

**21-25 31<sup>st</sup> STREET  
QUEENS COUNTY  
ASTORIA, NEW YORK**

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# **SITE MANAGEMENT PLAN**

**NYSDEC Site Number: C241167**

**Prepared for:**

RFC 31 STREET I LLC

42-01 235<sup>th</sup> Street

Douglaston, NY 11363

**Prepared by:**

Matthew M. Carroll, P.E

&



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**Revisions to Final Approved Site Management Plan:**

<b>Revision No.</b>	<b>Date Submitted</b>	<b>Summary of Revision</b>	<b>NYSDEC Approval Date</b>

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**DECEMBER 2019**

### CERTIFICATION STATEMENT

I, Matthew M. Carroll, certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).



Matthew M. Carroll P.E.

12/16/2019 DATE

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## **List of Acronyms**

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

## ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: C241167 21-25 31<sup>st</sup> Street

Inspections:	Frequency
1. Institutional Control inspection	Annually
Monitoring:	
1. Groundwater Monitoring Wells MW-2S, MW-2D, MW-3S, MW-7S and MW-8S	Bi-Annually
Reporting:	
1. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

## **1.0 INTRODUCTION**

### **1.1 General**

This Site Management Plan (SMP) is a required element of the remedial program for the 21-25 31<sup>st</sup> Street Site located in Astoria, New York (hereinafter referred to as the “Site”). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP) Site No. C241167 which is administered by New York State Department of Environmental Conservation (NYSDEC).

21-25 31<sup>st</sup> Street LLC (the “Remedial Party”) entered into a Brownfield Cleanup Agreement (BCA) on March 10, 2015 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this Site is provided in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description in Appendix 2.

The remedial work achieved a Track 1 (Unrestricted Use) excavation; however, this is conditional based on long-term groundwater monitoring in accordance with the SMP. Institutional Controls (ICs) have been incorporated into the site during the conditional period.

This SMP was prepared to detail the required post-remedial groundwater sampling. This plan has been approved by the NYSDEC, and compliance with this plan is required by the Remedial Party. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #C241167-02-15; Site #C241167) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix 1 of this SMP.

This SMP was prepared by Matthew Carroll, P.E. and Tenen Environmental LLC, on behalf of 21-25 31<sup>st</sup> Street LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated November 2017, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the required groundwater sampling.

## **1.2 Revisions**

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

## **1.3 Notifications**

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 7-day advance notice of any field activity associated with the remedial program.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 on the following page includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix 1.

**Table 1: Notifications\***

<b>Name</b>	<b>Contact Information</b>
Daniel McNally, NYSDEC Project Manager	(518) 402-9767, daniel.mcnally@dec.ny.gov
Wendy Kuehner, NYSDOH Project Manager	(518) 402-7860, wendy.kuehner@health.ny.gov
Michael Komoroske, P.E. Chief, Section A, Remedial Bureau B	(518) 402-9767, michael.komoroske@dec.ny.gov
Kelly A. Lewandowski, P.E., Chief, Site Control Section	(518) 402-9543, kelly.lewandowski@dec.ny.gov

\* Note: Notifications are subject to change and will be updated as necessary.



## **2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS**

### **2.1 Site Location and Description**

The Site is located in Astoria, Queens County, New York and is identified as a portion of Lot 18 in Block 831 (Lot 18 currently consists of former Lot 20, which originally defined the BCP site, and former Lot 18 and a portion of Lot 25, that were all merged into a single lot – 18) on the New York City Tax Map (see Figure 1). The Site is an approximately 0.27-acre area and is bounded by 31<sup>st</sup> Street followed by a six-story residential building to the northwest, Queens Public Library to the southwest, 32<sup>nd</sup> Street followed by two-story residential homes to the southeast, and one-story commercial units to the northwest (see Figure 2 – Site Layout Map). The boundaries of the site are more fully described in Appendix 2. The owner(s) of the site parcel(s) at the time of issuance of this SMP is/are:

RFC 31 STREET I LLC.

### **2.2 Physical Setting**

#### **2.2.1 Land Use**

The Site consists of the following: a mixed-use commercial/residential building with two sub-grade levels. The Site and surrounding area were rezoned in 2010 as part of the Astoria Rezoning under City Environmental Quality Review (CEQR) #10DCP019Q.

The properties adjoining the Site and in the neighborhood surrounding the Site primarily include commercial and residential properties. The properties immediately southwest of the Site include commercial properties; the properties immediately northeast of the Site include commercial, properties; the properties immediately southeast of the

Site include residential properties; and the properties to the northwest of the Site include residential properties.

### 2.2.2 Geology

The shallow subsurface at the Site consisted of fill material containing silt, sand and brick fragments from sidewalk grade to up to ten feet below grade (ft-bg). The fill material was underlain by glacial till composed of boulders, cobbles, gravel and coarse sand with some silt. The remaining glacial till is underlain by stiff brownish gray clay at approximately 80 ft-bg. The clay layer appears to be consistent across the Site.

Boring logs are included in Appendix 4.

### 2.2.3 Hydrogeology

Groundwater was encountered at depths between 35 and 40 ft-bg. Measured shallow groundwater elevations range from approximately 16.42 to 16.88 feet above mean sea level (ft-msl). Groundwater flow contours based on data collected in 2017 indicate that shallow groundwater flow is generally to the northeast. The Site-specific shallow groundwater flow is toward the nearest surface water body, Luyster Creek, which is located northeast of 20<sup>th</sup> Avenue. Groundwater flow contours based on data collected in 2016 and 2017 indicate that deep groundwater flow is generally to the northwest or northeast. Groundwater beneath the Site is characterized as Class GA. The best usage for Class “GA” groundwater is as a source of potable water. Groundwater is not utilized as a source of potable water at the Site. Potable water for the Site is supplied by the City of New York from upstate New York reservoirs.

Groundwater contour maps are shown on Figures 4A-D. Groundwater elevation data is provided in Figure 3.

## **2.3 Investigation and Remedial History**

The Site was vacant until sometime between 1954 and 1967 when the property was developed with a large store and dry cleaner. The dry cleaning operation was present until at least 1981, and the same space was used for “cleaning” through 2006. The Site was occupied by ABC Super Stores, a retail clothing, linens, and kitchenware store, prior to the start of the Remedial Action.

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

Several investigations were performed by Tenen across the Site between 2014 and 2017. A Phase I Environmental Site Assessment (ESA) was performed by Tenen in May 2014. The Phase I identified recognized environmental conditions (RECs) in connection with the Site due to its historical use as a dry cleaner. A northeast adjoining property was also identified as a REC due to its historical use as an auto repair shop.

A Phase II Environmental Site Investigation (ESI) was performed by Tenen in June 2014. The findings of the Phase II investigation indicated the presence of chlorinated solvents and their breakdown compounds in soil vapor, indoor air, soil, and groundwater at the Site. The results were consistent with a portion of the Site being used as a dry cleaning facility. A spill was reported to NYSDEC during due diligence sampling due to a detected sheen in one groundwater well (GW-3) and elevated concentrations of petroleum compounds in the groundwater sample collected from GW-3. Spill No. 1402686 was assigned to the Site on June 12, 2014. The spill was closed on March 31, 2016.

A Remedial Investigation (RI) was performed by Tenen in February 2017. The RI consisted of the collection of thirty-one soil samples from eleven soil borings, nine groundwater samples from seven newly installed and two existing monitoring wells, and five soil vapor samples, and two indoor air samples. A supplemental investigation was completed to further investigate chlorinated solvent impacts and potential sources. The supplemental investigation consisted of the collection of six soil samples from one test pit

and one soil boring, eight groundwater samples, four soil vapor samples, and two indoor air samples.

The results of the RI and supplemental investigation indicated that tetrachloroethene (PCE) was detected in one of thirty-seven soil samples in exceedance of Unrestricted Use Soil Cleanup Objectives (UUSCOs); petroleum-related volatile organic compounds (VOCs) were detected in three soil samples collected at the groundwater interface in exceedance of UUSCOs; semivolatile organic compounds (SVOCs), specifically polycyclic aromatic hydrocarbons (PAHs), were detected in two of thirty-seven soil samples in exceedance of Restricted-Residential SCOs (RRSCOs) in the area of the Site that does not have a basement; and lead was detected in two of thirty-seven soil samples in exceedance of UUSCOs and silver and zinc were detected in one of thirty-seven soil samples in exceedance of UUSCOs. In addition, concentrations of chlorinated VOCs (cVOCs) were detected above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) in groundwater from shallow wells along 31<sup>st</sup> Street and in both deep wells; petroleum impacts were detected in the four most-upgradient shallow wells; one pesticide, dieldrin, was detected at estimated concentrations above TOGS AWQS; and dissolved earth metals were detected above TOGS AWQS in all groundwater samples. Soil vapor analytical results indicated elevated concentrations of PCE, trichloroethene (TCE), and petroleum-related VOCs were detected in soil vapor samples across Site above the ambient air concentrations. However, the concentrations of cVOCs in soil vapor samples between the Site and the nearby school were low.

### **Summary of Pre-remediation Site Conditions**

Previous investigations at the Site confirmed the presence of cVOCs (specifically PCE and its degradation products) in soil, soil vapor, and groundwater. Tenen's investigations also confirmed petroleum-related VOC impacts in soil vapor, upgradient groundwater monitoring wells and in soil samples collected at the groundwater interface. The presence of historic fill was also confirmed by previous investigations, with the results of the RI indicating elevated levels of metals and SVOCs (PAHs) consistent with historic fill material.

## **Remedial Action Work Plan**

The RAWP summarizes the nature and extent of contamination, as determined from data gathered during the Remedial Investigation (RI) activities and provides an evaluation of Track 2 and 4 remedies and other applicable remedial measure alternatives, their associated costs, and the recommended and preferred remedy to address on-Site contamination. This document was released for a 45-day comment period and subsequently approved by NYSDEC on September 1, 2017. A summary of the selected Track 4 remedy, developed to address all environmental issues associated with the Site, is provided below.

- Demolition of the existing on-site building;
- Excavation of soil/fill to at least approximately 30 ft-bg within the proposed building footprint. Deeper hot-spot excavations may be required in the VOC source area in order to meet the groundwater protection soil cleanup objectives (SCOs). Excavated soil will be screened for indications of contamination including by visual means, odor and monitoring with a photoionization detector (PID);
- Disposal of impacted material from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
- Installation and operation of a dewatering system for hydraulic control during excavation and management of impacted groundwater for off-Site disposal;
- Pre-design sampling and, if necessary, in-situ treatment of dissolved chlorinated concentrations in groundwater;
- Collection and analysis of end-point samples to evaluate attainment of applicable Part 375 Protection of Groundwater SCOs;

- If needed, import of materials to be used for backfill and cover in compliance with: (1) the Part 375-6.7(d) and (2) all Federal, State and local rules and regulations for handling and transport of material;
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions;
- Development of a Site Management Plan (SMP) for long term management of residual contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, and (3) reporting;

These activities were implemented between August 2018 and February 2019 and are described in the Final Engineering Report and other sections of this SMP. All pre-design sampling is discussed in the Final Engineering Report (FER) and is not included in this SMP.

## **2.4 Remedial Action Objectives**

The Remedial Action Objectives (RAOs) for the Site as listed in the Remedial Action Work Plan dated August 2017 are as follows:

### **Groundwater**

#### **RAOs for Public Health Protection**

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

#### **RAOs for Environmental Protection**

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.

- Remove the source of ground or surface water contamination.

## **Soil**

### RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

### RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

## **Soil Vapor**

### RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

## **2.5 Remaining Contamination**

### **2.5.1 Soil**

Excavation as part of Site redevelopment allowed for the removal of the bulk of contaminant mass at the Site. Excavation was conducted across the Site. All on-Site, post-remedial endpoint samples document that the remaining soil meet the Unrestricted Use SCOs (Part375-6) after the implementation of the remedial action.

### **2.5.2 Groundwater**

Residual contamination may remain in the groundwater but on-Site sources have been removed and groundwater quality will be monitored with the goal of eventually meeting the Class GA Standards.

### 2.5.3 Soil Vapor

Post-remedial soil vapor sampling was performed on July 12, 2019. One soil vapor sample was collected from the SSDS riser pipe and one ambient air sample was collected. PCE was detected in soil vapor at 18.8 ug/m<sup>3</sup>, above concentration detected in the ambient air (0.373 ug/m<sup>3</sup>). Other cVOC breakdown compounds of PCE were not detected in soil vapor. The result of the post-remedial soil vapor sampling indicates that additional soil vapor mitigation is not required.



### **3.0 INSTITUTIONAL CONTROL PLAN**

#### **3.1 General**

Since the potential for contamination exists at the site, Institutional Controls (ICs) are required to protect human health and the environment during the conditional period. This IC Plan describes the procedures for the implementation and management of all ICs at the site. The IC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all ICs on the site;
- The basic implementation and intended role of each IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the IC controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of ICs; and
- Any other provisions necessary to identify or establish methods for implementing the ICs required by the site remedy, as determined by the NYSDEC.

#### **3.2 Institutional Controls**

A series of ICs is required by the Decision Document to: (1) prevent future exposure to potential remaining contamination; and, (2) limit the use and development of the site to restricted-residential, commercial or industrial uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an

amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 1. These ICs are:

- The property may be used for: restricted-residential, commercial or industrial use;
- Conformance with ICs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
  - Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP; and,
  - Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.

## **4.0 MONITORING AND SAMPLING PLAN**

### **4.1 General**

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix 6.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (groundwater);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

#### 4.2 Post-Remediation Media Monitoring and Sampling

Samples shall be collected from the groundwater monitoring wells on a semi-annually basis for two years. Sampling locations, required analytical parameters and schedule are provided in Table 2 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

**Table 2 – Post Remediation Sampling Requirements and Schedule**

Sampling Location	Analytical Parameters	Minimum Method Detection Limit	Minimum Reporting Limit	Schedule
Monitoring Wells MW-2S, MW-2D, MW-3S, MW-7S and MW-8S	X	1 ug/L	Class GA Standards	Semi-annually

Detailed sample collection and analytical procedures and protocols are provided in Appendix 5 – Field Sampling Plan and Appendix 6 – Quality Assurance Project Plan. Sampling will be completed in accordance with the Health and Safety Plan included in Appendix 7.

##### 4.2.1 Groundwater Sampling

Groundwater monitoring will be performed semi-annually to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Residual contaminated groundwater may remain after the remedy is complete but on-Site sources in soil have been removed from the Site. The network of five perimeter monitoring wells has been installed to monitor the downgradient and upgradient groundwater conditions at the Site. Monitoring well details are included in Table 3, below, and Appendix 4.

**Table 3 – Monitoring Well Construction Details**

Well ID	Coordinates	Well Diameter	Elevation			
			Casing	Surface	Screen, Top	Screen, Bottom
MW-2S	222487.336,1009441.476	2 in	50.90 ft	51.67 ft	32 ft	43 ft
MW-2D	222489.244,1009443.246	2 in	51.10 ft	51.61 ft	70 ft	75 ft
MW-3S	222411.397,1009370.257	2 in	52.44 ft	52.47 ft	33 ft	43 ft
MW-7S	222411.968,1009524.533	2 in	55.87 ft	56.39 ft	33 ft	43 ft
MW-8S	222306.659,1009426.157	2 in	55.47 ft	55.96 ft	32 ft	42 ft

Appendix 5, Field Sampling Plan, details protocols for sampling of the groundwater monitoring wells.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

#### 4.2.2 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Sampling Plan provided as Appendix 5 of this document. Example field sampling logs are included in Appendix 8.

## **5.0 OPERATION AND MAINTENANCE PLAN**

### **5.1 General**

The Site remedy does not rely on any engineering controls. Therefore, the operation and maintenance of such components is not included in this SMP.

## **6.0 PERIODIC ASSESSMENTS/EVALUATIONS**

### **6.1 Climate Change Vulnerability Assessment**

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

### **6.2 Green Remediation Evaluation**

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

#### **6.2.1 Timing of Green Remediation Evaluations**



For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

#### 6.2.2 Building Operations

Structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

#### 6.2.3 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

### **6.3 Remedial System Optimization**

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- There is an anticipated transfer of the site management to another remedial party or agency; and

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focus on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

## **7.0. REPORTING REQUIREMENTS**

### **7.1 Site Management Reports**

All site management inspection, maintenance and monitoring events will be recorded in a field book and on the appropriate site management forms. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 4 and summarized in the Periodic Review Report.

**Table 4: Schedule of Interim Monitoring/Inspection Reports**

<b>Task/Report</b>	<b>Reporting Frequency*</b>
Periodic Review Report	Annually for a one year period, or as otherwise determined by the Department
Inspection Reports	Annually for a one year period, or as otherwise determined by the Department

\* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (groundwater);

- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link <http://www.dec.ny.gov/chemical/62440.html>.

## **7.2 Periodic Review Report**

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion or equivalent document (e.g.,

Satisfactory Completion Letter, No Further Action Letter, etc.) is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix 2. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.
- Results of the required annual site inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: <http://www.dec.ny.gov/chemical/62440.html>.
- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;

- Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and
- Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
- The overall performance and effectiveness of the remedy.

#### 7.2.1 Certification of Institutional Controls

Following the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

*“For each institutional control identified for the site, I certify that all of the following statements are true:*

- *The inspection of the site to confirm the effectiveness of the institutional controls required by the remedial program was performed under my direction;*
- *The institutional controls employed at this site are unchanged from the date the controls were put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*

- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program;*
- *The information presented in this report is accurate and complete;*
- *That no new information has come to the site owner's attention, including groundwater monitoring data from wells located at the site boundary, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and,*
- *Every five years, that the assumptions made in the qualitative exposure assessment remain valid.*

*I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Matthew M. Carroll, of 1085 Sackett Avenue, Bronx, NY 10461, am certifying as Owner's Designated Site Representative for the site."*

### **7.3 Corrective Measures Work Plan**

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

## **8.0 REFERENCES**

Phase I Environmental Site Assessment Report, 21-25 31<sup>st</sup> Street, Astoria, New York 11105. Tenen Environmental. May 22, 2014.

Phase II Environmental Site Assessment Report, 21-25 31<sup>st</sup> Street, Astoria, New York, 11105. Tenen Environmental. June 13, 2014.

Remedial Investigation Report, 21-25 31<sup>st</sup> Street, Astoria, New York. Block 831, Lot 20, BCP# C241167, CEQR# 10DCP019Q, OER# 14EH-A500Q. Tenen Environmental, June 2017.

21-25 31<sup>st</sup> Street Remedial Action Work Plan, Astoria, New York, Block

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

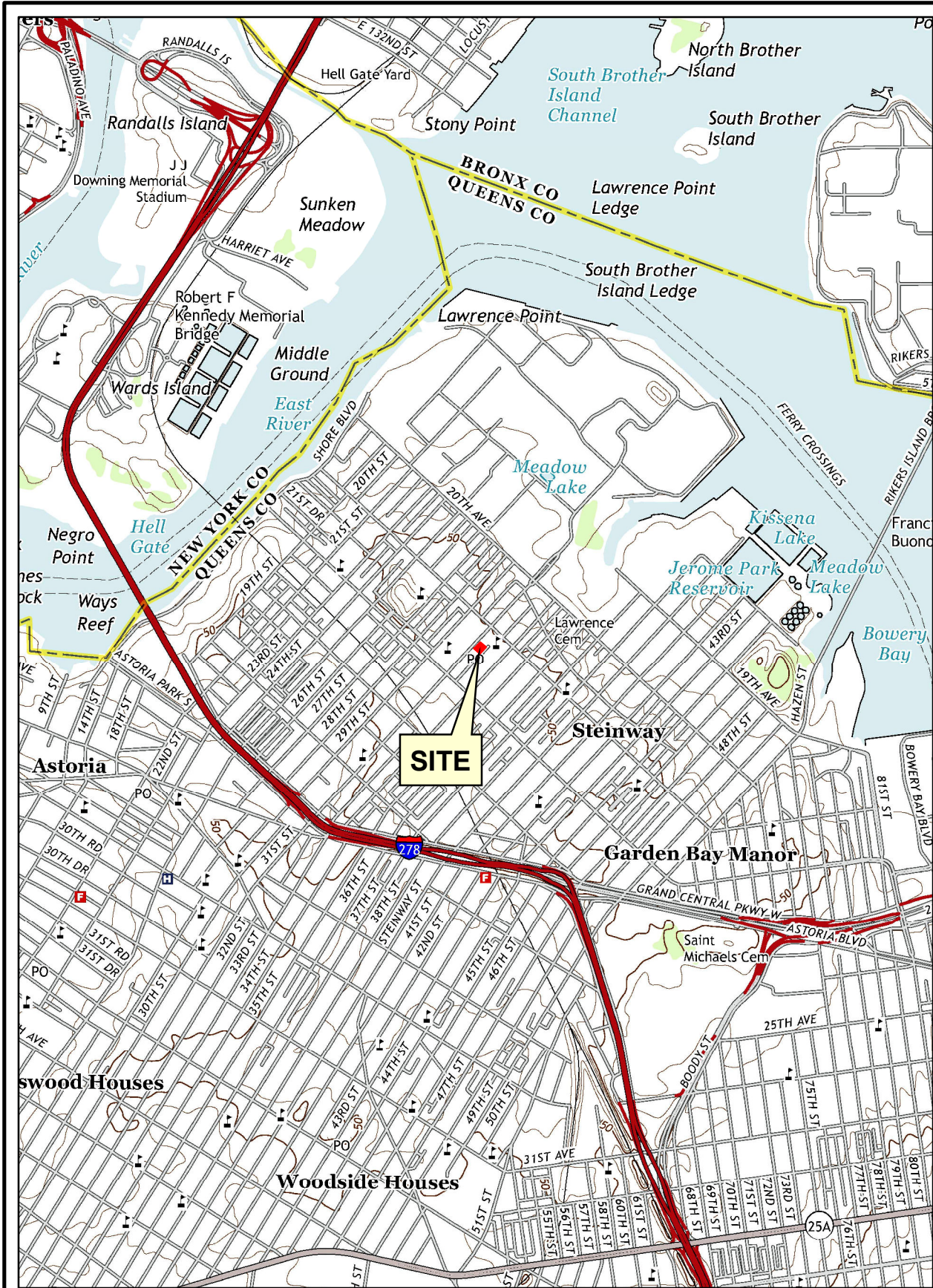
NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).



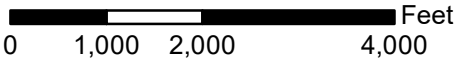
## **FIGURES**





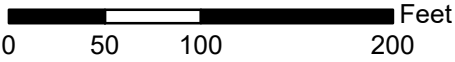
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<http://www.usgs.gov>

Site Location



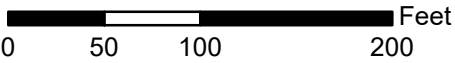
<http://gis.nyc.gov/taxmap/map.htm>

Department of Finance Digital Tax Map



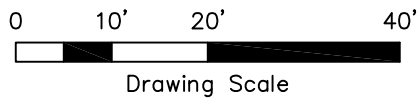
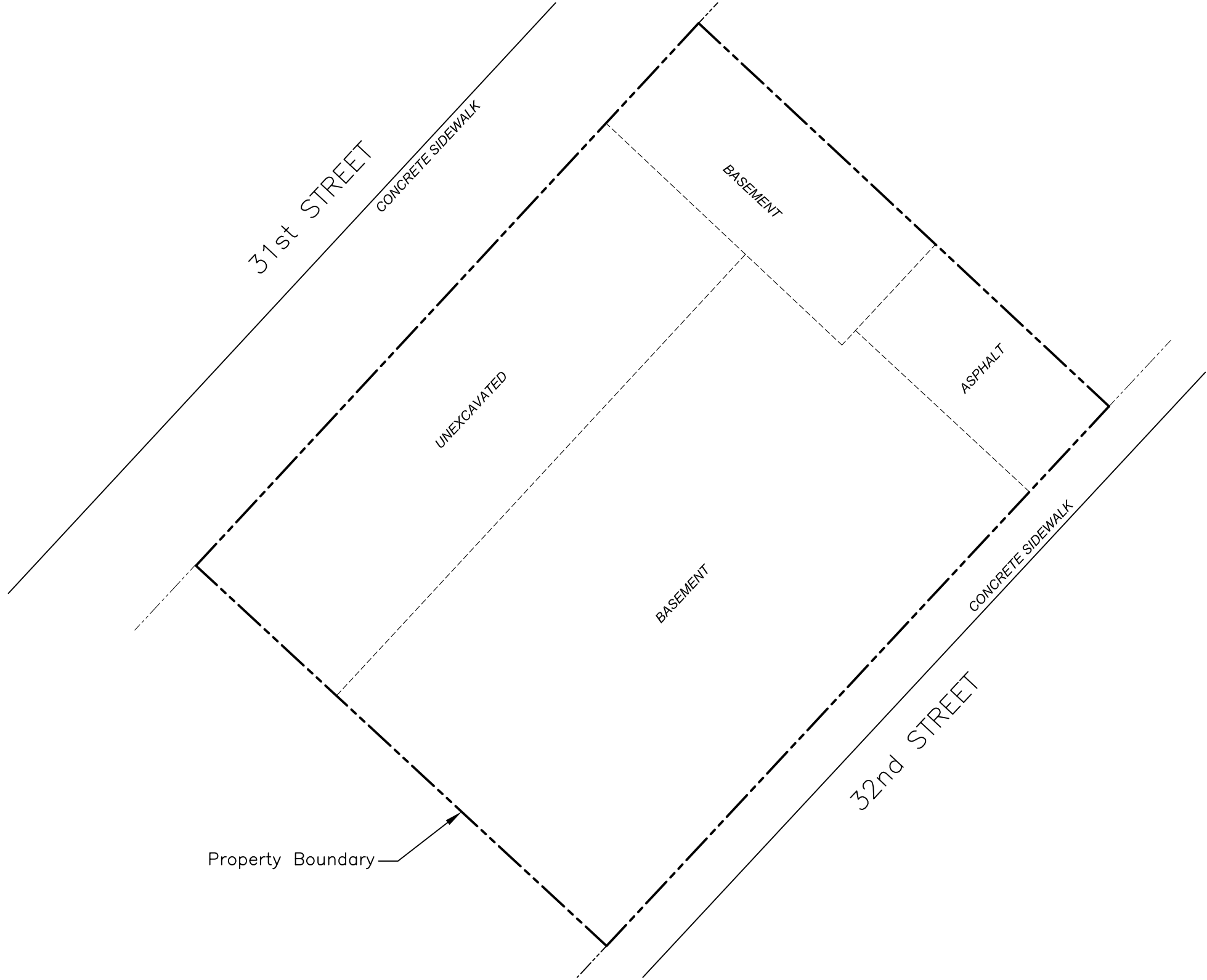
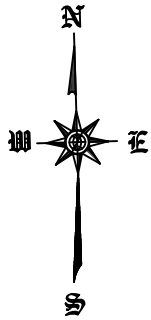
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User  
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2016 v2



Client		21-25 31st Street Queens, New York Block 831, Lot 20	
TENEN ENVIRONMENTAL		Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
Drawn By	LM	Checked By	MC
Date		March 2017	
Scale		As Noted	
Drawing Title		Site Location Map	
Drawing No		Figure 1	





TENEN ENVIRONMENTAL, LLC  
121 West 27th Street  
Suite 702  
New York, NY 10001  
O: 646-606-2332  
F: 646-606-2379

CONSULTANT

DRAWN BY

CHECKED BY

DATE

SCALE:

LM

SB

March 2017

AS NOTED

DRAWING TITLE:

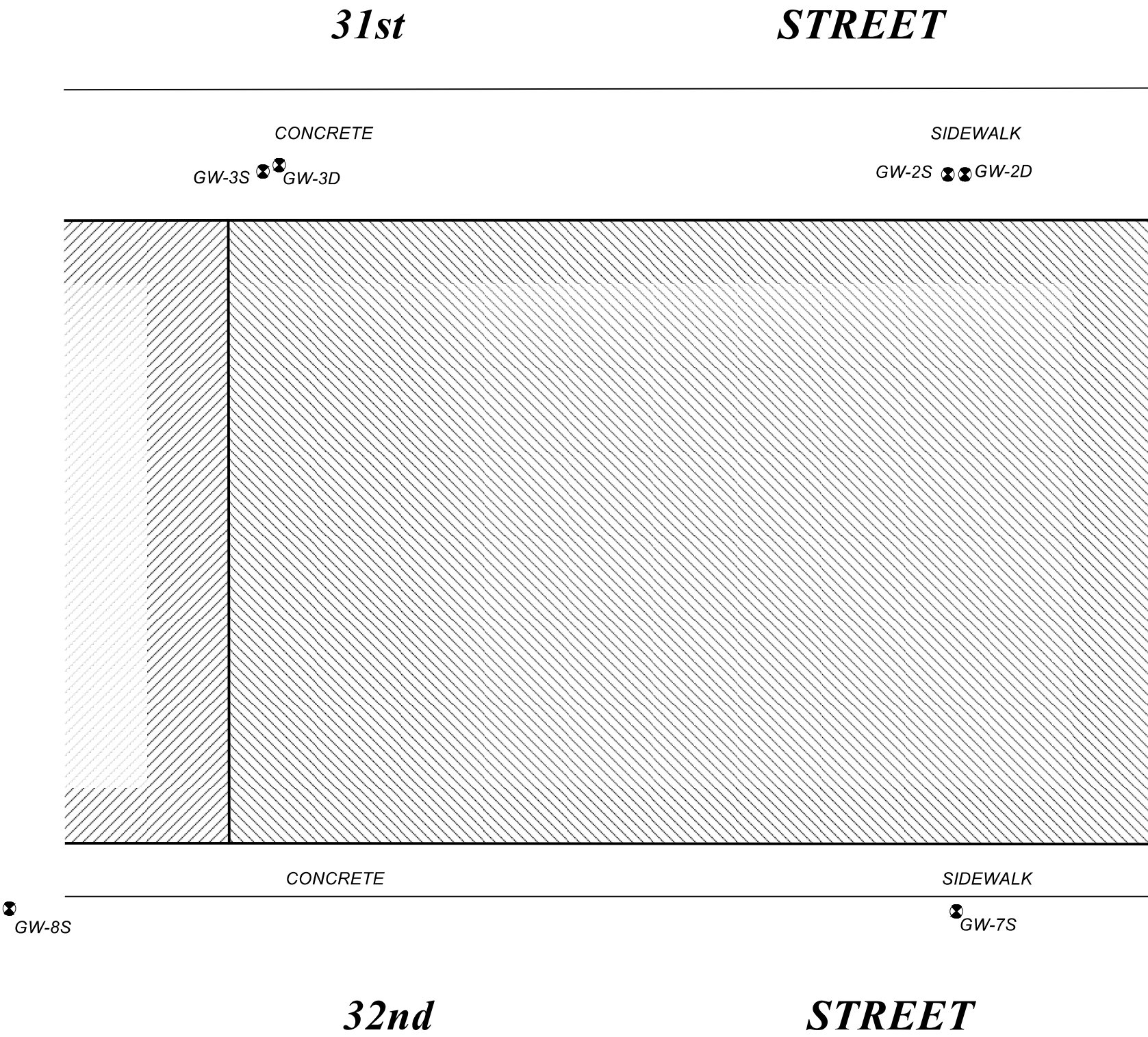
Site Layout

SITE

BCP Site #C241167  
21-25 31st Street  
Queens, New York

DRAWING NO.

Figure 2



**WELL ELEVATION TABLE**

WELL I.D.	ELEVATIONS	
	TOP CASING	TOP PVC
GW-2D	51.61	51.10
GW-2S	51.67	50.90
GW-3D	52.72	52.30
GW-3S	52.74	52.44
GW-7S	56.39	55.87
GW-8S	55.96	55.47

**NOTES:**

- DATE OF FIELD SURVEY: MARCH 29, 2016
- HORIZONTAL DATUM: NAD 83- LONG ISLAND ZONE FROM GPS OBSERVATIONS
- VERTICAL DATUM: ASSUMED
- GW-3D & GW-3S SURVEYED NOVEMBER 17, 2016
- GW-7S AND GW-8S SURVEYED ON SEPTEMBER 25, 2019

REV: 4/7/16- GW-5D & GW-5S  
11/17/16- GW-3D & GW-3S  
9/25/19- GW-7S & GW-8S  
10/14/19- STATE PLANE DATUM

FIGURE 3: GROUNDWATER WELL LOCATIONS

WELL ELEVATION SURVEY

21-25 31st STREET

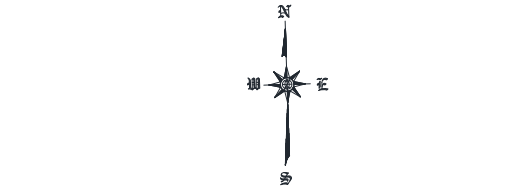
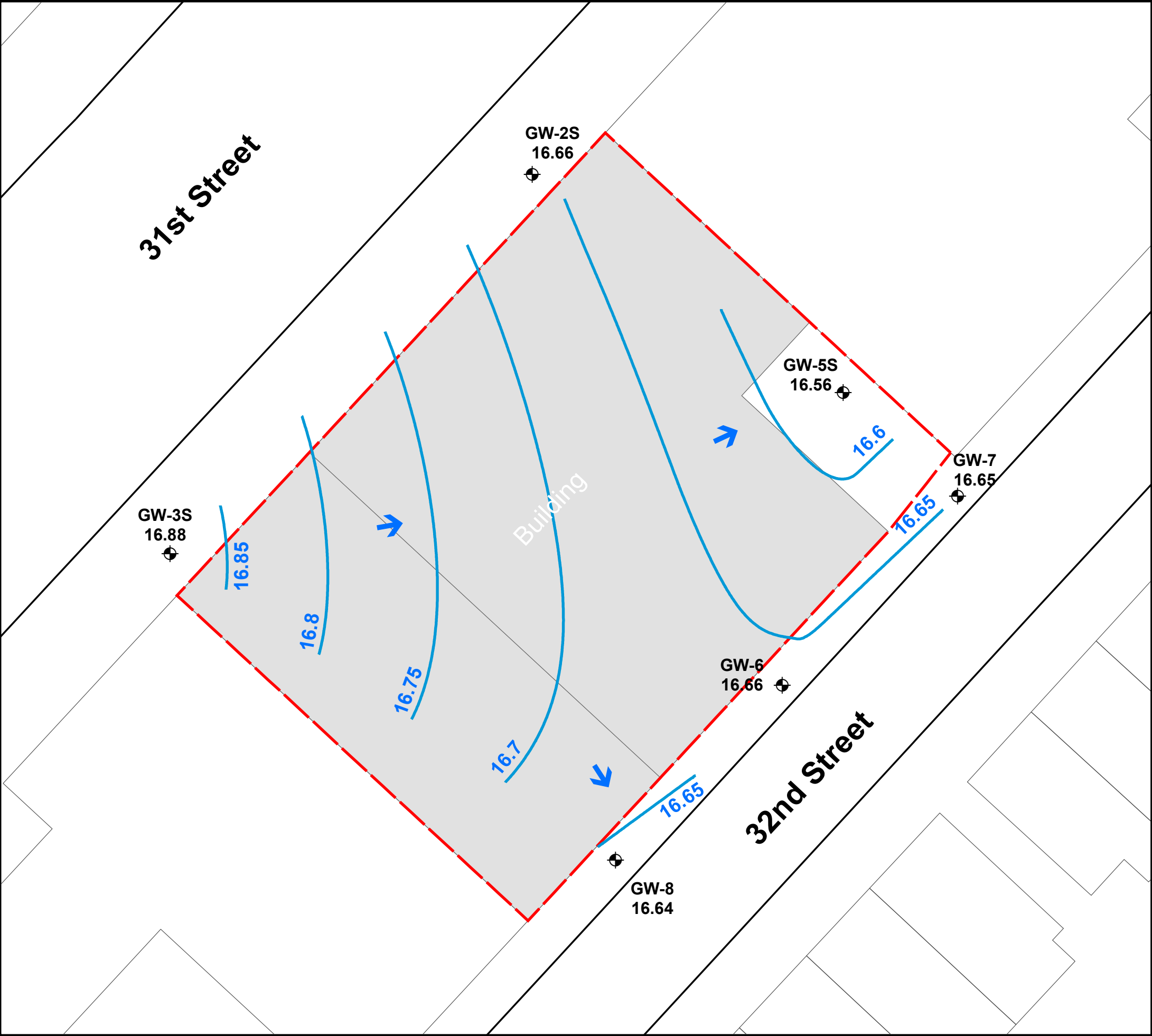
ASTORIA, QUEENS

QUEENS COUNTY  
SCALE: 1" = 20'

NEW YORK  
MARCH 29, 2016

DONALD R. STEDGE, P.L.S.  
112 MURRAY AVENUE  
GOSHEN, NY 10924  
(845) 325-9734

JOB NO.  
1504



Legend

- Monitoring Well Location
- Groundwater Flow Direction
- Groundwater Elevation Contour
- ProjectSite

Basemap Source: NYC Open Data

Groundwater contours interpolated with the aid of ESRI ArgGIS Spatial Analyst

21-25 31st Street  
Queens, New York  
Block 831, Lot 20

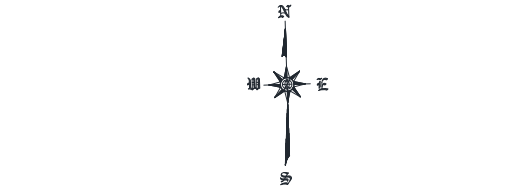
TENEN ENVIRONMENTAL

Tenen Environmental, LLC  
121 West 27th Street  
Suite 702  
New York, NY 10001  
O: (646) 606-2332  
F: (646) 606-2379

Drawn By	LM
Checked By	MC
Date	2/10/2017
Scale	As Noted

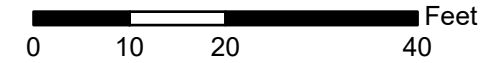
Groundwater Flow Direction,  
Shallow Wells, January 2017

Figure 4A



Legend

- Monitoring Well Location
- Groundwater Flow Direction
- Groundwater Elevation Contour
- ProjectSite



Basemap Source: NYC Open Data

Groundwater contours interpolated with the aid of ESRI ArgGIS Spatial Analyst

21-25 31st Street  
Queens, New York  
Block 831, Lot 20

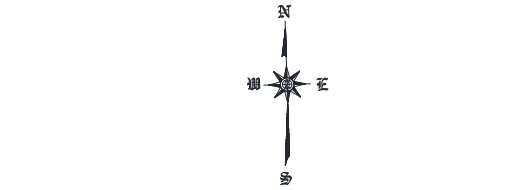
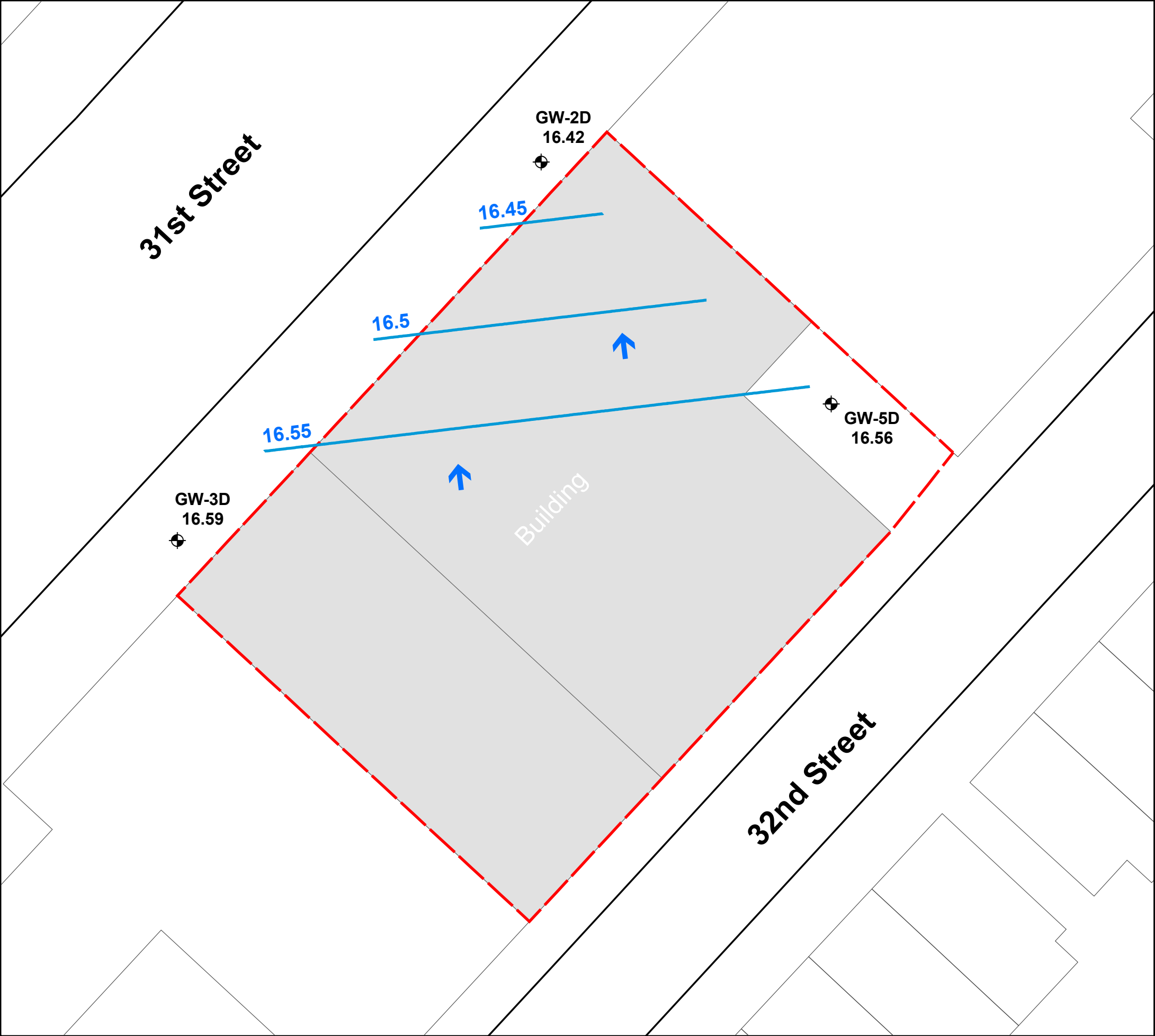
TENEN ENVIRONMENTAL

Tenen Environmental, LLC  
121 West 27th Street  
Suite 702  
New York, NY 10001  
O: (646) 606-2332  
F: (646) 606-2379

Drawn By	LM
Checked By	MC
Date	2/10/2017
Scale	As Noted

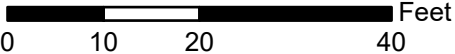
Groundwater Flow Direction,  
Shallow Wells, February 2017

Figure 4B



Legend

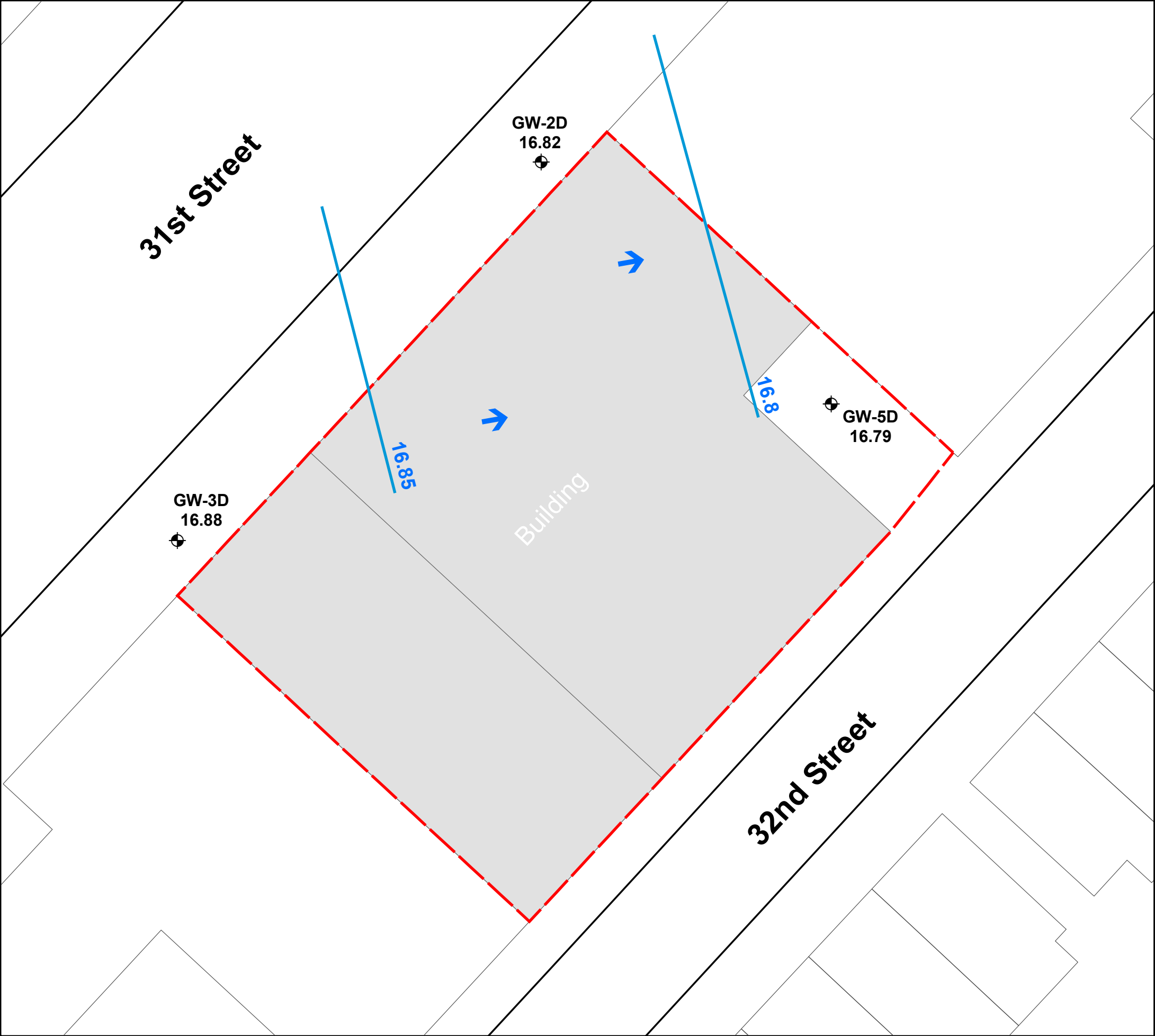
- Monitoring Well Location
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Project Site



Basemap Source: NYC Open Data

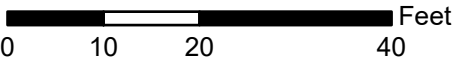
Groundwater contours interpolated with the aid of ESRI ArgGIS Spatial Analyst

Drawing Title		Groundwater Flow Direction, Deep Wells, October 2016		Client		21-25 31st Street Queens, New York Block 831, Lot 20	
Drawing No		Figure 4C		TENEN ENVIRONMENTAL		Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
				Drawn By	LM		
				Checked By	MC		
				Date	2/10/2017		
				Scale	As Noted		



**Legend**

- Monitoring Well Location
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Project Site



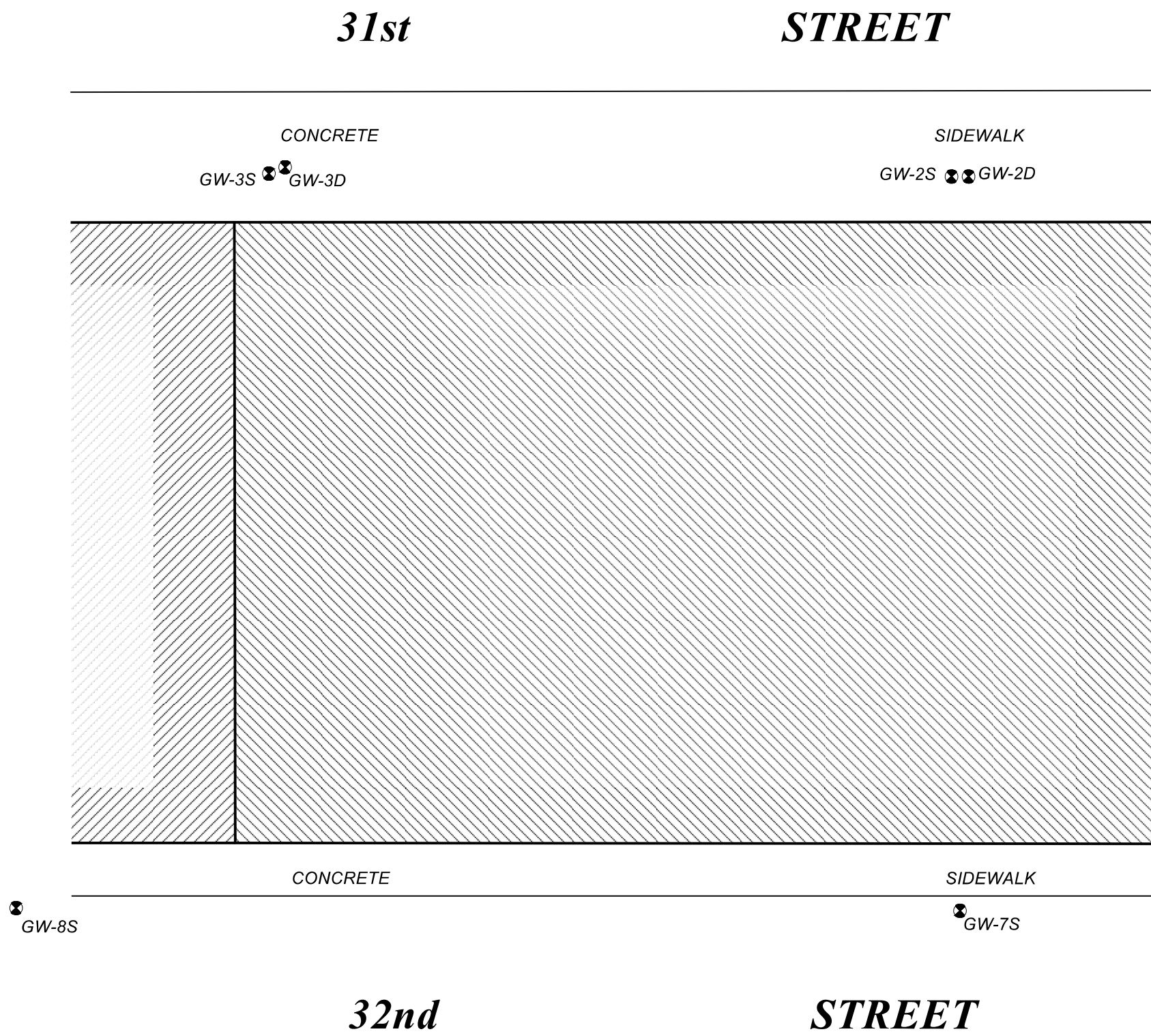
Basemap Source: NYC Open Data

Groundwater contours interpolated with the aid of ESRI ArgGIS Spatial Analyst



Drawing Title	Groundwater Flow Direction, Deep Wells, February 2017			
	Figure 4D			
Drawing No				
Drawn By	LM			
Checked By	MC			
Date		2/10/2017		
Scale		As Noted		
Client		<div>TENEN ENVIRONMENTAL</div> <div>Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379</div>		
		<div>21-25 31st Street Queens, New York Block 831, Lot 20</div>		





Samples to be collected from monitoring wells MW-2S, MW-2D, MW-3S, MW-7S and MW-8S.

WELL ELEVATION TABLE

WELL I.D.	ELEVATIONS	
	TOP CASING	TOP PVC
GW-2D	51.61	51.10
GW-2S	51.67	50.90
GW-3D	52.72	52.30
GW-3S	52.74	52.44
GW-7S	56.39	55.87
GW-8S	55.96	55.47

NOTES:

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- VERTICAL DATUM: ASSUMED
- GW-3D & GW-3S SURVEYED NOVEMBER 17, 2016
- GW-7S AND GW-8S SURVEYED ON SEPTEMBER 25, 2019

REV: 4/7/16- GW-5D & GW-5S  
11/17/16- GW-3D & GW-3S  
9/25/19- GW-7S & GW-8S  
10/14/19- STATE PLANE DATUM

FIGURE 5: POST-REMEDIAL SAMPLE LOCATIONS

WELL ELEVATION SURVEY

21-25 31st STREET

ASTORIA, QUEENS

QUEENS COUNTY  
SCALE: 1" = 20'

NEW YORK  
MARCH 29, 2016

DONALD R. STEDGE, P.L.S.  
112 MURRAY AVENUE  
GOSHEN, NY 10924  
(845) 325-9734

JOB NO.  
1504

## **APPENDIX 1 – LIST OF SITE CONTACTS**

**Appendix 1 - Site Contacts**  
**21-25 31st Street**  
**NYSDEC BCP No. C241167**  
**Site Management Plan**

Contact Name	Email	Phone
<b>New York State Department of Environmental Conservation</b>		
Daniel McNally, Project Manager	<a href="mailto:Daniel.McNally@dec.ny.gov">Daniel.McNally@dec.ny.gov</a>	(518) 402-9767
<b>New York State Department of Health</b>		
Wendy Kuehner, Project Manager	<a href="mailto:BEEI@health.ny.gov">BEEI@health.ny.gov</a>	(518) 402-7860
<b>21-25 31st Street LLC (Site Owner)</b>		
John Petras, Project Manager	<a href="mailto:jpetras@douglastonmgmt.com">jpetras@douglastonmgmt.com</a>	(718) 229-4488 ext. 13
<b>Environmental Consultant - Tenen Environmental, L.L.C.</b>		
Matthew Carroll, PE, Remedial Engineer	<a href="mailto:mcarroll@tenen-env.com">mcarroll@tenen-env.com</a>	(212) 440-6714 (o); (917) 510-5147 (m)
Kristen Meisner, Project Manager	<a href="mailto:kmeisner@tenen-env.com">kmeisner@tenen-env.com</a>	(646) 606-2332 ext. 104

## **APPENDIX 2 – SURVEY MAP**

LEGAL DESCRIPTION - LOT 18

BOROUGH OF QUEENS, BLOCK 831, PORTION OF LOT 18

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTHEASTERLY SIDE OF 31ST STREET (FORMERLY 2ND AVENUE AND ALSO FORMERLY DEBEVOISE AVENUE) AS THE SAME IS LAID OUT ON THE FINAL SECTIONAL MAP OF THE BOROUGH OF QUEENS, 100 FEET WIDE, DISTANT 189.50 FEET SOUTHWESTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE SOUTHEASTERLY SIDE OF 31ST STREET WITH THE SOUTHWESTERLY SIDE OF 21ST AVENUE (FORMERLY WOLCOTT AVENUE);

RUNNING THENCE SOUTHEASTERLY, AT RIGHT ANGLES TO 31ST STREET, 95.02 FEET TO THE NORTHWESTERLY SIDE OF LEACH PLACE;

THENCE SOUTHWESTERLY ALONG SAID NORTHWESTERLY SIDE OF 32ND STREET (FORMERLY LEACH PLACE), 210.50 FEET;

THENCE NORTHWESTERLY AT RIGHT ANGLES TO 32ND STREET, AND AT RIGHT ANGLES TO THE SOUTHEASTERLY SIDE OF 31ST STREET 95.02 FEET TO THE SOUTHEASTERLY SIDE OF 31ST STREET;

THENCE NORTHEASTERLY ALONG THE SOUTHEASTERLY SIDE OF 31ST STREET 210.50 FEET TO THE POINT OR PLACE OF BEGINNING.

TOGETHER WITH AN EASEMENT AND RIGHT OF WAY OVER THE 15-FOOT WIDE LANE AS SET FORTH IN DEED MADE BY SUSAN R. LEACH AND THE LOUIS FRIEDMAN REALTY CO. INC., DATED DECEMBER 4, 1923 AND RECORDED DECEMBER 7, 1923 IN LIBER 2574 CP. 428.

LOT 18 AREA = 20,002 SQUARE FEET OR 0.459 ACRES.

LEGAL DESCRIPTION - PROPOSED ENVIRONMENTAL EASEMENT:

BOROUGH OF QUEENS, BLOCK 831, PORTION OF LOT 18

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTHEASTERLY SIDE OF 31ST STREET (FORMERLY 2ND AVENUE AND ALSO FORMERLY DEBEVOISE AVENUE) AS THE SAME IS LAID OUT ON THE FINAL SECTIONAL MAP OF THE BOROUGH OF QUEENS, 100 FEET WIDE, DISTANT 225.00 FEET SOUTHWESTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE SOUTHEASTERLY SIDE OF 31ST STREET WITH THE SOUTHWESTERLY SIDE OF 21ST AVENUE (FORMERLY WOLCOTT AVENUE);

RUNNING THENCE SOUTHEASTERLY, AT RIGHT ANGLES TO 31ST STREET, 95.02 FEET TO THE NORTHWESTERLY SIDE OF LEACH PLACE;

THENCE SOUTHWESTERLY ALONG SAID NORTHWESTERLY SIDE OF 32ND STREET (FORMERLY LEACH PLACE), 125.00 FEET;

THENCE NORTHWESTERLY AT RIGHT ANGLES TO 32ND STREET, AND AT RIGHT ANGLES TO THE SOUTHEASTERLY SIDE OF 31ST STREET 95.02 FEET TO THE SOUTHEASTERLY SIDE OF 31ST STREET;

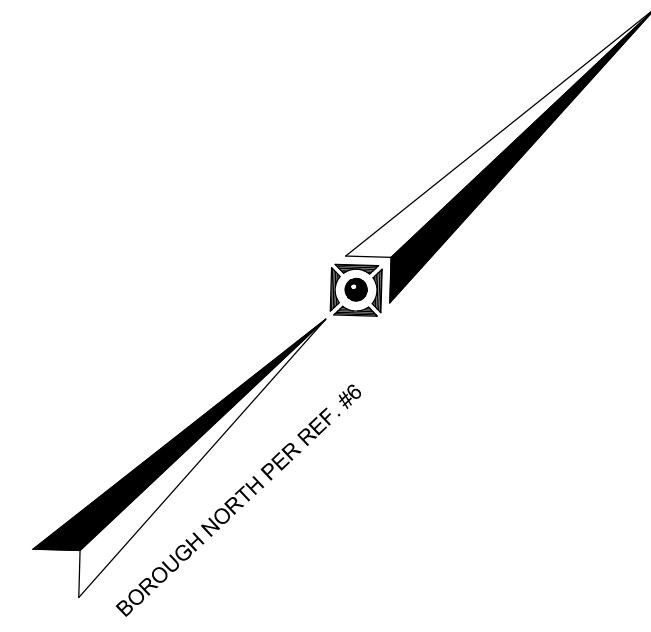
THENCE NORTHEASTERLY ALONG THE SOUTHEASTERLY SIDE OF 31ST STREET 125.00 FEET TO THE POINT OR PLACE OF BEGINNING.

TOGETHER WITH AN EASEMENT AND RIGHT OF WAY OVER THE 15-FOOT WIDE LANE AS SET FORTH IN DEED MADE BY SUSAN R. LEACH AND THE LOUIS FRIEDMAN REALTY CO. INC., DATED DECEMBER 4, 1923 AND RECORDED DECEMBER 7, 1923 IN LIBER 2574 CP. 428.

THAT BEING THE SAME AS THAT PROPERTY CONVEYED TO 20 RFC ASTORIA LLC BY DEED DATED AUGUST 6, 2018 AND RECORDED IN THE CITY REGISTER OF THE CITY OF NEW YORK AS CRFN # 2018000272159.

TOTAL EASEMENT AREA = 11,878 SQUARE FEET OR 0.273 ACRES.

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW, THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN MORE DETAIL IN THE SITE MANAGEMENT PLAN (SMP), A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT DERWEB@DEC.NY.GOV.



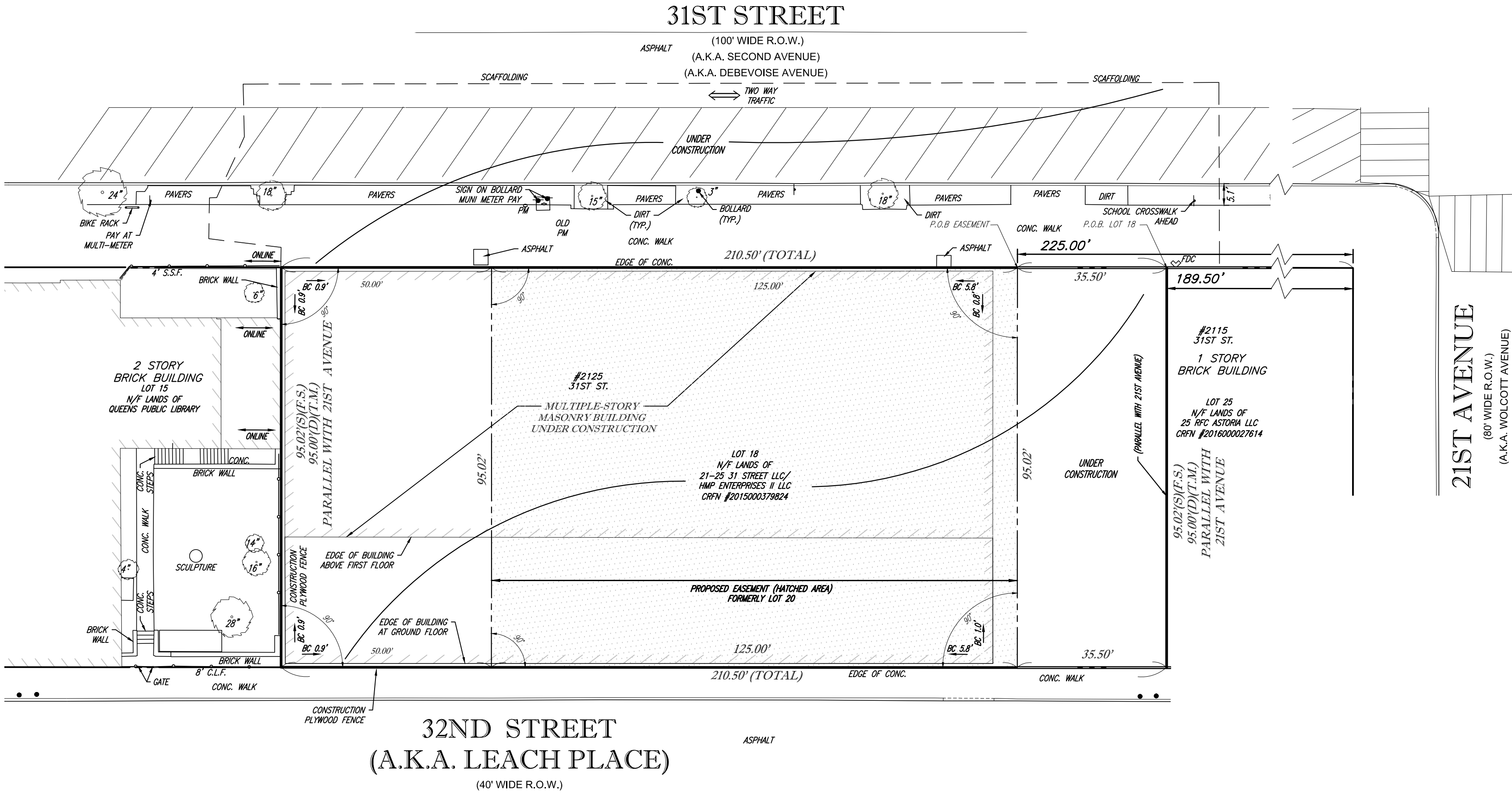
VICINITY MAP

NOTES:

- PROPERTY KNOWN AS LOT 18, BLOCK 831, AS SHOWN ON THE OFFICIAL TAX MAP OF THE BOROUGH, COUNTY OF QUEENS, CITY & STATE OF NEW YORK.
- AREA LOT 18 = 16,629 S.F. OR 0.382 AC.  
EASEMENT AREA = 11,878 S.F. OR 0.273 AC.
- THIS PLAN IS BASED ON INFORMATION PROVIDED, BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.

REFERENCES:

- THE OFFICIAL TAX ASSESSOR'S MAP OF BLOCK 831, THE BOROUGH & COUNTY OF QUEENS, CITY & STATE OF NEW YORK.
- MAP ENTITLED "SECTION 318 OF THE FINAL MAPS OF THE BOROUGH OF QUEENS", PROVIDED BY THE CITY OF NEW YORK, BOROUGH OF QUEENS, OFFICE OF THE PRESIDENT TOPOGRAPHICAL BUREAU, MAP DATED AUGUST 15, 1912.
- MAP ENTITLED "FILING SHEET GENERAL NOTES - PLOT PLAN 3120 21ST AVENUE ASTORIA NY 11105-TL 61" PREPARED BY DXA STUDIO ARCHITECTURE PLLC, SHEET A-001.00, DATED 01-10-2017.
- MAP ENTITLED "BOUNDARY & TOPOGRAPHIC SURVEY - RFC 31 STREET I LLC" PREPARED BY CONTROL POINT ASSOCIATES, DATED 2-8-2017 AND LAST REVISED 1-21-2019.



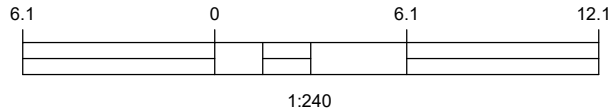
LEGEND

- (S) SURVEY DIMENSION
- (D) DEED DIMENSION
- (T.M.) TAX MAP DIMENSION
- (F.S.) FINAL SECTION MAP DIMENSION
- BC BUILDING CORNER
- 1.0' OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
- SIGN
- BOLLARD
- PM PARKING METER
- 10' DECIDUOUS TREE & TRUNK SIZE
- FDC FIRE DEPARTMENT CONNECTION
- C.L.F. CHAIN LINK FENCE
- S.S.F. STAINLESS STEEL FENCE
- DEPRESSED CURB

GRAPHIC SCALE

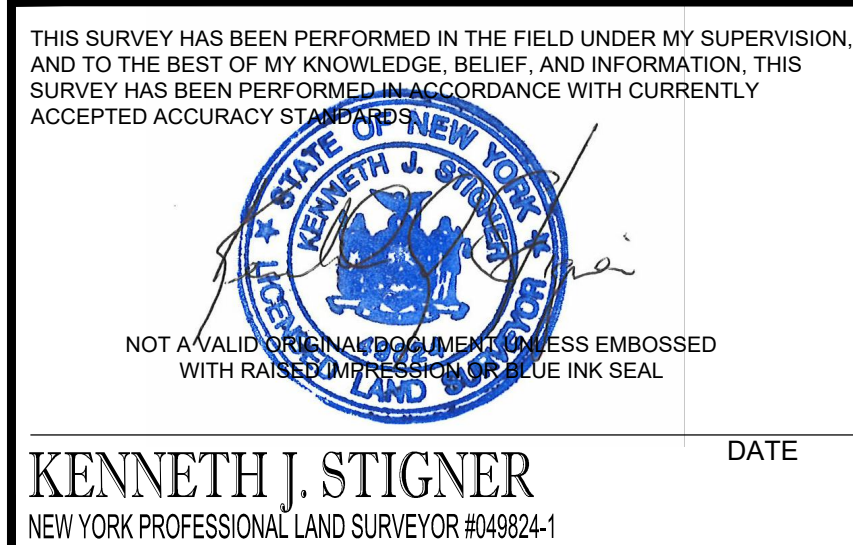


METERS



UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.



1	XX	XX	XX	XX	XX
No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED	DATE
1	7-25-2019	PROPOSED EASEMENT EXHIBIT			
2	7-25-2019	RFC 31 STREET I LLC			
3	7-25-2019	21-25 31ST STREET			
4	7-25-2019	LOTS 18 / BLOCK 831			
5	7-25-2019	BOROUGH & COUNTY OF QUEENS			
6	7-25-2019	CITY & STATE OF NEW YORK			
7	7-25-2019	CONTROL POINT ASSOCIATES INC. PC			
8	7-25-2019	14 PENN PLAZA, 225 WEST 34TH STREET			
9	7-25-2019	NEW YORK, NY 10122			
10	7-25-2019	646.780.0411 - 908.668.5595 FAX			
11	7-25-2019	WWW.CPASIURVEY.COM			
12	7-25-2019	WARREN, NJ 908.668.0090			
13	7-25-2019	CHALFONTE, PA 215.712.9900			
14	7-25-2019	MT. LAUREL, NJ 609.857.2099			
15	7-25-2019	LONG ISLAND, NY 631.580.2645			
16	7-25-2019	SOUTH BORO, NJ 908.485.3000			
17	7-25-2019	BOSTON, MA 800.668.1819			
18	7-25-2019	ALBANY, NY 518.217.5010			



## **APPENDIX 3 – ENVIRONMENTAL EASEMENT AND DEED RESTRICTION**

**ENVIRONMENTAL EASEMENT  
CHECKLIST/CERTIFICATION  
SITE No. C241167**

The following requirements and attachments must be included as part of the submission to the Department for an Environmental Easement. Upon completion of the review, an attorney must sign the checklist indicating that they have fully completed the checklist. The Department will not accept submissions which have not been signed as being accurate and complete by both the Remedial Party and Attorney. Where the property owner is not the Remedial Party, the Department also requires the Owner to sign the checklist.

**1) Special Circumstances**

The last owner search was completed and the deed transfer is by Quit Claim or other restricted transfer deed ☐ Yes ☒ No

The property in the Brownfield Cleanup Agreement includes lands under water  
☐ Yes ☒ No

The property has multiple owners ☐ Yes ☒ No

If you answered "Yes" to any of these items, contact the Department's Environmental Easement contact person for a determination as to whether further title work is necessary.

**2) Verification of ownership of the property**

- ☒ Submit documentation (such as a corporate resolution) that the signatory on the easement has authority to sign the Easement
- ☒ Ownership of the property matches the current deed.
- ☒ Verification reviewed and included for authority to sign Easement.
- ☒ Updated copies of legal organizational documents have been reviewed and are included. Examples of the appropriate documentation will include, for:
  - corporations: articles of incorporation, organizational agreements, minutes of annual meetings, resolutions, authorities for signature;
  - partnerships: a copy of the partnership agreement; verification that necessary parties are participating in the Easement;
  - trusts: trust agreement, affidavit of no change in the trust; and
  - estates: estate letters, powers of attorney.

**3) Verification of Property Subject to Easement**

- ☒ Description of the property for the Easement and DEC Agreement/Order/SAC matches description of property in the deed (Separate submittal must be included to explain to the satisfaction of the Department why there is any discrepancy).
- ☒ The Tax Map identifier (SBL) matches on all documents.

#### 4) Survey Review

- ☒ Survey includes metes and bounds description.
- ☒ Survey includes a graphic scale.
- ☒ Survey includes Tax Map Section, Block and Lot.
- ☒ Survey includes physical address and is consistent with the DEC Agreement/Order/SAC.
- ☒ The survey must bear the name, address, telephone number, signature and certification of the professional land surveyor who performed the survey, his or her official seal and registration number, the date the survey was completed, the dates of all of the surveyor's revisions.
- ☒ The survey boundaries must be drawn to a convenient scale, with that scale clearly indicated. A graphic scale, shown in feet and meters, must be included.
- ☒ The symbols and abbreviations that are used on the survey must be identified by the use of a legend.
- ☒ Diagrams must be accurately presented.
- ☒ The point of beginning of the legal description must be shown.
- ☒ The legal description must be correct.
- ☒ The legal description must state the acreage.
- ☒ If the deed(s) description differs from the measured bearings/angles/distances, both must be indicated on the survey.
- ☒ The survey must show the location of all buildings/monuments/overlaps/encroachments upon the surveyed property with their locations defined by measurement perpendicular to the nearest perimeter boundaries.
- ☒ The survey must depict the location of visible improvements within five feet of each side of boundary lines.
- ☒ The survey must show ponds, lakes, springs, rivers or a natural water boundary bordering on or running through the surveyed property; the survey must measure the location of the natural water boundary and note on the survey the date of the measurement.
- ☒ The survey must correctly depict the environmental easement area with corresponding metes & bounds description and acreage, and include the following sentence: *"This property is subject to an environmental easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law. The engineering and institutional controls for this Easement are set forth in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at [derweb@dec.ny.gov](mailto:derweb@dec.ny.gov)". This reference must be located on the face of the survey and be in at least 15-point type.*
- ☒ If the survey consists of more than one sheet, sheets must be numbered and the total number of sheets must be indicated on each sheet.



- ☒ In addition to county-specific requirements, submittal of the approved survey to the Department must include the following:
- A "D" sized copy (24" x 36") of the final signed, stamped map
  - A 600 DPI scan of the final signed, stamped map
  - An Autocad .dwg or exported .dxf file of the polyline (at a minimum) of the final survey

## **5) Submissions**

- ☒ The Environmental Easement Package being submitted to the Department includes the applicable documents set forth in Attachment A.

### **PLEASE READ THE FOLLOWING CAREFULLY**

The Remedial Party and the Remedial Party's attorney understand and acknowledge that the New York State Department of Environmental Conservation will rely on each and every answer in this statement: (1) to determine whether the Easement Package can be reviewed in a timely fashion; and (2) to determine whether the Easement Package should be approved. The Remedial Party and the Remedial Party's attorney understand and acknowledge that any false statement or misrepresentation herein will constitute cause for the revocation of the Certificate of Completion issued in reliance on this checklist and accompanying documentation. The Remedial Party and the Remedial Party's attorney further acknowledge that the failure to provide the Department with valid and enforceable Environmental Easement on the property may be grounds for the Department to revoke any Certificate of Completion for the site.

### Statement of Certification and Signatures

I have reviewed the information being submitted in relation to this Easement Package and this information, to the best of my knowledge and belief, is accurate and correct. I further acknowledge that the failure to provide the Department with valid and enforceable Environmental Easement on the property may be grounds for the Department to revoke any Certificate of Completion for the site.

1) By Remedial Party:

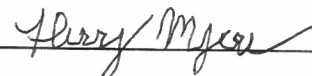
I hereby affirm that information provided on this form and its attachments is true and complete to the best of my knowledge and belief. I further acknowledge that the failure to provide the Department with valid and enforceable Environmental Easement on the property may be grounds for the Department to revoke any Certificate of Completion for the site.

Date: 8/27/2019 Signature: 

Print Name: John Petras

2) By Remedial Party's Attorney:

I hereby affirm that I am the attorney for RFC 31 Street I LLC (entity); that I am authorized by that entity to make this certification; that this certification was prepared by me or under my supervision and direction; and that information provided on this form and its attachments is true and complete to the best of my knowledge and belief.

Date: 8/27/2019 Signature: 

Print Name: Henry Myers

Attachment

## **Attachment A**

**Documents required to be sent in hard copy with electronic formats copied to the Project Manager and Project Attorney for a complete Environmental Easement package:**

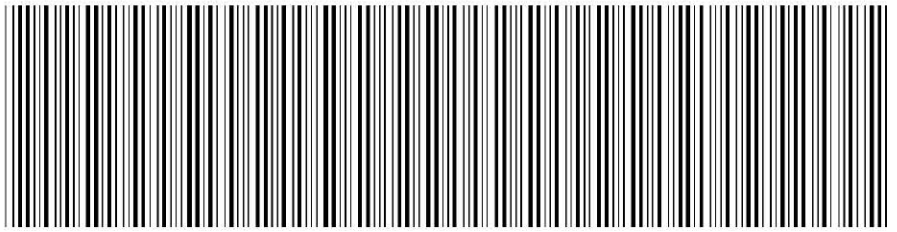
- 1) Copy(ies) of current deed(s) and supporting title documentation (see Department Title Requirements).
- 2) Copy of tax map.
- 3) Proof of authority to obligate owner of property as set forth in "Verification of ownership of property" on the Easement checklist.
- 4) Legal description of the easement area, electronic copy to be in an electronic text format (i.e., MS Word or Rich Text Format).
- 5) One full-sized, signed Survey and an electronic Survey submitted as a fully rendered PDF (not scanned).
- 6) A draft Notice to Municipality, with appropriate site-specific provisions.
- 7) Easement Checklist with certification signed by Remedial Party and Remedial Party's attorney.
- 8) Signed transfer tax forms (TP-584 or ACRIS Forms).

**Hard copy submission shall be sent to:**

Bradford Burns, Esq.  
New York State Department of Environmental Conservation  
Office of General Counsel  
625 Broadway  
Albany, NY 12233-1500

**NYC DEPARTMENT OF FINANCE  
OFFICE OF THE CITY REGISTER**

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument. The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.



2018080900702002002E21F1

**RECORDING AND ENDORSEMENT COVER PAGE**

**PAGE 1 OF 4**

**Document ID: 2018080900702002**

Document Date: 08-06-2018

Preparation Date: 08-09-2018

Document Type: DEED

Document Page Count: 3

**PRESENTER:**

SANDSTONE ABSTRACT SERVICES, LLC  
100 CROSSWAYS PARK WEST, SUITE 312  
PICK UP TO REDVISION  
WOODBURY, NY 11797  
516-490-1235  
TMACKAY@TITLEAMERICANLAND.COM

**RETURN TO:**

MEISTER SEELIG & FEIN LLP; ATTN: MATTHEW  
KASINDORF  
125 PARK AVENUE, 7TH FLOOR  
PICK UP TO REDVISION  
NEW YORK, NY 10017

**PROPERTY DATA**

Borough	Block	Lot	Unit	Address
QUEENS	831	20	Entire Lot	21-25 31ST STREET

**Property Type:** COMMERCIAL REAL ESTATE

**CROSS REFERENCE DATA**

CRFN \_\_\_\_\_ or DocumentID \_\_\_\_\_ or \_\_\_\_\_ Year \_\_\_\_\_ Reel \_\_\_\_\_ Page \_\_\_\_\_ or File Number \_\_\_\_\_

**PARTIES**

**GRANTOR/SELLER:**

20 RFC ASTORIA LLC  
42-01 235TH STREET  
DOUGLASTON, NY 11363

**GRANTEE/BUYER:**

RFC 31 STREET I LLC  
42-01 235TH STREET  
DOUGLASTON, NY 11363

**FEES AND TAXES**

**Mortgage :**

Mortgage Amount: \$ 0.00

Taxable Mortgage Amount: \$ 0.00

Exemption:

TAXES: County (Basic): \$ 0.00

City (Additional): \$ 0.00

Spec (Additional): \$ 0.00

TASF: \$ 0.00

MTA: \$ 0.00

NYCTA: \$ 0.00

Additional MRT: \$ 0.00

**TOTAL:** \$ 0.00

Recording Fee: \$ 52.00

Affidavit Fee: \$ 0.00

**Filing Fee:**

\$ 250.00

NYC Real Property Transfer Tax:

\$ 0.00

NYS Real Estate Transfer Tax:

\$ 0.00

**RECORDED OR FILED IN THE OFFICE  
OF THE CITY REGISTER OF THE**

**CITY OF NEW YORK**

Recorded/Filed 08-14-2018 13:54

City Register File No.(CRFN):

**2018000272159**



*Annette McMill*

**City Register Official Signature**

SAS 1000  
831  
20

CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT-THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY

 *effective as of August 6, 2018*  
THIS INDENTURE, made the \_\_\_\_\_ day of \_\_\_\_\_ 2018

**BETWEEN**

20 RFC Astoria, LLC having an address at 4201 235th Street, Douglastown, NY 11363

party of the first part, and

RFC 31 Street I LLC having an address at 4201 235th Street, Douglaston, NY 11363

party of the second part,

**WITNESSETH**, that the party of the first part, in consideration of

dollars

paid by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

**ALL** that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the

Borough of Queens, City, County and State of New York.

Being and intended to be the same premises as conveyed to the party of the first part by Deed dated 12/1/2016 and recorded in the City of New York Register on 12/7/2016 as CRFN 2016000431479 and as more particularly described on the attached Schedule A.

This Deed is being recorded to memorialize the merger of the party of the first part, 20 RFC Astoria, LLC into the party of the second part, RFC 31 Street I LLC.

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises to the center lines thereof; TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises; TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part covenants that the party of the first part has not done or suffered anything whereby the said premises have been encumbered in any way whatever, except as aforesaid.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose. The word "party" shall be construed as if it read "parties" when ever the sense of this indenture so requires.

**IN WITNESS WHEREOF**, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:

20 RFC ASTORIA, LLC

  
By: John Petras, Authorized Signatory



**ACKNOWLEDGEMENT TAKEN IN NEW YORK STATE**

State of New York, County of \_\_\_\_\_, ss:

On the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_, before me, the undersigned, personally appeared \_\_\_\_\_,

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

NOTARY PUBLIC

**ACKNOWLEDGEMENT BY SUBSCRIBING WITNESS TAKEN IN NEW YORK STATE**

State of New York, County of \_\_\_\_\_, ss:

On the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_, before me, the undersigned, a Notary Public in and for said State, personally appeared \_\_\_\_\_,

the subscribing witness to the foregoing instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he/she/they reside(s) in \_\_\_\_\_ (if the place of residence is in a city, include the street and street number if any, thereof); that he/she/they know(s)

to be the individual described in and who executed the foregoing instrument; that said subscribing witness was present and saw said execute the same; and that said witness at the same time subscribed his/her/their name(s) as a witness thereto.

NOTARY PUBLIC

**ACKNOWLEDGEMENT TAKEN IN NEW YORK STATE**State of New York, County of Queens, ss:

On the 29<sup>th</sup> day of June in the year 2018, before me, the undersigned, personally appeared

John Petras

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

NOTARY PUBLIC

**SHPRESA MUSTAFIC**  
 NOTARY PUBLIC, STATE OF NEW YORK  
 Registration No. 01MU6323499  
 Qualified in Suffolk County  
 Commission Expires Apr. 20, 20 19

**ACKNOWLEDGEMENT TAKEN OUTSIDE NEW YORK STATE**

State of \_\_\_\_\_, County of \_\_\_\_\_, ss:

On the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_, before me, the undersigned personally appeared \_\_\_\_\_,

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), that by his/her/their signature(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument, and that such individual make such appearance before the undersigned in the

(add the city or political subdivision and the state or country or other place the acknowledgement was taken).

NOTARY PUBLIC

**Bargain and Sale Deed  
With Covenants**

20 RFC ASTORIA LLC

TO

RFC 31 STREET I LLC

**Title No.**COUNTY: Queens

TOWN/CITY:

PROPERTY ADDRESS: 21-25 31st Street

SECTION:

BLOCK: 831LOT: 20**RETURN BY MAIL TO:**

Meister Seelig & Fein LLP  
 125 Park Avenue, 7th Floor  
 New York, NY 10017  
 Attn: Matthew E. Kasindorf, Esq.

DISTRIBUTED BY



JUDICIAL TITLE

T: 800-281-TITLE F: 800-FAX-9396

## **Schedule "A"**

### **Legal Description**

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough and County of Queens, City and State of New York, bounded and described as follows:

BEGINNING at a point the southeasterly side of 31<sup>st</sup> Street (formerly 2<sup>nd</sup> Avenue and also formerly DeBovoise Avenue) as the same is laid out on the final topographical map of the Borough of Queens, 100 feet wide, distant 225 feet southwesterly from the corner formed by the intersection of the southeasterly side of 31<sup>st</sup> Street with the southwesterly side of 21<sup>st</sup> Avenue (formerly Wolcott Avenue);

RUNNING THENCE southeasterly at right angles to 31<sup>st</sup> Street 95 feet to the northwesterly side of Leach Place;

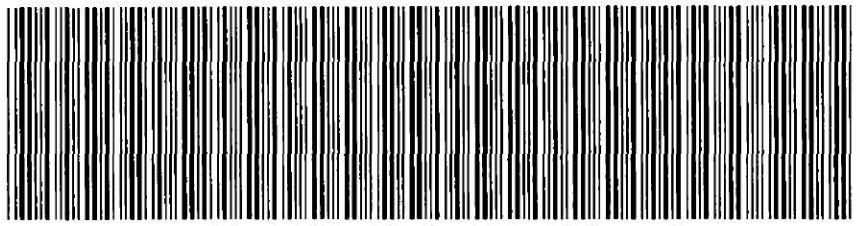
THENCE southwesterly along said northwesterly side of Leach Place, 125 feet;

THENCE northwesterly at right angles to Leach Place and at right angles to the southeasterly side of 31<sup>st</sup> Street 95 feet to the southeasterly side of 31<sup>st</sup> Street:

THENCE northeasterly along the southeasterly side of 31<sup>st</sup> Street 125 feet to the point or place of BEGINNING.

TOGETHER with an easement and right of way over the 15-foot wide lane as set forth in Deed made by Susan R. Leach and The Louis Friedman Realty Co. Inc., dated December 4, 1923 and recorded December 7, 1923 in Liber 2574 cp. 428.

**NYC DEPARTMENT OF FINANCE  
OFFICE OF THE CITY REGISTER**



**2018080900702002002SEF70**

**SUPPORTING DOCUMENT COVER PAGE**

**PAGE 1 OF 1**

**Document ID: 2018080900702002**

**Document Date: 08-06-2018**

**Preparation Date: 08-09-2018**

**Document Type: DEED**

**ASSOCIATED TAX FORM ID: 2018040300417**

**SUPPORTING DOCUMENTS SUBMITTED:**

**Page Count**

**RP - 5217 REAL PROPERTY TRANSFER REPORT**

**1**



FOR CITY USE ONLY

C1. County Code          C2. Date Deed Recorded          /          /           
 Month Day Year

C3. Book          OR C4. Page           
 C5. CRFN         



## REAL PROPERTY TRANSFER REPORT

 STATE OF NEW YORK  
 STATE BOARD OF REAL PROPERTY SERVICES

RP - 5217NYC

## PROPERTY INFORMATION

1. Property Location 21-25 31ST STREET QUEENS 11105  
 STREET NUMBER STREET NAME BOROUGH ZIP CODE

2. Buyer Name RFC 31 STREET I LLC  
 LAST NAME / COMPANY FIRST NAME

3. Tax Billing Address                                                        
 LAST NAME / COMPANY FIRST NAME

                                                       
 STREET NUMBER AND STREET NAME CITY OR TOWN STATE ZIP CODE

4. Indicate the number of Assessment Roll parcels transferred on the deed 1 # of Parcels OR ☐ Part of a Parcel

4A. Planning Board Approval - N/A for NYC  
 4B. Agricultural District Notice - N/A for NYC

5. Deed Property Size          X          OR          ACRES  
 FRONT FEET DEPTH

Check the boxes below as they apply:

6. Ownership Type is Condominium ☐  
 7. New Construction on Vacant Land ☐

8. Seller Name 20 RFC ASTORIA LLC  
 LAST NAME / COMPANY FIRST NAME

                   
 LAST NAME / COMPANY FIRST NAME

9. Check the box below which most accurately describes the use of the property at the time of sale:

A ☐ One Family Residential C ☐ Residential Vacant Land E ☒ Commercial G ☐ Entertainment / Amusement I ☐ Industrial  
 B ☐ 2 or 3 Family Residential D ☐ Non-Residential Vacant Land F ☐ Apartment H ☐ Community Service J ☐ Public Service

## SALE INFORMATION

10. Sale Contract Date 6 / 27 / 2018  
 Month Day Year

11. Date of Sale / Transfer 8 / 6 / 2018  
 Month Day Year

12. Full Sale Price \$                                              0  
 ( Full Sale Price is the total amount paid for the property including personal property. This payment may be in the form of cash, other property or goods, or the assumption of mortgages or other obligations. ) Please round to the nearest whole dollar amount.

13. Indicate the value of personal property included in the sale                                                      

14. Check one or more of these conditions as applicable to transfer:

A ☐ Sale Between Relatives or Former Relatives  
 B ☐ Sale Between Related Companies or Partners in Business  
 C ☐ One of the Buyers is also a Seller  
 D ☐ Buyer or Seller is Government Agency or Lending Institution  
 E ☐ Deed Type not Warranty or Bargain and Sale ( Specify Below )  
 F ☐ Sale of Fractional or Less than Fee Interest ( Specify Below )  
 G ☐ Significant Change in Property Between Taxable Status and Sale Dates  
 H ☐ Sale of Business is Included in Sale Price  
 I ☐ Other Unusual Factors Affecting Sale Price ( Specify Below )  
 J ☒ None

## ASSESSMENT INFORMATION - Data should reflect the latest Final Assessment Roll and Tax Bill

15. Building Class K 1 16. Total Assessed Value (of all parcels in transfer) 1 3 6 6 6 5 0

17. Borough, Block and Lot / Roll Identifier(s) ( If more than three, attach sheet with additional Identifier(s) )

QUEENS 831 20

201804030041720104

**CERTIFICATION**

I certify that all of the items of information entered on this form are true and correct (to the best of my knowledge and belief) and understand that the making of any willful false statement of material fact herein will subject me to the provisions of the penal law relative to the making and filing of false instruments.

<b>BUYER</b> RFL 31 STREET 1 LLC			<b>BUYER'S ATTORNEY</b>	
<b>BUYER SIGNATURE</b> 42-01 235TH STREET		<b>DATE</b> 6/29/18	<b>LAST NAME</b>	<b>FIRST NAME</b>
<b>STREET NUMBER</b> DOUGLASTON		<b>STREET NAME (AFTER SALE)</b>	<b>AREA CODE</b>	<b>TELEPHONE NUMBER</b>
<b>CITY OR TOWN</b>	<b>STATE</b> NY	<b>ZIP CODE</b> 11363	<b>SELLER</b> 20 RFL ASTORIA, LLC	
			<b>SELLER SIGNATURE</b> By: John Petras, Authorized Signatory	<b>DATE</b> 6/29/18

**AFFIDAVIT OF COMPLIANCE  
WITH SMOKE DETECTOR REQUIREMENT  
FOR ONE- AND TWO-FAMILY DWELLINGS**

State of New York }  
County of Queens } SS.:



The undersigned, being duly sworn, depose and say under penalty of perjury that they are the grantor and grantee of the real property or of the cooperative shares in a cooperative corporation owning real property located at

21-25 31ST STREET

Street Address Unit/Apt.

QUEENS

Borough

New York,

831

Block

20

Lot

(the "Premises");

That the Premises is a one or two family dwelling, or a cooperative apartment or condominium unit in a one- or two-family dwelling, and that installed in the Premises is an approved and operational smoke detecting device in compliance with the provisions of Article 6 of Subchapter 17 of Chapter 1 of Title 27 of the Administrative Code of the City of New York concerning smoke detecting devices;

That they make affidavit in compliance with New York City Administrative Code Section 11-2105 (g). (The signatures of at least one grantor and one grantee are required, and must be notarized).

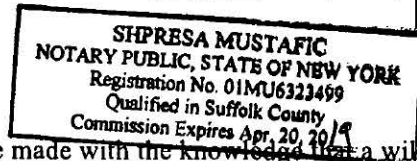
20 RFC ASTORIA, LLC

Name of Grantor (Type or Print)

Signature of Grantor

By: John Petras, Authorized Signatory

Sworn to before me S. Mustafic  
this 29<sup>th</sup> day of June 2018



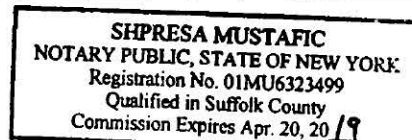
RFC 31 STREET 1 LLC

Name of Grantee (Type or Print)

Signature of Grantee

By: John Petras, Authorized Signatory

Sworn to before me S. Mustafic  
this 29<sup>th</sup> day of June 2018



These statements are made with the knowledge that a willfully false representation is unlawful and is punishable as a crime of perjury under Article 210 of the Penal Law.

**NEW YORK CITY REAL PROPERTY TRANSFER TAX RETURNS FILED ON OR AFTER FEBRUARY 6th, 1990, WITH RESPECT TO THE CONVEYANCE OF A ONE- OR TWO-FAMILY DWELLING, OR A COOPERATIVE APARTMENT OR A CONDOMINIUM UNIT IN A ONE- OR TWO-FAMILY DWELLING, WILL NOT BE ACCEPTED FOR FILING UNLESS ACCOMPANIED BY THIS AFFIDAVIT.**

2018040300417101



The City of New York  
Department of Environmental Protection  
Bureau of Customer Services  
59-17 Junction Boulevard  
Flushing, NY 11373-5108

## Customer Registration Form for Water and Sewer Billing

### Property and Owner Information:

- (1) Property receiving service: BOROUGH: QUEENS BLOCK: 831 LOT: 20
- (2) Property Address: 21-25 31ST STREET, QUEENS, NY 11105
- (3) Owner's Name: RFC 31 STREET I LLC
- Additional Name:

### Affirmation:



Your water & sewer bills will be sent to the property address shown above.

### Customer Billing Information:

#### Please Note:

- A. Water and sewer charges are the legal responsibility of the owner of a property receiving water and/or sewer service. The owner's responsibility to pay such charges is not affected by any lease, license or other arrangement, or any assignment of responsibility for payment of such charges. Water and sewer charges constitute a lien on the property until paid. In addition to legal action against the owner, a failure to pay such charges when due may result in foreclosure of the lien by the City of New York, the property being placed in a lien sale by the City or Service Termination.
- B. Original bills for water and/or sewer service will be mailed to the owner, **at the property address or to an alternate mailing address**. DEP will provide a duplicate copy of bills to one other party (such as a managing agent), however, any failure or delay by DEP in providing duplicate copies of bills shall in no way relieve the owner from his/her liability to pay all outstanding water and sewer charges. Contact DEP at (718) 595-7000 during business hours or visit [www.nyc.gov/dep](http://www.nyc.gov/dep) to provide us with the other party's information.

### Owner's Approval:

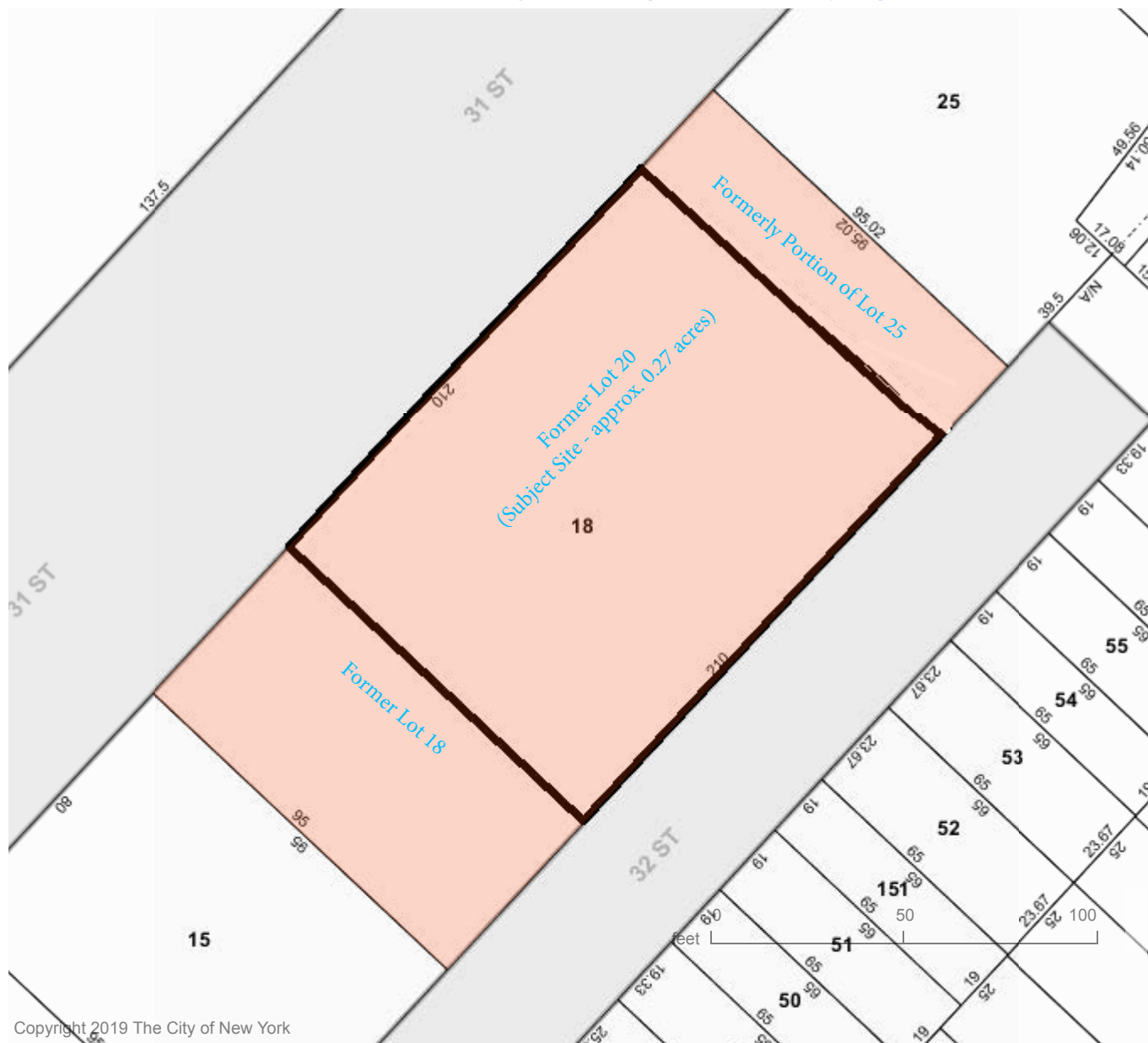
The undersigned certifies that he/she/it is the owner of the property receiving service referenced above; that he/she/it has read and understands Paragraphs A & B under the section captioned "Customer Billing Information"; and that the information supplied by the undersigned on this form is true and complete to the best of his/her/its knowledge.

Print Name of Owner

Signature: \_\_\_\_\_

Date (mm/dd/yyyy) 6/29/18

Name and Title of Person Signing for Owner, if applicable: by: John Petras, Authorized Signatory

**Block 831, Lot 18 - Digital Tax Map - New York City Dept. of Finance (7/2/2019)**

<b>---</b> Borough Boundary	<b>C50</b> Condo Flag/Condo Number
<b>---</b> Tax Block Boundary	<b>A50</b> Air Right Flag/Lot Number
<b>50</b> Tax Block Number	<b>S50</b> Subterranean Right Flag/Lot Number
<b>---</b> Tax Lot Boundary	<b>R</b> REUC Flag
<b>50</b> Tax Lot Number	<b>----</b> Under Water Tax Lot Boundary
<b>-50-</b> Condo FKA Tax Lot Number	<b>----</b> Other Boundary
<b>50.5</b> Tax Lot Dimension	<b>└</b> Possession Hook
<b>+/-5.5</b> Approximate Tax Lot Dimension	<b>Misc</b> Miscellaneous Text
<b>1500 - 1550</b> Condo Units Range Label	<b>○</b> Small Tax Lot Dimension
<b>■</b> Building Footprint	<b>■</b> Surface Water

**RESOLUTION ADOPTED BY  
RFC 31 STREET I LLC**

The undersigned hereby certifies that he is an authorized signatory of RFC 31 Street I LLC, a New York limited liability company (the “**Company**”), and further certifies as follows:

**WHEREAS**, the Company is the current fee owner of the property located at 21-25 31<sup>st</sup> Street, Astoria, New York (the “**Property**”); and

**WHEREAS**, 21-25 31 Street LLC applied to be admitted as a Volunteer in the New York State Brownfield Cleanup Program (“**BCP**”) in connection with Property; and

**WHEREAS**, the New York State Department of Environmental Conservation (“**DEC**”) determined that the Property was eligible to participate in the BCP and that 21-25 31 Street LLC is participating as a Volunteer as defined in Environmental Conservation Law §27-1405(I)(b); and

**WHEREAS**, 21-25 31 Street LLC and DEC executed a Brownfield Site Cleanup Agreement, Site No. C241167 (the “**BCA**”) dated March 10, 2015; and

**WHEREAS**, 21-25 31 Street LLC transferred its interest in the Property to 20 RFC Astoria, LLC; and

**WHEREAS**, 20 RFC Astoria, LLC subsequently transferred its interest in the Property to the Company; and

**WHEREAS**, RFC 31 Street Holdings, LLC is the sole member of the Company; and

**WHEREAS**, RFC 31 Street Holdings, LLC has authorized the undersigned to act on behalf of the Company and take all measures necessary to fulfill the obligations under the BCA and the BCP; and

**WHEREAS**, the Company deems it advisable and in the best interests of the Company to amend the BCA to add the Company and RFC 31 Street Holdings, LLC, as co-applicants with 21-25 31 Street LLC and to authorize and approve the execution and delivery of a BCP Application to Amend Brownfield Cleanup Agreement and Amendment.

**NOW, THEREFORE, BE IT RESOLVED**, that the undersigned is authorized to execute the BCP Application to Amend Brownfield Cleanup Agreement and Amendment on behalf of the Company to add the Company, 20 RFC Astoria, LLC and RFC 31 Street Holdings, LLC as co-applicants and to undertake all measures necessary to fulfill the obligations under the BCA and the BCP, including the execution of documents

granting an easement to DEC over the Property and any portion thereof (the "**Consent**"); and it is further

**RESOLVED**, that a facsimile copy of a signature shall be deemed an original signature under this Consent.

**IN WITNESS WHEREOF**, the undersigned has executed this written Consent in the capacity noted below as-of this 26 day of August 2019.

**RFC 31 STREET I LLC**

By: 

Name: John C. Petras

Title: Authorized Signatory



## **Legal Description of Environmental Easement Area**

BOROUGH OF QUEENS, BLOCK 831, PORTION OF LOT 18

ALL that certain plot, piece or parcel of land, situate, lying and being in the Borough and County of Queens, City and State of New York, bounded and described as follows:

BEGINNING at a point the southeasterly side of 31<sup>st</sup> Street (formerly 2<sup>nd</sup> Avenue and also formerly DeBovoise Avenue) as the same is laid out on the final topographical map of the Borough of Queens, 100 feet wide, distant 225 feet southwesterly from the corner formed by the intersection of the southeasterly side of 31<sup>st</sup> Street with the southwesterly side of 21<sup>st</sup> Avenue (formerly Wolcott Avenue);

RUNNING THENCE southeasterly at right angles to 31<sup>st</sup> Street 95 feet to the northwesterly side of Leach Place;

THENCE southwesterly along said northwesterly side of Leach Place, 125 feet;

THENCE northwesterly at right angles to Leach Place and at right angles to the southeasterly side of 31<sup>st</sup> Street 95 feet to the southeasterly side of 31<sup>st</sup> Street:

THENCE northeasterly along the southeasterly side of 31<sup>st</sup> Street 125 feet to the point or place of BEGINNING.

TOGETHER with an easement and right of way over the 15-foot wide lane as set forth in Deed made by Susan R. Leach and The Louis Friedman Realty Co. Inc., dated December 4, 1923 and recorded December 7, 1923 in Liber 2574 cp. 428.

THAT BEING THE SAME as that property conveyed to 20 RFC Astoria LLC by deed dated August 6, 2018 and recorded in the City Register of the City of New York as CRFN # 2018000272159.



LEGAL DESCRIPTION - LOT 18

BOROUGH OF QUEENS, BLOCK 831, PORTION OF LOT 18

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTHEASTERLY SIDE OF 31ST STREET (FORMERLY 2ND AVENUE AND ALSO FORMERLY DEBEVOISE AVENUE) AS THE SAME IS LAID OUT ON THE FINAL SECTIONAL MAP OF THE BOROUGH OF QUEENS, 100 FEET WIDE, DISTANT 189.50 FEET SOUTHWESTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE SOUTHEASTERLY SIDE OF 31ST STREET WITH THE SOUTHWESTERLY SIDE OF 21ST AVENUE (FORMERLY WOLCOTT AVENUE);

RUNNING THENCE SOUTHEASTERLY, AT RIGHT ANGLES TO 31ST STREET, 95.02 FEET TO THE NORTHWESTERLY SIDE OF LEACH PLACE;

THENCE SOUTHWESTERLY ALONG SAID NORTHWESTERLY SIDE OF 32ND STREET (FORMERLY LEACH PLACE), 210.50 FEET;

THENCE NORTHWESTERLY AT RIGHT ANGLES TO 32ND STREET, AND AT RIGHT ANGLES TO THE SOUTHEASTERLY SIDE OF 31ST STREET 95.02 FEET TO THE SOUTHEASTERLY SIDE OF 31ST STREET;

THENCE NORTHEASTERLY ALONG THE SOUTHEASTERLY SIDE OF 31ST STREET 210.50 FEET TO THE POINT OR PLACE OF BEGINNING.

TOGETHER WITH AN EASEMENT AND RIGHT OF WAY OVER THE 15-FOOT WIDE LANE AS SET FORTH IN DEED MADE BY SUSAN R. LEACH AND THE LOUIS FRIEDMAN REALTY CO. INC., DATED DECEMBER 4, 1923 AND RECORDED DECEMBER 7, 1923 IN LIBER 2574 CP. 428.

LOT 18 AREA = 20,002 SQUARE FEET OR 0.459 ACRES.

LEGAL DESCRIPTION - PROPOSED ENVIRONMENTAL EASEMENT:

BOROUGH OF QUEENS, BLOCK 831, PORTION OF LOT 18

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTHEASTERLY SIDE OF 31ST STREET (FORMERLY 2ND AVENUE AND ALSO FORMERLY DEBEVOISE AVENUE) AS THE SAME IS LAID OUT ON THE FINAL SECTIONAL MAP OF THE BOROUGH OF QUEENS, 100 FEET WIDE, DISTANT 225.00 FEET SOUTHWESTERLY FROM THE CORNER FORMED BY THE INTERSECTION OF THE SOUTHEASTERLY SIDE OF 31ST STREET WITH THE SOUTHWESTERLY SIDE OF 21ST AVENUE (FORMERLY WOLCOTT AVENUE);

RUNNING THENCE SOUTHEASTERLY, AT RIGHT ANGLES TO 31ST STREET, 95.02 FEET TO THE NORTHWESTERLY SIDE OF LEACH PLACE;

THENCE SOUTHWESTERLY ALONG SAID NORTHWESTERLY SIDE OF 32ND STREET (FORMERLY LEACH PLACE), 125.00 FEET;

THENCE NORTHWESTERLY AT RIGHT ANGLES TO 32ND STREET, AND AT RIGHT ANGLES TO THE SOUTHEASTERLY SIDE OF 31ST STREET 95.02 FEET TO THE SOUTHEASTERLY SIDE OF 31ST STREET;

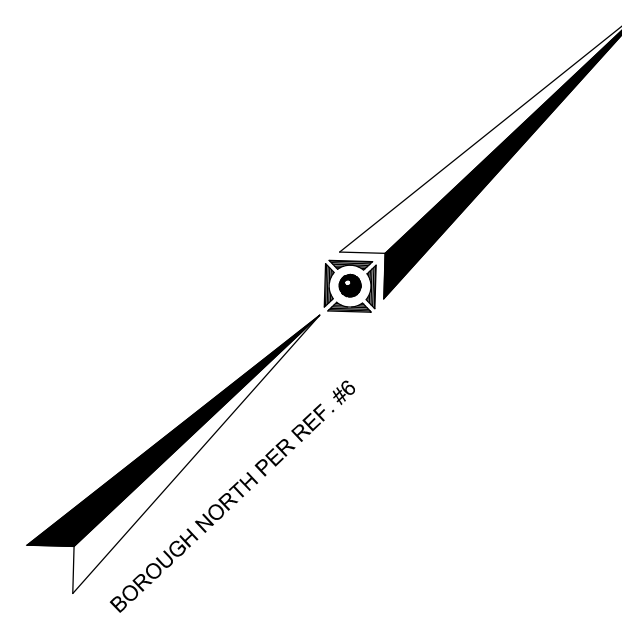
THENCE NORTHEASTERLY ALONG THE SOUTHEASTERLY SIDE OF 31ST STREET 125.00 FEET TO THE POINT OR PLACE OF BEGINNING.

TOGETHER WITH AN EASEMENT AND RIGHT OF WAY OVER THE 15-FOOT WIDE LANE AS SET FORTH IN DEED MADE BY SUSAN R. LEACH AND THE LOUIS FRIEDMAN REALTY CO. INC., DATED DECEMBER 4, 1923 AND RECORDED DECEMBER 7, 1923 IN LIBER 2574 CP. 428.

THAT BEING THE SAME AS THAT PROPERTY CONVEYED TO 20 RFC ASTORIA LLC BY DEED DATED AUGUST 6, 2018 AND RECORDED IN THE CITY REGISTER OF THE CITY OF NEW YORK AS CRFN # 2018000272159.

TOTAL EASEMENT AREA = 11,878 SQUARE FEET OR 0.273 ACRES.

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW, THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN MORE DETAIL IN THE SITE MANAGEMENT PLAN (SMP), A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT DERWEB@DEC.NY.GOV.



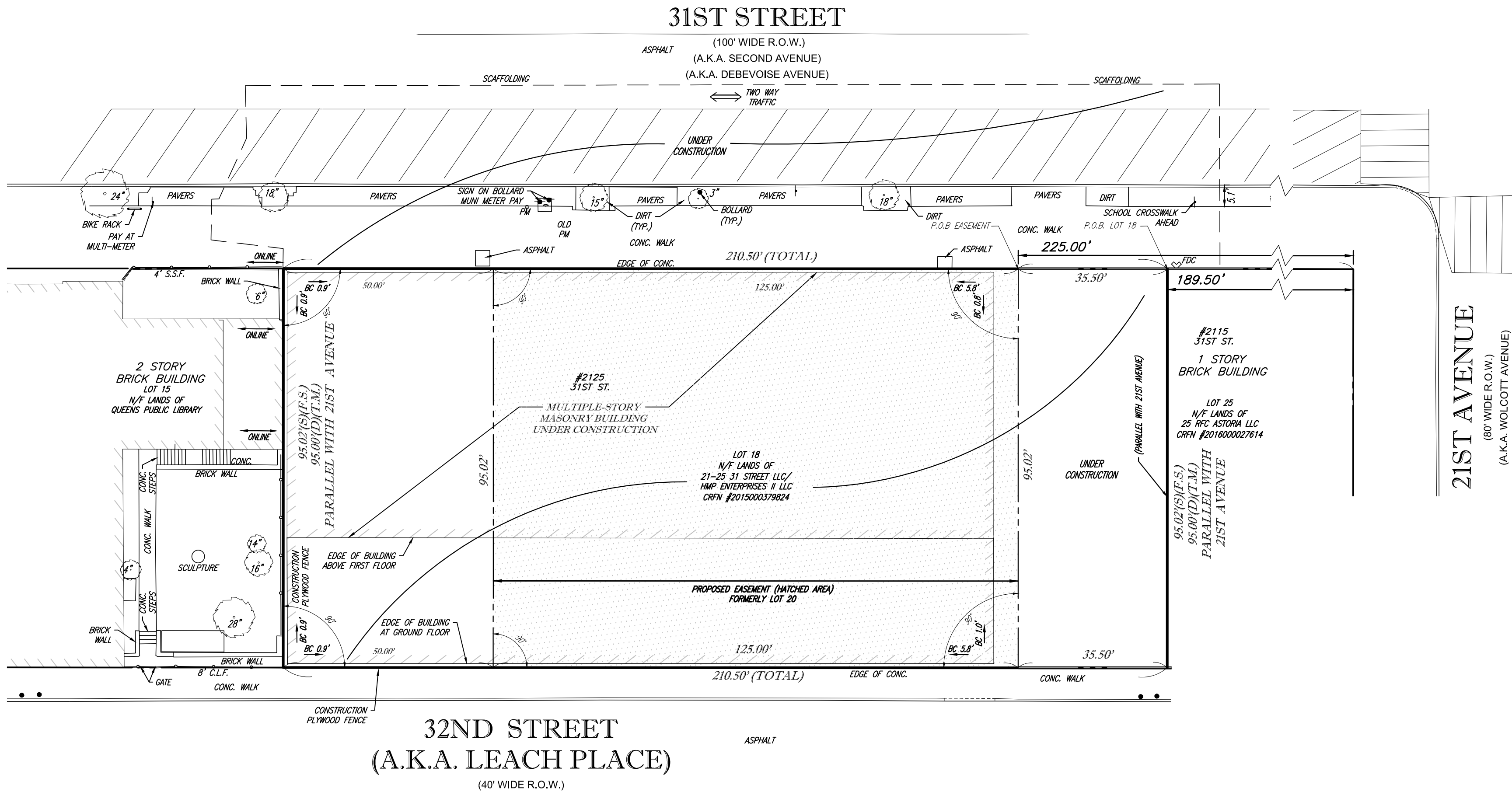
VICINITY MAP

NOTES:

- PROPERTY KNOWN AS LOT 18, BLOCK 831, AS SHOWN ON THE OFFICIAL TAX MAP OF THE BOROUGH, COUNTY OF QUEENS, CITY & STATE OF NEW YORK.
- AREA LOT 18 = 16,629 S.F. OR 0.382 AC.  
EASEMENT AREA = 11,878 S.F. OR 0.273 AC.
- THIS PLAN IS BASED ON INFORMATION PROVIDED, BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.

REFERENCES:

- THE OFFICIAL TAX ASSESSOR'S MAP OF BLOCK 831, THE BOROUGH & COUNTY OF QUEENS, CITY & STATE OF NEW YORK.
- MAP ENTITLED "SECTION 318 OF THE FINAL MAPS OF THE BOROUGH OF QUEENS", PROVIDED BY THE CITY OF NEW YORK, BOROUGH OF QUEENS, OFFICE OF THE PRESIDENT TOPOGRAPHICAL BUREAU, MAP DATED AUGUST 15, 1912.
- MAP ENTITLED "FILING SHEET GENERAL NOTES - PLOT PLAN 3120 21ST AVENUE ASTORIA NY 11105-TL 61" PREPARED BY DXA STUDIO ARCHITECTURE PLLC, SHEET A-001.00, DATED 01-10-2017.
- MAP ENTITLED "BOUNDARY & TOPOGRAPHIC SURVEY - RFC 31 STREET I LLC" PREPARED BY CONTROL POINT ASSOCIATES, DATED 2-8-2017 AND LAST REVISED 1-21-2019.



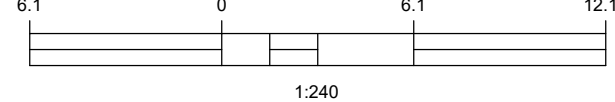
LEGEND

- (S) SURVEY DIMENSION
- (D) DEED DIMENSION
- (T.M.) TAX MAP DIMENSION
- (F.S.) FINAL SECTION MAP DIMENSION
- BC BUILDING CORNER
- 1.0' OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
- SIGN
- BOLLARD
- PM PARKING METER
- 10' DECIDUOUS TREE & TRUNK SIZE
- FDC FIRE DEPARTMENT CONNECTION
- C.L.F. CHAIN LINK FENCE
- S.S.F. STAINLESS STEEL FENCE
- DEPRESSED CURB

GRAPHIC SCALE

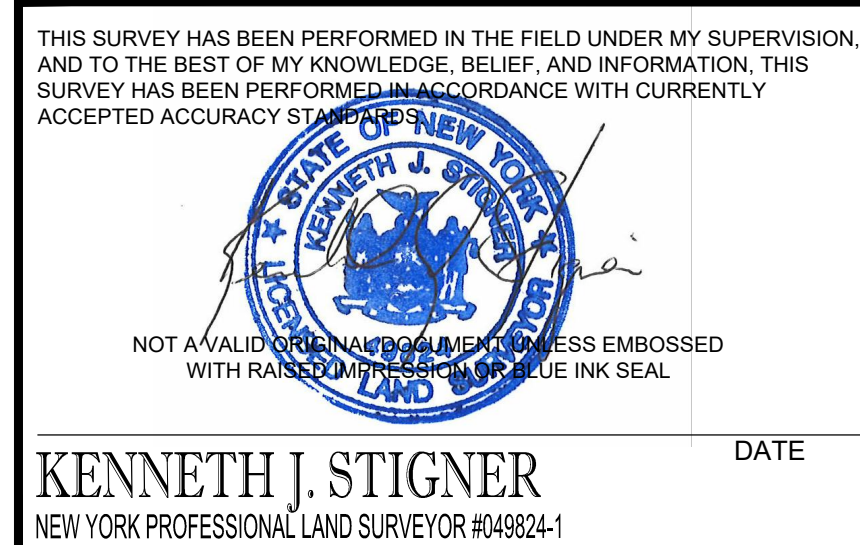


METERS



UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.



1	XX	XX	XX	XX	XX
No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED	DATE
1	7-25-2019	PROPOSED EASEMENT EXHIBIT			
2	7-25-2019	RFC 31 STREET I LLC			
3	7-25-2019	21-25 31ST STREET			
4	7-25-2019	LOTS 18 / BLOCK 831			
5	7-25-2019	BOROUGH & COUNTY OF QUEENS			
6	7-25-2019	CITY & STATE OF NEW YORK			
7	7-25-2019	CONTROL POINT ASSOCIATES INC. PC			
8	7-25-2019	14 PENN PLAZA, 225 WEST 34TH STREET			
9	7-25-2019	NEW YORK, NY 10122			
10	7-25-2019	646.780.0411 - 908.668.5595 FAX			
11	7-25-2019	WWW.CPASIURVEY.COM			
12	7-25-2019	WARREN, NJ 908.668.0090			
13	7-25-2019	CHALFONTE, PA 215.712.9900			
14	7-25-2019	MT. LAUREL, NJ 609.857.2099			
15	7-25-2019	LONG ISLAND, NY 631.580.2645			
16	7-25-2019	SOUTH BORO, MA 508.685.3000			
17	7-25-2019	BOSTON, MA 800.668.1819			
18	7-25-2019	ALBANY, NY 518.217.5010			


## **APPENDIX 4 – MONITORING WELL BORING AND CONSTRUCTION LOGS**

TENEN ENVIRONMENTAL				Boring No. GW2D	
				Sheet: 1 OF 4	
Site: 21-25 31st St, NY, NY				Drilling Method: Hollow Stem Auger	
Weather: 50°F, sunny				Driller: ADT	
Date: 3/1/16				Soil Sampling Method: Acetate Liner	
Observers: M. Ahmed, M. Acceturi					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
1	0.0		0-1': Fill (black silty sand, brick fragments)		
2					
3			2'-5': Fill (tan to brown silty sand with gravel, brick fragments)		
4					
5					
6	0.0	GW2D (8-10)	5'-6': SAA		
7					
8			6'-10': Till, coarse grain sand and gravel, plenty of cobbles		
9					
10					
11	11.3		10'-15': Till, plenty of cobbles, coarse grain sand and gravel		
12					
13					
14					
15					
16	1.4		15'-20': SAA		
17					
18					
19	5.1				
20					

TENEN ENVIRONMENTAL				Boring No. GW2D	
				Sheet: 2 OF 4	
Site: 21-25 31st St, NY, NY				Drilling Method: Hollow Stem Auger	
Weather: 50°F, sunny				Driller: ADT	
Date: 3/1/16				Soil Sampling Method: Acetate Liner	
Observers: M. Ahmed, M. Acceturi					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
21	0.0		20'-21': Collapse		
22			21'-24': Coarse grain sand and gravel		
23					
24					
25			24'-25': Till, cobbles, coarse grain sand and gravel		
26	0.0		25'-30': Till, plenty of cobbles, coarse grain sand and gravel		
27					
28					
29					
30	1.1				
31	0.0		30'-35': SAA		
32					
33					
34					
35					
36	87.1	GW2D (38-39)	35'-40': Coarse grain sand and gravel, some cobbles, strong petroleum odor		
37					
38					
39					
40	153		39': Wet		

TENEN ENVIRONMENTAL				Boring No. GW2D	
				Sheet: 3 OF 4	
Site: 21-25 31st St, NY, NY				Drilling Method: Hollow Stem Auger	
Weather: 50°F, sunny				Driller: ADT	
Date: 3/1/16				Soil Sampling Method: Acetate Liner	
Observers: M. Ahmed, M. Acceturi					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
41	1.7		40'-45': Coarse grain sand and gravel, some cobbles		
42					
43					
44	2.5	GW2D (43-45) MS/MSD			
45					
46	1.5		45'-50': SAA		
47					
48					
49	9.7				
50					
51	5.7		50'-55': Medium to coarse grain sand with some gravel		
52					
53					
54	9.7				
55					
56	5.2		55'-60': Coarse grain sand and gravel		
57					
58					
59	8.4				
60					



				<b>Boring No.</b> GW2D <b>Sheet:</b> 4 OF 4		
<b>Site:</b> 21-25 31st St, NY, NY				<b>Drilling Method:</b> Hollow Stem Auger		
<b>Weather:</b> 50°F, sunny				<b>Driller:</b> ADT		
<b>Date:</b> 3/1/16				<b>Soil Sampling Method:</b> Acetate Liner		
<b>Observers:</b> M. Ahmed, M. Acceturi						
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description			
61			N/A			
62						
63						
64						
65						
66			N/A			
67						
68						
69						
70						
71	4.4	GW2D (70-72MS) & GW2D(70-72MSD)	70'-74': Coarse grain sand and gravel			
72						
73	1.4	GW2D (73-75)	74'-75': Sandy silt			
74						
75						
76	0.0	GW2D (75-77)	75'-80': Dense brownish gray clay			
77						
78						
79						
80			EOB			
<b>Notes:</b> PID - Photoionization Detector      EOB - End of Boring      SAA - Same as above      GW = Groundwater N/A - Not Applicable      ft-bg - Feet Below Grade      DTW = Depth to Water						


## MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)																																			
<b>Project:</b> 21-25 31st St <b>Field Geologist:</b> Mohamed Ahmed <b>Driller:</b> ADT <b>Drilling Method:</b> Hollow Stem Auger <b>Development Method:</b> Whale Pump <b>Sump Installed? (Y/N)</b> N <b>Sump Length (Ft):</b>	<b>Well Number: MW-2S</b> <b>Date Started:</b> 3/1/16 <b>Date Completed:</b> 3/1/16 <b>Elevation Datum:</b> <b>Weather:</b> Sunny, high 50s F <b>Boring Number:</b> GW2D																																		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Concrete</td></tr> <tr><td>NA</td></tr> <tr><td>Concrete</td></tr> <tr><td>NA</td></tr> <tr><td>NA</td></tr> <tr><td>0</td></tr> <tr><td>NA</td></tr> <tr><td>4.5</td></tr> <tr><td>Manhole cover</td></tr> <tr><td>0.5</td></tr> <tr><td>2</td></tr> <tr><td>Schedule 40 PVC</td></tr> <tr><td>4</td></tr> <tr><td>Native Soil</td></tr> <tr><td>N</td></tr> <tr><td>NA</td></tr> <tr><td>NA</td></tr> <tr><td>NA</td></tr> <tr><td></td></tr> <tr><td>30</td></tr> <tr><td>32</td></tr> <tr><td>NA</td></tr> <tr><td>Schedule 40 PVC</td></tr> <tr><td>2</td></tr> <tr><td>0.02</td></tr> <tr><td>10</td></tr> <tr><td>Sand</td></tr> <tr><td>N</td></tr> <tr><td>43</td></tr> <tr><td>45</td></tr> <tr><td></td></tr> <tr><td>NA</td></tr> <tr><td>45</td></tr> <tr><td></td></tr> </table>	Concrete	NA	Concrete	NA	NA	0	NA	4.5	Manhole cover	0.5	2	Schedule 40 PVC	4	Native Soil	N	NA	NA	NA		30	32	NA	Schedule 40 PVC	2	0.02	10	Sand	N	43	45		NA	45	
Concrete																																			
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Manhole cover																																			
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Schedule 40 PVC																																			
4																																			
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Sand																																			
N																																			
43																																			
45																																			
NA																																			
45																																			
<b>Comments:</b>																																			

## MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)		
<b>Project:</b> 21-25 31st St <b>Field Geologist:</b> Mohamed Ahmed <b>Driller:</b> ADT <b>Drilling Method:</b> Hollow Stem Auger <b>Development Method:</b> Whale Pump <b>Sump Installed? (Y/N)</b> N <b>Sump Length (Ft):</b>	<b>Well Number: MW-2D</b> <b>Date Started:</b> 3/1/16 <b>Date Completed:</b> 3/1/16 <b>Elevation Datum:</b> <b>Weather:</b> Sunny, high 50s F <b>Boring Number:</b> GW2D	
	Ground Surface	Concrete
	Elevation of Top of Surface Casing	NA
	Type of Surface Plug	Concrete
	Depth of Surface Plug (ft-bgs)	NA
	Diameter of Surface Plug (ft)	NA
	Riser Pipe	
	Depth of Top of Riser Pipe (ft-bg)	0
	Elevation of Top of Riser Pipe	NA
	I.D. of Surface Casing (in)	4.5
	Type of Surface Casing	Manhole cover
	Depth of Surface Casing (ft-bg)	0.5
	I.D. of Riser (in)	2
	Type of Riser	Schedule 40 PVC
	Borehole Diameter (in)	4
	Type of Backfill	Native Soil
	Backfill - Tremied? (Y/N)	N
	Depth of Top of Seal (ft-bg)	NA
	Elevation of Top of Seal	NA
	Type of Seal	NA
	Seal - Tremied? (Y/N)	
	Depth of Top of Filter Pack (ft-bg)	68
	Depth of Top of Screen (ft-bg)	70
	Elevation of Top of Screen	NA
	Type of Screen	Schedule 40 PVC
	I.D. of Screen (in)	2
Slot Size of Screen (in)	0.02	
Length of Screen (ft)	5	
Type of Filter Pack	Sand	
Filter Pack - Tremied? (Y/N)	N	
Depth of Bottom of Screen (ft-bg)	75	
Depth of Bottom of Filter Pack (ft-bg)	76	
Elevation of Bottom of Filter Pack		
Type of Backfill Below Filter Pack	NA	
Depth of Bottom of Hole (ft-bg)	76	
Elevation of Bottom of Hole		
<b>Comments:</b>		



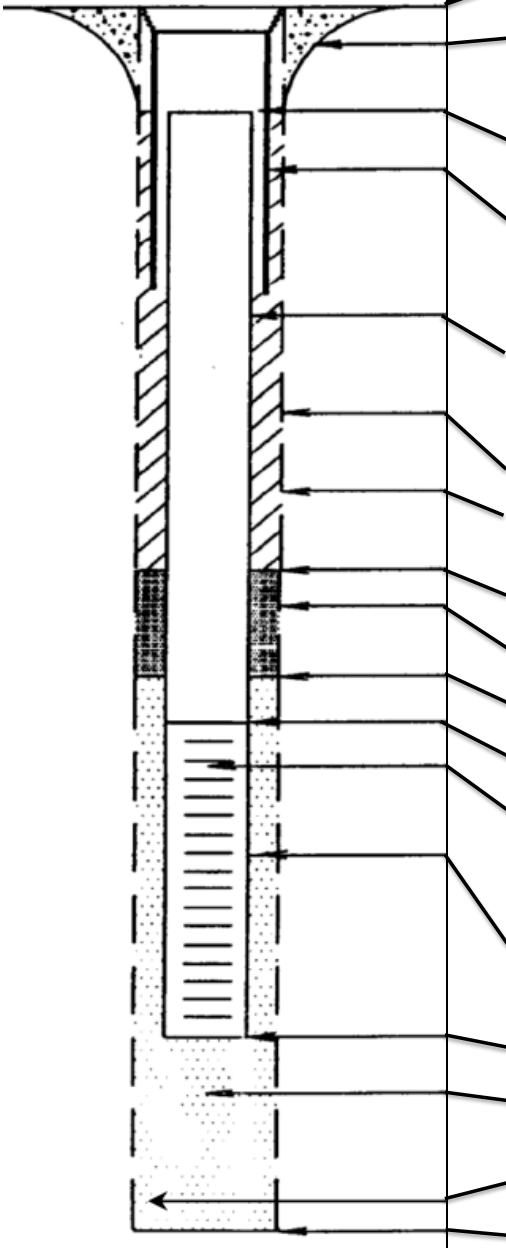

			<b>Boring No.</b> GW3D <b>Sheet:</b> 1 OF 4
<b>Site:</b> 21-25 31st St, NY, NY <b>Weather:</b> 60°F, sunny <b>Date:</b> 9/26/16			<b>Drilling Method:</b> Sonic Drill <b>Driller:</b> ADT <b>Soil Sampling Method:</b> Acetate Liner
<b>Observers:</b> M. Ahmed, M. Acceturi			
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
<del>1</del> <del>2</del> <del>3</del> <del>4</del> 5			0-5': N/A
<del>6</del> <del>7</del> <del>8</del> <del>9</del> 10			5'-10': N/A
<del>11</del> <del>12</del> <del>13</del> <del>14</del> 15			10'-15': N/A
<del>16</del> <del>17</del> <del>18</del> <del>19</del> 20			15'-20': N/A

TENEN ENVIRONMENTAL				Boring No.	GW3D
				Sheet:	2 OF 4
Site: 21-25 31st St, NY, NY				Drilling Method:	Sonic Drill
Weather: 60°F, sunny				Driller:	ADT
Date: 9/26/16				Soil Sampling Method:	Acetate Liner
Observers: M. Ahmed, M. Acceturi					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
21			20'-25': N/A		
22					
23					
24					
25			25'-30': N/A		
26					
27					
28					
29					
30			30'-40': N/A		
31					
32					
33					
34					
35					
36	182.8	GW-3D (35-36)	36': Wet		
37	186.9		35'-40': Dark black coarse grain sand and gravel, some cobbles, till. Strong petroleum odor.		
38	121.0				
39					
40					


TENEN ENVIRONMENTAL				Boring No.	GW3D
				Sheet:	3 OF 4
Site: 21-25 31st St, NY, NY				Drilling Method:	Sonic Drill
Weather: 60°F, sunny				Driller:	ADT
Date: 9/26/16				Soil Sampling Method:	Acetate Liner
Observers: M. Ahmed, M. Acceturi					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
41			40'-45': No recovery		
42					
43					
44					
45					
46	5.9		45'-50': Coarse sand and gravel with a trace of silt		
47					
48	7.7				
49					
50	10.1				
51	3.8		50'-55': Brown fine to medium grain sand with trace of silt.		
52					
53	12.3				
54					
55	6.8				
56	17.7		55'-60': Medium to coarse grain sand with silt, trace of gravel.		
57	14.3				
58	18.7				
59	10.0				
60					

<div>TENEN ENVIRONMENTAL</div>				Boring No. GW3D	
				Sheet: 4 OF 4	
Site: 21-25 31st St, NY, NY				Drilling Method: Sonic Drill	
Weather: 60°F, sunny				Driller: ADT	
Date: 9/26/16				Soil Sampling Method: Acetate Liner	
Observers: M. Ahmed, M. Acceturi					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
61	14.0		60'-65': Medium to coarse grain sand, some gravel and cobbles.		
62	13.2				
63	13.9				
64	3.8				
65					
66	9.9		65'-70': Fine grain sand and silt, trace of clay		
67	8.4				
68	4.0				
69	3.1	GW-3D (68-69)			
70					
71	8.1	GW-3D (70-71)	70'-72': Coarse sand and gravel.		
72	7.1				
73			72'-75': Very dense clay		
74					
75			EOB		
Notes:					
PID - Photoionization Detector		EOB - End of Boring		SAA - Same as above	
N/A - Not Applicable		ft-bg - Feet Below Grade		GW = Groundwater	
DTW = Depth to Water					

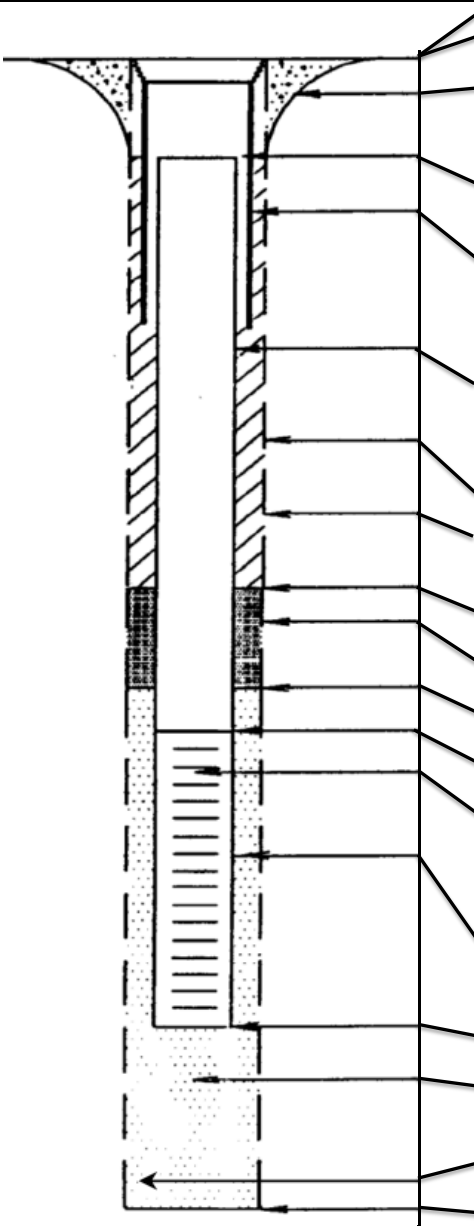

## MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)																																																																								
<b>Project:</b> 21-25 31st St <b>Field Geologist:</b> Mohamed Ahmed <b>Driller:</b> ADT <b>Drilling Method:</b> Hollow Stem Auger <b>Development Method:</b> Whale Pump <b>Sump Installed? (Y/N)</b> N <b>Sump Length (Ft):</b>	<b>Well Number: MW-3S</b> <b>Date Started:</b> 9/26/16 <b>Date Completed:</b> 9/26/16 <b>Elevation Datum:</b> <b>Weather:</b> Sunny, high 50s F <b>Boring Number:</b> GW3D																																																																							
<div style="display: flex; align-items: center;">  <table border="1" style="width: 60%; margin-left: 10px;"> <tr><td>Ground Surface</td><td>Concrete</td></tr> <tr><td>Elevation of Top of Surface Casing</td><td>NA</td></tr> <tr><td>Type of Surface Plug</td><td>Concrete</td></tr> <tr><td>Depth of Surface Plug (ft-bgs)</td><td>NA</td></tr> <tr><td>Diameter of Surface Plug (ft)</td><td>NA</td></tr> <tr><td>Riser Pipe</td><td></td></tr> <tr><td>Depth of Top of Riser Pipe (ft-bg)</td><td>0</td></tr> <tr><td>Elevation of Top of Riser Pipe</td><td>NA</td></tr> <tr><td>I.D. of Surface Casing (in)</td><td>4.5</td></tr> <tr><td>Type of Surface Casing</td><td>Manhole cover</td></tr> <tr><td>Depth of Surface Casing (ft-bg)</td><td>0.5</td></tr> <tr><td>I.D. of Riser (in)</td><td>2</td></tr> <tr><td>Type of Riser</td><td>Schedule 40 PVC</td></tr> <tr><td>Borehole Diameter (in)</td><td>4</td></tr> <tr><td>Type of Backfill</td><td>Native Soil</td></tr> <tr><td>Backfill - Tremied? (Y/N)</td><td>N</td></tr> <tr><td>Depth of Top of Seal (ft-bg)</td><td>NA</td></tr> <tr><td>Elevation of Top of Seal</td><td>NA</td></tr> <tr><td>Type of Seal</td><td>NA</td></tr> <tr><td>Seal - Tremied? (Y/N)</td><td></td></tr> <tr><td>Depth of Top of Filter Pack (ft-bg)</td><td>30</td></tr> <tr><td>Depth of Top of Screen (ft-bg)</td><td>33</td></tr> <tr><td>Elevation of Top of Screen</td><td>NA</td></tr> <tr><td>Type of Screen</td><td>Schedule 40 PVC</td></tr> <tr><td>I.D. of Screen (in)</td><td>2</td></tr> <tr><td>Slot Size of Screen (in)</td><td>0.02</td></tr> <tr><td>Length of Screen (ft)</td><td>10</td></tr> <tr><td>Type of Filter Pack</td><td>Sand</td></tr> <tr><td>Filter Pack - Tremied? (Y/N)</td><td>N</td></tr> <tr><td>Depth of Bottom of Screen (ft-bg)</td><td>43</td></tr> <tr><td>Depth of Bottom of Filter Pack (ft-bg)</td><td>45</td></tr> <tr><td>Elevation of Bottom of Filter Pack</td><td></td></tr> <tr><td>Type of Backfill Below Filter Pack</td><td>NA</td></tr> <tr><td>Depth of Bottom of Hole (ft-bg)</td><td>45</td></tr> <tr><td>Elevation of Bottom of Hole</td><td></td></tr> </table> </div>			Ground Surface	Concrete	Elevation of Top of Surface Casing	NA	Type of Surface Plug	Concrete	Depth of Surface Plug (ft-bgs)	NA	Diameter of Surface Plug (ft)	NA	Riser Pipe		Depth of Top of Riser Pipe (ft-bg)	0	Elevation of Top of Riser Pipe	NA	I.D. of Surface Casing (in)	4.5	Type of Surface Casing	Manhole cover	Depth of Surface Casing (ft-bg)	0.5	I.D. of Riser (in)	2	Type of Riser	Schedule 40 PVC	Borehole Diameter (in)	4	Type of Backfill	Native Soil	Backfill - Tremied? (Y/N)	N	Depth of Top of Seal (ft-bg)	NA	Elevation of Top of Seal	NA	Type of Seal	NA	Seal - Tremied? (Y/N)		Depth of Top of Filter Pack (ft-bg)	30	Depth of Top of Screen (ft-bg)	33	Elevation of Top of Screen	NA	Type of Screen	Schedule 40 PVC	I.D. of Screen (in)	2	Slot Size of Screen (in)	0.02	Length of Screen (ft)	10	Type of Filter Pack	Sand	Filter Pack - Tremied? (Y/N)	N	Depth of Bottom of Screen (ft-bg)	43	Depth of Bottom of Filter Pack (ft-bg)	45	Elevation of Bottom of Filter Pack		Type of Backfill Below Filter Pack	NA	Depth of Bottom of Hole (ft-bg)	45	Elevation of Bottom of Hole	
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TENEN ENVIRONMENTAL				Boring No. GW7	
				Sheet: 1 OF 2	
Site: 21-25 31st St, NY, NY				Drilling Method: Hollow Stem Auger	
Weather: 25°F, sunny				Driller: ADT	
Date: 2/22/16				Soil Sampling Method: Acetate Liner	
Observers: M. Ahmed, M. Acceturi, M. Carroll					
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description		
1 2 3 4 5	0.0		0-5': Fill (black silty sand, coal fragments, concrete chips)		
6 7 8 9 10			5'-10': Fill (tan silty sand with coal fragments)		
11 12 13 14 15	0.0	GW7 (10-12)	10'-12': Tan silty sand with traces of silt		
			12'-15': Till, coarse grain sand and gravel, plenty of cobbles		
16 17 18 19 20			15'6": Refusal		
			19'6"-20': Till, plenty of cobbles, coarse grain sand and gravel		

			<b>Boring No.</b> GW7 <b>Sheet:</b> 2 OF 2
<b>Site:</b> 21-25 31st St, NY, NY <b>Weather:</b> 25°F, sunny <b>Date:</b> 2/22/16 <b>Observers:</b> M. Ahmed, M. Acceturi, M. Carroll			<b>Drilling Method:</b> Hollow Stem Auger <b>Driller:</b> ADT <b>Soil Sampling Method:</b> Acetate Liner
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
21 22 23 24 25	0.0		20'-22': Coarse grain sand with plenty of cobbles and some gravel  22'-25': Tan to brown coarse grain sand and gravel
26 27 28 29 30	0.0		25'-30': SAA
31 32 33 34 35	0.0		30'-35': SAA
36 37 38 39 40	0.0 4.0 1.6 0.2 1.3	GW7 (36-38) GW7 (39-40)	35'-40': SAA
41 42 43 44 45	0.5	GW7(40-42)	40'-45': Medium to coarse grain sand  43': Wet
<b>Notes:</b> PID - Photoionization Detector      EOB - End of Boring      SAA - Same as above      GW = Groundwater N/A - Not Applicable      ft-bg - Feet Below Grade      DTW = Depth to Water			

## MONITORING WELL CONSTRUCTION DIAGRAM


Monitoring Well Construction Diagram (Flush Mount)																																																																								
<b>Project:</b> 21-25 31st St <b>Field Geologist:</b> Alex Kuhn <b>Driller:</b> Cascade <b>Drilling Method:</b> Sonic Drill <b>Development Method:</b> Whale Pump <b>Sump Installed? (Y/N)</b> N	<b>Well Number: GW-7S</b> <b>Date Started:</b> 7/31/19 <b>Date Completed:</b> 7/31/19 <b>Elevation Datum:</b> <b>Weather:</b> Sunny, high 80s F <b>Boring Number:</b> GW-7S <b>Sump Length (Ft):</b>																																																																							
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			<b>Boring No.</b> GW8 <b>Sheet:</b> 1 OF 3
<b>Site:</b> 21-25 31st St, NY, NY			<b>Drilling Method:</b> Hollow Stem Auger
<b>Weather:</b> 30°F, cloudy			<b>Driller:</b> ADT
<b>Date:</b> 2/18/16			<b>Soil Sampling Method:</b> Acetate Liner
<b>Observers:</b> M. Ahmed, M. Acceturi			

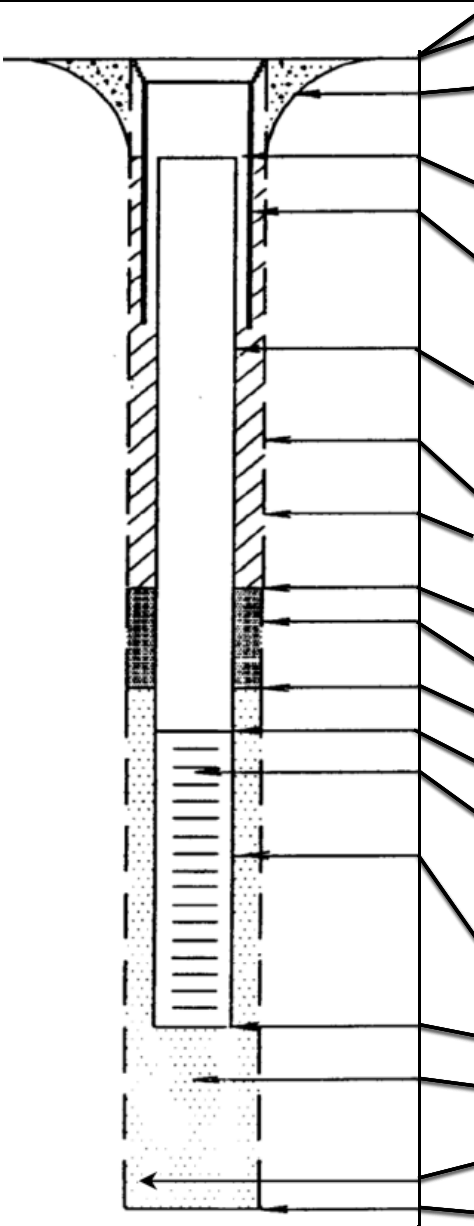

  

Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
1	0.0		0-5': Fill (ash, coal, brick fragments, concrete chips, black to tan sandy silt)
2			
3			
4			
5			
6	0.0	GW8(7-9)	5'-7': SAA
7			7'-10': Clayey silt to fine to medium grain tan sand
8			
9			
10			
11	0.0		10'-15': Fine grain tan sand and silt
12			
13			
14			
15			
16			15'-17': SAA
17			
18			
19			
20			
			17'-20': Till, coarse grain sand and gravel, plenty of cobbles

			Boring No. <b>GW8</b> Sheet: <b>2 OF 3</b>
Site: <b>21-25 31st St, NY, NY</b>			Drilling Method: <b>Hollow Stem Auger</b>
Weather: <b>30°F, cloudy</b>			Driller: <b>ADT</b>
Date: <b>2/18/16</b>			Soil Sampling Method: <b>Acetate Liner</b>
Observers: <b>M. Ahmed, M. Acceturi</b>			
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
21			20'6": Refusal
22			
23			
24			
25			
26			26'6": refusal  29'6"-30': Till, coarse grain sand and gravel, plenty of cobbles
27			
28			
29			
30			
31	0		30'-35': Till, coarse grain sand and gravel, plenty of cobbles
32			
33			
34			
35			
36	3.8		35'-40': No recovery
37			
38			
39			
40			

TENEN ENVIRONMENTAL			Boring No. GW8
			Sheet: 3 OF 3
Site: 21-25 31st St, NY, NY			Drilling Method: Hollow Stem Auger
Weather: 30°F, cloudy			Driller: ADT
Date: 2/18/16			Soil Sampling Method: Acetate Liner
Observers: M. Ahmed, M. Acceturi			
Depth (feet)	PID Reading (ppm)	Soil Samples	Soil Description
41	149	GW8(40-42)	40'-42': Till, coarse grain sand and gravel with some cobbles
42			
43			
44	144		42'-45': Coarse grain sand and gravel with trace of silt
45			
46	40.2		45'-50': Coarse sand and gravel
47			
48			
49	16.7		
50			
51	36.0		50'-55': SAA
52			
53			
54			
55			
56	2.3	GW8(57-59)	55'-60': Dense, coarse grain sand and gravel, trace of silt
57			
58	0.2		
59	0.3		
60			EOB
<b>Notes:</b> PID - Photoionization Detector      EOB - End of Boring      SAA - Same as above      GW = Groundwater N/A - Not Applicable      ft-bg - Feet Below Grade      DTW = Depth to Water			

## MONITORING WELL CONSTRUCTION DIAGRAM

Monitoring Well Construction Diagram (Flush Mount)																																																																								
<b>Project:</b> 21-25 31st St <b>Field Geologist:</b> Alex Kuhn <b>Driller:</b> Cascade <b>Drilling Method:</b> Sonic Drill <b>Development Method:</b> Whale Pump <b>Sump Installed? (Y/N)</b> N	<b>Sump Length (Ft):</b>  	<b>Well Number: GW-8S</b> <b>Date Started:</b> 8/1/19 <b>Date Completed:</b> 8/1/19 <b>Elevation Datum:</b> <b>Weather:</b> Sunny, high 80s F <b>Boring Number:</b> GW-8S																																																																						
<div style="display: flex; align-items: center;">  <table border="1" style="width: 60%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Ground Surface</td> <td style="padding: 2px;">Asphalt</td> </tr> <tr> <td style="padding: 2px;">Elevation of Top of Surface Casing</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Type of Surface Plug</td> <td style="padding: 2px;">Concrete</td> </tr> <tr> <td style="padding: 2px;">Depth of Surface Plug (ft-bgs)</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Diameter of Surface Plug (ft)</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Riser Pipe</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Depth of Top of Riser Pipe (ft-bg)</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">Elevation of Top of Riser Pipe</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">I.D. of Surface Casing (in)</td> <td style="padding: 2px;">4.5</td> </tr> <tr> <td style="padding: 2px;">Type of Surface Casing</td> <td style="padding: 2px;">Manhole cover</td> </tr> <tr> <td style="padding: 2px;">Depth of Surface Casing (ft-bg)</td> <td style="padding: 2px;">0.5</td> </tr> <tr> <td style="padding: 2px;">I.D. of Riser (in)</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="padding: 2px;">Type of Riser</td> <td style="padding: 2px;">Schedule 40 PVC</td> </tr> <tr> <td style="padding: 2px;">Borehole Diameter (in)</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Type of Backfill</td> <td style="padding: 2px;">Native Soil</td> </tr> <tr> <td style="padding: 2px;">Backfill - Tremied? (Y/N)</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">Depth of Top of Seal (ft-bg)</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Elevation of Top of Seal</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Type of Seal</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Seal - Tremied? (Y/N)</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Depth of Top of Filter Pack (ft-bg)</td> <td style="padding: 2px;">30</td> </tr> <tr> <td style="padding: 2px;">Depth of Top of Screen (ft-bg)</td> <td style="padding: 2px;">32</td> </tr> <tr> <td style="padding: 2px;">Elevation of Top of Screen</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Type of Screen</td> <td style="padding: 2px;">Schedule 40 PVC</td> </tr> <tr> <td style="padding: 2px;">I.D. of Screen (in)</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="padding: 2px;">Slot Size of Screen (in)</td> <td style="padding: 2px;">0.02</td> </tr> <tr> <td style="padding: 2px;">Length of Screen (ft)</td> <td style="padding: 2px;">10</td> </tr> <tr> <td style="padding: 2px;">Type of Filter Pack</td> <td style="padding: 2px;">Sand</td> </tr> <tr> <td style="padding: 2px;">Filter Pack - Tremied? (Y/N)</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">Depth of Bottom of Screen (ft-bg)</td> <td style="padding: 2px;">42</td> </tr> <tr> <td style="padding: 2px;">Depth of Bottom of Filter Pack (ft-bg)</td> <td style="padding: 2px;">45</td> </tr> <tr> <td style="padding: 2px;">Elevation of Bottom of Filter Pack</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Type of Backfill Below Filter Pack</td> <td style="padding: 2px;">NA</td> </tr> <tr> <td style="padding: 2px;">Depth of Bottom of Hole (ft-bg)</td> <td style="padding: 2px;">45</td> </tr> <tr> <td style="padding: 2px;">Elevation of Bottom of Hole</td> <td style="padding: 2px;"></td> </tr> </table> </div>			Ground Surface	Asphalt	Elevation of Top of Surface Casing	NA	Type of Surface Plug	Concrete	Depth of Surface Plug (ft-bgs)	NA	Diameter of Surface Plug (ft)	NA	Riser Pipe		Depth of Top of Riser Pipe (ft-bg)	0	Elevation of Top of Riser Pipe	NA	I.D. of Surface Casing (in)	4.5	Type of Surface Casing	Manhole cover	Depth of Surface Casing (ft-bg)	0.5	I.D. of Riser (in)	2	Type of Riser	Schedule 40 PVC	Borehole Diameter (in)	4	Type of Backfill	Native Soil	Backfill - Tremied? (Y/N)	N	Depth of Top of Seal (ft-bg)	NA	Elevation of Top of Seal	NA	Type of Seal	NA	Seal - Tremied? (Y/N)		Depth of Top of Filter Pack (ft-bg)	30	Depth of Top of Screen (ft-bg)	32	Elevation of Top of Screen	NA	Type of Screen	Schedule 40 PVC	I.D. of Screen (in)	2	Slot Size of Screen (in)	0.02	Length of Screen (ft)	10	Type of Filter Pack	Sand	Filter Pack - Tremied? (Y/N)	N	Depth of Bottom of Screen (ft-bg)	42	Depth of Bottom of Filter Pack (ft-bg)	45	Elevation of Bottom of Filter Pack		Type of Backfill Below Filter Pack	NA	Depth of Bottom of Hole (ft-bg)	45	Elevation of Bottom of Hole	
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## **APPENDIX 5 – FIELD SAMPLING PLAN**

The monitoring wells will be sampled on a semi-annually basis for two years. All sampling equipment will be decontaminated prior to use. Prior to sampling, water levels will be measured using an electronic product-water level indicator. Samples will be collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. (EQASOP\_GW 001 Revision 3 dated July 30, 1996 Revised: January 19, 2010). Low flow purging and sampling procedures will be as follows:

Low flow purging (200 to 500 milliliters per minute) of the monitoring wells will include collection of water quality indicator parameters. Water quality indicator parameters will be recorded at 10-minute intervals during the purging of the well. Groundwater sampling will commence once quality indicator parameters have stabilized for at least three consecutive readings. These water quality indicator parameters will include:

- Water level drawdown <0.3 feet
- Temperature +/- 3%
- pH +/- 3%
- Dissolved Oxygen +/- 10%
- Specific Conductance +/- 3%
- Oxidation Reduction Potential +/- 10 millivolts
- Turbidity +/- 10% for values greater than 1 NTU

All groundwater samples will be placed in laboratory provided containers (40 milliliter vials). All sample containers will be appropriately labeled and closed. Chain-of-custody documents will be completed before shipment. The samples will be placed on ice and secured in a cooler during shipment to the laboratory.

Long-term monitoring (two quarterly events) of the groundwater will be conducted to determine the efficiency of the Remedial Action. All groundwater samples

will be analyzed for VOCs by EPA Method 8260 and sent to an ELAP certified laboratory.

## **APPENDIX 6 – QUALITY ASSURANCE PROJECT PLAN**

**Quality Assurance Project Plan**  
**for**  
**21-25 31<sup>st</sup> Street**  
**Remedial Action Work Plan**

21-25 31<sup>st</sup> Street  
Astoria, New York 11105  
Block 831, Lot 20  
BCP # C241167  
NYSDEC Spill # 1402686  
CEQR #10DCP019Q

Submitted to:  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
Remedial Bureau B, Section A  
625 Broadway, 12<sup>th</sup> Floor  
Albany, NY 12233-7016

Prepared for:  
RFC 31 STREET I LLC  
42-01 235<sup>th</sup> Street  
Douglaston, NY 11363

Prepared by:



121 West 27<sup>th</sup> Street, Suite 702  
New York, NY 10001

**August 2019**



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### **Appendices**

Appendix A – Resumes

## **1.0 INTRODUCTION**

This Quality Assurance Project Plan (QAPP) has been developed for the implementation of the Site Management Plan (SMP) prepared for the 21-25 31<sup>st</sup> Street project in the Astoria neighborhood of Queens, New York (the “Site”).

The Site, located at 21-25 31st Street, Astoria, New York, is a rectangular-shaped parcel consisting of 11,875 square feet (0.27 acres) situated on the southeast side of 31st Street, between 21st Avenue and Ditmars Boulevard. The Site has approximately 125 feet of frontage along 31st Street and is approximately 95 feet deep, extending to 32nd Street. Other addresses associated with the Site are 21-25 through 21-33 31st Street and 21-26 through 21-34 32nd Street. A location map for the Site is provided as Figure 1. A map of the current Site layout is included as Figure 2.

The Site is improved with a portion of a mixed-used (residential/commercial) six-story building, with two cellars, commercial space and residential entry/amenity space on the first floor. In addition to parking, retail storage and mechanicals, the cellars include a gym, children’s room and tenant storage. A patio is located on the roof.

### **1.1 Project Scope and QAPP Objective**

The proposed scope of work includes the following:

- collection of groundwater samples.

The objective of the QAPP is to detail the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of the Remedial Action Work Plan. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented for quality control (QC) purposes. Specifically, this QAPP address the following:

- The procedures to be used to collect, preserve, package, and transport samples;
- Field data collection and record keeping;
- Data management;
- Chain-of-custody procedures; and,
- Determination of precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort.

## **2.0 PROJECT ORGANIZATION**

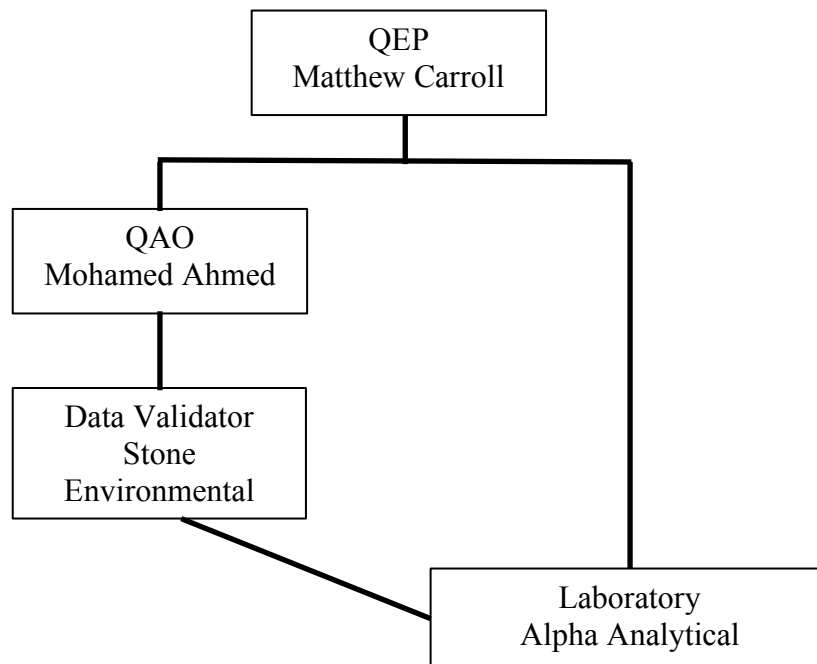
The personnel detailed are responsible for the implementation of the QAPP. Tenen Environmental, LLC (Tenen) will implement the RAWP on behalf of 21-25 31st Street LLC (Volunteer) once it has been approved by the New York State Department of Environmental Conservation (NYSDEC).

The Project Manager and Qualified Environmental Professional (QEP) will be Mr. Matthew Carroll, P.E., principal at Tenen. Mr. Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. His experience involves projects from inception through investigation, remediation and closure. His expertise includes soil, soil vapor and groundwater remediation; remedial selection and design; field/health and safety oversight and preparation of work plans and reports to satisfy the requirements of various regulatory agencies. Mr. Carroll received his Bachelor of Engineering from Stevens Institute of Technology and Bachelor of Science in Chemistry from New York University and is a New York State professional engineer; his resume is included in Appendix A.

The Quality Assurance Officer will be Mohamed Ahmed, Ph.D., CPG, principal at Tenen. Dr. Ahmed is a certified professional geologist with over 20 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems, and soil remediation. He has managed numerous projects focused on compliance with the requirements of the New York State Brownfield Cleanup Program and spills programs and the New York City E-designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the New York City Department of Environmental Protection, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation. Dr. Ahmed holds advanced degrees in geology and Earth and Environmental Sciences from Brooklyn College and the Graduate Center of the City University of New York; his resume is included in Appendix A.

In addition, Tenen will utilize subcontractors for laboratory services (Alpha Analytical of Westborough, MA) and data validation (L.A.B. Validation Corp. of East Northport, New York). The resume for the DUSR preparer, Ms. Lori Beyer is included in Appendix A.

An organization chart for the implementation of the SMP and QAPP is below.



### **3.0 SAMPLING AND DECONTAMINATION PROCEDURES**

A detailed description of the procedures to be used during this program for collection of the soil samples is provided below. Proposed sample locations are shown on Figure 5 of the SMP. An Analytical Methods/Quality Assurance Summary is provided in Table 1, included in Section 3.11.

#### **3.1 Level of Effort for QC Samples**

Field blank, trip blank, field duplicate and matrix spike (MS) / matrix spike duplicate (MSD) samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. Each type of QC sample is discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.
- Duplicate samples are analyzed to check for sampling and analytical reproducibility.
- MS/MSD samples provide information about the effect of the sample matrix on the digestion and measurement methodology.

The general level of QC effort will be one field duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD for every 20 or fewer investigative samples of a given matrix. One trip blank will be included along with each sample delivery group of volatile organic compound (VOC) samples.

The analytical laboratory will be certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP). NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be prepared by the laboratory.

#### **3.2 Sample Handling**

Samples will be handled by any of the following methods: picked up by the laboratory, delivered to the laboratory in person by the sampler, or transported to the laboratory by overnight courier. All samples will be shipped to the laboratory to arrive within 48 hours after collection, and the laboratory will adhere to the analytical holding times for these analyses, as listed in the current version of the New York State Analytical Services Protocol (ASP).

### **3.3 Custody Procedures**

Sample custody will be controlled and maintained through the chain-of-custody procedures. The chain of custody is the means by which the possession and handling of samples is tracked from the site to the laboratory. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections (Sections 3.4 and 3.5) describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

### **3.4 Sample Storage**

Samples will be stored in secure limited-access areas. Walk-in coolers or refrigerators will be maintained at 4°C, +/- 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location, if necessary.

### **3.5 Sample Custody**

Sample custody is defined by this QAPP as the following:

- The sample is in someone's actual possession;
- The sample is in someone's view after being in his or her physical possession;
- The sample was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering; or,
- The sample is placed in a designated and secured area.

Samples will be removed from storage areas by the sample custodian or laboratory personnel and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure.

Laboratory documentation used to establish chain of custody and sample identification may include the following:

- Field chains of custody or other paperwork that arrives with the sample;
- Laboratory chain of custody;
- Sample labels or tags attached to each sample container;
- Sample custody seals;
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books, filled out in legible handwriting, and signed and dated by the chemist;
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist;

- Sample storage log (same as the laboratory chain of custody); and,
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

### **3.6 Sample Tracking**

All samples will be maintained in the appropriate coolers prior to and after analysis. Laboratory analysts will remove and return their samples, as needed. Samples that require internal chain of custody procedures will be relinquished to the analysts by the sample custodians. The analyst and sample custodian will sign the original chain of custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain of custody returning sample custody to the sample custodian. Sample extracts will be relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department will track internal chain of custody through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the chain of custody (e.g., sample breakage or depletion).

### **3.7 Post-Remedial Groundwater Sampling**

Groundwater samples will be collected using dedicated sample equipment from the wells shown on Figure 5 in the RAWP.

Prior to sample collection, static water levels will be measured and recorded from all monitoring wells. Tenen will purge and sample monitoring wells using low-flow/minimal drawdown purge and sample collection procedures (bladder pump system). Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, temperature, turbidity, dissolved oxygen, specific conductance, oxidation-reduction potential and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, dissolved oxygen and temperature stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU.

Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Wells will be purged and sampled using dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures, as described above. The pump will be decontaminated between samples and a dedicated bladder will be used.

Groundwater samples will be collected through dedicated tubing. Prior to, and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, dissolved oxygen, turbidity and depth-to-water, as well as visual and olfactory field

observations will be recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to the designated laboratory for analysis.

All groundwater samples will be analyzed for the following with a Category B deliverable data package:

- TCL VOCs by EPA Method 8260C

### **3.8 Analytical Methods/Quality Assurance Summary Table**

A summary of the analytical methods and quality assurance methods are included in Table 1, below.



Table 1  
Analytical Methods/Quality Assurance Summary

Matrix	Proposed Samples	QA/QC Samples				Total # Samples	Analytical Parameter	Method	Preservative	Holding Time	Container
		TB	FB	DUP	MS/MSD						
Groundwater	5	1	1	1	2	10	VOCs	8260C	Cool to 4°C HCL	14 days to analysis	(3) 40 mL clear glass vials

TB – Trip Blank      FB – Field Blank      DUP – Duplicate      MS – Matrix Spike      MSD – Matrix Spike Duplicate  
 °C – degrees Celsius      mL – milliliter      L - liter

### **3.9 Decontamination**

Where possible, samples will be collected using new, dedicated sampling equipment so that decontamination is not required. All non-dedicated drilling tools and equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox) and/or a steam cleaner. All non-dedicated sampling equipment will also have a final rinse with deionized water. Decontamination water will be collected and disposed as investigation-derived waste (IDW).

### **3.10 Data Review and Reporting**

The NYSDEC ASP Category B data package will be validated by an independent data validation subconsultant and a DUSR summarizing the results of the data validation process will be prepared. All reported analytical results will be qualified as necessary by the data validation and will be reviewed and compared against background concentrations and/or applicable New York State criteria:

- *Groundwater* – Class GA groundwater standards and guidance values for groundwater as listed in NYSDEC Technical and Operations Guidance Series (TOGS) 1.1.1.

A report documenting the post-excavation soil sampling will be prepared, and will describe Site conditions and document applicable observations made during the sample collection. In addition, the report will include a description of the sampling procedures, tabulated sample results and an assessment of the data and conclusions. The laboratory data packages, DUSR, geologic logs, well construction diagrams, and field notes will be included in the report as appendices. All data will also be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EQUIS format.

**Appendix A**  
Resumes

**Matthew Carroll, P.E.**  
**Environmental Engineer/Principal**

**Experience Summary**

Matthew Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. He has managed projects from inception through investigation, remediation and closure. His expertise includes soil, soil gas, and groundwater remediation, preparation of cost estimates, remedial alternative selection and design, soil characterization for disposal, field safety oversight, and preparation of work plans and reports to satisfy New York and New Jersey state requirements, and New York City "e" designation and restrictive declarations. Mr. Carroll's project management experience includes past management of a New York City School Construction Authority hazardous materials contract. He is responsible for all engineering work performed by Tenen and is currently the project manager and remedial engineer for several New York State Brownfield Cleanup Program sites.

**Selected Project Experience**

**470 Kent Avenue, Brooklyn**

As project manager, supported the client in due diligence and transactional activities, including a Phase I ESA, preliminary site investigation, and remedial cost estimate; preparation of BCP application and remedial investigation work plan. The former manufactured gas plant, sugar refinery and lumberyard will be developed as a mixed-use project with market rate and affordable housing and public waterfront access. As remedial engineer, will be responsible for development of remedial alternatives and oversight and certification of all remedial activities.

**500 Exterior Street, Bronx**

Designed and implemented the investigation of this former lumberyard and auto repair shop that will be redeveloped as mixed use development with an affordable housing component; prepared BCP application and subsequent work plans and reports. Designed a remedial strategy incorporating both interim remedial measures (IRMs) and remediation during the development phase.

**Gateway Elton I and II, Brooklyn**

Conducted soil disposal characterization, prepared Remedial Action Work Plans and designed methane mitigation systems for two phases of a nine-building residential development and commercial space; prepared and oversaw implementation of a Stormwater Pollution Prevention Plan during construction and prepared and certified the remedial closure reports for the project.

**Affordable Housing Development, Rye, NY**

Consultant to the City of Rye on environmental issues pertaining to a county-owned development site slated for an afford senior housing; reviewed environmental documentation for the project and prepared summary memorandum for City Council review; recommended engineering controls to address potential exposure to petroleum constituents, presented report findings at public meetings and currently providing ongoing environmental support during project implementation.

### **Queens West Development BCP Site, Long Island City, New York**

Assistant Project Manager for two developers involved in the site.

- Responsible for oversight of remediation under the New York State Brownfield Cleanup Program
- Technical review of work plans and reports and coordination of the Applicant's investigation and oversight efforts
- Provided input for mass calculations and well placement for an in-situ oxidation remedy implemented on a proposed development parcel and within a City street
- Conducted technical review of work pertaining to a former refinery. Documents reviewed included work plans for characterization and contaminant delineation; pilot test (chemical oxidation); remediation (excavation and groundwater treatment). Managed field personnel conducting full time oversight and prepared progress summaries for distribution to project team
- Following implementation of remedial action, implemented the Site Management Plan and installation/design of engineering controls (SSDS, vapor barrier/concrete slab, NAPL recovery). Also responsible for coordination with NYSDEC

### **Brownfield Cleanup Program Redevelopment Sites – West Side, New York City**

Managed remediation of a development consisting of four parcels being addressed under one or more State and city regulatory programs (NYS Brownfield Cleanup Program, NYS Spills, and NYC "e" designation program). Remediation includes soil removal, screening and disposal; treatment of groundwater during construction dewatering and implementation of a worker health and safety plan and community air monitoring plan (HASP/CAMP)

Managed an additional BCP site, supported the Applicant in coordination with MTA to create station access for the planned No. 7 subway extension; also provided support the client in coordination with Amtrak to obtain access for remedial activities on the portion of the site that is within an Amtrak easement. The site will eventually be used for construction of a mixed-use high-rise building.

### **BCP Site, Downtown Brooklyn, New York**

Performed investigation on off-site properties and designed an SSDS for an adjacent building, retrofitting the system within the constraints of the existing structure; coordinated the installation of the indoor HVAC controls and vapor barrier; provided input to the design of a SVE system to address soil vapor issues on the site.

### **West Chelsea Brownfield Cleanup Program Site**

Designed an in-situ remediation program and sub-slab depressurization system to address contamination remaining under the High Line Viaduct; SSDS design included specification of sub-grade components, fan modeling and selection, identifying exhaust location within building constraints and performance modeling; prepared the Operations Maintenance and Monitoring Plan and Site Management Plan sections pertaining to the SSDS.

### **Historic Creosote Spill Remediation – Queens, New York – New York State Voluntary Cleanup Program**

Modeled contamination volume and extent and prepared mass estimates of historic fill constituents and creosote-related contamination; designed a soil vapor extraction (SVE) and dewatering system to address historic creosote release both above and below static

Matthew Carroll, Environmental Engineer/Principal  
Tenen Environmental

water table; coordinated with the Metropolitan Transit Authority and prepared drawings to secure approval to drill in the area of MTA subway tunnels.

**NYSDEC Spill Site- Far West Side, Manhattan**

Provided support to client during negotiations with a major oil company regarding allocation of remedial costs. Worked with client's attorney to develop a regulatory strategy to address the client's obligations under the NYSDEC Spills Program and the New York City "e" designation requirements.

**Affordable Housing Site, Brooklyn, New York**

Modified prior work plans for soil, soil vapor and groundwater investigation to address requirements for site entry into the New York City Brownfield Cleanup Program. Prepared technical basis for use of prior data previously disallowed by OER. Currently conducting site investigation.

**New York City School Construction Authority Hazardous Materials Contract**

Provided work scopes and cost estimates, managed and implemented concurrent projects, including Phase I site assessments, Phase II soil, groundwater and soil gas investigations, review of contractor bid documents, preparation of SEQR documents, specifications and field oversight for above- and underground storage tank removal, and emergency response and spill control.

**Former Manufacturing Facility, Hoboken, New Jersey**

Evaluated site investigation data to support a revision of the current property use to unrestricted; modified the John & Ettinger vapor intrusion model to apply the model to a site-specific, mixed use commercial/residential development; implemented a Remedial Action Work Plan that included the characterization, removal and separation of 9,500 cubic yards of historic fill; designed and implemented a groundwater characterization/delineation program using a real-time Triad approach; designed and implemented an innovative chemical oxidation technology for the property.

**Former Varnish Manufacturer - Newark, New Jersey**

Prepared a Phase I environmental site assessment; implemented soil and groundwater sampling to assess presence of petroleum and chlorinated compounds; prepared alternate cost remediation scenarios for settlement purposes and implemented a groundwater investigation plan, including pump tests and piezometer installation to assess the effect of subsurface utilities and unique drainage pathways upon contaminant transport.

**Education and Certifications**

Professional Engineer, New York

Bachelor of Engineering, Environmental; Stevens Institute of Technology, 2002

Bachelor of Science, Chemistry, New York University, 2002

Technical and Regulatory Training in Underground Storage Tanks, Cook College, Rutgers University, 2006

**Mohamed Ahmed, Ph.D., C.P.G.**  
**Sr. Geologist/Principal**

**Experience Summary**

Mohamed Ahmed is a certified professional geologist with nearly 23 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems and soil remediation. He has managed numerous projects focused on compliance with the New York State Brownfield Cleanup and Spills programs and the New York City “e” designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the NYC Office of Housing Preservation and Development, and the Mayor’s Office of Environmental Remediation.

**Selected Project Experience**

**Willoughby Square, Downtown Brooklyn**

As Project Manager, directs all regulatory interaction and investigation on this joint public-private sector redevelopment that will include a public park and four-level underground parking garage. Prepared the remedial investigation work plan and remedial action work plan, conducted investigation activities and waste characterization, and negotiated with the NYC Department of Environmental Protection and the Mayor’s Office of Environmental Remediation to transition the site into the NYC Voluntary Cleanup Program.

**School Facility, Borough Park, Brooklyn**

Managed all regulatory agency coordination, work plan and report preparation and remedial oversight; worked with OER to determine measures to retroactively address the hazardous materials and air quality E-designations on a previously constructed school building and prepared supporting documentation to justify the use of electrical units rather than natural gas.

**LGA Hotel Site, East Elmhurst, Queens**

Project manager for all work conducted at this former gasoline service station which is being remediated under the NYS Brownfield Cleanup Program; technical oversight of work plans, reports, and design and implementation of field and soil disposal characterization.

**436 10<sup>th</sup> Avenue, Manhattan**

As project manager and technical lead, assisted client in developing remedial cost estimates used for property transaction, developed regulatory strategy to address NYS Spills and NYC E-designation requirements, and currently overseeing remedial activities which include removal and disposal of petroleum-contaminated bedrock and dewatering and disposal of impacted groundwater.

**Brownfield Cleanup Program Site, Downtown Brooklyn**

Managed investigation and remediation under the BCP program for a proposed mixed-use development; designed the remedial investigation and prepared the remedial action work plan which includes an SVE system monitored natural attenuation. Prepared remedial cost

estimates for several scenarios. The project will include a 53-story mixed-use structure and parking garage.

**Queens West Development, Long Island City**

Directed project team and subcontractors for soil investigation/remediation studies on multiple properties; provided technical support for negotiations with NYSDEC during investigation and remediation.

**Former Creosote Site, Long Island City**

Designed and implemented a complex investigation to assess the nature and extent of historic creosote contamination at this former industrial site; conducted studies to optimize recovery of LNAPL and DNAPL and developed strategies using bioremediation and natural attenuation in conjunction with conventional remedial approaches. Performed pilot tests for soil vapor extraction system design and coordinated with NYSDEC and NYSDOH to implement sub-slab soil vapor sampling.

**NYSDEC Spill Site – Far West Side, Manhattan**

Developed a detailed remedial cost estimate for to support client negotiations with a major oil company. The estimate included costs pertaining to: chipping, removal and disposal of petroleum-impacted bedrock; removal/disposal of recycled concrete; costs for dewatering and disposal of impacted groundwater during construction; and design and installation of a vapor barrier below the redevelopment.

**Active Industrial Facility, Newburgh, New York**

Designed remedial investigation of soil and groundwater contaminated with trichloroethane; performed soil vapor pilot test and pump test to aid in design of soil and groundwater remediation alternatives; conducted sub-slab vapor sampling in accordance with NYSDOH guidance.

**Former Dry Cleaning Facility, New York City**

Conducted soil and groundwater investigations, designed and installed a soil vapor extraction system and performed extensive testing of indoor air. Negotiated the scope of the RI and IRM with NYSDEC.

**Waterfront Redevelopment, Yonkers, NY**

Designed and performed geophysics survey of six parcels to determine locations of subsurface features; supervised test pit excavation to confirm geophysics results and evaluate and classify soil conditions prior to development activities.

**Prince's Point, Staten Island, New York**

Performed soil, groundwater and sediment sampling to delineate the extent of contamination; used field-screening techniques to control analytical costs and supervised soil excavation and disposal.

**Apartment Complex, New York City, New York**

Coordinated with Con Edison, the owner of the adjacent property and NYSDEC to determine oil recovery protocol; assessed hydrogeological conditions and conducted pilot tests to design cost-effective recovery system; designed and supervised installation of recovery system.



## **Publications**

“Impact of Toxic Waste Dumping on the Submarine Environment: A Case Study from the New York Bight”. Northeastern Geology and Environmental Sciences, V. 21, No. 12, p. 102-120. (With G. Friedman)

Metals Fluxes Across the Water/Sediment Interface and the Influence of pH. Northeastern Geology and Environmental Sciences, in press. (With G. Friedman)

“Water and Organic Waste Near Dumping Ground in the New York Bight”. International Journal of Coal Geology, volume 43. (With G. Friedman)

## **Education and Certifications**

Ph.D., Earth and Environmental Sciences, Graduate Center of the City of New York (2001)

M.Ph., Earth and Environmental Sciences, City University of New York (1998)

M.A. Geology, Brooklyn College (1993)

B.S. Geology, Alexandria University, Egypt (1982)

American Institute of Professional Geologists, Certified Professional Geologist, 1997-2015

**L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731**

**Lori A. Beyer**

**SUMMARY:**

General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

**EXPERIENCE:**

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY

**President**

- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY

**Laboratory Director/Technical Director**

- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environment that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York

**General Manager**

- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York

**Technical Project Manager**

- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and Implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York

**Corporate QA/QC Officer**

- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York

**Data Review Manager**

- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York

**Data Review Specialist**

- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc. (NEI) Port Washington, New York

**GC/MS VOA Analyst**

**EDUCATION:**

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry

1981-1982 University of Delaware; Biology/Chemistry

5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training

8/92 Westchester Community College; Organic Data Validation Course

9/93 Westchester Community College; Inorganic Data Validation Course

# Westchester Community College

## Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean

Professional Development Center

President



The Professional  
Development Center

# Westchester Community College

## Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

### INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Arch O'Neil

Assistant Dean

Professional Development Center

J. Boshart

President



The Professional  
Development Center

New York State Department of Environmental Conservation  
60 Wolf Road, Albany, New York 12233



Thomas C. Jorling  
Commissioner

July 8, 1992

Ms. Elaine Sall  
Program Coordinator  
Westchester Community College  
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for your efforts and please contact me if I can be of any further assistance.

Sincerely,

*Maureen P. Serafini*

Maureen P. Serafini  
Environmental Chemist II  
Division of Hazardous Waste  
Remediation

②



The Professional  
Development Center  
AT  
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer  
3 sparkill Drive  
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%  
Your Grade is 99%

Elaine Sall  
Program Coordinator

ES/bf



SUNY  
WESTCHESTER COMMUNITY COLLEGE  
Valhalla, New York 10595



The Professional  
Development Center  
AT  
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall  
Program Coordinator

ES/bf

Enclosures



SUNY  
WESTCHESTER COMMUNITY COLLEGE  
Valhalla, New York 10595

## **APPENDIX 7 – HEALTH AND SAFETY PLAN**



# **Health and Safety Plan**

## **For 21-25 31<sup>st</sup> Street Site Management Plan**

21-25 31<sup>st</sup> Street  
Astoria, New York 11105  
Block 831, Lot 20  
BCP # C241167  
CEQR #10DCP019Q

Submitted to:  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
Remedial Bureau B  
625 Broadway, 12<sup>th</sup> Floor  
Albany, NY 12233-7016

Prepared for:  
RFC 31 STREET I LLC  
42-01 235<sup>th</sup> Street  
Douglaston, NY 11363

Prepared by:



121 West 27<sup>th</sup> Street, Suite 702  
New York, NY 10001

**August 2019**

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## **1.0 INTRODUCTION**

This Health and Safety Plan (HASP) has been prepared in conformance with the Occupational Safety and Health Administration (OSHA) standards and guidance that govern site investigation activities, other applicable regulations, and Tenen Environmental LLC (Tenen) health and safety policies and procedures. The purpose of this HASP is the protection of Tenen field personnel and others during the implementation of the Site Management Plan.

The Site, located at 21-25 31st Street, Astoria, New York, is a rectangular-shaped parcel consisting of 11,875 square feet (0.27 acres) situated on the southeast side of 31st Street, between 21st Avenue and Ditmars Boulevard. The Site has approximately 125 feet of frontage along 31st Street and is approximately 95 feet deep, extending to 32nd Street. Other addresses associated with the Site are 21-25 through 21-33 31st Street and 21-26 through 21-34 32nd Street. A location map for the Site is provided as Figure 1. A map of the current Site layout is included as Figure 2.

The Site is improved with a portion of a mixed-used (residential/commercial) six-story building, with two cellars, commercial space and residential entry/amenity space on the first floor. In addition to parking, retail storage and mechanicals, the cellars include a gym, children's room and tenant storage. A patio is located on the roof.

### **1.1 Scope of HASP**

This HASP includes safety procedures to be used by Tenen staff during the following activities:

- Collection of groundwater samples from permanent monitoring wells.

## **2.0 PROJECT SAFETY AUTHORITY**

The following personnel are responsible for project health and safety under this CHASP.

- Project Manager – Matthew Carroll, P.E.
- Health and Safety Officer (HSO) – Mohamed Ahmed, P.G.

In addition, each individual working at the Site will be responsible for compliance with this HASP and general safe working practices. All Site workers will have the authority to stop work if a potentially hazardous situation or event is observed.

### **2.1 Designated Personnel**

The Project Manager is responsible for the overall operation of the project, including compliance with the HASP and general safe work practices. The Project Manager may also act as the Health and Safety Officer (HSO) for this project.

Tenen will appoint one of its on-site personnel as the on-site HSO. This individual will be responsible for the implementation of the HASP. The HSO will have a 4-year college degree in  
*Page 1*

occupational safety or a related science/engineering field, and at least two (2) years of experience in implementation of air monitoring and hazardous materials sampling programs. The HSO will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards.

The HSO will be present on-site during all field operations involving drilling or other subsurface disturbance, and will be responsible for all health and safety activities and the delegation of duties to the field crew. The HSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the HSO must be absent from the field, a replacement who is familiar with the Construction Health and Safety Plan, air monitoring and personnel protective equipment (PPE) will be designated.

### **3.0 HAZARD ASSESSMENT AND CONTROL MEASURES**

Known previous uses of the site include dry cleaning operations from as early as 1954 through at least 1981. The soil remediation at the Site resulted in a Track 1 Unrestricted Use cleanup. Chlorinated solvents, including tetrachloroethene (PCE) and petroleum-related compounds remain in groundwater.

#### **3.1 Human Exposure Pathways**

The media of concern at the Site include impacted groundwater. Potential exposure pathways include dermal contact and incidental ingestion. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE.

#### **3.2 Chemical Hazards**

Based on post-remedial sampling data, the following contaminants of concern are present at the Site:

##### Chlorinated Solvents

- Tetrachloroethene (PCE)

##### Petroleum Constituents

- 1,2,4,5-Tetramethylbenzene
- Naphthalene

Material Safety Data Sheets (MSDSs) for each contaminant of concern are included in Appendix C. All personnel are required to review the MSDSs included in this CHASP.

#### **3.3 Physical Hazards**

The physical hazards associated with the field activities likely present a greater risk of injury than the chemical constituents at the Site. Activities within the scope of this project shall comply with New York State and Federal OSHA construction safety standards.

##### Head Trauma

To minimize the potential for head injuries, field personnel will be required to wear National Institutes of Occupational Safety and Health (NIOSH)-approved hard hats during field activities. Hats must be worn properly and not altered in any way that would decrease the degree of protection provided.

##### Foot Trauma

To avoid foot injuries, field personnel will be required to wear steel-toed safety shoes while field activities are being performed. To afford maximum protection, all safety shoes must meet American National Standards Institute (ANSI) standards.

#### Eye Trauma

Field personnel will be required to wear eye protection (safety glasses with side shields) while field activities are being performed to prevent eye injuries caused by contact with chemical or physical agents.

#### Noise Exposure

Field personnel will be required to wear hearing protection (ear plugs or muffs) in high noise areas (noise from heavy equipment) while field activities are being performed.

#### Buried Utilities and Overhead Power Lines

Boring locations will be cleared by an underground utility locator service. In addition, prior to intrusive activities, the drilling subcontractor will contact the One Call Center to arrange for a utility mark-out, in accordance with New York State requirements. Protection from overhead power lines will be accomplished by maintaining safe distances of at least 15 feet at all times.

#### Thermal Stress

The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.

The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress
- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

#### Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

#### Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind. Conditions of sleet, snow or freezing are extremely unlikely.

#### Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Great care should be taken by all Site workers to avoid slip, trip and fall hazards. Workers shall not enter areas that not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

#### Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the Site.

It is the responsibility of any worker or oversight personnel with a medical condition that may require attention should inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants, and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered, and care should be taken to avoid contact.

#### **4.0 PERSONAL PROTECTIVE EQUIPMENT**

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, “General Description and Discussion of the Levels of Protection and Protective Gear.”

Tenen field personnel and other site personnel will wear Level D personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, modified Level D equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A description of the personnel protective equipment for Levels D and C is provided below.

##### **Level D**

Respiratory Protection: None

Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

##### **Modified Level D**

Respiratory Protection: None

Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

##### **Level C**

Respiratory Protection: Air purifying respirator with organic vapor cartridges and filters.

Protective Clothing: Same as modified Level D



## **5.0 SITE ACCESS**

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the Site.

## **6.0 DECONTAMINATION PROCEDURES**

### **Personnel Decontamination**

Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

### **Equipment Decontamination**

Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan. Because site soil is considered essentially non-hazardous, there is no need to decontaminate vehicles used for transporting equipment and personnel over the Site.

### **Disposal of Materials**

Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

## **7.0 GENERAL SAFE WORK PRACTICES**

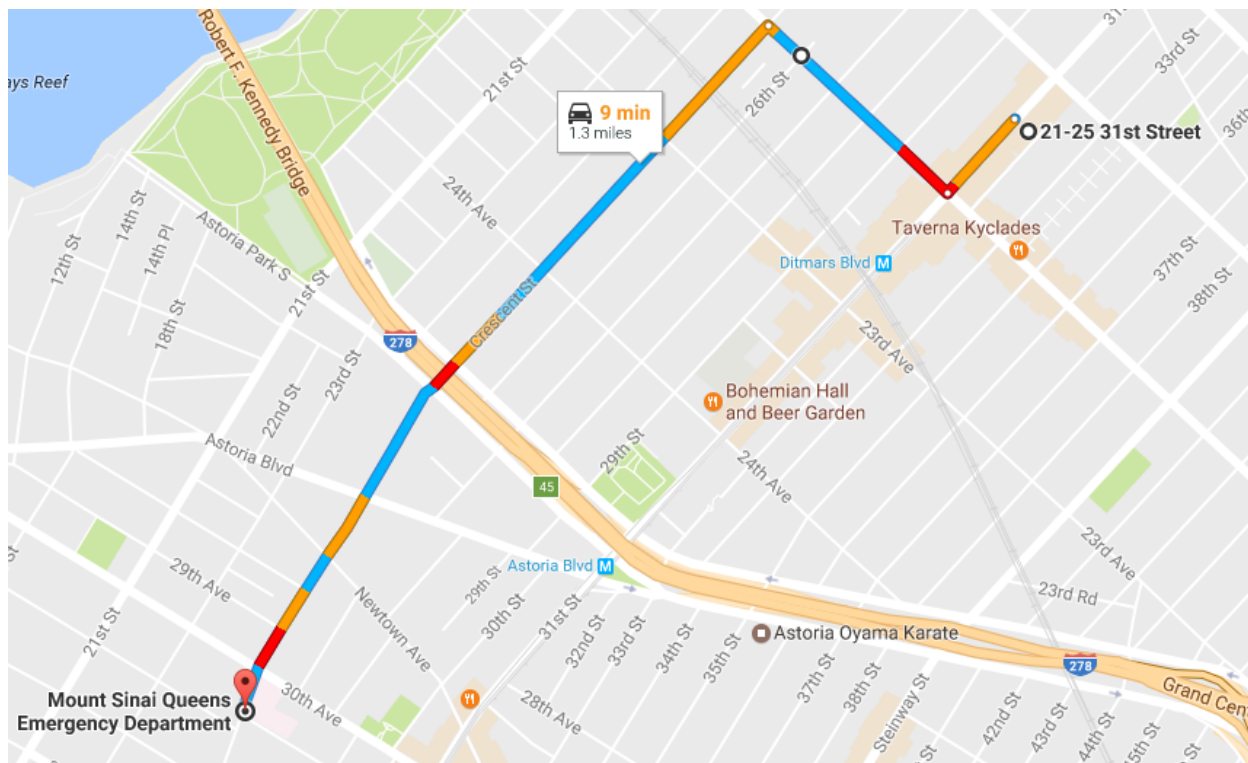
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

## 8.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—on-site personnel should drive him to a hospital. **The nearest emergency room is at Mount Sinai Queens Emergency Department, located at 30-19 Crescent Street.** The route to the hospital is shown and detailed on the next page.

## 8.1 Route to Hospital



1. Head southwest on 31<sup>st</sup> Street toward Ditmars Blvd.
2. Turn right at the 1<sup>st</sup> cross street onto Ditmars Blvd.
3. Turn left onto 25<sup>th</sup> St/Crescent St.
4. Travel 0.9 mile and destination will be on the left. Emergency room entrance is located on Crescent Street, right before the intersection with 30<sup>th</sup> Road.

Emergency Room: (718) 932-1000.

## 8.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

### Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 932-1000
NYSDEC Spill Hotline	(800) 457-7362
Tenen HSO, Mohamed Ahmed	(917) 612-6018
Client, John Petras	(718) 229-4488

## 9.0 TRAINING

All personnel performing the field activities described in this CHASP will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

## **10.0 MEDICAL SURVEILLANCE**

All Tenen and subcontractor personnel performing field work involving drilling or other subsurface disturbance at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

**Appendix A**

Acknowledgement of HASP



**ACKNOWLEDGMENT OF HASP**

Below is an affidavit that must be signed by all Tenen Environmental employees who enter the site. A copy of the CHASP must be on-site at all times and will be kept by the HSO.

**AFFIDAVIT**

I have read the Construction Health and Safety Plan (CHASP) for the 21-25 31<sup>st</sup> Street site. I agree to conduct all on-site work in accordance with the requirements set forth in this CHASP and understand that failure to comply with this CHASP could lead to my removal from the site.

Signature: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Signature: \_\_\_\_\_

Date: \_\_\_\_\_  
Date: \_\_\_\_\_  
Date: \_\_\_\_\_  
Date: \_\_\_\_\_  
Date: \_\_\_\_\_

**Appendix B**

Injury Reporting Form (OSHA Form 300)

OSHA’s Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

**Attention:** This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

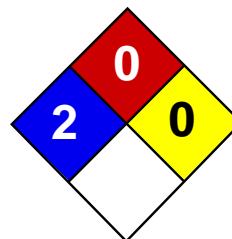
Establishment name \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Identify the person			Describe the case			Classify the case													
(A) Case no.	(B) Employee’s name	(C) Job title <i>(e.g., Welder)</i>	(D) Date of injury or onset of illness	(E) Where the event occurred <i>(e.g., Loading dock north end)</i>	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill <i>(e.g., Second degree burns on right forearm from acetylene torch)</i>	CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:	Check the “Injury” column or choose one type of illness:								
						Remained at Work				Away from work	On job transfer or restriction	(M)	Injury	Skin disorder	Respiratory condition	Poisoning	Hearing loss	All other illnesses	
						Death	Days away from work	Job transfer or restriction	Other record-able cases	(K)	(L)	(1)	(2)	(3)	(4)	(5)	(6)		
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**Appendix C**

Material Safety Data Sheets (MSDS)



Health	2
Fire	0
Reactivity	0
Personal Protection	G

## Material Safety Data Sheet

### Tetrachloroethylene MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Tetrachloroethylene

**Catalog Codes:** SLT3220

**CAS#:** 127-18-4

**RTECS:** KX3850000

**TSCA:** TSCA 8(b) inventory: Tetrachloroethylene

**CI#:** Not available.

**Synonym:** Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolve; Tetrachloroethene; Tetraleno; Tetralen; Tetralex; Tetravec; Tetraguer; Tetropil

**Chemical Name:** Ethylene, tetrachloro-

**Chemical Formula:** C<sub>2</sub>-Cl<sub>4</sub>

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**  
1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

**Toxicological Data on Ingredients:** Tetrachloroethylene: ORAL (LD<sub>50</sub>): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC<sub>50</sub>): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC<sub>50</sub>): Acute: 5200 ppm 4 hours [Mouse].

#### Section 3: Hazards Identification

##### Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

##### Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

## Section 4: First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

### Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

### Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

### Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

### Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

**Personal Protection:**

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Ethereal.

**Taste:** Not available.

**Molecular Weight:** 165.83 g/mole

**Color:** Clear Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 121.3°C (250.3°F)

**Melting Point:** -22.3°C (-8.1°F)

**Critical Temperature:** 347.1°C (656.8°F)

**Specific Gravity:** 1.6227 (Water = 1)

**Vapor Pressure:** 1.7 kPa (@ 20°C)

**Vapor Density:** 5.7 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 5 - 50 ppm

**Water/Oil Dist. Coeff.:** The product is more soluble in oil; log(oil/water) = 3.4

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:**

Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, metals, acids, alkalis.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium, barium. Protect from light.

**Special Remarks on Corrosivity:** Slowly corrodes aluminum, iron, and zinc.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

**Other Toxic Effects on Humans:**

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

**Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

**Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic). May cause cancer.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symptoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorientation, seizures, emotional instability, stupor, coma). It may cause pulmonary edema. Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver (hepatitis, fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/central nervous system/peripheral nervous system (impaired memory, numbness of extremities, peripheral neuropathy and other



## Section 12: Ecological Information

**Ecotoxicity:**

Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fathead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Tetrachloroethylene UNNA: 1897 PG: III

**Special Provisions for Transport:** Marine Pollutant

## Section 15: Other Regulatory Information

**Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:****WHMIS (Canada):**

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):**

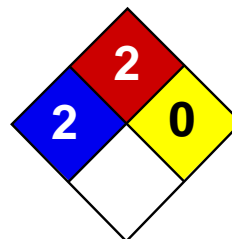
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

**HMIS (U.S.A.):****Health Hazard:** 2**Fire Hazard:** 0**Reactivity:** 0**Personal Protection:** g**National Fire Protection Association (U.S.A.):****Health:** 2**Flammability:** 0**Reactivity:** 0**Specific hazard:****Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

**Section 16: Other Information****References:** Not available.**Other Special Considerations:** Not available.**Created:** 10/10/2005 08:29 PM**Last Updated:** 05/21/2013 12:00 PM

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Health	2
Fire	2
Reactivity	0
Personal Protection	E

## Material Safety Data Sheet

### Naphthalene MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Naphthalene

**Catalog Codes:** SLN1789, SLN2401

**CAS#:** 91-20-3

**RTECS:** QJ0525000

**TSCA:** TSCA 8(b) inventory: Naphthalene

**CI#:** Not available.

**Synonym:**

**Chemical Name:** Not available.

**Chemical Formula:** C<sub>10</sub>H<sub>8</sub>

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Naphthalene	91-20-3	100

**Toxicological Data on Ingredients:** Naphthalene: ORAL (LD50): Acute: 490 mg/kg [Rat]. 533 mg/kg [Mouse]. 1200 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit]. VAPOR (LC50): Acute: 170 ppm 4 hour(s) [Rat].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:** Not available.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 567°C (1052.6°F)

**Flash Points:** CLOSED CUP: 88°C (190.4°F). OPEN CUP: 79°C (174.2°F).

**Flammable Limits:** LOWER: 0.9% UPPER: 5.9%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

**Fire Hazards in Presence of Various Substances:** Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

Flammable solid. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

### Precautions:

Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

### Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

Israel: TWA: 10 (ppm) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [1995] TWA: 52 STEL: 79 (mg/m<sup>3</sup>) from ACGIH [1995]  
Australia: STEL: 15 (ppm) Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Crystalline solid.)

**Odor:** Aromatic.

**Taste:** Not available.

**Molecular Weight:** 128.19 g/mole

**Color:** White.

**pH (1% soln/water):** Not available.

**Boiling Point:** 218°C (424.4°F)

**Melting Point:** 80.2°C (176.4°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.162 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** 4.4 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 0.038 ppm

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:**

Partially dispersed in hot water, methanol, n-octanol. Very slightly dispersed in cold water. See solubility in methanol, n-octanol.

**Solubility:**

Partially soluble in methanol, n-octanol. Very slightly soluble in cold water, hot water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Highly reactive with oxidizing agents.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** May attack some forms of rubber and plastic

**Polymerization:** No.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 490 mg/kg [Rat]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 170 ppm 4 hour(s) [Rat].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS).

**Other Toxic Effects on Humans:**

Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

## Section 12: Ecological Information

**Ecotoxicity:** Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout].

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

### Section 14: Transport Information

**DOT Classification:** CLASS 4.1: Flammable solid.

**Identification:** : Naphthalene, refined : UN1334 PG: III

**Special Provisions for Transport:** Marine Pollutant

### Section 15: Other Regulatory Information

**Federal and State Regulations:**

Rhode Island RTK hazardous substances: Naphthalene Pennsylvania RTK: Naphthalene Florida: Naphthalene Minnesota: Naphthalene Massachusetts RTK: Naphthalene TSCA 8(b) inventory: Naphthalene TSCA 8(a) PAIR: Naphthalene TSCA 8(d) H and S data reporting: Naphthalene: 06/01/87 SARA 313 toxic chemical notification and release reporting: Naphthalene: 1% CERCLA: Hazardous substances.: Naphthalene: 100 lbs. (45.36 kg)

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):**

CLASS B-4: Flammable solid. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

**DSCL (EEC):**

R36- Irritating to eyes. R40- Possible risks of irreversible effects. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation. R63- Possible risk of harm to the unborn child.

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 2

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 2

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/11/2005 01:30 PM

**Last Updated:** 11/01/2010 12:00 PM

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# Material Safety Data Sheet

## 1,2,4,5-Tetramethylbenzene, 99% (UV-VIS)

ACC# 75500

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** 1,2,4,5-Tetramethylbenzene, 99% (UV-VIS)

**Catalog Numbers:** AC138370050, AC138372500, AC409390050, AC409391000, AC409395000

**Synonyms:** Durene; Durol; 2,5-Dimethyl-p-xylene; sym-1,2,4,5-Tetramethylbenzene.

**Company Identification:**

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

**For information in North America, call:** 800-ACROS-01

**For emergencies in the US, call CHEMTREC:** 800-424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
95-93-2	1,2,4,5-Tetramethylbenzene	>98	202-465-7

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: white crystalline powder. Flash Point: 54 deg C.

**Warning!** Material is a solid at 20°C (68°F) that melts upon moderate heating into a flammable liquid. Flammable solid. May cause eye, skin, and respiratory tract irritation.

**Target Organs:** No data found.

#### Potential Health Effects

**Eye:** May cause eye irritation.

**Skin:** May cause skin irritation.

**Ingestion:** May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated.

**Inhalation:** May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. Vapors may cause dizziness or suffocation.

**Chronic:** No information found.

### Section 4 - First Aid Measures

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Liquid will float and may reignite on the surface of water. Flammable solid. May burn rapidly with flare burning effect. May re-ignite after fire is extinguished.

**Extinguishing Media:** For large fires, use water spray, fog or regular foam. For small fires, use dry chemical, carbon dioxide, sand, earth, water spray or regular foam.

**Flash Point:** 54 deg C ( 129.20 deg F)

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:**Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 0; Flammability: 2; Instability: 0

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep from contact with moist air and steam. Avoid breathing vapor.

**Storage:** Keep away from sources of ignition. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels. Wet processing methods may be used to reduce dust generation.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,2,4,5-Tetramethylbenzene	none listed	none listed	none listed

**OSHA Vacated PELs:** 1,2,4,5-Tetramethylbenzene: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Crystalline powder

**Appearance:** white

**Odor:** camphor

**pH:** Not available.

**Vapor Pressure:** 0.528 mm Hg @ 25 deg C

**Vapor Density:** 4.6 (air=1)

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 191-197 deg C @ 760 mm Hg

**Freezing/Melting Point:** 77-82 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Insoluble.

**Specific Gravity/Density:** 0.838 g/cm<sup>3</sup>

**Molecular Formula:** C<sub>10</sub>H<sub>14</sub>

**Molecular Weight:** 134.22

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Volatile in steam.

**Conditions to Avoid:** Ignition sources, dust generation, excess heat, steam.

**Incompatibilities with Other Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

### RTECS#:

CAS# 95-93-2: DC0500000

### LD50/LC50:

CAS# 95-93-2:

Oral, mouse: LD50 = 3400 mg/kg;

Oral, rat: LD50 = 6989 mg/kg;

Oral, rat: LD50 = 6700 mg/kg;

### Carcinogenicity:

CAS# 95-93-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** No information found

**Neurotoxicity:** No information found  
**Other Studies:**

## Section 12 - Ecological Information

No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	FLAMMABLE SOLIDS, ORGANIC, N.O.S.	Flammable Solid, Organic, N.O.S.
<b>Hazard Class:</b>	4.1	4.1
<b>UN Number:</b>	UN1325	UN1325
<b>Packing Group:</b>	III	III

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 95-93-2 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 95-93-2: fire.

#### Section 313

No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### STATE

CAS# 95-93-2 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

### European/International Regulations

#### European Labeling in Accordance with EC Directives

#### Hazard Symbols:

F

#### Risk Phrases:

R 11 Highly flammable.

#### Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

#### WGK (Water Danger/Protection)

CAS# 95-93-2: 1

#### Canada - DSL/NDSL

CAS# 95-93-2 is listed on Canada's DSL List.

#### Canada - WHMIS

This product has a WHMIS classification of B4, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

Section 16 - Additional Information
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**MSDS Creation Date:** 8/24/1997

**Revision #4 Date:** 8/24/2005

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## **APPENDIX 8 – SITE MANAGEMENT FORMS**

## GROUNDWATER SAMPLING LOG

Site Name	21-25 31st Street, Astoria, NY	Date	
Well No.		Sample ID	MW-2S

Well Diameter	2 inches	Depth to Water	ft-bg
Well Screen Interval	32-43 ft-bg		
Headspace PID	ppm		
Weather			

Pump	
Water Quality Meter	
Total Volume Purged	gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm

Notes:

## GROUNDWATER SAMPLING LOG

Site Name	21-25 31st Street, Astoria, NY	Date	
Well No.		Sample ID	MW-2D

Well Diameter	2 inches	Depth to Water	ft-bg
Well Screen Interval	70-75 ft-bg		
Headspace PID	ppm		
Weather			

Pump	
Water Quality Meter	
Total Volume Purged	gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm

Notes:

## GROUNDWATER SAMPLING LOG

Site Name	21-25 31st Street, Astoria, NY	Date	
Well No.		Sample ID	MW-3S

Well Diameter	2 inches	Depth to Water	ft-bg
Well Screen Interval	33-43 ft-bg		
Headspace PID	ppm		
Weather			

Pump	
Water Quality Meter	
Total Volume Purged	gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm

Notes:



## GROUNDWATER SAMPLING LOG

Site Name	21-25 31st Street, Astoria, NY	Date	
Well No.		Sample ID	MW-7S

Well Diameter	2 inches	Depth to Water	ft-bg
Well Screen Interval	33-43 ft-bg		
Headspace PID	ppm		
Weather			

Pump	
Water Quality Meter	
Total Volume Purged	gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm

Notes:

## GROUNDWATER SAMPLING LOG

Site Name	21-25 31st Street, Astoria, NY	Date	
Well No.		Sample ID	MW-8S

Well Diameter	2 inches	Depth to Water	ft-bg
Well Screen Interval	33-43 ft-bg		
Headspace PID	ppm		
Weather			

Pump	
Water Quality Meter	
Total Volume Purged	gallons

Time	Temperature deg-C	pH SU	ORP mV	Conductivity mS/cm	Turbidity NTU	Dissolved Oxygen mg/L	Total Dissolved Solids ppm

Notes: