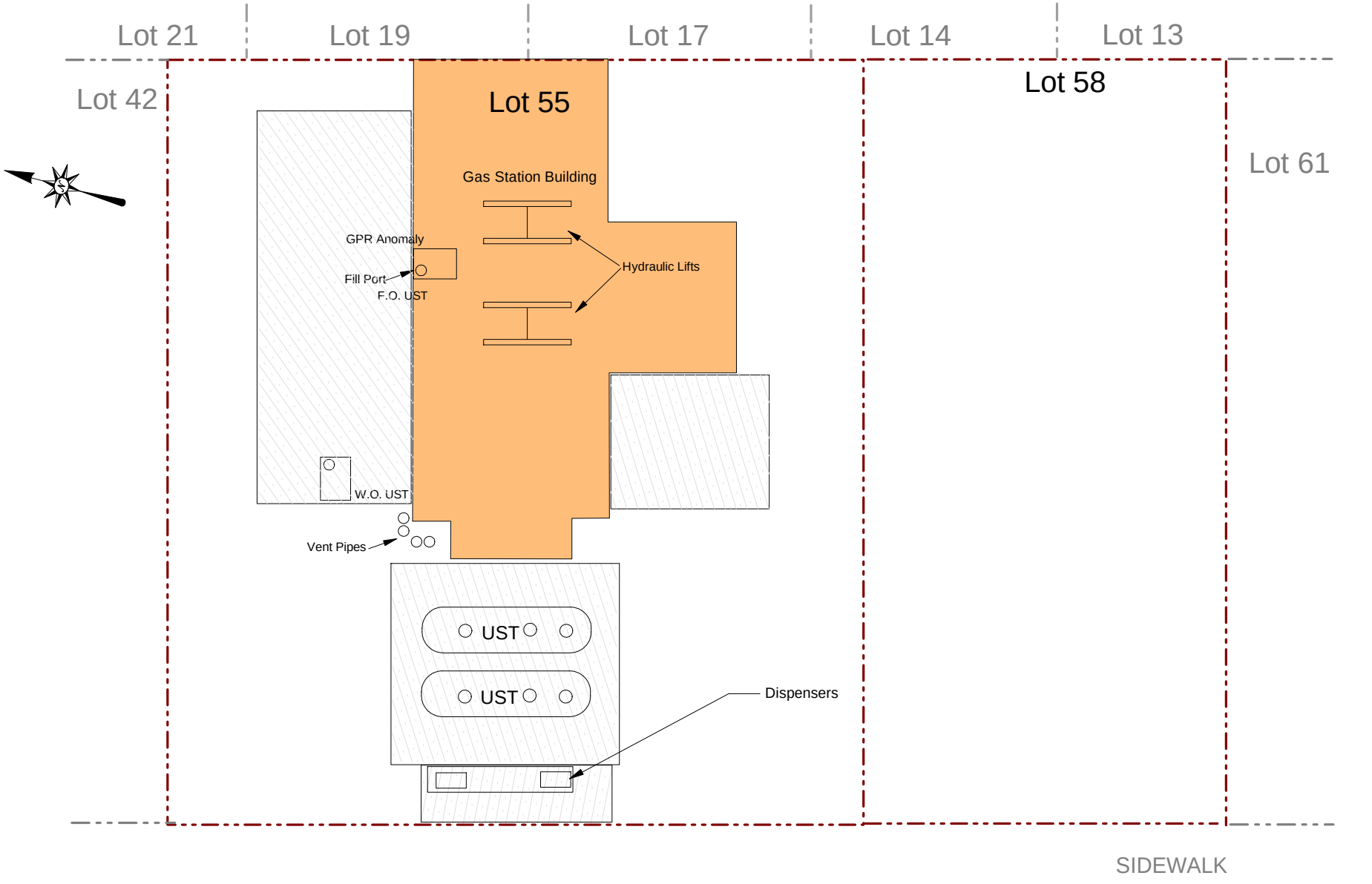
Fax 631. 924 .2870

TOMAT SERVICE STATION
1815-1825 OCEAN AVENUE, BROOKLYN, NY

FIGURE 1 SITE LOCATION MAP




EBC
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Figure No. 2

Site Name: TOMAT SERVICE STATION
Site Address: 1815-1825 OCEAN AVENUE, BROOKLYN, NY
Drawing Title: SITE MAP

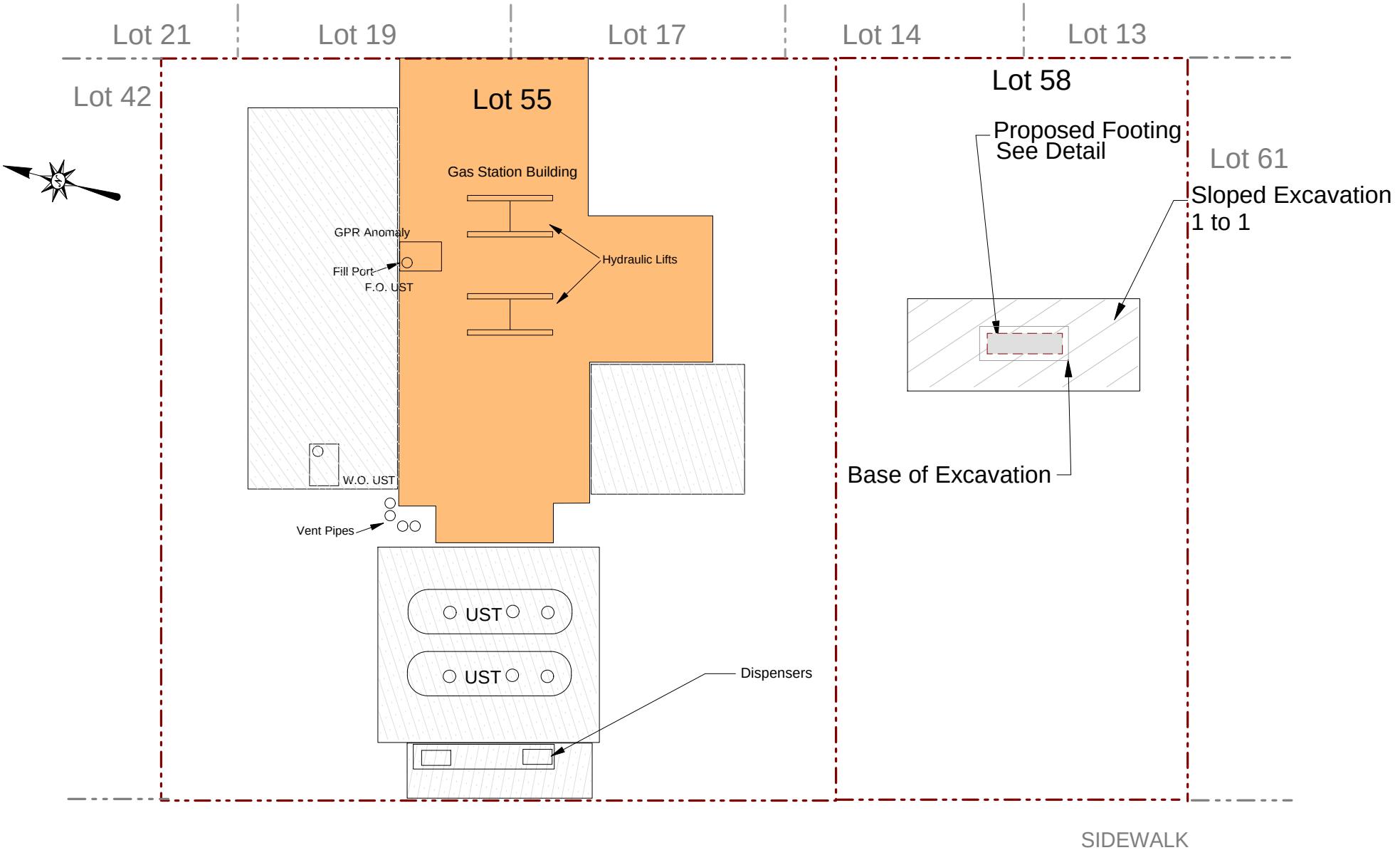


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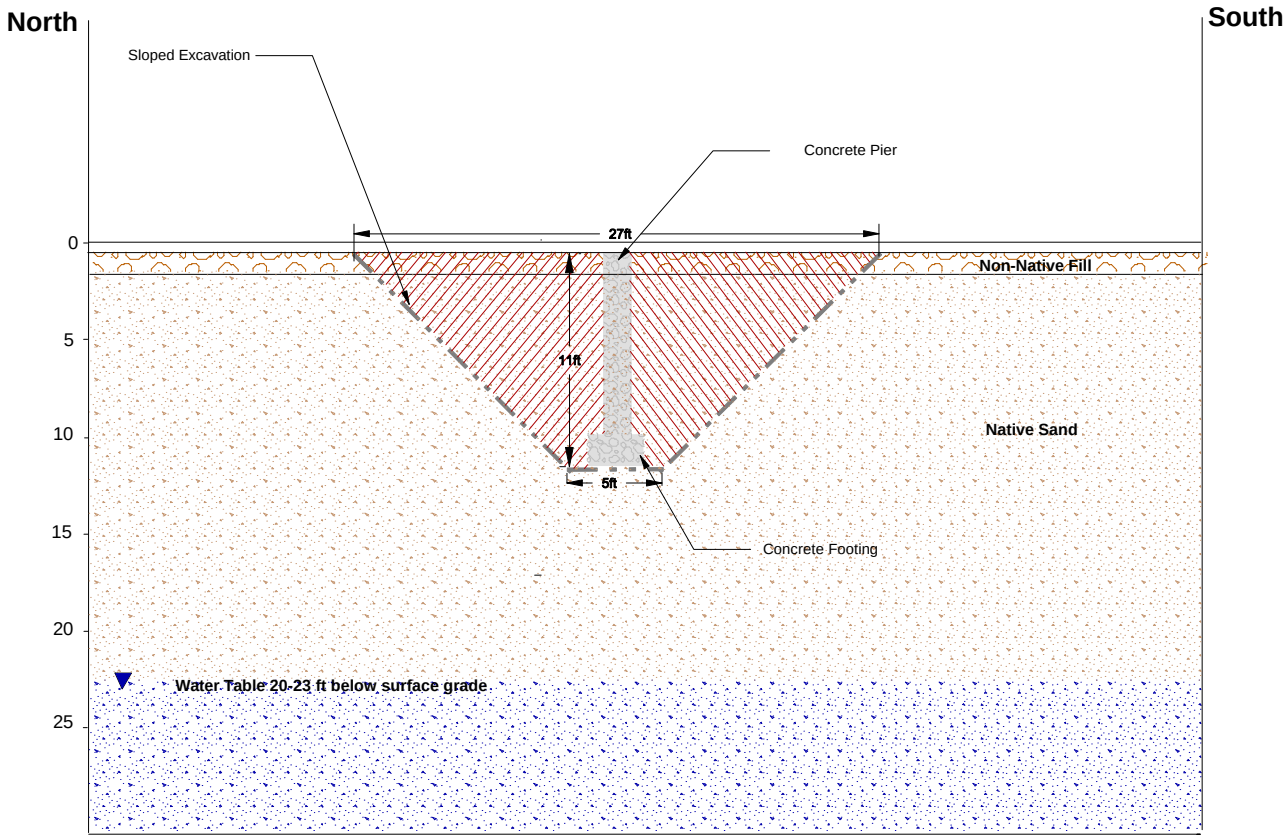
*Figure No.* **3**

Site Name: TOMAT SERVICE STATION
Site Address: 1815-1825 OCEAN AVENUE, BROOKLYN, NY
Drawing Title: FOOTING EXCAVATION PLAN




SCALE

0 2.5 5 10

1 Inch = 10 Feet

Vertical Exageration - None

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FORMER TOMAT SERVICE STATION

1815-1825 OCEAN AVENUE, BROOKLYN, NY

**FIGURE 4** FOOTING EXCAVATION DETAIL

# ***ATTACHMENT A***
# *Community Air Monitoring Plan*

# COMMUNITY AIR MONITORING PLAN

FORMER TOMAT SERVICE STATION
1815-1825 OCEN AVENUE
BROOKLYN, NY

NOVEMBER - 2015

**COMMUNITY AIR MONITORING PLAN**
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## *APPENDICES*

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Appendix A Action Limit Report

## 1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for the excavation and construction activities to be performed under a :imited Foundation Element Installation Work Plan at the Former Tomat Service Station located at 18165-1825 Ocean Avenue, Brooklyn, NY. The CAMP provides measures for protection for the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the investigation activities) from potential airborne contaminant releases resulting from excavation activities at the site.

Compliance with this CAMP is required during all activities associated with soil disturbance activities that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs). These activities include excavation and loading of affected soil. This CAMP has been prepared to ensure that remedial activities do not adversely affect passersby, residents, or workers in the area immediately surrounding the Site and to preclude or minimize airborne migration of site-related contaminants to off-site areas.

### 1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan as presented in DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC May 3, 2010). This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air.

## 2.0 AIR MONITORING

Petroleum volatile organic compounds (VOCs) are the constituents of concern at the Site. The appropriate method to monitor air for these constituents during remediation activities is through real-time VOC and air particulate (dust) monitoring.

### 2.1 Meteorological Data

At a minimum, wind direction will be evaluated at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to position the monitoring equipment in appropriate upwind and downwind locations.

### 2.2 Community Air Monitoring Requirements

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before activities begin. These points will be monitored periodically in series during the site work. When the excavation area is within 20 feet of potentially exposed populations or occupied structures, the perimeter monitoring points will be located to represent the nearest potentially exposed individuals at the downwind location and will take into account the locations of ventilation system intakes of nearby structures.

Fugitive respirable dust will be monitored using a MiniRam Model PDM-3 aerosol monitor (or equivalent). Air will be monitored for VOCs with a portable Ionscience 3000 photoionization detector (PID), or equivalent. All air monitoring data will be documented in a site log book by the designated site safety officer. The site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan

## 3.0 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 or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present.

The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should 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 must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can 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 must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can 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 must be shutdown. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report, as shown in Appendix A, will be completed.

### 3.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during remediation activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- Collection of purge water in covered containers;
- storage of excess sample and drill cuttings in drums or covering with plastic

## 4.0 PARTICULATE MONITORING

Air monitoring for particulates (i.e., dust) will be performed continuously during excavation and loading activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns ($PM_{10}$) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately four to five feet above land surface (i.e., the breathing zone). Monitoring equipment will be MIE Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter ($\mu g/m_3$). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 $\mu g/m^3$ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive work activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in Section 2.3.1 below) and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report as shown in **Appendix A** will be completed.

### 4.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 $\mu g/m^3$ at any time during remediation activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- limiting the excavation size;
- backfilling the excavation;
- spraying water onto the excavation faces and equipment;
- covering soil stockpiles with 8-mil plastic sheeting;
- hauling waste materials in properly tarped containers; and/or
- limiting vehicle speeds onsite.

Work may continue with dust suppression techniques provided that downwind $PM_{10}$ levels are not more than 150 $\mu g/m^3$ greater than the upwind levels.

There may also be situations where the dust is generated by remediation activities and migrates to downwind locations, but is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the working area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 $\mu g/m^3$, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review.


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# 5.0 DATA QUALITY ASSURANCE

## 5.1 Calibration

Instrument calibration shall be documented on instrument calibration and maintenance sheets or in the designated field logbook. All instruments shall be calibrated as required by the manufacturer. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

## 5.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the SSO for reference.

## 5.3 Data Review

The SSO will interpret all monitoring data based the established criteria and his/her professional judgment. The SSO shall review the data with the PM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PM.

## 6.0 RECORDS AND REPORTING

All air readings must be recorded on daily air monitoring log sheets and made available for review by personnel from NYSDEC and NYSDOH.


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# ***APPENDIX A***
# ***ACTION LIMIT REPORT***

**CAMP**
**ACTION LIMIT REPORT**

Project Location: _____

Date: _____ Time: _____

Name: _____

Contaminant: _____ PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

**DOWNWIND DATA**

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

**UPWIND DATA**

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

**BACKGROUND CORRECTED LEVELS**

Monitor ID #: Location: _____ Level Reported: Level Reported: _____

**ACTIONS TAKEN**

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