



## New York State Department of Environmental Conservation

### REMEDIAL ACTION WORK PLAN

POP Displays Manufacturing Site  
30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard  
Queens, NY 11102

NYSDEC SITE NO. C241181

H2M Project No.: CAPE1801

**May 9, 2018**

**Prepared for:**

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# REMEDIAL ACTION WORK PLAN

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## LIST OF ACRONYMS

Acronym	Definition
1,1,1-TCA	1,1,1-tetrachloroethane
1,1-DCE	1,1-dichloroethylene
6 NYCRR	Title 6 of New York Codes, Rules and Regulations
AOCs	Areas of Concern
AGV	Air Guidance Value
AST	Aboveground Storage Tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BOA	Brownfield Opportunity Area
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CAMP	Community Air Monitoring Plan
CHASP	Construction Health and Safety Plan
cis-1,2-DCE	cis-1,2-dichloroethylene
COC	Certificate of Completion
CPP	Citizen Participation Plan
CVOC	Chlorinated Volatile Organic Compounds
DCR	Declaration of Covenant and Restrictions
DER-10	Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation
DNAPL	dense non-aqueous phase liquids
DUSR	Data Usability Summary Report
ECs/ICs	Engineering Controls and Institutional Controls
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
FER	Final Engineering Report
ftbg	feet below grade
GA WQS	New York State Class GA Water Quality Standards
GPS	Global Positioning System
H2M	H2M architects + engineers
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
IVI	IVI Assessment Services, Inc.
LNAPL	light non-aqueous phase liquids
MDLs	minimum detection limits
mg/kg	milligrams per kilogram
MIP	membrane interface probe
msl	mean sea level
MTBE	methyl tert-butyl ether
NAVD88	North American Vertical Datum of 1988
NYSDEC	New York State Department of Environmental Conservation
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation

<b>Acronym</b>	<b>Definition</b>
OSHA	United States Occupational Health and Safety Administration
PAHs	polycyclic aromatic hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PE	Professional Engineer
PID	Photo Ionization Detector
PM-10	particulate matter less than 10 micrometers in size
PPE	personal protective equipment
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RIR	Remedial Investigation Report, POP Displays Manufacturing Site, 30-80 12th Street and 30-77 Vernon Boulevard, Queens, NY 11102", dated November 23, 2016
RRSCOs	Track 2 Restricted-Residential Soil Cleanup Objectives
RSCOs	Track 2 Residential Soil Cleanup Objectives
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SESI	SESI Consulting Engineers
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SSDS	sub-slab depressurization system
SVOCs	semi-volatile organic compounds
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
µg/m <sup>3</sup>	micrograms per cubic meter
UST	underground storage tank
UUSCOs	Track 1 Unrestricted Use Soil Cleanup Objectives
VISL	Vapor Intrusion Screening Level
VOCs	volatile organic compounds

## CERTIFICATION

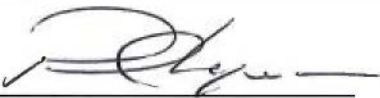
I, Paul R. Lageraen, certify that I am currently a registered professional engineer (PE) licensed by the State of New York and that this Remedial Action Work Plan (RAWP) for the POP Displays Manufacturing Site, Site Number C241181, was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10).

I, Gregory M. Cellamare, am a qualified Environmental Professional (QEP) as defined in New York Codes, Rules, and Regulations (6 NYCRR) Part 375. I will have primary direct responsibility for implementation of the remedial program for the POP Displays Manufacturing Site, Site Number C241181.

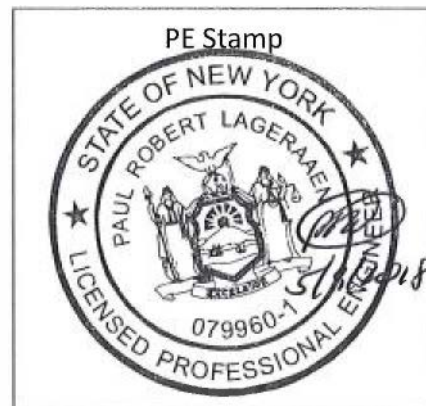
This RAWP has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Paul R. Lageraen  
NYS PE

079960  
PE License Number

  
PE Signature

May 9, 2018  
Date



Gregory M. Cellamare  
QEP

  
QEP Signature

May 9, 2018  
Date

## **EXECUTIVE SUMMARY**

The Volunteer, 11-12 30<sup>th</sup> Drive LLC, is working with the NYSDEC in the New York State Brownfield Cleanup Program (BCP) to investigate and remediate a 2.75-acre Site located at 30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard in the Astoria section of Queens, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this RAWP. The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance, and conforms with applicable laws and regulations.

### **Site Location and Background**

The Site is located at 30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard in the Astoria section of Queens, New York and is identified as a newly created tax lot, Block 504, Lot 3 on the New York City Tax Map. The Site was formerly identified as Block 504, Lots 3 and 21, which were merged in August 2015. The Site is 2.75 acres (former Lot 3 is 0.48 acres and former Lot 21 is 2.27 acres) and is bounded to the north by 30<sup>th</sup> Drive; to the south by 31<sup>st</sup> Avenue; to the east by 12<sup>th</sup> Street; and to the west by Vernon Boulevard, beyond which lies the East River. Currently, the Site is improved with one building. The smaller, southern portion of the Site along 31<sup>st</sup> Avenue includes a one-story commercial building reportedly constructed in 1962 and is occupied by Intersection, an advertising display company. The larger, northern portion of the Site currently consists of a slab-on-grade for a former one-story warehouse building demolished in early 2016 and gravel/concrete parking lots on both the east and west sides of the slab-on-grade.

### **Summary of Redevelopment Plan**

The proposed future use of the Site will consist of a planned 657,332 gross square foot 80/20 inclusionary housing development inclusive of two buildings. Collectively, the two buildings will contain a total of 711 units, of which 569 will be market rate units and 142 will be affordable housing units. 30-77 Vernon Boulevard will be a nine-story building with 565 market rate units and 200 on-site (below grade) parking spaces. 30-80 12<sup>th</sup> Street, the adjacent inclusionary housing building, will be a six-story 146-unit residential building, containing at least 142 affordable and up to four market rate units. The building services and amenities will include a landscaped courtyard/garden and recreational area, bicycle storage, and on-site (below grade) parking. The current zoning designation is R7a and R6, general residence districts, with a C1-3 local retail district overlay. The R7 and R6 districts are designed to provide for all types of residential



buildings, to permit a broad range of housing types. The C1 district is designed to provide for local shopping and include a wide range of retail stores and personal service establishments which cater to frequently recurring needs. These districts are required to be near residential areas, and are relatively unobjectionable to nearby residences. The proposed use is consistent with existing zoning for the property.

North American Vertical Datum (NAVD88) elevation at the Site ranges from approximately 10 feet mean sea level (msl) at the western property boundary to approximately 20 feet msl at the northeast corner of the property boundary. The current design of the new development proposes the elevation of the top of the finished floor in the basement (lowest) level to be approximately -1.5 feet msl. Assuming over excavation of approximately 3.5 feet will be required to install the basement slab, the entire Site will be excavated to an approximate elevation of -5.0 feet msl. Therefore, maximum excavation depths are currently estimated to be between 15 to 25 feet below grade (ftbg). Excavation is required to prepare the Site for the proposed development, which will include a sub-grade basement with a parking garage. Excavation is anticipated to be at or above the groundwater table; therefore, dewatering during excavation is anticipated. As part of the development, the former structure at former Lot 21 was demolished and the existing structure at former Lot 3 is scheduled for future demolition.

### **Summary of Surrounding Property**

The surrounding area consists of an urban setting of mixed uses. The immediate area surrounding the Site to the north includes multi-family residential and industrial properties; to the south includes multi-family residential, industrial, and a mental health facility; to the east includes multi-family and one & two family residential properties; and to the west across Vernon Boulevard are vacant lots and Socrates Sculpture Park followed by the East River. The adjoining property to the southwest is a multi-family residential property and the adjoining property to the southeast is mixed use. Potential sensitive receptors within 500 feet of the Site boundary include the Astoria District Health Center, located approximately 400 feet southeast of the Site, the Ideal Islamic School, located approximately 380 feet south of the Site, and the Islamic Unity & Cultural Center, located approximately 415 feet south of the Site.

### **Summary of Past Site Uses and Areas of Concern**

Former Lot 3 was occupied by a commercial or industrial building in the 1920's which was noted on the 1928 Sanborn Map to be the Sunswick Plush Co.'s facility. Research on this company did not reveal the

exact nature of their business, but it may have been a textile company that later moved to Brooklyn. Sometime before 1936, this building was demolished. Thereafter, aerial photographs from 1951 through 1966 indicated former Lot 3 was partially used as truck parking and a possible fueling area, and may have been part of General Motors operations on former Lot 21 during this time. Around 1962, however, a commercial warehouse type building was constructed and subsequently operated by Kikkoman, Japan Foods, and then Jewel Garage Operating Corporation as of 1972. Afterwards, it was used for a variety of warehousing operations.

A search of the deeds in the title reports, and other sources of evidence, including Sanborn maps and City Directories revealed that former Lot 21 has a long industrial and manufacturing history. Specifically, General Motors Corporation's Parts Division owned and occupied that portion of the Site for approximately forty years, from the late 1930's to the mid to late 1970's. Thereafter, a company known as POP Displays, Inc. occupied that same portion. During POP Displays, Inc.'s ownership and tenure, it was a large quantity, small quantity, and then a conditionally exempt generator of hazardous waste, namely non-halogenated solvents. Bohea Associates NY, Ltd., primarily utilized former Lot 21 as a warehouse for the storage and distribution of packaged foods until September 30, 2015.

Based on the previous environmental investigations completed at the Site, the following Areas of Concern (AOCs) were identified:

1. Chlorinated solvents discharge: The Phase II investigations previously performed by SESI Consulting Engineers (SESI) and IVI Assessment Services, Inc. (IVI) indicated elevated chlorinated volatile organic compounds (CVOCs) in the Site soil vapor.
2. Polycyclic Aromatic Hydrocarbons (PAH) in soils: A Phase II completed by SESI in November 2015 concluded that a soil sample collected from the western portion of the Site resulted in concentrations of several PAHs above applicable criteria.
3. Groundwater: One groundwater sample collected by SESI from a monitoring well located in the eastern portion of the Site resulted in a concentration of dieldrin (a pesticide) above its applicable standard.
4. Aboveground Storage Tanks (ASTs): Two unregistered ASTs were identified at the Site within the former cellar of the demolished building on former Lot 21 during the Phase I completed by IVI in February 2014.

5. Evidence of an unregistered underground storage tank (UST) was discovered beneath the concrete slab of the building on former Lot 3 during a geophysical survey as part of a Phase II completed by IVI. The presence of the UST was subsequently confirmed during the Site inspection completed by H2M architects + engineers (H2M) on July 20, 2016.

### **Summary of Work Performed under the Remedial Investigation**

H2M was retained by the Volunteer, 11-12 30<sup>th</sup> Drive LLC, which performed the scope of work detailed in the numbered list below as the Engineer of Record for the project. The field work for the RI was completed from July 19 to 21, July 25 and 28, August 1 to 4, August 8 and 9, August 11 to 17, September 9 and 10, and November 9, 2016. The scope of the RI included:

1. A Site inspection to identify visual AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. A preliminary study to determine relative aquifer and stratigraphy characteristics and to log the relative concentration of volatile organic compounds (VOCs) in soil and groundwater with a membrane interface probe (MIP) attached to a direct push drill rig;
3. A geophysical survey in select portions of the Site;
4. An Interim Remedial Measure (IRM) to remove and administratively close two ASTs located on former Lot 21. The IRM included removal of the ASTs, installation of seven soil borings, and collection of seven soil samples for chemical analysis to evaluate soil quality;
5. Installation of 25 soil borings and one test pit across the entire project Site, and collection of 27 soil samples for chemical analysis from the soil borings and test pit to evaluate soil quality;
6. Installation of 16 groundwater monitoring wells throughout the Site to establish groundwater flow direction and collection of 16 groundwater samples for chemical analysis to evaluate groundwater quality;
7. Installation of six soil vapor probes around the Site perimeter, including two off site and four on site, and collection of six samples for chemical analysis. In addition, one indoor air sample was collected within the existing building on former Lot 3.

## Summary of Findings of Remedial Investigation

1. The Site's average topographic elevation is approximately 10 feet above msl.
2. The average depth to groundwater is 16.75 ftbg and the range in depth is 14.07 to 17.98 ftbg.
3. Groundwater flow in the deep monitoring wells is from the northeast to the southwest in the eastern portion of the Site and from east to west in the western portion of the Site. The groundwater contours for the shallow wells indicate the flow is from northeast to southwest in the eastern portion of the Site and to the west-northwest in the western portion of the Site. In general, groundwater flows towards the East River located approximately 80 feet west of the Site's western property line.
4. Bedrock was encountered throughout the Site at varying depths ranging from 30 to 68 ftbg. In general, bedrock was encountered at deeper depths in the eastern portion of the Site. Shallower bedrock was identified in the western portion of the Site.
5. The Site is underlain by a fine to coarse sandy material intermixed with unconsolidated layers of cobbles and gravel. There were no visual indications of historic fill material at the Site; however, PAHs detected in some of the soil samples exhibited concentrations that would typically be present in historic fill material in New York City. No visual indications of site wide impermeable layers were observed. However, clay layers were identified near two monitoring well clusters. At the MW-1 cluster, a five-foot-thick layer was identified at 25 to 30 ftbg and an approximately seven-foot-thick layer was identified from approximately 32 to 39 ftbg at the MW-6 cluster. An eight-foot-thick finer grained layer, likely clayey silt, was observed from 31 to 40 ftbg near the MW-2 cluster.
6. Soil samples at the Site indicated one VOC was detected above its respective Track 1 Unrestricted Use Soil Cleanup Objectives (UUSCO). Acetone, a solvent, was detected at a concentration of 0.0672 milligrams per kilogram (mg/kg) exceeding its Track 1 UUSCO of 0.05 mg/kg; however, the concentration was several orders of magnitude below its Track 2 Residential Soil Cleanup Objective (RSCO) of 100 mg/kg. No semi-volatile organic compounds (SVOCs) were detected above their respective Track 1 UUSCOs or Track 2 RSOCs; however, 14 SVOCs were detected above laboratory minimum detection limits (MDLs). Twelve of these 14 SVOCs belong to a group of SVOCs known as PAHs. Iron was detected above the Track 2 RSCO

of 2,000 mg/kg in all the soil samples collected at the Site, ranging from 6,610 mg/kg at SB-42 to 18,600 mg/kg at UST-1. There is no Track 1 UUSCO developed for iron. Selenium was detected in 12 of the 16 soil samples analyzed, ranging from 0.625 mg/kg to 4.21 mg/kg. The Selenium concentration of 4.21 mg/kg in the soil sample collected from SB-35, exceeds its Track 1 UUSCO of 3.9 mg/kg; however, the concentration was below its Track 2 RSCO of 36 mg/kg. Selenium is known to be contained in pigments that are used in paints, inks, etc., which may have been utilized as part of POP Displays manufacturing process.

7. Groundwater samples at the Site indicated no VOCs were detected at concentrations exceeding class GA water quality standards (GA WQS); however, six VOCs were detected at low levels. Two of the six VOCs, methyl tert-butyl ether (MTBE) and toluene, are typically associated with gasoline contamination. The remaining four VOCs detected at low levels were trichlorethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1-dichloroethylene (1,1-DCE), and chloroform. All four are chlorinated solvents classified as CVOCs.
8. Soil vapor samples collected during the RI showed a wide range of compounds throughout the Site including benzene, toluene, ethylbenzene, xylene (BTEX) and associated derivative compounds, naphthalene, and chlorinated hydrocarbons. One or more BTEX compounds and associated derivatives were found in all vapor samples and included a wide number of compounds. Naphthalene was detected in five of the seven vapor samples, ranging in concentrations from 2.36 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to 12.6  $\mu\text{g}/\text{m}^3$ . Chlorinated hydrocarbons were also commonly observed in all soil vapor samples. Chloroform was detected in five of seven vapor samples, ranging from 0.49  $\mu\text{g}/\text{m}^3$  to 142  $\mu\text{g}/\text{m}^3$ , with one sample exceeding the United States Environmental Protection Agency (EPA) Vapor Intrusion Screening Level (VISL) of 4.1  $\mu\text{g}/\text{m}^3$ . Tetrachloroethylene (PCE) was detected in all vapor samples at concentrations ranging from 0.54  $\mu\text{g}/\text{m}^3$  to 321  $\mu\text{g}/\text{m}^3$ . TCE was detected in five of seven vapor samples at concentrations ranging from 0.86  $\mu\text{g}/\text{m}^3$  to 15  $\mu\text{g}/\text{m}^3$ . Other chlorinated hydrocarbons detected at the Site included 1,1,1-tetrachloroethane (1,1,1-TCA) (maximum 74.8  $\mu\text{g}/\text{m}^3$ ), carbon tetrachloride (maximum 0.44  $\mu\text{g}/\text{m}^3$ ), and methylene chloride (maximum 5.21  $\mu\text{g}/\text{m}^3$ ). The vapor results were compared to the EPA VISL concentrations presented in the EPA Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (June 2015). Naphthalene concentrations detected in four of the seven vapor samples exceeded the EPA VISL of 2.8

$\mu\text{g}/\text{m}^3$  for naphthalene, indicating that mitigation may be required. The chloroform concentration detected in one of the seven vapor samples exceeded the EPA VISL of  $4.1 \mu\text{g}/\text{m}^3$  for chloroform, indicating that mitigation may be required. Although the State of New York does not have any standards, criteria or guidance values for concentrations of volatile chemicals in subsurface vapors (either soil vapor or sub-slab vapor), for general comparison, the vapor results were compared to their corresponding New York State Department of Health (NYSDOH) Air Guidance Values (AGVs), which are intended for vapor present in indoor air. PCE concentrations detected in four of the seven vapor samples at the Site are above the corresponding AGV of  $30 \mu\text{g}/\text{m}^3$ . Detected TCE concentrations in three of the vapor samples exceeded the corresponding AGV of  $2 \mu\text{g}/\text{m}^3$ . Methylene chloride was detected at concentrations ranging between  $0.83 \mu\text{g}/\text{m}^3$  and  $5.21 \mu\text{g}/\text{m}^3$ , which are below the corresponding AGV of  $60 \mu\text{g}/\text{m}^3$ . In addition to the AGVs, the vapor results were compared to concentrations which may require monitoring or mitigation as presented in Matrix 1 and Matrix 2 presented in the NYSDOH guidance document. PCE detected in soil vapor sample SV-804 at a concentration of  $321 \mu\text{g}/\text{m}^3$  and TCE detected in soil vapor sample SV-806 at a concentration of  $15 \mu\text{g}/\text{m}^3$  both indicate that monitoring or mitigation may be required.

### **Summary of the Remedial Action**

The preferred remedial action achieves protection of public health and the environment for the intended use of the property. The preferred remedial action will achieve the remedial action objective (RAO) established for the project and is effective in both the short-term and long-term, and reduces mobility of soil-vapor contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Implementation of the Community Protection Statement described in the following section and performance of all required NYSDEC Citizen Participation activities per the approved Citizen Participation Plan (CPP).
2. Site mobilization involving Site security setup, equipment mobilization, utility mark outs, and marking and staking excavation areas associated with the removal of the UST.
3. Implementation of Site preparation activities including building demolition and underpinning of adjacent structures to remove the UST and install a vapor barrier.

4. Excavation and removal of one UST identified at the southern portion of former Lot 3 in accordance with Section 5.5 of DER-10 and reporting of any petroleum spills associated with the UST and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations. It is anticipated that approximately 80 tons of soil will be excavated as part of UST removal.
5. Performance of a Community Air Monitoring Plan (CAMP) for particulates and VOCs during excavation and removal of the UST.
6. Should suspect unclassified soil be encountered during mass excavation of soil as part of construction, confirmation endpoint samples will be collected as directed by NYSDEC. Based on confirmation endpoint sample results additional excavation may be required to achieve the desired soil cleanup objectives.
7. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
8. An engineering control consisting of a waterproofing/vapor barrier system. The waterproofing/vapor barrier will consist of a 47-mil Grace Preprufe 300R (or equivalent) vapor barrier. The waterproofing/vapor barrier system will be installed beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the buildings.
9. Dewatering in compliance with city, state, and federal laws and regulations to facilitate the installation of the required vapor barrier. Extracted groundwater will either be containerized for off-site licensed or permitted disposal or will be treated under a permit from the New York City Department of Environmental Protection (NYCDEP) to meet pretreatment requirements prior to discharge to the sewer system.
10. Implementation of stormwater pollution prevention measures in compliance with applicable laws and regulations.
11. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
12. Institutional Controls in the form of an environmental easement requiring implementation of the Site Management Plan (SMP) by the property owner and property owner's successors and assigns.
13. Submission of a Final Engineering Report (FER) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and lists any changes from this RAWP.

## **COMMUNITY PROTECTION STATEMENT**

The NYSDEC provides governmental oversight for the cleanup of contaminated property in New York State. This RAWP (cleanup plan) describes the findings of prior environmental studies, and describes the plans to clean up the Site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

### **Project Information:**

- Site Name: POP Displays Manufacturing Site
- Site Address: 30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard
- New York State BCP Project Number: C241181
- Document repositories:
  - Queens Community Board 1  
45-02 Ditmars Boulevard, LL Suite 1025  
Astoria, NY 11105
  - Queens Astoria Library  
14-01 Astoria Boulevard  
Long Island City, NY 11102

### **Project Contacts:**

- NYSDEC Project Manager: Ms. Caroline Eigenbrodt, 518-402-9621
- Site Project Manager: Mr. Gregory M. Cellamare, 646-518-6300 x1641
- Site Safety Officer: Mr. Paul R. Lageraen, 631- 756-8000 x1483

### **Remedial Investigation and Cleanup Plan**

Under the oversight of the NYSDEC, a thorough study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater, and soil vapor,



and to identify any contaminant sources present on the property. This cleanup plan has been designed to address all contaminants that have been identified during the study of this property.

### **Identification of Sensitive Land Uses**

Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

### **Qualitative Human Health Exposure Assessment**

An important part of the cleanup planning for the Site is a study to find all the ways that people might encounter contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to encounter this contamination. All identified public exposures will be addressed under this cleanup plan.

### **Health and Safety Plan**

This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-site workers. The elements of this RAWP comply with applicable safety requirements of the United States Occupational Safety and Health Administration (OSHA). This RAWP includes many protective elements including those discussed below.

### **Site Safety Coordinator**

This project has a designated Site safety coordinator to implement the CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is identified at the beginning of this Community Protection Statement.

### **Worker Training**

Workers participating in cleanup of contaminated material on this project are required to be trained in 40-hour hazardous waste operations and emergency response (HAZWOPER) and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

### **Community Air Monitoring Plan**

Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust, and odors. Air samples will be tested in accordance with a detailed plan called the CAMP. Results will be regularly reported to the NYSDEC.

### **Odor, Dust, and Noise Control**

This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with applicable New York City noise control standards. If you observe problems in these areas, please contact the on-site Project Manager or NYSDEC Project Manager listed on the first page of this Community Protection Statement document.

### **Quality Assurance**

This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the FER. This report will be submitted to the NYSDEC and will be thoroughly reviewed.

### **Stormwater Management**

To limit the potential for soil erosion and discharge, this cleanup plan has provisions for stormwater management. The main elements of the stormwater management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

### **Hours of Operation**

The hours for operation of cleanup will comply with the NYCDOB construction code requirements or as per specific variances issued by that agency.

### **Signage**

While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYSDEC BCP and provides project

contact names and numbers, and information for the document repository where project documents can be reviewed.

### **Complaint Management**

The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager or the NYSDEC Project Manager listed on the first page of this Community Protection Statement document, or call 311.

### **Utility Mark-outs**

To promote safety during potential excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYCDOB regulations.

### **Soil and Liquid Disposal**

All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations, and required permits will be obtained.

### **Soil Chemical Testing and Screening**

All potential excavations that are part of the remedy will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil that is part of the remedy will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

### **Stockpile Management**

Soil stockpiles will be kept covered with tarps to prevent dust, odor and erosion. Stockpiles will be inspected on a daily basis. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed, to protect stormwater catch basins and other discharge points.

### **Trucks and Covers**

Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation (NYSDOT). If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with applicable laws and regulations.

### **Imported Material**

All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on the Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

### **Equipment Decontamination**

All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

### **Housekeeping**

Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

### **Truck Routing**

Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

**Final Report**

The results of all cleanup work will be fully documented in a final report (called the FER) that will be available for public review. Information for the document repositories with access to all the project documents for the Site are listed on the first page of this Community Protection Statement document.

**Long-Term Site Management**

If long-term protection is needed after the cleanup is complete, the property owner will be required to comply with an ongoing SMP that calls for continued inspection of protective controls, such as Site covers. The SMP is evaluated and approved by the NYSDEC. Requirements that the property owner must comply with are defined either in the property's deed or established through a city environmental designation registered with the NYCDOB. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

# REMEDIAL ACTION WORK PLAN

## 1.0 PROJECT BACKGROUND

The Volunteer, 11-12 30<sup>th</sup> Drive LLC, is working with the NYSDEC in the New York State BCP to investigate and remediate a 2.75-acre site located at 30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard in the Astoria section of Queens, New York (the Site). A RI was performed to compile and evaluate data and information necessary to develop this RAWP in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes a RAO, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

### 1.1 SITE LOCATION AND BACKGROUND

The Site is located at 30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard in the Astoria section of Queens, New York and is identified as a newly created tax lot, Block 504, Lot 3 on the New York City Tax Map. The Site was formerly identified as Block 504, Lots 3 and 21, which were merged in August 2015. **Figure 1** shows the Site location. The Site is 2.75 acres (former Lot 3 is 0.48 acres and former Lot 21 is 2.27 acres) and is bounded to the north by 30<sup>th</sup> Drive; to the south by 31<sup>st</sup> Avenue; to the east by 12<sup>th</sup> Street; and to the west by Vernon Boulevard, beyond which lies the East River. A map of the site boundary is shown in **Figure 2**. Currently, the Site is improved with one building. The smaller, southern portion of the Site along 31<sup>st</sup> Avenue includes a one-story commercial building reportedly constructed in 1962 and is occupied by Intersection, an advertising display company. The larger, northern portion of the Site currently consists of a slab-on-grade for a former one-story warehouse building demolished in early 2016 and gravel/concrete parking lots on both the east and west sides of the slab-on-grade.

### 1.2 REDEVELOPMENT PLAN

The proposed future use of the Site will consist of a planned 657,332 gross square foot 80/20 inclusionary housing development inclusive of two buildings. Collectively, the two buildings will contain a total of 711 units, of which 569 will be market rate units and 142 will be affordable housing units. 30-77 Vernon Boulevard will be a nine-story building with 565 market rate units and 200 on-site (below grade) parking spaces. 30-80 12<sup>th</sup> Street, the adjacent inclusionary housing building, will be a six-story 146-unit residential

building, containing at least 142 affordable and up to four market rate units. The building services and amenities will include a landscaped courtyard/garden and recreational area, bicycle storage, and on-site (below grade) parking. Layout of the proposed Site development is presented in **Figure 3A & 3B**. The current zoning designation is R7a and R6, general residence districts, with a C1-3 local retail district overlay. The R7 and R6 districts are designed to provide for all types of residential buildings, to permit a broad range of housing types. The C1 district is designed to provide for local shopping and include a wide range of retail stores and personal service establishments which cater to frequently recurring needs. These districts are required to be near residential areas, and are relatively unobjectionable to nearby residences. The proposed use is consistent with existing zoning for the property.

NAVD88 elevation at the Site ranges from approximately 10 feet msl at the western property boundary to approximately 20 feet msl at the northeast corner of the property boundary. The current design of the new development proposes the elevation of the top of the finished floor in the basement (lowest) level to be approximately -1.5 feet msl. Assuming over excavation of approximately 3.5 feet will be required to install the basement slab, the entire Site will be excavated to an approximate elevation of -5.0 feet msl. Therefore, maximum excavation depths are currently estimated to be between 15 to 25 feet below grade (ftbg). Excavation is required to prepare the Site for the proposed development, which will include a sub-grade basement with a parking garage. Excavation is anticipated to be at or above the groundwater table; therefore, dewatering during excavation is anticipated. As part of the development, the former structure at former Lot 21 was demolished and the existing structure at former Lot 3 is scheduled for future demolition in June 2017.

### **1.3 DESCRIPTION OF SURROUNDING PROPERTY**

The surrounding area consists of an urban setting of mixed uses. The immediate area surrounding the Site to the north includes multi-family residential and industrial properties; to the south includes multi-family residential, industrial, and a mental health facility; to the east includes multi-family and one & two family residential properties; and to the west across Vernon Boulevard are vacant lots and Socrates Sculpture Park followed by the East River. The adjoining property to the southwest is a multi-family residential property and the adjoining property to the southeast is mixed use. Potential sensitive receptors within 500 feet of the Site boundary include the Astoria District Health Center, located approximately 400 feet southeast of the Site, the Ideal Islamic School, located approximately 380 feet south of the Site, and the

Islamic Unity & Cultural Center, located approximately 415 feet south of the Site. **Figure 4** shows the surrounding land usage.

#### **1.4 SUMMARY OF PAST SITE USES AND AREAS OF CONCERN**

Former Lot 3 was occupied by a commercial or industrial building in the 1920's which was noted on the 1928 Sanborn Map to be the Sunswick Plush Co.'s facility. Research on this company did not reveal the exact nature of their business, but it may have been a textile company that later moved to Brooklyn. Sometime before 1936, this building was demolished. Thereafter, aerial photographs from 1951 through 1966 indicated former Lot 3 was partially used as truck parking and a possible fueling area, and may have been part of General Motors operations on former Lot 21 during this time. Around 1962, however, a commercial warehouse type building was constructed and subsequently operated by Kikkoman, Japan Foods, and then Jewel Garage Operating Corporation as of 1972. Afterwards, it was used for a variety of warehousing operations.

A search of the deeds in the title reports, and other sources of evidence, including Sanborn maps and City Directories revealed that former Lot 21 has a long industrial and manufacturing history. Specifically, General Motors Corporation's Parts Division owned and occupied that portion of the Site for approximately forty years, from the late 1930's to the mid to late 1970's. Thereafter, a company known as POP Displays, Inc. occupied that same portion. During POP Displays, Inc.'s ownership and tenure, it was a large quantity, small quantity, and then a conditionally exempt generator of hazardous waste, namely non-halogenated solvents. Bohea Associates NY, Ltd., primarily utilized former Lot 21 as a warehouse for the storage and distribution of packaged foods until September 30, 2015.

Based on the previous environmental investigations completed at the Site, the following AOCs were identified:

1. Chlorinated solvents discharge: The Phase II investigations previously performed by SESI and IVI indicated elevated CVOCs in the Site soil vapor.
2. PAH in soils: A Phase II completed by SESI in November 2015 concluded that a soil sample collected from the western portion of the Site resulted in concentrations of several PAHs above applicable criteria.



3. Groundwater: One groundwater sample collected by SESI from a monitoring well located in the eastern portion of the Site resulted in a concentration of dieldrin (a pesticide) above its applicable standard.
4. ASTs: Two unregistered ASTs were identified at the Site within the former cellar of the demolished building on former Lot 21 during the Phase I completed by IVI in February 2014.
5. Evidence of an unregistered UST was discovered beneath the concrete slab of the building on former Lot 3 during a geophysical survey as part of a Phase II completed by IVI. The presence of the UST was subsequently confirmed during the Site inspection completed by H2M on July 20, 2016.

### **1.5 SUMMARY OF WORK PERFORMED UNDER THE REMEDIAL INVESTIGATION**

H2M was retained by the Volunteer, 11-12 30<sup>th</sup> Drive LLC, which performed the scope of work detailed in the numbered list below as the Engineer of Record for the project. The field work for the RI was completed from July 19 to 21, July 25 and 28, August 1 to 4, August 8 and 9, August 11 to 17, September 9 and 10, and November 9, 2016. The scope of the RI included:

1. A Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. A preliminary study to determine relative aquifer and stratigraphy characteristics and to log the relative concentration of VOCs in soil and groundwater with a MIP attached to a direct push drill rig;
3. A geophysical survey in select portions of the Site;
4. An IRM to remove and administratively close two ASTs located on former Lot 21. The IRM included removal of the ASTs, installation of seven soil borings, and collection of seven soil samples for chemical analysis to evaluate soil quality;
5. Installation of 25 soil borings and one test pit across the entire project Site, and collection of 27 soil samples for chemical analysis from the soil borings and test pit to evaluate soil quality;
6. Installation of 16 groundwater monitoring wells throughout the Site to establish groundwater flow direction and collection of 16 groundwater samples for chemical analysis to evaluate groundwater quality;

7. Installation of six soil vapor probes around Site perimeter, including two off site and four on site, and collection of six samples for chemical analysis. In addition, one indoor air sample was collected within the existing building on former Lot 3.

## **1.6 SUMMARY OF FINDINGS OF REMEDIAL INVESTIGATION**

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, POP Displays Manufacturing Site, 30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard, Queens, NY 11102", dated November 23, 2016 (RIR).

1. The Site's average topographic elevation is approximately 10 feet above msl.
2. The average depth to groundwater is 16.75 ftbg and the range in depth is 14.07 to 17.98 ftbg.
3. Groundwater flow in the deep monitoring wells is from the northeast to the southwest in the eastern portion of the Site and from east to west in the western portion of the Site. The groundwater contours for the shallow wells is from northeast to southwest in the eastern portion of the Site and to the west-northwest in the western portion of the Site. In general, groundwater flows towards the East River located approximately 80 feet west of the Site's western property line.
4. Bedrock was encountered throughout the Site at varying depths ranging from 30 to 68 ftbg. In general, bedrock was encountered at deeper depths in the eastern portion of the Site. Shallower bedrock was identified in the western portion of the Site.
5. The Site is underlain by a fine to coarse sandy material intermixed with unconsolidated layers of cobbles and gravel. There were no visual indications of historic fill material at the Site; however, PAHs detected in some of the soil samples exhibited concentrations that would typically be present in historic fill material in New York City. No visual indications of site wide impermeable layers were observed. However, clay layers were identified near two monitoring well clusters. At the MW-1 cluster, a five-foot-thick layer was identified at 25 to 30 ftbg and an approximately seven-foot-thick layer was identified from approximately 32 to 39 ftbg at the MW-6 cluster. An eight-foot-thick finer grained layer, likely clayey silt, was observed from 31 to 40 ftbg near the MW-2 cluster.

6. Soil samples at the Site indicated one VOC was detected above its respective Track 1 UUSCO. Acetone, a solvent, was detected at a concentration of 0.0672 milligrams per kilogram (mg/kg) exceeding its Track 1 UUSCO of 0.05 mg/kg; however, the concentration was several orders of magnitude below its Track 2 RSCO of 100 mg/kg. No SVOCs were detected above their respective Track 1 UUSCOs or Track 2 RSOCs; however, 14 SVOCs were detected above laboratory MDLs. Twelve of these 14 SVOCs belong to a group of SVOCs known as PAHs. Iron was detected above the Track 2 RSCO of 2,000 mg/kg in all the soil samples collected at the Site, ranging from 6,610 mg/kg at SB-42 to 18,600 mg/kg at UST-1. There is no Track 1 UUSCO developed for iron. Selenium was detected in 12 of the 16 soil samples analyzed, ranging from 0.625 mg/kg to 4.21 mg/kg. The Selenium concentration of 4.21 mg/kg in the soil sample collected from SB-35, exceeds its Track 1 UUSCO of 3.9 mg/kg; however, the concentration was below its Track 2 RSCO of 36 mg/kg. Selenium is known to be contained in pigments that are used in paints, inks, etc., which may have been utilized as part of POP Displays manufacturing process.
7. Groundwater samples at the Site indicated no VOCs were detected at concentrations exceeding GA WQS; however, six VOCs were detected at low levels. Two of the six VOCs, MTBE and toluene, are typically associated with gasoline contamination. The remaining four VOCs detected at low levels were TCE, cis-1,2-DCE, 1,1-DCE, and chloroform. All four are chlorinated solvents classified as CVOCs.
8. Soil vapor samples collected during the RI showed a wide range of compounds throughout the Site including BTEX and associated derivative compounds, naphthalene, and chlorinated hydrocarbons. One or more BTEX compounds and associated derivatives were found in all vapor samples and included a wide number of compounds. Naphthalene was detected in five of the seven vapor samples, ranging in concentrations from 2.36  $\mu\text{g}/\text{m}^3$  to 12.6  $\mu\text{g}/\text{m}^3$ . Chlorinated hydrocarbons were also commonly observed in all soil vapor samples. Chloroform was detected in five of seven vapor samples, ranging from 0.49  $\mu\text{g}/\text{m}^3$  to 142  $\mu\text{g}/\text{m}^3$ , with one sample exceeding the EPA VISL of 4.1  $\mu\text{g}/\text{m}^3$ . PCE was detected in all vapor samples at concentrations ranging from 0.54  $\mu\text{g}/\text{m}^3$  to 321  $\mu\text{g}/\text{m}^3$ . TCE was detected in five of seven vapor samples at concentrations ranging from 0.86  $\mu\text{g}/\text{m}^3$  to 15  $\mu\text{g}/\text{m}^3$ . Other chlorinated hydrocarbons detected at the Site included 1,1,1-TCA (maximum 74.8  $\mu\text{g}/\text{m}^3$ ), carbon tetrachloride (maximum 0.44  $\mu\text{g}/\text{m}^3$ ), and methylene chloride (maximum 5.21  $\mu\text{g}/\text{m}^3$ ). The

vapor results were compared to the EPA VISL concentrations presented in the EPA Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (June 2015). Naphthalene concentrations detected in four of the seven vapor samples exceeded the EPA VISL of  $2.8 \mu\text{g}/\text{m}^3$  for naphthalene, indicating that mitigation may be required. The chloroform concentration detected in one of the seven vapor samples exceeded the EPA VISL of  $4.1 \mu\text{g}/\text{m}^3$  for chloroform, indicating that mitigation may be required. Although the State of New York does not have any standards, criteria or guidance values for concentrations of volatile chemicals in subsurface vapors (either soil vapor or sub-slab vapor), for general comparison, the vapor results were compared to their corresponding NYSDOH AGVs, which are intended for vapor present in indoor air. PCE concentrations detected in four of the seven vapor samples at the Site are above the corresponding AGV of  $30 \mu\text{g}/\text{m}^3$ . Detected TCE concentrations in three of the vapor samples exceeded the corresponding AGV of  $2 \mu\text{g}/\text{m}^3$ . Methylene chloride was detected at concentrations ranging between  $0.83 \mu\text{g}/\text{m}^3$  and  $5.21 \mu\text{g}/\text{m}^3$ , which are below the corresponding AGV of  $60 \mu\text{g}/\text{m}^3$ . In addition to the AGVs, the vapor results were compared to concentrations which may require monitoring or mitigation as presented in Matrix 1 and Matrix 2 presented in the NYSDOH guidance document. PCE detected in soil vapor sample SV-804 at a concentration of  $321 \mu\text{g}/\text{m}^3$  and TCE detected in soil vapor sample SV-806 at a concentration of  $15 \mu\text{g}/\text{m}^3$  both indicate that monitoring or mitigation may be required.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of hazardous waste is not suspected at this Site.

## **2.0 REMEDIAL ACTION OBJECTIVES**

Based on the results of the RI, the following RAO has been identified for this Site:

### **Soil Vapor**

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

### 3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment taking into consideration the current, intended, and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for contaminated media. Remedial alternatives are then developed and evaluated based on the following ten criteria:

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

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

#### **Alternative 1 (Track 1):**

- Establishment of Track 1 UUSCOs for the Site.
- Before soil excavation activities occur, certain site preparation activities such as building demolition and the underpinning of adjacent foundations must occur. Evidence of an unregistered UST was discovered beneath the concrete slab of the building during a geophysical survey as part of a Phase II completed by IVI. The presence of the UST was subsequently confirmed during the Site inspection completed by H2M on July 20, 2016. UST excavation, removal and closure activities will be completed. The work will be completed in accordance with Section 5.5 of DER-10. It is anticipated that approximately 80 tons of soil will be excavated as part of UST removal.
- Based on concentrations of VOCs in soil vapor identified during the RI, the soil vapor media must be remediated to satisfy the RAO for the Site. Soil excavation alone and establishment of Track 1

UUSCOs for on-site soil will not fully remediate the soil vapor media since it has been concluded that off-site soil vapor is impacting the Site.

**Alternative 2 (Track 2):**

- Establishment of Restricted-Residential Soil Cleanup Objectives (RRSCOs) for the Site: Although soil remediation is not required as part of the remedial action based on the data collected during the RI, excavation as part of development will be completed to an approximate elevation of -5.0 feet msl, which corresponds to an approximate excavation depth of between 15 to 25 ftbg. Should suspect unclassified soil be encountered during excavation as part of construction, additional soil samples will be collected for waste classification and confirmation endpoint samples will be collected at the direction of NYSDEC. If soil containing analytes at concentrations above RRSCOs is still present at the base of the excavation of the suspect soil, either additional excavation would be performed to ensure complete removal of soil that does not meet Track 2 RRSCOs or an evaluation will be made if any remaining contaminants above the Track 2 RRSCOs are naturally occurring.
- Evidence of an unregistered UST was discovered beneath the concrete slab of the building during a geophysical survey as part of a Phase II completed by IVI. The presence of the UST was subsequently confirmed during the Site inspection completed by H2M on July 20, 2016. UST excavation, removal and closure activities will be completed as part of Alternative 2 as well. The work will be completed in accordance with Section 5.5 of DER-10. It is anticipated that approximately 80 tons of soil will be excavated as part of UST removal.
- An engineering control consisting of a protective system will be added to address soil vapor impacts, which are emanating onto the Site from off-site sources. A waterproofing/vapor barrier will be installed beneath the building foundation and behind the below-grade foundation sidewalls of the new buildings. This engineering control is required to mitigate potential impacts from elevated vapor concentrations at the Site that have not been attributable to an on-site source. Installation of this engineering control will satisfy the need for a post-remediation soil vapor evaluation for the Site and will also satisfy the RAO established for the Site.
- Establishment of an approved SMP to ensure long-term management of this engineering control, and institutional controls including the performance of periodic inspections and certification that

the controls are performing as they were intended. The SMP will note that the property owner and property owner's successors and assigns must comply with the approved SMP.

- Institutional Controls in the form of an environmental easement requiring implementation of the SMP by the property owner and property owner's successors and assigns.

### **3.1 THRESHOLD CRITERIA**

#### **Protection of Public Health and the Environment**

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of any ECs/ICs. Protection of public health and the environment must be achieved for all approved remedial actions.

**Alternative 1** would protect human health and the environment from direct contact with soil because no evidence of contamination requiring soil remediation has been identified at the Site and any suspect unclassified soil determined to exceed Track 1 UUSCO's will be removed, thus eliminating potential for direct contact with contaminated soil once construction is complete and eliminating the risk of contaminants leaching into groundwater. Based on concentrations of VOCs in soil vapor identified during the RI, the soil vapor media must be remediated to satisfy the RAO for the Site. Establishment of Track 1 UUSCOs for on-site soil, and on-site remedial excavation will not fully remediate the soil vapor media since it has been concluded that off-site soil vapor is impacting the Site and, in the absence of an engineering control to prevent soil vapor migration to the Site, will continue to impact the Site even if all Site media are remediated to meet Track 1.

As such, Alternative 1 would not adequately protect human health and the environmental, as no on-site remediation can prevent exposure to contaminated soil vapor migrating to the Site from off-site sources.

**Alternative 2** would achieve comparable protections of human health and the environment from direct contact with soil because no evidence of contamination requiring soil remediation has been identified at the Site. Should suspect unclassified soil be encountered during soil excavation as part of development, all soil determined to exceed Track 2 RRSCO's will be removed.

Alternative 2 would prevent potential future migration of soil vapors into new buildings by including the installation of an engineering control consisting of a waterproofing/vapor barrier below the building slab



and outside foundations walls below grade. This engineering control would be protective of human health and the environment by eliminating the exposure pathway for contaminated off-site soil vapor that would otherwise migrate into the to the new Site building.

For both Alternatives, potential exposure to suspect unidentified contaminated soils or groundwater during construction would be minimized by implementing a CHASP, an approved Soil/Materials Management Plan (SMMP), and CAMP. Potential contact with contaminated groundwater would be prevented as its use is prohibited by New York City laws and regulations.

### **3.2 BALANCING CRITERIA**

#### **Compliance with SCGs**

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

**Alternative 1** would achieve compliance with the chemical-specific SCGs; however, would not satisfy the RAO, which requires mitigating impacts to public health resulting from existing, or the potential for, soil vapor intrusion to proposed buildings at the Site.

**Alternative 2** would achieve compliance with the remedial goals, chemical-specific SCGs, and RAO for the Site. The RAO would be achieved by installing a waterproofing/vapor barrier system. The waterproofing/vapor barrier would be installed below the new building's basement slab and outside of subgrade foundation walls.

Health and safety measures contained in the CHASP and CAMP will be implemented during Site redevelopment under this RAWP. For both Alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would follow applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to Site-related contaminants.

#### **Short-Term Effectiveness and Impacts**

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until the RAO is met. Under this criterion, the alternative is evaluated with respect to their short-term effects during the remedial action on public health and the environment during

implementation of the remedial action, including protection of the community, protection of on-site workers and environmental impacts.

Both **Alternative 1** and **Alternative 2** may result in short-term dust generation impacts associated with tank removal, handling, load out of materials, and truck traffic. However, focused attention to means and methods during a remedial action, including community air monitoring and appropriate truck routing, would minimize the overall impact of these activities.

An additional short-term adverse impact and risk to the community associated with both Alternatives is a temporary increase in truck traffic during active removal of the UST. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flag persons will be used to protect pedestrians at Site entrances and exits.

The potential adverse impact to the community, workers, and the environment for both Alternatives would be minimized through implementation of control plans including a CHASP, a CAMP and a SMMP, during all on-site soil disturbance associated with the UST removal and would minimize the release of contaminants into the environment. Both Alternatives provide short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-site contaminants. Construction workers operating under appropriate management procedures and a CHASP would be protected from on-site contaminants (personal protective equipment would be worn consistent with the documented risks within the respective work zones).

#### **Long-term effectiveness and permanence**

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

**Alternative 1** would achieve long-term effectiveness and permanence by permanently removing the UST and enabling unrestricted usage of the property. However, permanent controls for future soil vapor

management would be lacking without engineering controls to mitigate migration of off-site soil vapor into the proposed on-site buildings.

**Alternative 2** Would provide long term effectiveness and permanence by permanently removing the UST and enabling usage of the property consistent with the proposed development. The engineering control consisting of the waterproofing/vapor barrier employed at the Site would be considered permanent controls for future soil vapor management.

### **Reduction of toxicity, mobility, or volume of contaminated material**

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

**Alternative 1** would potentially provide a greater reduction in toxicity and volume of contaminated material than Alternative 2 because any suspect unclassified soil that may be encountered during excavation associated with building development would be removed to meet Track 1 UUSCOs. However, mobility of off-site soil vapor contamination would not be controlled with Alternative 1.

**Alternative 2** would still provide a significant reduction in toxicity and volume of contaminated material if suspect unclassified soil is encountered during excavation; however, the reduction may not provide as much of a reduction as Alternative 1 because suspect unclassified soil will be removed to meet Track 2 RRSCOs, as opposed to the Track 1 UURSCOs of Alternative 1. Alternative 2 would also control mobility of soil vapor into the on-site building by installation of an engineering control consisting of a waterproofing/vapor barrier.

### **Implementability**

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

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

The techniques, materials and equipment to implement Alternatives 1 and 2 are readily available. Standard equipment and technologies that are well established in the industry will be used. The reliability of the remedy is high. There are no special difficulties associated with any of the activities proposed. However, precautions will be required to protect adjacent building foundations, including in some instances, underpinning and/or additional foundation support as needed. Therefore, this work is a necessary part of the site preparation activities for the waterproofing/vapor barrier installation.

### **Cost effectiveness**

This evaluation criterion addresses the cost of the alternative, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

The remedial actions proposed for Alternative 1 and 2 are cost effective because both would be implemented during project construction, which will minimize duplicative costs. Costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above UUSCOs are encountered in suspect unclassified soil. Additional costs would include disposal of additional soil. However, long-term costs for Alternative 2 are likely higher than Alternative 1 based on implementation of a SMP.

### **Community Acceptance**

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

Based on the overall goals of the remedial program and the intended Site use, it is anticipated that Alternatives 1 and 2 for the Site would be acceptable to the community. This RAWP will be subject to a public review under the NYSDEC BCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedy. This public comment will be considered by NYSDEC prior to approval of this plan. The CPP for the project is provided in **Appendix 1**. Observations here will be supplemented by public comment received on the RAWP. The overall goals of Alternative 1, to protect public health and the environment and eliminate potential contaminant exposures, have been broadly

supported by citizens in New York City communities as a Track 1 UUSCO remedy is protective for the planned residential use.

### **Land use**

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; New York State Department of State's Brownfield Opportunity Areas (BOA) pursuant to General Municipal Law, Article 18-C, 970-r; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the Site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the Site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the Site.

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy. The proposed future use of the Site includes an 80/20 inclusionary housing development inclusive of two buildings and will contain a total of 711 units, with 200 below grade parking spaces. Following remediation the Site will meet Track 1 UUSCOs or Track 2 RRSCOs, both of which are protective of public health and the environment for its planned residential use. The proposed use is compliant with the property's zoning and is consistent with recent development patterns. The development would remediate a contaminated lot in a contaminated neighborhood and provide a modern residential building. The proposed development would clean up the property and make it safer, create new employment opportunities, living space for affordable and supportive housing and associated societal benefits to the community, and other economic benefits from land revitalization.

Both Alternatives are equally protective of natural resources and cultural resources. Improvements in the current environmental condition of the property achieved by both alternatives considered in this plan are consistent with NYSDEC's goals for cleanup of contaminated land.

### **Sustainability of the Remedial Action**

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action. Sustainability goals may

include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

The remedial plans for Alternative 1 and Alternative 2 would take into consideration the shortest trucking routes, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. A complete list of green remedial activities considered is included in a Sustainability Statement included in **Appendix 2**.

## **4.0 REMEDIAL ACTION**

### **4.1 SUMMARY OF PREFERRED REMEDIAL ACTION**

The preferred remedial action alternative is Alternative 2, the Track 2 remedial action. The preferred remedial action achieves protection of public health and the environment for the intended use of the property. The preferred remedial action will achieve the RAO established for the project and is effective in both the short-term and long-term, and reduces mobility of soil-vapor contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Implementation of the Community Protection Statement described in this RAWP and performance of all required NYSDEC Citizen Participation activities per the approved CPP.
2. Site mobilization involving Site security setup, equipment mobilization, utility mark outs, and marking and staking excavation areas associated with the removal of the UST.
3. Implementation of Site preparation activities including building demolition and underpinning of adjacent structures to remove the UST and install the vapor barrier.
4. Excavation and removal of one UST identified at the southern portion of former Lot 3 in accordance with Section 5.5 of DER-10 and reporting of any petroleum spills associated with the UST and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations. It is anticipated that approximately 80 tons of soil will be excavated as part of UST removal.
5. Performance of a CAMP for particulates and VOCs during excavation and removal of the UST.
6. Should suspect unclassified soil be encountered during mass excavation of soil as part of construction, confirmation endpoint samples will be collected as directed by NYSDEC. Based on confirmation endpoint sample results, additional excavation may be required to achieve RRSCOs.
7. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
8. An engineering control consisting of a waterproofing/vapor barrier system. The waterproofing/vapor barrier system will consist of a 47-mil Grace Preprufe 300R (or equivalent)

vapor barrier. The waterproofing/vapor barrier system will be installed beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the buildings.

9. Dewatering in compliance with city, state, and federal laws and regulations to facilitate the installation of the required vapor barrier. Extracted groundwater will either be containerized for off-site licensed or permitted disposal or will be treated under a permit from the NYCDEP to meet pretreatment requirements prior to discharge to the sewer system.
10. Implementation of stormwater pollution prevention measures in compliance with applicable laws and regulations.
11. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
12. Institutional Controls in the form of an environmental easement that will require implementation of the SMP.
13. Submission of a FER that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and lists any changes from this RAWP. The FER will include a SMP written in a manner that allows its use as an independent document.

#### **4.2 UNDERGROUND STORAGE TANK CLOSURE**

As part of the remedial action, the UST identified in the southern portion of former Lot 3 will be excavated and removed in accordance with Section 5.5 of DER-10 and the Generic Procedures for Management of Underground Storage Tanks included as **Appendix 6**. It is anticipated that approximately 80 tons of soil will be excavated as part of UST removal.

During the UST removal effort, the following field observations will be documented:

- A description and photographic documentation of UST and pipeline condition (e.g., pitting, holes or leak points)
- The excavation floor and sidewalls will be:
  - examined for any physical evidence of soil or groundwater contamination;
  - field screened with a calibrated PID at transects spaced no more than five feet apart, so that sampling may be biased to the suspected location of greatest contamination.



If there is no evidence of a discharge in the UST excavation, confirmation endpoint soil samples will be collected to demonstrate that the remaining soils meet RRSCOs immediately after tank removal. If no groundwater is present in the excavation, discrete center line soil samples from the bottom of the excavation will be collected at a frequency equal to the total length of the tank in feet divided by five (minimum of one sample) and one sample will be added for the fraction thereof. The samples will be spaced equidistantly and the outermost samples will be obtained at greater than 2.5 feet from each end of the tank. If groundwater is present in the excavation, soil samples will be collected as follows: One soil sample biased based upon field screening results will be taken near or above the water table from each excavation sidewall for every 30 linear feet of sidewall (minimum of one sample per sidewall). Where seasonal fluctuations in the water table elevation can submerge and smear product over a range of several feet, additional soil samples will be collected in the smear zone. A sample of the water within the excavation will also be collected.

If there is evidence of a discharge, once excavation has been completed and if no groundwater is encountered, confirmation soil samples will be collected to demonstrate that contamination has been removed. A minimum of five soil samples will be taken, consisting of four sidewall and one bottom sample for each 15 linear feet of trench. The samples will be biased based upon field screening toward the suspected location of greatest contamination. If there is evidence of groundwater contamination such as a sheen or odor, or if groundwater is within 20 feet of the surface, a groundwater sample will be collected.

#### **4.3 SOIL CLEANUP OBJECTIVES AND SOIL MANAGEMENT**

Based on the results of the RI, soil remediation is not required to make the Site protective for its intended use. However, excavation and collection of confirmation endpoint soil samples are required as part of the UST closure. In addition, the potential for additional confirmation endpoint sampling exists if suspect unclassified soil is encountered during mass excavation associated with construction. Track 2 RRSCOs are proposed for this project. Track 2 RRSCOs are defined in 6 NYCRR Part 375, Table 6.8(b).

Should any spills be identified at the Site, the NYSDEC Spill Hotline will be notified within two hours and the NYSDEC Project Manager will be notified by email or phone call immediately. Soil and materials management on-site and off-site, including excavation associated with the UST removal, handling and disposal, will be conducted in accordance with the SMMP included in **Appendix 3**.

#### **UST Soil Excavation and Confirmation Endpoint Sampling**

The location of the planned UST removal is shown on **Figure 5**. The total quantity of soil expected to be excavated and disposed off-site associated with the UST removal is approximately 80 tons. For each disposal facility to be used, a letter from the developer/QEP to the receiving facility requesting approval for disposal and a letter back to the developer/QEP providing approval for disposal will be submitted to NYSDEC prior to any transport and disposal of soil at a facility.

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

Confirmation end-point samples will be collected as described in Section 4.2 above and analyzed for compounds and elements as described below, utilizing the following EPA methods:

- Target Compound List (TCL) VOCs by EPA Method 8260;
- TCL SVOCs by EPA Method 8270;

New York State Environmental Laboratory Approval Program (ELAP) certified labs will be used for all confirmation end-point sample analyses. Labs performing end-point sample analyses will be reported in the FER. Should confirmation endpoint sampling results indicate concentrations above Track 2 RRSCOs, additional excavation will be completed until subsequent endpoint sampling confirms results in accordance with Track 2 RRSCOs or until excavation is no longer feasible. The FER will provide a tabular and map summary of all confirmation end-point sample results and will include all data including non-detects and applicable standards and/or guidance values.

#### **Suspect Unclassified Soil Excavation and Sampling**

Should suspect unclassified soil be encountered during soil excavation as part of construction (the extent of soil excavation as part of construction is shown on **Figure 5**), confirmation endpoint samples will be collected to evaluate hot-spot removal and attainment of Track 2 RRSCOs. Confirmation endpoint sampling will be completed at the direction of NYSDEC. Should endpoint sampling results indicate concentrations above Track 2 RRSCOs, additional excavation will be completed until subsequent endpoint sampling confirms results in accordance with Track 2 RRSCOs or a determination can be made with NYSDEC that remaining contaminants above the Track 2 RRSCOs are naturally occurring. Analytes will include those for which soil cleanup objectives (SCOs) have been developed, including VOCs, SVOCs, metals, pesticides, and PCBs as per analytical methods described below.

- TCL VOCs by EPA Method 8260;

- TCL SVOCs by EPA Method 8270;
- Target Analyte List (TAL) metals; and
- Pesticides/Polychlorinated Biphenyls (PCBs) by EPA Method 8081/8082.

If either light or dense non-aqueous phase liquids (LNAPLs/DNAPLs) are detected, appropriate samples will be collected for characterization and “finger print analysis” and required regulatory reporting (i.e. spills hotline) will be performed.

### **Quality Assurance/Quality Control (QA/QC)**

QA/QC procedures will be used to provide performance information regarding accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used to document that samples are representative of actual conditions at the Site and identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. A summary of the field and laboratory QA/QC procedures is provided below.

Field QA/QC will include the following procedures:

- Calibration of field equipment, including PID, daily;
- Analysis of duplicate samples;
- Use of dedicated and/or disposable field sampling equipment;
- Proper sample handling and preservation;
- Proper sample chain of custody documentation; and
- Completion of report logs.

The above procedures will be executed as follows:

- Disposable sampling equipment including nitrile gloves will be used to minimize cross-contamination between samples;
- For each of the parameters analyzed, a sufficient sample volume will be collected to adhere to the specific analytical protocol, and provide sufficient sample for reanalysis if necessary;

- Appropriate sample preservation techniques, including cold temperature storage at 4° C, will be utilized to ensure that the analytical parameter concentrations do not change between the time of sample collection and analysis; and
- Samples will be analyzed prior to the expiration of the respective holding time for each analytical parameter to ensure the integrity of the analytical results.

### **Import of Soils**

It is not expected that backfill soil will be needed. If required, import of soils onto the property will meet Track 2 RRSCOs and will be performed in conformance with the SMMP in **Appendix 3**.

### **Reuse of On-Site Soils**

Soil reuse is not planned on this project. However, if Site soils will be reused, reuse on-site will be performed in conformance with the SMMP in **Appendix 3**.

## **4.4 ENGINEERING CONTROLS**

No soil related Engineering Controls are included as part of the remedial action. However, to satisfy the RAO, the following engineering control will be installed:

- (1) Soil Vapor Barrier System

### **Soil Vapor Barrier System**

Migration of soil vapor into the building will be mitigated with a combination of building slab and vapor barrier. The vapor barrier will consist of a 47-mil Grace Preprufe 300R (or equivalent) vapor barrier. All welds, seams, and penetrations will be properly sealed to prevent preferential pathways for vapor mitigation. The vapor barrier will extend throughout the area occupied by the footprint of the new building and up the below-grade foundation sidewalls and will be installed in accordance with manufacturer specifications. Product specification sheets are provided in **Appendix 5**. If required, the FER will include as-built drawings and diagrams; manufacturer documentation; and photographs. Installation of the vapor barrier eliminates the need form a post-remediation soil vapor evaluation.

The FER will include a PE-certified letter (on company letterhead) from the primary contractor responsible for installation oversight and field inspections and a copy of the manufacturer's certificate of warranty.

#### **4.5 INSTITUTIONAL CONTROLS**

Institutional Controls have been incorporated in this remedial action to manage soil vapor and render the Site protective of human health. Institutional Controls are listed below. Long-term employment of EC/ICs will be established in an environmental easement that will require implementation of a site-specific SMP that will be included in the FER.

- Recording of an environmental easement granted to the NYSDEC with the City Register. The environmental easement will include a description of all ECs and ICs, will summarize the requirements of the SMP, and will note that the property owner and property owner's successors and assigns must comply with the environmental easement and the NYSDEC-approved SMP. The recorded environmental easement will be submitted in the Final Engineering Report. The environmental easement will be recorded prior to NYSDEC issuance of the Certificate of Completion (COC).
- Submittal of a SMP in the FER for approval by NYSDEC that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. The SMP and associated ECs/ICs will be certified in accordance with DER-10, Section 6.3. The SMP will require that the property owner and property owner's successors and assigns will submit to NYSDEC a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect human health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to enter the Site to evaluate the continued maintenance of any controls. This certification shall be submitted once every five years and will comply with RCNY §43-1407(l)(3).
- If residual soil contamination exceeding UUSCOs remains on Site after completion of the remedial construction, the environmental easement will require that all future activities on the Site that will disturb material with residual contamination must be conducted pursuant to soil management provisions in an approved SMP.

#### **4.6 SITE MANAGEMENT PLAN**

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Plan and issuance of the COC for the Remedial Action. The SMP describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The SMP is

submitted as part of the FER but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the SMP are implemented.

The SMP will provide a detailed description of the procedures required to manage engineering controls and institutional controls put in place following completion of the remedial action in accordance with the Brownfield Cleanup Agreement (BCA) with NYSDEC. This includes a plan for: (1) implementation of ECs and ICs; (2) operation and maintenance of EC's; (3) inspection and certification of IC's and EC's.

Site management activities and EC/IC certification will be scheduled by NYSDEC on a periodic basis to be established in the FER and the SMP and will be subject to review and modification by NYSDEC. The SMP will be based on a calendar year inspections and certification reports will be due for submission once every five years.

## **5.0 REMEDIAL ACTION MANAGEMENT**

### **5.1 PROJECT ORGANIZATION AND OVERSIGHT**

Principal personnel who will participate in the remedial action include Paul R. Lageraaen, Principal and PE, and Gregory M. Cellamare, Senior Environmental Engineer and QEP.

### **5.2 SITE SECURITY**

Site access will be controlled by 11-12 30<sup>th</sup> Drive LLC through gated entrances to the fenced property. Barriers will be installed as needed to delineate and restrict access to the work area. For work areas of limited size, barrier tape will be sufficient to delineate and restrict access. For larger work areas, temporary fencing will be provided.

### **5.3 WORK HOURS**

The hours for operation of cleanup will comply with the NYCDOB construction code requirements or per specific variances issued by that agency. The hours of operation will be conveyed to NYSDEC during the pre-construction meeting.

### **5.4 CONSTRUCTION HEALTH AND SAFETY PLAN**

The CHASP is included in **Appendix 4**. The Site Safety Coordinator will be Paul R. Lageraaen. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work follows the CHASP and applicable laws and regulations. The CHASP pertains to remedial and invasive work performed at the Site until the issuance of the COC.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, such as 40-hour HAZWOPER training and annual 8-hour refresher training. The Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the CHASP and will comply with all requirements of 29 CFR 1910.120. Site-specific training will be provided to field personnel. Additional

safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the Site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; personal protective equipment (PPE) levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

## **5.5 COMMUNITY AIR MONITORING PLAN**

Real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

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

### **VOC Monitoring, Response Levels, and Actions**

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an



appropriate surrogate. The equipment will calculate 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds five ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below five parts per million (ppm) over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels more than five ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below five ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for NYSDEC personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

#### **Particulate Monitoring, Response Levels, and Actions**

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100  $\mu\text{g}/\text{m}^3$  greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression

techniques providing downwind PM-10 particulate levels do not exceed  $150 \mu\text{g}/\text{m}^3$  above the upwind level and if no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \mu\text{g}/\text{m}^3$  above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume if dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \mu\text{g}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

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

## **5.6 AGENCY APPROVALS**

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

## **5.7 SITE PREPARATION**

### **Pre-Construction Meeting**

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

### **Mobilization**

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

### **Utility Marker Layouts, Easement Layouts**

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

regulations including NYCDOB Building Code to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Mark-Out Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling near overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-site and off-site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

### **Dewatering**

Dewatering is anticipated during construction to excavate soil at or below the water table (expected to be 12 to 18 ftbg). As necessary, submersible pumps will be used to extract groundwater from gravel lined sumps in the excavation. Extracted groundwater will be conveyed to a storage tank or treatment system. Depending on the selected discharge option, a NYCDEP sewer use permit will be obtained to discharge groundwater to the combined sewers network.

### **Equipment and Material Staging**

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. A Site map showing the location(s) of proposed equipment and material staging areas, truck wash, stockpile areas, and other pertinent remedial management features will be prepared by the contractor and provided to NYSDEC prior to start of construction activities.

### **Stabilized Construction Entrance**

Steps will be taken to ensure that trucks departing the Site will not track soil, fill or debris off-site. Such actions may include use of cleaned asphalt or concrete pads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

### **Truck Inspection Station**

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and clean water will be utilized for the removal of soil from vehicles and equipment, as necessary.

### **Extreme Storm Preparedness and Response Contingency Plan**

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of Site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, 11-12 30<sup>th</sup> Drive LLC will undertake the following steps for Site preparedness prior to the event and response after the event.

#### **Storm Preparedness**

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the Site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

#### **Storm Response**

After an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A Site inspection report will be submitted to NYSDEC at the completion of Site inspection and after the Site security is assessed. Site conditions will be compared to the inventory of Site conditions and material performed prior to the storm event and significant differences will be noted.

Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYSDEC within two hours of identification and consistent with New York State regulations. Emergency and spill conditions will also be reported to NYSDEC. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off Site to adjacent properties, property owners and NYSDEC will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of site access by the property owner. Impacted off-site areas may require characterization based on Site conditions, at the discretion of NYSDEC. If on-site petroleum spills are identified, a QEP will determine the nature and extent of the spill and report to NYSDEC's spill hotline at 800-457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

### **Storm Response Reporting**

A Site inspection report will be submitted to NYSDEC at the completion of Site inspection. Site conditions will be compared to the inventory of Site conditions and material performed prior to the storm event and significant differences will be noted. The Site inspection report will be sent to the NYSDEC Project Manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the Site was dislocated and whether any of the soil left the Site; estimates of the volume of soil that left the Site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of on-site or off-site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of

corrective actions; schedule for corrective actions. This report will be completed and submitted to NYSDEC Project Manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

## **5.8 TRAFFIC CONTROL**

Drivers of trucks leaving the Site with soil/fill will be instructed to proceed without stopping near the Site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the Site is presented in **Figure 7**.

## **5.9 DEMOBILIZATION**

Demobilization will include:

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

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

## **5.10 REPORTING AND RECORD KEEPING**

### **Daily Field Reports**

Daily field reports providing a general summary of activities for each day of active remedial work will be provided to the NYSDEC Project Manager at the completion of each day that site work was performed.

Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of excavation and other remedial work performed;
- Quantities of material imported and exported from the Site;

- Status of on-site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP results noting all exceedances. CAMP data may be reported;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with NYSDEC Project Manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to NYSDEC of emergencies (accidents, spills), requests for changes to the RAWP, or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the NYSDEC Project Manager by personal communication. Daily reports will be included as an Appendix in the FER.

An alpha-numeric Site map will be used to identify locations (e.g. EP-2B) described in reports submitted to NYSDEC and is shown in **Figure 6**.

#### **Record Keeping and Photo Documentation**

Job-site record keeping for all remedial work will be performed. These records will be maintained on-site during the project and will be available for inspection by NYSDEC staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the FER in digital format (i.e. jpeg files).

#### **5.11 COMPLAINT MANAGEMENT**

All complaints from citizens will be promptly reported to NYSDEC. Complaints will be addressed and outcomes will also be reported to NYSDEC in daily reports. Notices to NYSDEC will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

#### **5.12 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN**

All changes to the RAWP will be reported to, and approved by, the NYSDEC Project Manager and will be documented in weekly reports and reported in the FER. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from NYSDEC noting the following:

- Reasons for deviating from the approved RAWP;

- Effect of the deviations on overall remedy; and
- Determination with basis that the remedial action with the deviation(s) is protective of public health and the environment.

### **5.13 DATA USABILITY SUMMARY REPORT**

The primary objective of a Data Usability Summary Report (DUSR) is to determine if data meets the Site-specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data using third party data validation. The DUSR for post-remedial samples (end-point and confirmation samples) collected during implementation of this RAWP will be included in the FER.



## 6.0 FINAL ENGINEERING REPORT

An FER will be submitted to NYSDEC following implementation of the remedial action defined in this RAWP. The FER will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will include:

- Information required by this RAWP;
- Manifests for all soil disposal associated with the UST closure;
- Photographic documentation of remedial work performed under this remedy;
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end-point sampling results (including all soil test results from the remedial investigation for soil that will remain on Site) and all soil waste characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action;
- Account of the source area locations (if applicable) and characteristics of all soil removed from the Site including a map showing the location of these excavations and hotspots, tanks or other contaminant source areas;
- Full accounting of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material;
- Account of the origin and required chemical quality testing for material imported onto the Site;
- The SMP (submitted as part of the FER) written in a manner that allows its use as an independent document;
- The RAWP and RIR will be included as appendices to the FER; and
- Reports and supporting material will be submitted in digital form and final portable document format (PDFs) will include bookmarks for each appendix.

## **Final Engineering Report Certification**

The following certification will appear in front of the Executive Summary of the FER. The certification will be signed by the Remedial Engineer, Paul R. Lageraaen, who is a PE in New York State. The certification will be appropriately signed and stamped. The certification includes the following statements:

*“I Paul R. Lageraaen certify that I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Action Work Plan.”*

## 7.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting and assumes no suspect unclassified soil is encountered during excavation for construction purposes. In addition, the schedule assumes NYSDEC will not require installation details and final certification of the proposed vapor barrier/waterproofing. If the schedule for remediation and development activities changes, it will be updated and submitted to NYSDEC. Currently, a three month remediation period is anticipated.

<b>Schedule Milestone</b>	<b>Weeks from Remedial Action Start</b>	<b>Duration (weeks)</b>
NYSDEC Approval of RAWP	0	--
Fact Sheet 2 announcing start of remedy	1	1
Mobilization	3	2
Remedial Excavation	6	2
Demobilization	8	2
Submit Final Engineering Report	12	4

## FIGURES



## FIGURE 1- Site Location Map

**Project:** Remedial Action Work Plan  
**Client:** 11-12 30<sup>th</sup> Drive LLC  
**Site:** POP Displays Manufacturing Site  
 30-80 12th Street & 30-77 Vernon Boulevard  
 NYSDEC Site No. C241181



architects + engineers

31 Penn Plaza  
 132 W. 31<sup>st</sup> Street, Suite 604  
 New York, NY 10001






**Date:** 11.03.16

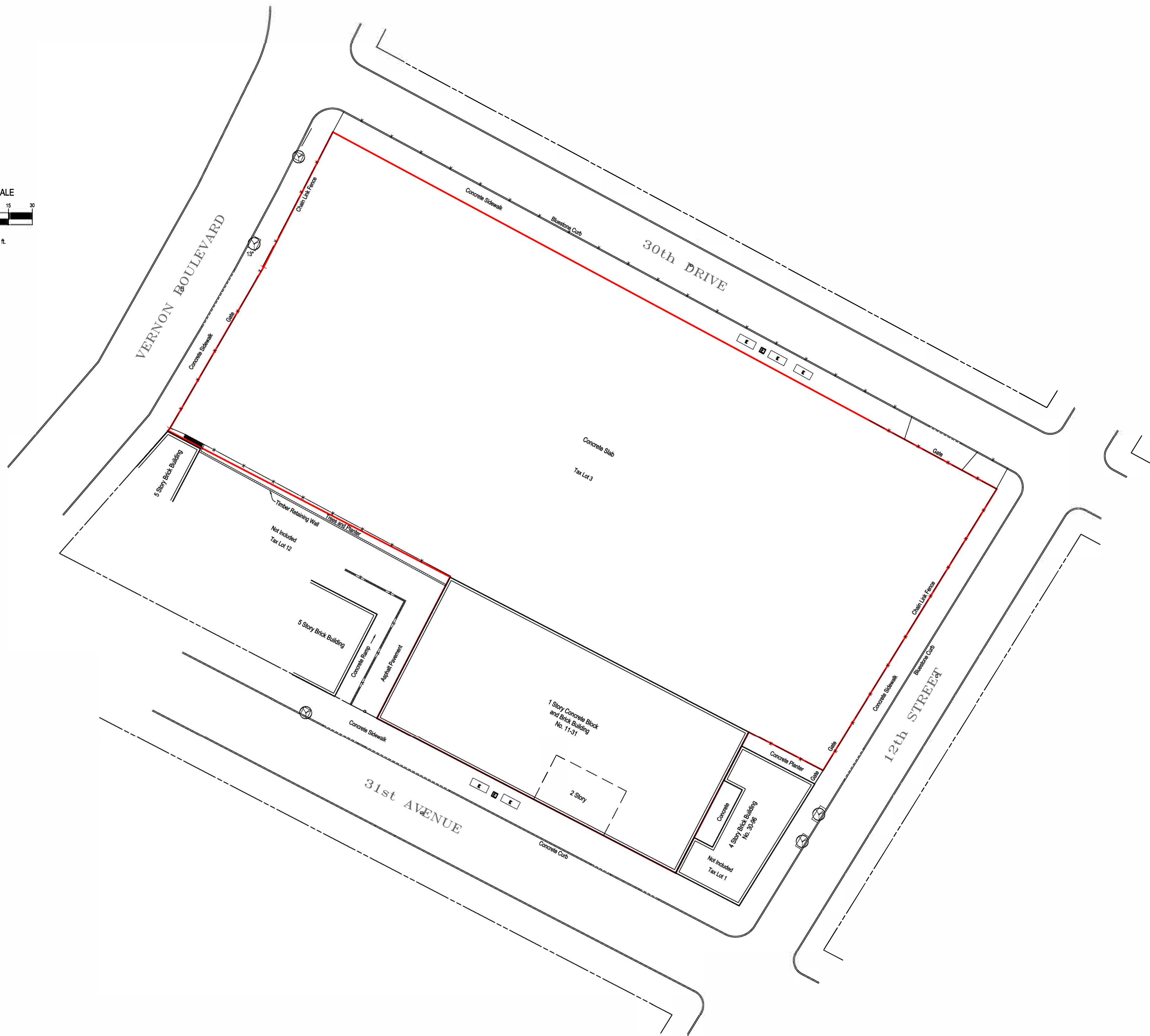
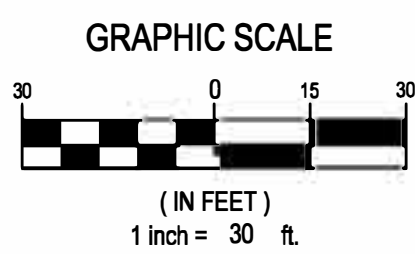
**Project No:** CRDG1601


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- MAPPING BASED ON SURVEY BY LEONARD J. STRANDBERG AND ASSOCIATES, CONSULTING ENGINEERS AND LAND SURVEYORS, P.C. LAST DATED AUGUST 09, 2016

**LEGEND**

-  TREE
-  CURB
-  DROP CURB
-  FENCE
-  SITE BOUNDARY LINE



	<b>architects</b> + <b>engineers</b>	Melville, NY 11747 Albany, NY 12205 New York, NY 10001 White Plains, NY 11604 New City, NY 10956 Parsippany, NJ 07054 Howell, NJ 07731
	538 Broad Hollow Road 4th Floor East Melville, NY 11747 P: (631) 756-8000 F: (631) 694-4122	

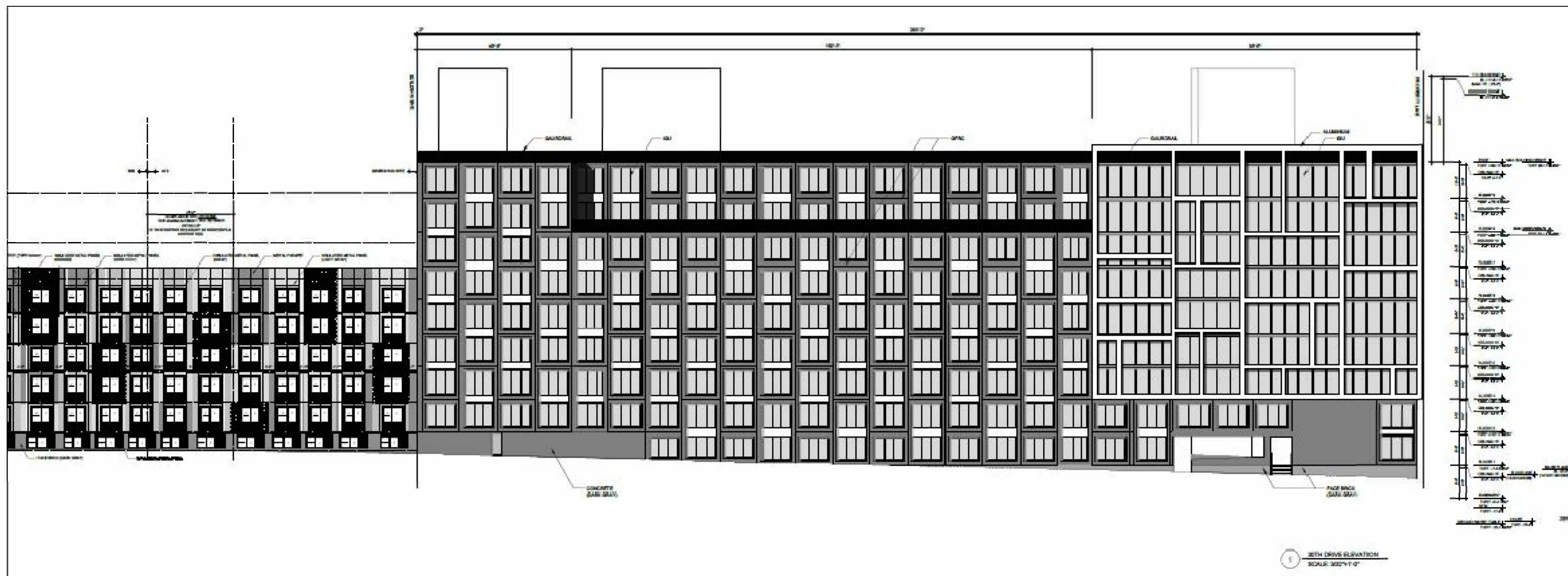
DESIGNED BY: LJS ASSC.	DRAWN BY: JSG	CHECKED BY:	PROJECT NO.: CRDG-1601	DATE: 10/05/2016	SCALE: 1"=30 FEET
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<b>SITE BOUNDARY MAP</b>  ASTORIA CITY OF NEW YORK	QUEENS COUNTY NEW YORK
<b>POP DISPLAYS MANUFACTURING SITE FIGURE 2</b>	
QCTM: BLOCK 504, LOT 03	

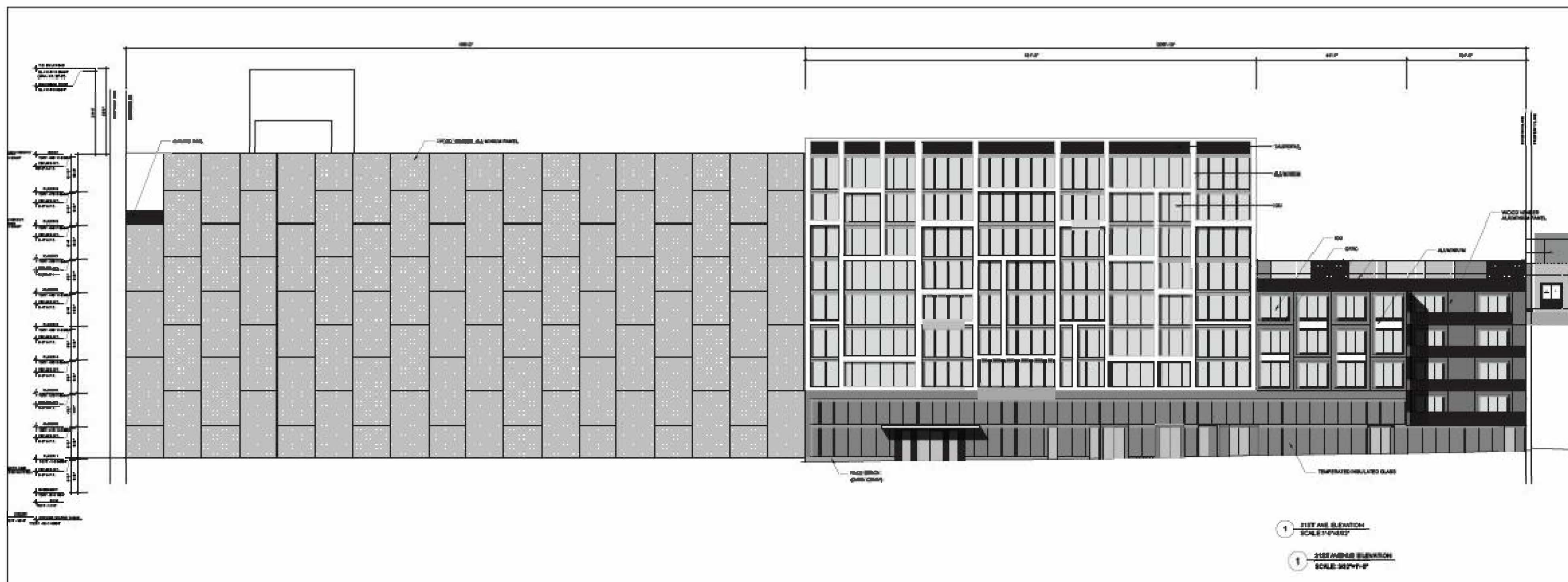
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EXTERIOR AT 30TH DRIVE



EXTERIOR AT 31ST AVENUE

	Melville, NY 11747 Albany, NY 12205 New York, NY 10001 White Plains, NY 11604 New City, NY 10956 Parsippany, NJ 07054 Howell, NJ 07731
	538 Broad Hollow Road 4th Floor East Melville, NY 11747 P: (631) 756-8000 F: (631) 694-4122

DESIGNED BY: LJS ASSOC.	DRAWN BY: JSG	CHECKED BY:	PROJECT NO.: CRDG-1601	DATE: 10/05/2016	SCALE: NOT TO SCALE
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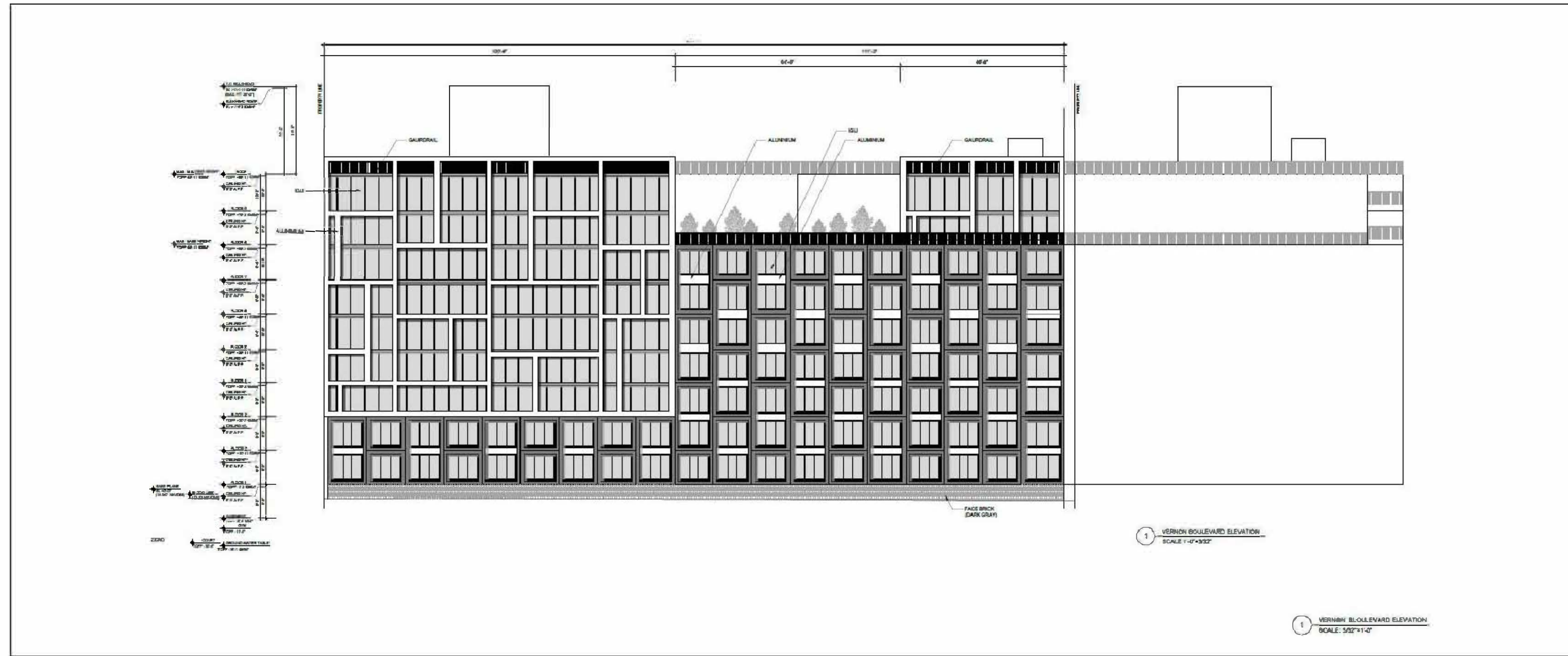
<b>REDEVELOPMENT PLAN</b>	
ASTORIA CITY OF NEW YORK	QUEENS COUNTY NEW YORK

<b>POP DISPLAYS MANUFACTURING SITE FIGURE 3A</b>	
OCTM-BLOCK 504_LOT 03	

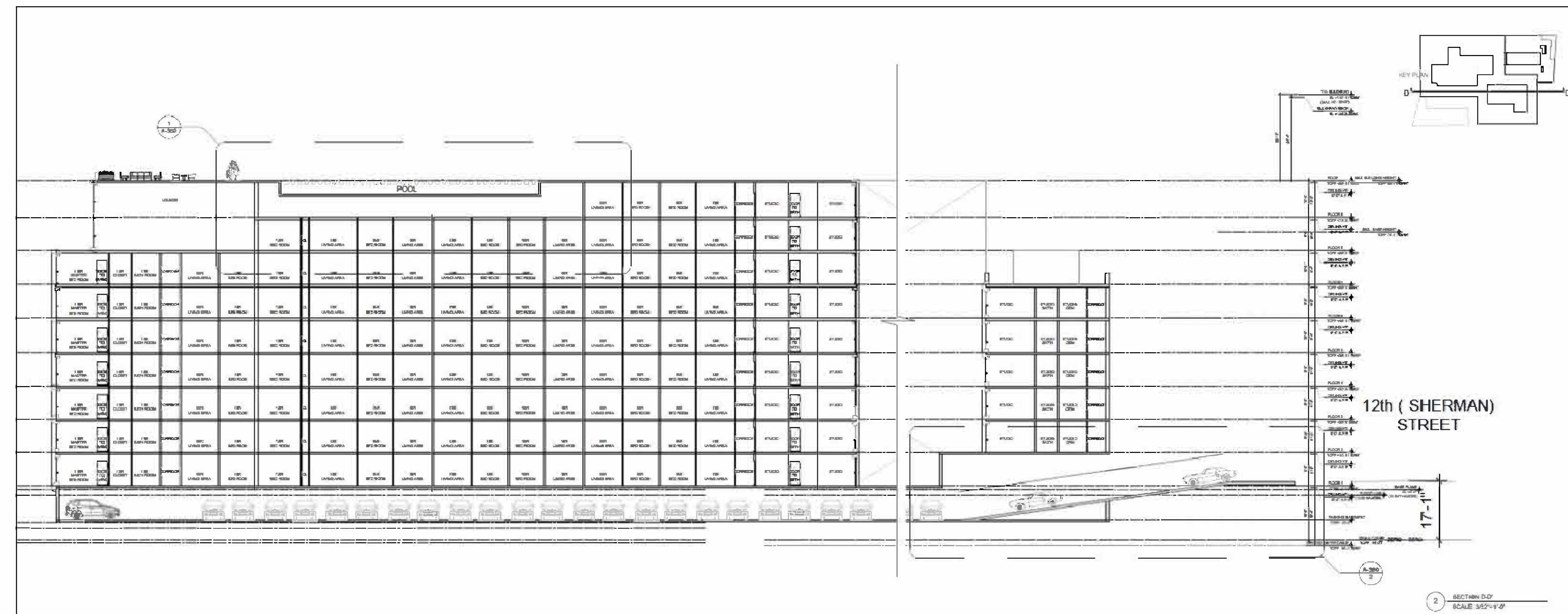
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EXTERIOR AT VERNON BOULEVARD



SECTION AT 31ST AVENUE

	Melville, NY 11747 Albany, NY 12205 New York, NY 10001 White Plains, NY 11604 New City, NY 10956 Parsippany, NJ 07054 Howell, NJ 07731				
	538 Broad Hollow Road 4th Floor East Melville, NY 11747 P:(631)756-8000 F:(631)694-4122				
DESIGNED BY: LJS ASSOC.	DRAWN BY: JSG	CHECKED BY:	PROJECT NO.: CRDG-1601	DATE: 10/05/2016	SCALE: NOT TO SCALE
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			<b>POP DISPLAYS MANUFACTURING SITE FIGURE 3B</b> OCTM-BLOCK 504, LOT 03		





## FIGURE 4 - Surrounding Land Usage

**Project:** Remedial Action Work Plan  
**Client:** 11-12 30<sup>th</sup> Drive LLC  
**Site:** POP Displays Manufacturing Site  
 30-80 12th Street & 30-77 Vernon Boulevard  
 NYSDEC Site No. C241181



architects + engineers

31 Penn Plaza  
 132 W. 31<sup>st</sup> Street, Suite 604  
 New York, NY 10001






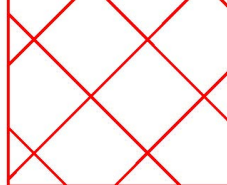

**Date:** 11.03.16

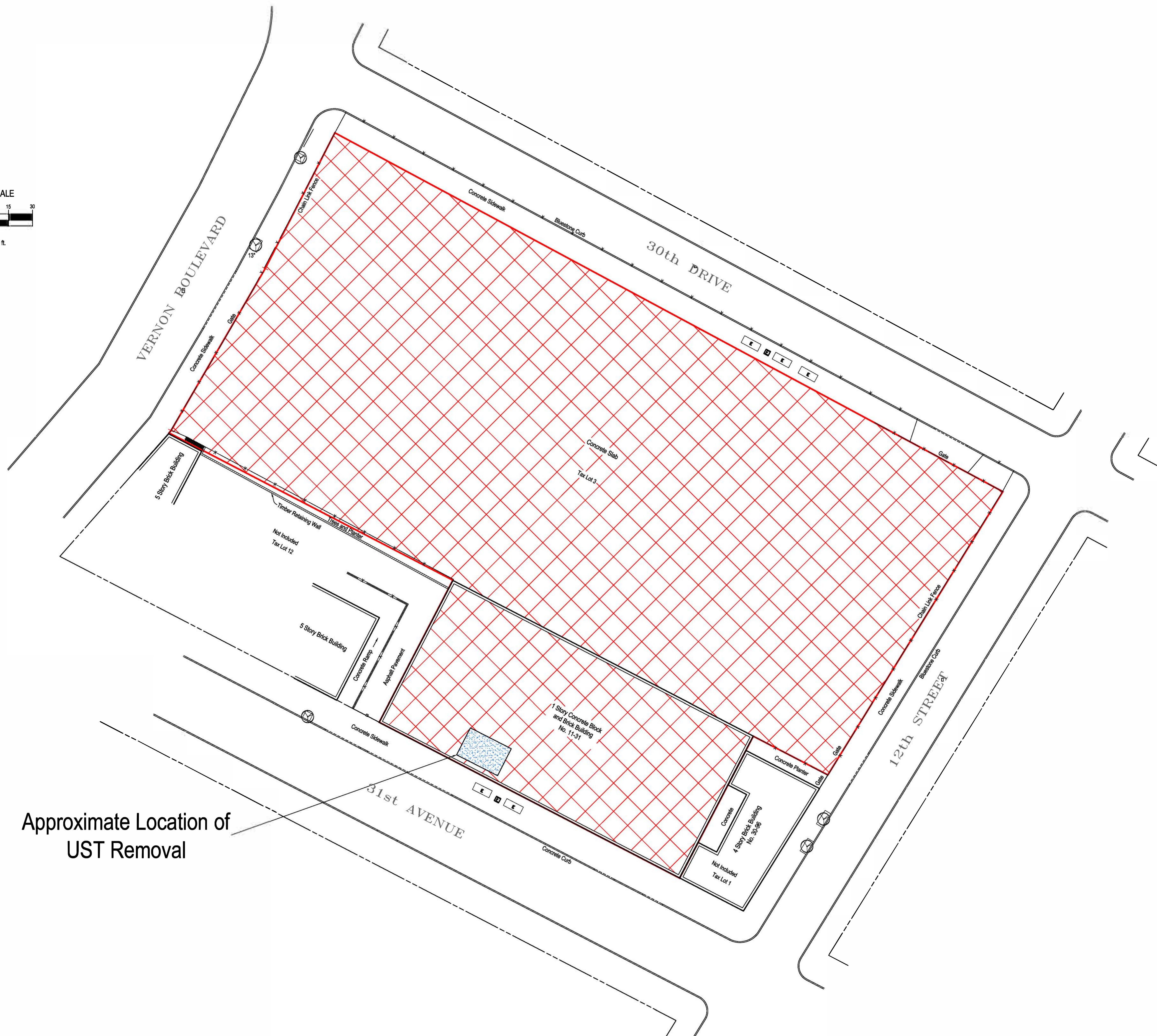
**Project No:** CRDG1601

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- MAPPING BASED ON SURVEY BY LEONARD J. STRANDBERG AND ASSOCIATES, CONSULTING ENGINEERS AND LAND SURVEYORS, P.C. LAST DATED AUGUST 09, 2016

LEGEND

-  TREE
-  CURB
-  DROP CURB
-  FENCE
-  SITE BOUNDARY LINE
-  SITE EXCAVATION AREA FOR DEVELOPMENT
-  EXCAVATION AREA FOR UST REMOVAL



Approximate Location of UST Removal

	architects + engineers	538 Broad Hollow Road 4th Floor East Melville, NY 11747 P: (631) 756-8000 F: (631) 694-4122	Melville, NY 11747 Albany, NY 12205 New York, NY 10001 White Plains, NY 11604 New City, NY 10956 Parsippany, NJ 07054 Howell, NJ 07731		
	DESIGNED BY: LJS ASSOC.	DRAWN BY: JSG	CHECKED BY:	PROJECT NO.: CRDG-1601	DATE: 12/08/2016

SITE EXCAVATION PLAN

ASTORIA CITY OF NEW YORK QUEENS COUNTY NEW YORK

POP DISPLAYS  
MANUFACTURING SITE  
FIGURE 5






QCTM: BLOCK 504, LOT 03

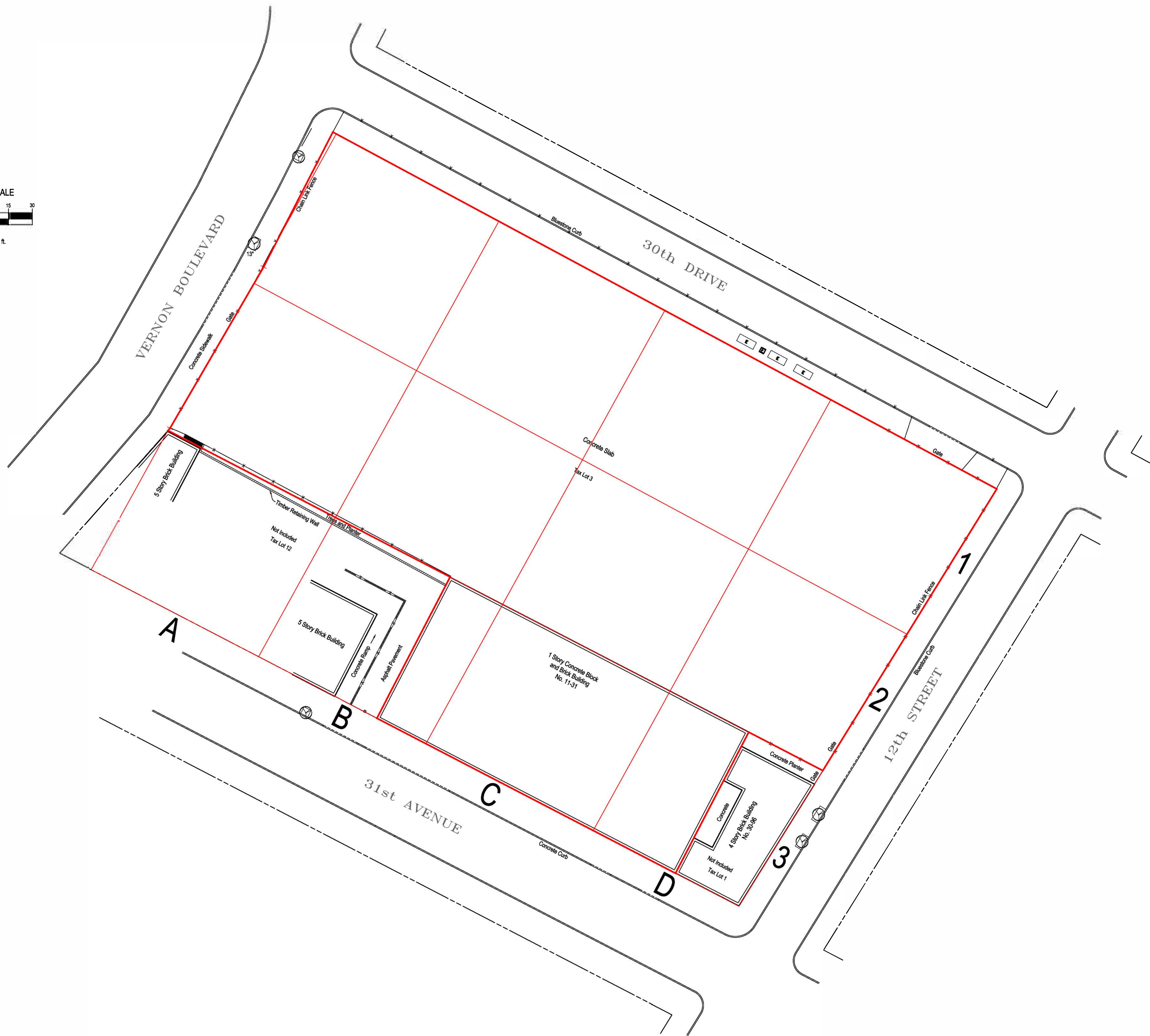
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**LEGEND**

-  TREE
-  CURB
-  DROP CURB
-  FENCE
-  SITE BOUNDARY LINE

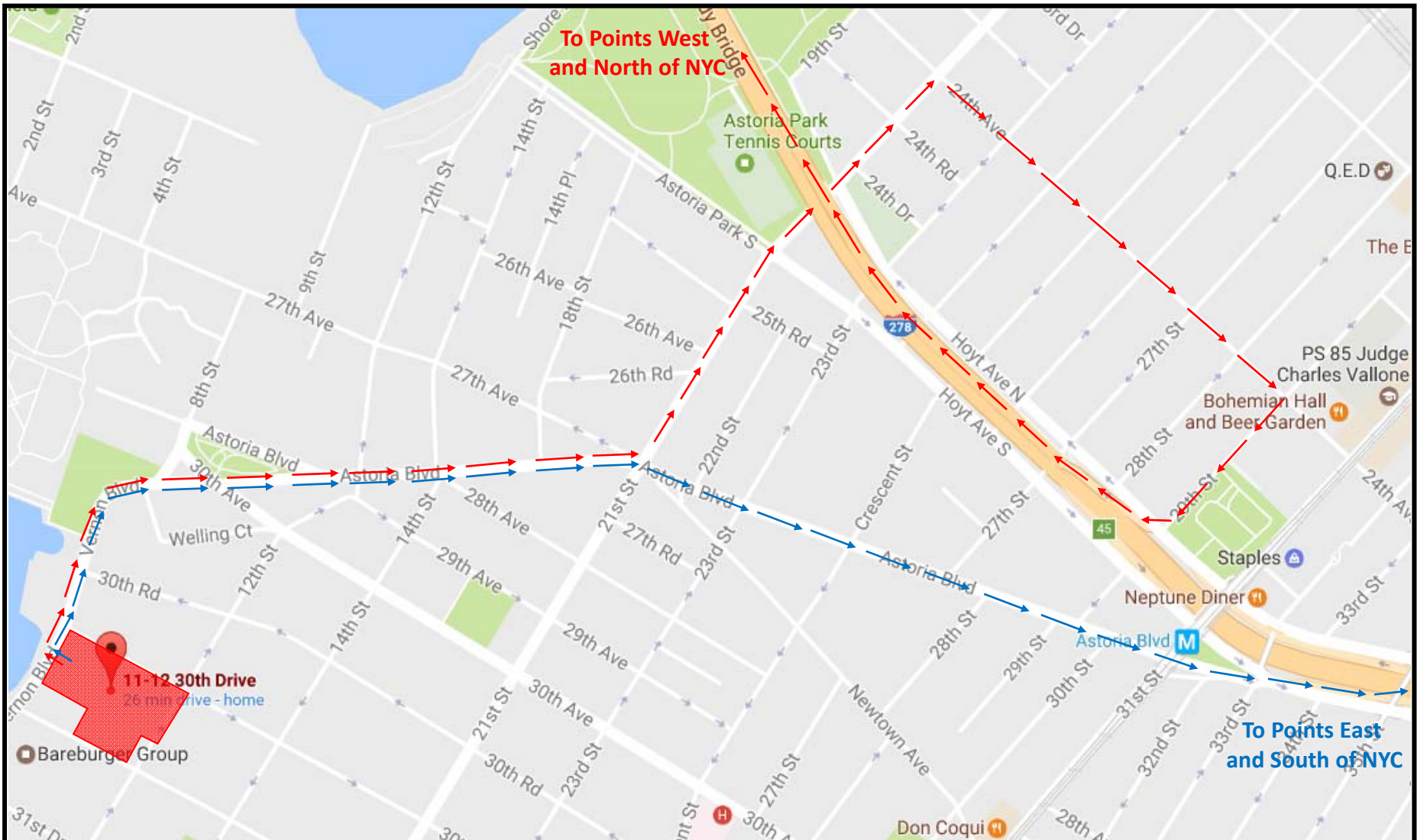


<b>H 2 M</b>	<b>architects + engineers</b>	538 Broad Hollow Road 4th Floor East Melville, NY 11747 P: (631) 756-8000 F: (631) 694-4122	Melville, NY 11747 Albany, NY 12205 New York, NY 10001 White Plains, NY 11604 New City, NY 10956 Parsippany, NJ 07054 Howell, NJ 07731

DESIGNED BY: LJS ASSC.	DRAWN BY: JSG	CHECKED BY:	PROJECT NO.: CRDG-1601	DATE: 10/05/2016	SCALE: 1"=30 FEET
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	<b>POP DISPLAYS MANUFACTURING SITE FIGURE 6</b>	
	OCTM: BLOCK 504, LOT 03	

X:\CDWG (Client) Drawings\CDWG\CDWG1601 (POP Displays) LCTM\FE02\CDWG1601\Figures\Figure 6 - East Point Sampling Location.dwg, Last Modified: Mar 28, 2017 - 4:17pm by gpealman



**FIGURE 7 - Truck Route Map**

**Project:** Remedial Action Work Plan  
**Client:** 11-12 30<sup>th</sup> Drive LLC  
**Site:** POP Displays Manufacturing Site  
 30-80 12th Street & 30-77 Vernon Boulevard  
 NYSDEC Site No. C241181



architects + engineers

31 Penn Plaza  
 132 W. 31<sup>st</sup> Street, Suite 604  
 New York, NY 10001

**Date: 12.08.16**

**Project No: CRDG1601**

**APPENDIX 1**  
**CITIZEN PARTICIPATION PLAN**



**New York State Department of Environmental Conservation**

## **Brownfield Cleanup Program**

# **Citizen Participation Plan**

**For**

**POP Displays Manufacturing Site**

**Astoria, NY 11102**

**Site No. C241181**

**May 2016**

# Contents

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1. What is New York’s Brownfield Cleanup Program? .....	3
2. Citizen Participation Activities .....	3
3. Major Issues of Public Concern.....	8
4. Site Information .....	8
5. Investigation and Cleanup Process.....	10
Appendix A - Project Contacts and Locations of Reports and Information.....	13
Appendix B - Site Contact List .....	14
Appendix C - Site Location Map .....	15
Appendix D - Brownfield Cleanup Program Process.....	16

\* \* \* \* \*

**Note:** The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the Site’s investigation and cleanup process.

Applicant: **11-12 30<sup>th</sup> Drive LLC**

Site Name: **POP Displays Manufacturing Site (“Site”)**

Site Address: **30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard, Astoria, NY 11102**

Site County: **Queens**

Site Number: **C241181**

## **1. What is New York’s Brownfield Cleanup Program?**

New York’s Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as “brownfields” so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC), which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: <http://www.dec.ny.gov/chemical/8450.html>.

## **2. Citizen Participation Activities:**

### *Why NYSDEC Involves the Public and Why It Is Important*

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social wellbeing. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment;
- Improving public access to, and understanding of, issues and information related to a particular site and that site’s investigation and cleanup process;
- Providing citizens with early and continuing opportunities to participate in NYSDEC’s site investigation and cleanup process;



- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community; and
- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision-making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the Site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

### *Project Contacts*

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the Site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

### *Locations of Reports and Information*

The locations of the reports and information related to the Site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC website. If this occurs, NYSDEC will inform the public in fact sheets distributed about the Site and by other means, as appropriate.

### *Site Contact List*

Appendix B contains the Site contact list. This list has been developed to keep the community informed about, and involved in, the Site's investigation and cleanup process. The Site contact list will be used periodically to distribute fact sheets that provide updates about the status of the Project. These will include notifications of upcoming activities at the Site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The Site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the Site is located;
- Residents, owners, and occupants of the Site and properties adjacent to the Site;
- The public water supplier which services the area in which the Site is located;
- Any person who has requested to be placed on the Site contact list;
- The administrator of any school or day care facility located on or near the Site for purposes of posting and/or dissemination of information at the facility; and
- Location(s) of reports and information.

The Site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the Site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the Site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

## *CP Activities*

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the Site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the Site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.
- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the Site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the Site contact list and changes in planned citizen participation activities.

## *Technical Assistance Grant*

NYSDEC must determine if the Site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the Site, as described in Section 5.

If the Site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the Site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the Site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the Site.

For more information about TAGs, go online at <http://www.dec.ny.gov/regulations/2590.html>.

Note: The table identifying the citizen participation activities related to the Site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
<b>Application Process:</b> <ul style="list-style-type: none"> <li>• Prepare site contact list</li> <li>• Establish document repositories</li> </ul>	At time of preparation of application to participate in the BCP.
<ul style="list-style-type: none"> <li>• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period</li> <li>• Publish above ENB content in local newspaper</li> <li>• Mail above ENB content to site contact list</li> <li>• Conduct 30-day public comment period</li> </ul>	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
<b>After Execution of Brownfield Site Cleanup Agreement:</b>	
<ul style="list-style-type: none"> <li>• Prepare Citizen Participation (CP) Plan</li> </ul>	Before start of Remedial Investigation
<b>Before NYSDEC Approves Remedial Investigation (RI) Work Plan:</b>	
<ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan</li> <li>• Conduct 30-day public comment period</li> </ul>	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
<b>After Applicant Completes Remedial Investigation:</b>	
<ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list that describes RI results</li> </ul>	Before NYSDEC approves RI Report
<b>Before NYSDEC Approves Remedial Work Plan (RWP):</b>	
<ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period</li> <li>• Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager)</li> <li>• Conduct 45-day public comment period</li> </ul>	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
<b>Before Applicant Starts Cleanup Action:</b>	
<ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list that describes upcoming cleanup action</li> </ul>	Before the start of cleanup action.
<b>After Applicant Completes Cleanup Action:</b>	
<ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report</li> <li>• Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)</li> </ul>	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

### 3. Major Issues of Public Concern

At this time, there are no known issues of public concern. However, once the remediation commences, there may be concerns regarding the remediation activities at the Site. Additional major issues of public concern may be identified during the course of the Site’s investigation and cleanup process. If issues are identified, the public will be kept informed.

The Site is located in an Environmental Justice Area. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities.

The Site is located in an area with a sizable Hispanic-American population nearby, therefore, all future fact sheets will be translated into Spanish. In addition, there may be impacts with regards to truck traffic, noise or odor coming from the Site.

### 4. Site Information

#### *Site Description*

The approximately 2.75 acre “Site,” which is the subject of this application, consists of tax parcel, Block 504, Lots 3, which were formerly two separate lots 3 and 21, with property addresses of 30-80 12<sup>th</sup> Street and 30-77 Vernon Blvd, Astoria, NY 11102. *See Appendix C, Site Location Map.*

Section	Block	Lot	Official Address	Acreage
	504	3	30-80 12 <sup>th</sup> Street and 30-77 Vernon Blvd	2.75
	504	Formerly 3&21	f/k/a 11-12 30 <sup>th</sup> Drive & 11-31 <sup>st</sup> Avenue	
Total				2.75

The Site is located adjacent to the following properties:

Compass Direction	Adjacent Properties
West	A residential building (30-85 Vernon Boulevard) and the East River across Vernon Boulevard.
North	Residential buildings (11-09 to 11-37 30th Drive and 30-70 12th Street across 30th Drive and 12-03 30th

	Drive to the northeast across 30th Drive and 12th Street); to the northwest across 30th Drive is a commercial building occupied by Tel-A-Car, Rayco Manufacturing/ Metal Stamping and Distribution and Nelson International (30-55 Vernon Boulevard); to the northwest across Vernon Boulevard and on a pier along the East River is a warehouse building (30-40 Vernon Boulevard).
East	A residential building (12-02 30th Drive) and Wade Electric (30-91 12th Street) across 12th Street. To the east of Lot 3 is a residential building with ground floor retail - Dave's Kitchen Cabinets (11-45 31st Avenue).
South	Residential and commercial buildings (11-02 to 11-44 31st Avenue) across 31st Avenue; to the southwest is a residential building (30-85 Vernon Boulevard); to the southeast of Lot 21 is a residential building with ground floor retail - Dave's Kitchen Cabinets (11- 45 31st Avenue)

*History of Site Use, Investigation, and Cleanup*

From 1939 to 1970, General Motor Corporation's Parts Division operated on a portion of the Site. The other portion of the Site was occupied by Japanese food distributors during that time. Then in 1983 to 2005, the Site was occupied by, POP Displays, Inc., a display manufacturer. Hazardous waste streams formerly generated at this on-site facility included spent non-halogenated solvents and non-listed ignitable wastes from the mid-1980's to the early 2000's. In 1984, the manufacturer was a Large Quantity Generator, and a Small Quantity Generator in 1999. This manufacturer was also listed as a Conditionally Exempt Small Quantity Generator in 2006 and 2007. Several notices of violations for unreported issues were identified for this facility in 1985, 1989, and 1990. Further, there are two unregistered Above-ground Storage Tanks (ASTs) on the Site, and according to the NYS Dept. of Buildings, a permit was applied to install a new paint spray/drying booth and to install a new fuel oil storage tank to be used for dying cycle for POP Displays in 1995. The exact status of the work performed is unknown. Various other industrial uses have been present.

Several potentially impacted adjacent properties were identified, and as such, a Vapor Encroachment Condition (VEC) could be ruled out for the facilities located in upgradient and crossgradient hydrogeologic directions from the Site. The Quenzer & Muller garment cleaners facility was identified on the Sanborn maps from 1915 through 1948. In addition, the property located to the southeast across 12<sup>th</sup> street and 31<sup>st</sup> Avenue was identified as a truck sales and service facility on the 1967 Sanborn map, and a plastic producer manufacturer on the 1977, 1979 and 1988 Sanborn map. Also, the Parker Associates/Tower Cleaners dry cleaning plant was listed in the City directory abstracts in 2000 through 2013.

Based on the environmental investigations that have been conducted on the Site to date, the following Areas of Concern (AOCs) were identified:

1. **Chlorinated solvents discharges:** The Phase II investigations performed to date resulted in chlorinated solvent exceedances in the Site soil gas, which demonstrated evidence of a source area likely impacting

groundwater contamination. Additional investigation is required to determine the extent of this impact in groundwater and soils.

2. **Polyaromatic Hydrocarbons (PAHs) in soils:** Soil samples in the western parking lot of the Site resulted in exceedance of the NYSDEC's industrial soil cleanup objectives. Additional soil investigation is required to determine the vertical and horizontal extent of the PAH impact to the Site soil.
3. **Groundwater:** One groundwater sample located at western lot of the Site resulted in dieldrin (a pesticide) that exceeded the Groundwater Class GA standard. Additional investigation is required to determine the source and extent of this exceedance.
4. **Above ground storage tanks (ASTs):** Two (2) ASTs were identified on the Site that will be closed and disposed of properly. Once demolition occurs, delineation of the nature and extent of any contamination under these tanks will be investigated.
5. **Suspect Underground Storage Tanks (USTs):** Evidence supporting the possible presence of USTs was discovered during a Phase I investigation from pipes emanating from the Site. Test pits will be performed to determine if USTs are present, and if discovered, the USTs will be removed and a subsurface investigation will be performed.

## 5. Investigation and Cleanup Process

### *Application*

The Applicant has applied for and been accepted into New York's BCP as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the Site took place after the discharge or disposal of the contaminants. The Volunteer has agreed to fully characterize the nature and extent of contamination on-site, remediate the Site and conduct a "qualitative exposure assessment" a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the Site and to contamination that has migrated from the Site. To achieve this goal, the Applicant will conduct any remaining investigation and cleanup activities at the Site with oversight provided by NYSDEC and the NYS Department of Health (NYSDOH).

### *Investigation*

As noted above, the Applicant will be conducting an investigation of the Site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant is being developed a Remedial Investigation Work Plan, which will be being reviewed by NYSDEC and the NYSDOH, and then will be implemented. The public notice to comment on the remedial investigation work plan be subject to a 30-day fact sheet.

The Site investigation will have several goals:

- 1) Define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
- 2) Identify the source(s) of the contamination;
- 3) Assess the impact of the contamination on public health and the environment; and
- 4) Provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results, which is called a Final Remedial Investigation Report. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the Site poses a significant threat to public health or the environment. If the Site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the Site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

### *Remedy Selection*

When the investigation of the Site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the Site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a “Certificate of Completion” or “COC” (described below) to the Applicant.

**or**

2. The Applicant may recommend in its investigation report that action needs to be taken to address Site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the Site.

When the Applicant submits a proposed Remedial Action Work Plan for approval, NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

### *Certificate of Completion*

NYSDEC will consider public comments, and revise the draft Remedial Action Work Plan if necessary, before approving the proposed remedy. NYSDOH must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the Site contamination. NYSDEC and State Health oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the Site.

### *Site Management*

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place.

Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the Site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An institutional control is a non-physical restriction on use of the Site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the Site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.



# Appendix A

## Project Contacts and Locations of Reports and Information

### Project Contacts

For information about the Site's investigation and cleanup program, the public may contact any of the following project staff:

#### **New York State Department of Environmental Conservation (NYSDEC):**

Caroline Eigenbrodt  
NYSDEC– Remedial Bureau B-Section D  
625 Broadway 12<sup>th</sup> Floor  
Albany, NY 12233-7016  
Email: [caroline.eigenbrodt@dec.ny.gov](mailto:caroline.eigenbrodt@dec.ny.gov)  
Tel: (518) 402-9575

Sally Dewes, Section Chief  
NYSDEC Remedial Bureau B-Section D  
625 Broadway 12<sup>th</sup> Floor  
Albany, NY 12233-7016  
Email: [Sally.dewes@dec.ny.gov](mailto:Sally.dewes@dec.ny.gov)  
Tel: (518) 402-9768

Jane O'Connell, NYSDEC  
RHWRE, Region 2  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233  
Email: [jane.oconnell@dec.ny.gov](mailto:jane.oconnell@dec.ny.gov)  
Tel: (718) 482-4599

Andrew Guglielmi, NYSDEC  
OGC Section Chief Remediation Bureau  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233  
Email: [Andrew.guglielmi@dec.ny.gov](mailto:Andrew.guglielmi@dec.ny.gov)  
Tel: (518) 402-9507

Kelly Lewandowski  
NYSDEC Section Chief  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233  
Email: [kelly.lewandowski@dec.ny.gov](mailto:kelly.lewandowski@dec.ny.gov)  
Tel: (518) 402-9553

K. Mintzer  
NYSDEC Regional Attorney, Region 2  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233  
Email: [karen.mintzer@dec.ny.gov](mailto:karen.mintzer@dec.ny.gov)  
Tel: (718) 482-4009

Bernadette Andersen  
NYSDEC Site Control Section  
Division of Environmental Remediation  
625 Broadway  
Albany, NY 12233  
Email: [Bernadette.andersen@dec.ny.gov](mailto:Bernadette.andersen@dec.ny.gov)  
Tel: (518) 402-9543

**New York State Department of Health (NYSDOH)**

Wendy S. Kuehner, P.E.  
NYSDOH  
Bureau of Environmental Exposure Investigation  
Empire State Plaza, Corning Tower, Room 1787  
Albany, NY 12237  
Email: [bee@health.ny.gov](mailto:bee@health.ny.gov)  
Phone: (518) 402-7860

J. Deming  
NYSDOH Regional Chief  
New York State Department of Health  
Empire State Plaza - Corning Tower Room 1787  
Albany, NY 12237  
Email: [BEEI@health.ny.gov](mailto:BEEI@health.ny.gov)

**Locations of Reports and Information:**

The facilities identified below are being used to provide the public with convenient access to important project documents:

Gus Tsekenis, Director  
Queens Astoria Library  
14-01 Astoria Boulevard  
Long Island City, NY 11102  
Phone: (718) 278-2220  
Hours: Monday - Thursday: 12pm-8 pm; Tuesday 1-6; Wednesday & Friday 10-6; Saturday 10-5; Sunday Closed

Florence Koulouris, District Manager  
Queens Community Board 1  
45-02 Ditmars Boulevard

LL Suite 1025  
Astoria, NY 11105  
Phone: 718-626-1021  
Hours: Monday – Friday: 9am-5 pm

## **Appendix B - Site Contact List**

### **Local Government Officials**

City of New York Mayor  
Hon. Bill de Blasio  
City Hall  
New York, NY 10007

Hon. Scott Stringer  
NYC Comptroller  
1 Centre Street  
New York City, NY 10007

Hon. Letitia James  
Public Advocate  
1 Centre Street  
New York City, NY 10007

Hon. Jimmy Van Bramer  
NYC Councilmember  
47-01 Queens Boulevard, Suite 205  
Sunnyside, NY 11104

Queens County  
Borough President Melinda Katz  
120-55 Queens Boulevard  
Kew Gardens, New York 11424  
Phone: (718) 286-3000

Carl Weisbrod, Commissioner Chair  
NYC Department of City Planning  
22 Reade St  
New York, NY 10007

Irwin Cantor, Borough Commissioner  
NYC Department of City Planning  
120-55 Queens Blvd.  
Kew Gardens, NY 11424

Irving Poy  
Borough of Queens, Dept of Planning Director  
120-55 Queens Boulevard  
Kew Gardens, NY 11424

Joseph Risi  
Borough of Queens, Community Board 1 Chairperson  
45-02 Ditmars Boulevard, LL Suite 125  
Astoria, NY 11105

Florence Koulouris, District Manager  
Queens Community Board 1  
45-02 Ditmars Boulevard, LL Suite 125  
Astoria, NY 11105

Antonella di Saverio  
Environmental Committee  
Queens Community Board 1  
45-02 Ditmars Boulevard, LL Suite 125

Queens County Clerk's Office  
Queens County Clerk  
88-11 Sutphin Boulevard, 1st Floor  
Jamaica, NY 11439

### **State Government Officials**

Hon. Michael Gianaris  
NYS Senator  
31-19 Newtown Avenue South, Suite 402  
Astoria, NY 11102

Hon. Catherine Nolan  
NYS Assemblymember  
41-02 Queens Boulevard, Suite 2B  
Sunnyside, NY 11104

### **Federal Government Officials**

Hon. Kristen Gillibrand  
U.S. Senate  
780 Third Avenue, Suite 2601  
New York, NY 10017

Hon. Charles Schumer  
U.S. Senate  
780 Third Avenue, Suite 2301  
New York, NY 10017

Hon. Carolyn Mahoney  
US House of Representatives  
31-19 Newtown Ave. Astoria, NY 11102

## **Local News Media**

The Long Island City/Astoria Journal  
69-60 Grand Avenue  
Maspeth, NY 11378  
(718) 639-7000

NY 1 News  
75 Ninth Avenue  
New York, NY 10011

Western Queens Gazette  
42-16 34th Avenue  
Long Island City, NY 11101

Times-Ledger Newspapers  
41-02 Bell Boulevard, 2nd Floor  
Bayside, NY 11361

New York Daily News  
4 New York Plaza  
New York, NY 10004

New York Post  
1211 Avenue of the Americas  
New York, NY 10036

Hoy Nueva York  
1 MetroTech Center, 18th Floor  
Brooklyn, NY 11201

El Diario La Prensa  
1 MetroTech Center, 18th Floor  
Brooklyn, NY 11201

## **The administrator of any school or day care facility located on or near the site:**

Anne Bussel, Principal  
PS 171 Peter G Van Alst Elementary School  
14-14 29<sup>th</sup> Ave  
Long Island City, New York 11106

Vivian Selenikas, Principal  
Long Island City High School  
14-30 Broadway  
Long Island City, New York 11106

Alexander Angueira, Principal  
Albert Shanker School for Visual and Performing Arts  
31-51 21<sup>st</sup> St.  
Long Island City, New York 11106

Judith Zangwill, Executive Director  
21<sup>st</sup> Century-Sunnyside Community Services  
14-30 Broadway  
Astoria, New York 11106

Ideal Islamic School  
31-29 12<sup>th</sup> Street  
Astoria, NY 11106

### **Public Water Supplier**

Emily Lloyd, Commissioner  
New York City Department of Environmental Protection  
59-17 Junction Boulevard  
Flushing, NY 11373

### **Adjacent Property Owners**

Duffy Building Mgt LLC  
Adjacent Property Owner of 30-96 31st Ave.  
72 New York Avenue  
Rockville Centre, NY 11570

Dave's Kitchen Cabinets  
Adjacent Property Occupant of 30-96 31st Ave.  
30-96 31st Avenue  
Astoria, NY 11106

Empire Holdings Group II, LLC  
Adjacent Property Owner of 30-85 Vernon Blvd  
37-10 30th Street  
Astoria, NY 11106

Hallets Cove Condominiums  
Adjacent Property Occupant of 30-85 Vernon Blvd  
30-85 Vernon Blvd  
Astoria, NY 11106

TLTA Associates LLC  
Adjacent Property Owner of 11-50 31st Ave.  
41-05 30th Avenue  
Astoria, NY 11106

Astoria Tile & Marble  
Adjacent Property Occupant of 11-50 31st Ave.  
11-50 31st Avenue  
Astoria, NY 11106

TLTA Associates LLC  
Adjacent Property Owner of 11-44 31st Ave.  
41-05 30th Avenue  
Astoria, NY 11106

Astoria Tile & Marble  
Adjacent Property Occupant of 11-44 31st Ave.  
11-44 31st Avenue  
Astoria, NY 11106

Eleven Forty Two LLC  
Adjacent Property Owner of 11-42 31st Ave.  
23-60 27th Street  
Astoria, NY 11106

Occupant  
11-42 31st Avenue  
Astoria, NY 11106

Steinway Mental Health Committee, Inc.  
Adjacent Property Owner of 11-40 31st Ave.  
32-48 Steinway Street  
Astoria, NY 11106

Rosner Custom Sound Inc.  
Adjacent Property Owner/Occupant of 11-38 31st Ave.  
11-38 31st avenue  
Long Island City, NY 11106

RM Newman LLC  
Adjacent Property Owner of 11-36 31st Ave.  
215-21 23rd Road  
Bayside, NY 11360

Occupant  
Adjacent Property Occupant of 11-36 31st Ave.  
11-36 31st Avenue  
Astoria, NY 11106

Rosner Custom Sound Inc.  
Adjacent Property Owner/Occupant of 11-32 31st Ave.  
11-38 31st avenue  
Long Island City, NY 11106

Empire Holdings Group, LLC  
Adjacent Property Owner of 11-28 31st Ave.  
37-10 30th Street  
Astoria, NY 11101

Occupant  
Adjacent Property Occupant of 11-28 31st Ave.  
11-28 31st Avenue  
Astoria, NY 11106

TTW Realty, LLC  
Adjacent Property Owner of 31-01 Vernon Blvd  
1850 Steinway Street  
Astoria, NY 11105

The Piano Factory  
Adjacent Property Occupant of 31-01 Vernon Blvd  
31-01 Vernon Blvd  
Astoria, NY 11106

Hallets Marina Corp.  
Adjacent Property Owner/Occupant of Vernon Blvd  
18-50 Steinway Street  
Astoria, NY 11105

Mark Disuvero  
Adjacent Property Owner/ Occupant of 30-40 Vernon Blvd  
30-40 Vernon Blvd  
Astoria, NY 11102

Rayco Manufacturing/Metal Stamping  
Adjacent Property Occupant of 30-55 Vernon Blvd  
30-55 Vernon Blvd  
Astoria, NY 11102

Distribution and Nelson International  
Adjacent Property Occupant of 30-55 Vernon Blvd  
30-55 Vernon Blvd  
Astoria, NY 11102

Tel-A-Car  
Adjacent Property Occupant of 30-55 Vernon Blvd  
30-55 Vernon Blvd  
Astoria, NY 11102

Linda Conforti-Brown  
Adjacent Property Owner of 30-55 Vernon Blvd  
30-55 Vernon Blvd  
Astoria, NY 11102

Karen Arnett  
Adjacent Property Owner/Occupant of 11-09 30th Dr.  
11-09 30th Drive  
Astoria, NY 11102



Angel Rivas  
Adjacent Property Owner/Occupant of 11-11 30th Drive  
11-11 30th Drive  
Astoria, NY 11102

Lawrence Nyack  
Adjacent Property Owner/Occupant of 11-15 30th Dr.  
11-15 30th Drive  
Astoria, NY 11102

1117 30 Drive, LLC  
Adjacent Property Owner of 11-17 30th Drive  
11-17 30th Drive  
Astoria, NY 11102

Occupant  
Adjacent Property Occupant of 11-17 30th Dr.  
11-17 30th Drive  
Astoria, NY 11102

Ray L. Fouche  
Adjacent Property Owner/Occupant of 11-19 30th Drive  
11-19 30th Drive  
Astoria, NY 11102

JaAnna Brown  
Adjacent Property Owner/Occupant of 11-23 30th Dr.  
11-23 30th Drive  
Astoria, NY 11102

Ray L. Fouche  
Adjacent Property Owner /Occupant of 11-25 30th Drive  
11-25 30th Drive  
Astoria, NY 11102

Mingguo Cho  
Adjacent Property Owner/Occupant of 11-27 30th Dr.  
11-27 30th Drive  
Astoria, NY 11102

Mingguo Cho  
Adjacent Property Owner/Occupant of 11-29 30th Drive  
11-29 30th Drive  
Astoria, NY 11102

Mohamed S. Uddin  
Adjacent Property Owner/Occupant of 11-33 30th Dr.  
11-33 30th Drive  
Astoria, NY 11102

Jampa Gyaltso  
Adjacent Property Owner/Occupant of 11-35 30th Drive  
11-35 30th Drive  
Astoria, NY 11102

Villegas Mercedes  
Adjacent Property Owner/Occupant of 11-37 30th Dr.  
11-37 30th Drive  
Astoria, NY 11102

Nurin Nahar  
Adjacent Property Owner/Occupant of 30-70 12th Street  
30-70 12th Street  
Astoria, NY 11102

Roi Ming Wu  
Adjacent Property Owner/Occupant of 12-03 30th Dr.  
12-03 30th Drive  
Astoria, NY 11102

Chrishnanand Bisram  
Adjacent Property Owner/Occupant of 12-02 30th Drive  
12-02 30th Drive  
Astoria, NY 11102

Wade Electric  
Adjacent Property Occupant of 30-91 12th Street  
30-91 12th Street  
Astoria, NY 11102

Dennis Friedman  
Adjacent Property Owner of 30-91 12th Street  
30-91 12th Street  
Astoria, NY 11102

Rohan Rambarah  
Adjacent Property Owner/Occupant of 12-01 31st Ave.  
12-01 31st Avenue  
Astoria, NY 11102

12-04 31<sup>st</sup> Avenue, LLC  
Adjacent Property Owner of 12-04 31st Ave.  
656 Hunt Lane  
Manhasset, NY 11030

Towers Cleaners  
Adjacent Property Occupant of 12-04 31st Ave.  
12-04 31st Avenue  
Astoria, NY 11106

**Community, Civic, Religious and other Educational Institutions:**

Socrates Sculpture Park  
Attn: John Hatfield, Executive Director  
P.O. Box 6259  
32-01 Vernon Boulevard  
Long Island City, NY 11106

Astoria Houses  
Attn: Management Development Office  
4-20 Astoria Boulevard  
Long Island City, NY 11102

Astoria Houses  
Attn: President, Resident Association  
4-20 Astoria Boulevard  
Long Island City, NY 11102

Christian Church of Astoria  
Attn: Pastor  
14-17 31<sup>st</sup> Drive  
Astoria, NY 11106

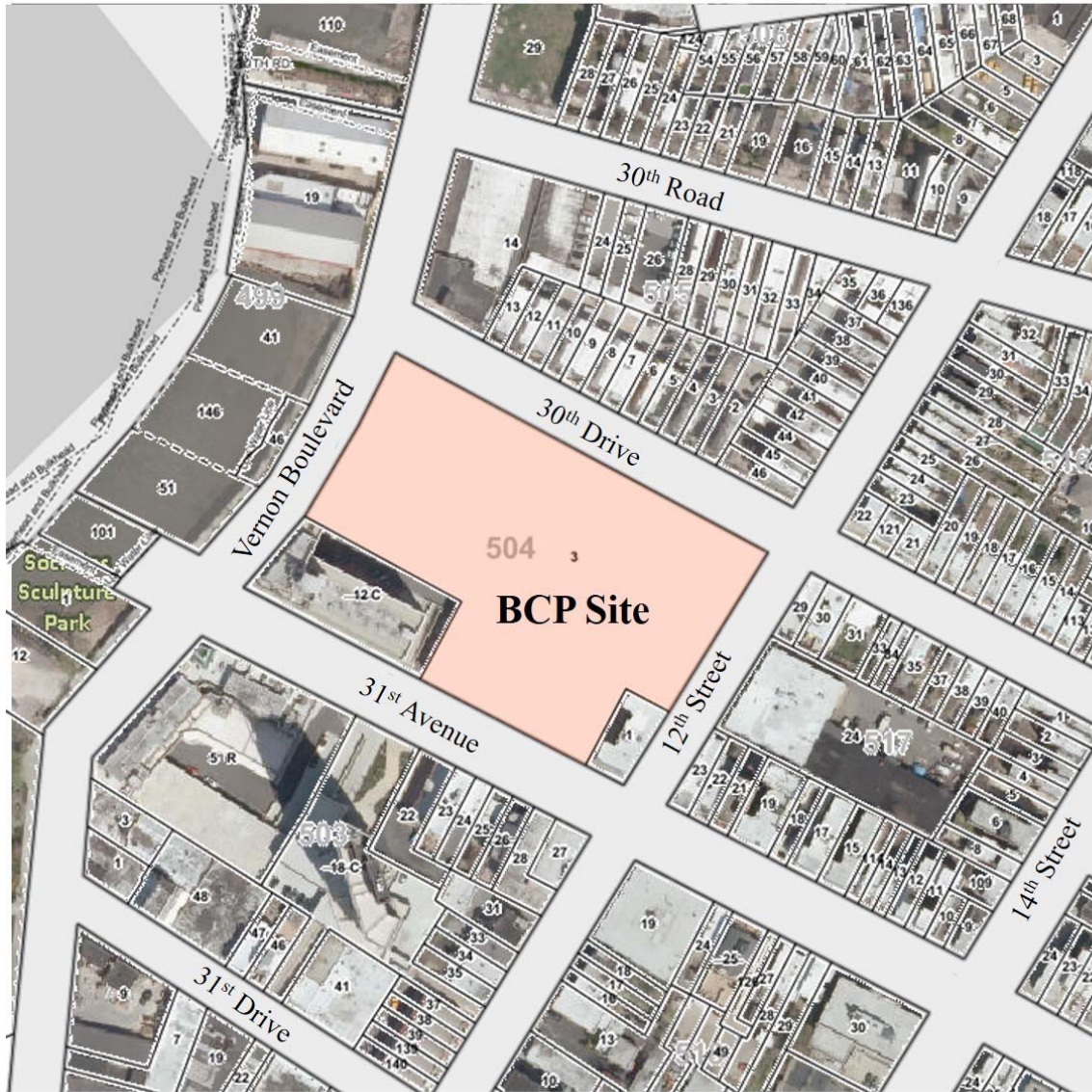
San Pablo United Methodist Church  
Attn: Pastor  
14-54 31<sup>st</sup> Road  
Astoria, NY 11106

Astoria Baptist Church  
Attn: Pastor  
3117 21<sup>st</sup> Street  
Long Island City, NY 11106

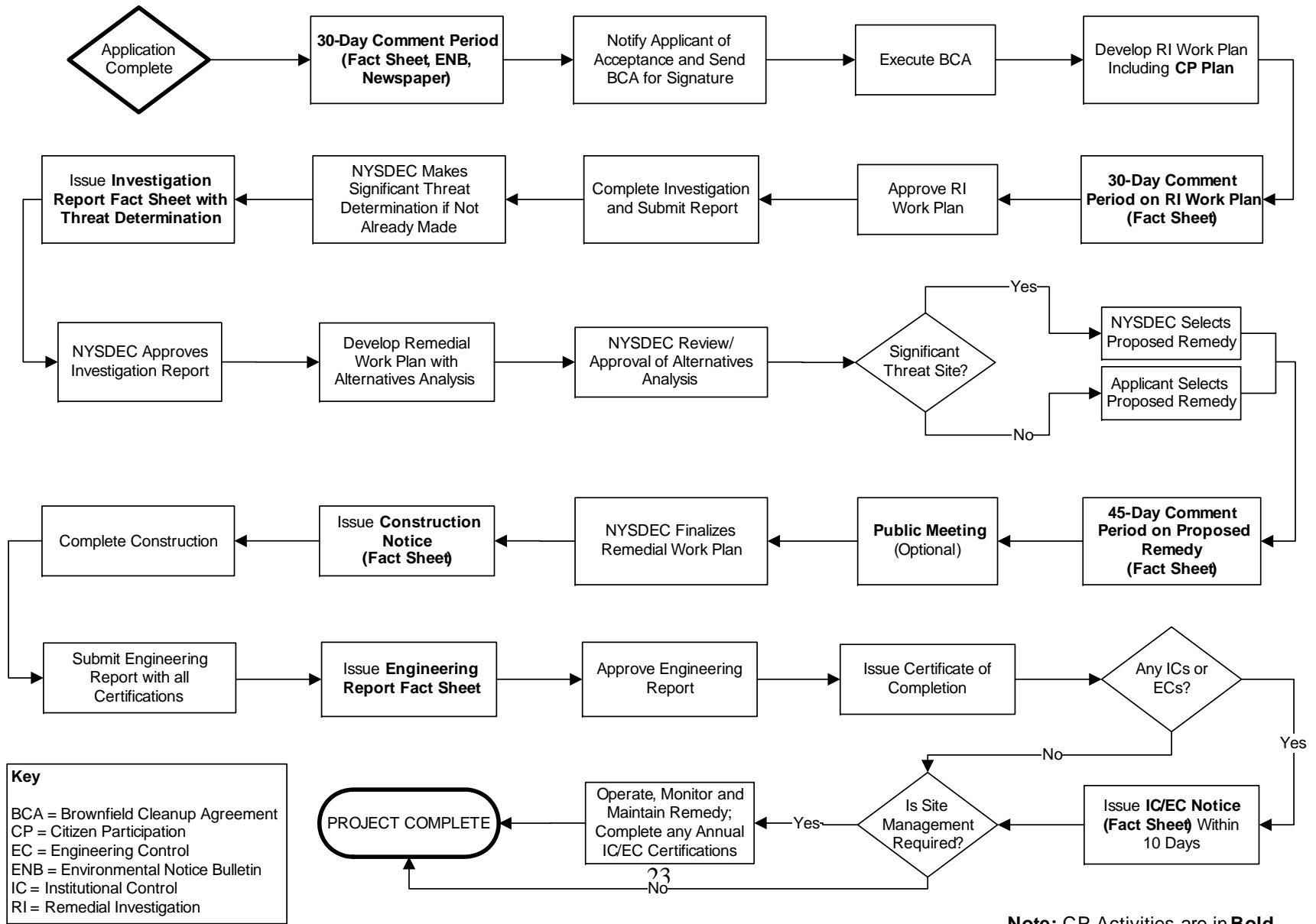
Islamic Unity & Culture Center  
3133 12<sup>th</sup> Street  
Long Island City, NY 11106

Astoria Civic Association  
22-45 31<sup>st</sup> Street  
Astoria, NY 11105  
Attn: President

## Appendix C - Site Location Map



## Appendix D– Brownfield Cleanup Program Process



**APPENDIX 2**  
**SUSTAINABILITY STATEMENT**

## APPENDIX 2

### SUSTAINABILITY STATEMENT

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

**Reuse of Clean, Recyclable Materials and Reduced Consumption of Non-Renewable Resources:** Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction. An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the FER.

**Reduced Energy Consumption and Promotion of Greater Energy Efficiency:** Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings. Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the FER. Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or how energy savings were achieved will be reported.

**Conversion to Clean Fuels:** Use of clean fuel improves air quality by reducing harmful emissions. An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the FER.

**Recontamination Control:** Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site. An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the FER in square feet.

**Stormwater Retention:** Stormwater retention improves water quality by lowering the rate of combined stormwater and sewer discharges to sewage treatment plants during periods of precipitation, and reduces

the volume of untreated influent to local surface waters. An estimate of the enhanced stormwater retention capability of the redevelopment project will be included in the FER.

**Linkage with Green Building:** Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use. The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the FER. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

**Paperless Brownfield Cleanup Program:** Applicant is participating in NYSDEC's effort to reduce paper consumption by utilizing, where appropriate, submission of electronic documents, communications and milestone reports.

**Low-Energy Project Management Program:** The applicant is participating in a low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

**Trees and Plantings:** Trees and other plantings provide habitat and add to environmental quality in a wide variety of ways. Native plant species and habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance. An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the FER.

**APPENDIX 3**  
**SOIL/MATERIALS MANAGEMENT PLAN**





## New York State Department of Environmental Conservation

### SOIL/MATERIALS MANAGEMENT PLAN

POP Displays Manufacturing Site  
30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard  
Queens, NY 11102

NYSDEC SITE NO. C241181

H2M Project No.: CRDG1601

**January 12, 2018**

**Prepared for:**

11-12 30<sup>th</sup> Drive LLC  
35-11 36<sup>th</sup> Street, 3<sup>rd</sup> Floor  
Long Island City, NY 11106

**Prepared by:**

H2M architects + engineers  
31 Penn Plaza  
132 W. 31<sup>st</sup> Street, Suite 604  
New York, New York 10001



architects + engineers

**SOIL/MATERIAL MANAGEMENT PLAN**  
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## **SOIL/MATERIALS MANAGEMENT PLAN**

### **1.1 SOIL SCREENING METHODS**

Visual, olfactory and photoionization detector (PID) soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional (QEP) and will be reported in the Final Engineering Report (FER). Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by New York State Department of Environmental Conservation (NYSDEC).

### **1.2 STOCKPILE METHODS**

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

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

### **1.3 CHARACTERIZATION OF EXCAVATED MATERIALS**

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

#### **1.4 MATERIALS EXCAVATION, LOAD-OUT, AND DEPARTURE**

The Professional Engineer (PE) or QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this Remedial Action Work Plan (RAWP);
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of contaminated soil on-site will not be performed without prior NYSDEC approval.

#### **1.5 OFF-SITE MATERIALS TRANSPORT**

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible to minimize off Site disturbance. Off-site queuing will be minimized.

Outbound truck transport routes are described in the RAWP. This routing considers the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e)

promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

## **1.6 MATERIALS DISPOSAL**

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Applicant to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee (i.e. 11-12 30<sup>th</sup> Drive LLC). The letter will include as an attachment with a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the FER.

The FER will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the FER.

All impacted soil or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Contaminated soils taken off-site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. A manifest system for off-site transportation of exported materials will be employed. Manifest information will be reported in the FER. Hazardous wastes derived from on-site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

If disposal of soil from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be

made for approval by NYSDEC with an associated plan compliant with 6 NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by Site uses and that the material complies with receipt requirements for recycling under 6 NYCRR Part 360. This material will be appropriately handled on-site to prevent mixing with impacted material.

### **1.7 MATERIALS REUSE ON-SITE**

Soil and fill that is derived from the property that meets the Soil Cleanup Objectives (SCOs) established in this plan may be reused on-site. The SCOs for on-site reuse are listed in Section 4.2 of this cleanup plan. 'Reuse on-site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on land with comparable levels of contaminants in soil material, compliant with applicable laws and regulations, and addressed pursuant to the NYSDEC BCA agreement subject to Engineering and Institutional Controls (ECs/ICs). The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this remedial plan are followed. The expected location for placement of reused material is shown in Section 4.2.

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

### **1.8 DEMARCATION**

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

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

## **1.9 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES**

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet NYSDEC-approved backfill and cover soil quality objectives for this Site. Imported soils will not exceed groundwater protection standards established in Part 375. Imported soils for Track 2 remedial action projects will not exceed Track 2 Restricted Residential Use SCOs (RRSCOs).

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

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

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYSDEC.
- All materials received for import to the Site will be approved by a PE/QEP and will follow provisions in the RAWP. The FER will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.
- All material will be subject to source screening and chemical testing.
- Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:
  - Trucks with imported fill material will follow applicable laws and regulations and will enter the Site at designated locations;

- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

RCA will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the FER. A PE/QEP is responsible to ensure that the facility is compliant with 6 NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

#### **1.10 FLUIDS MANAGEMENT**

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYCDEP). The NYCDEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYCDEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by NYSDEC.

#### **1.11 STORMWATER POLLUTION PREVENTION**

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this remedial plan (silt fences



and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

### **1.12 CONTINGENCY PLAN FOR UNKNOWN CONTAMINATION SOURCES**

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to NYSDEC's Project Manager. Petroleum spills will be reported to the NYSDEC Spill Hotline. These findings will be included in the daily field report. If previously unidentified contaminant sources are found during on-site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to NYSDEC. Chemical analytical testing will be performed for Target Analyte List (TAL) metals, Target Compound List (TCL) volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

### **1.13 ODOR, DUST, AND NUISANCE CONTROL**

#### **Odor Control**

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

The provisions in this odor control plan are capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC will be notified of all odor complaint

events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEPs certifying this remedial plan.

### **Dust Control**

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

The provisions in this dust control plan are capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. NYSDEC will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP responsible for certifying this remedial plan.

### **Other Nuisances**

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to New York City noise control standards.

Rodent control will be provided during Site clearing and grubbing and during the remedial program, as necessary, to prevent nuisances.

**APPENDIX 4**  
**CONSTRUCTION HEALTH AND SAFETY PLAN**

# CONSTRUCTION HEALTH & SAFETY PLAN

## POP Displays Warehouse Site

30-80 12<sup>th</sup> Street and 30-77 Vernon Boulevard  
Astoria, Queens, NY

NYSDEC Site No. C241181

**March 2017**

**Prepared by:**

H2M architects + engineers  
31 Penn Plaza  
132 W. 31<sup>st</sup> Street, Suite 604  
New York, NY 10001

H2M Project No.: CRDG1601



architects + engineers

**POP DISPLAYS MANUFACTURING SITE  
30-80 12<sup>TH</sup> STREET and 30-77 VERNON BOULEVARD  
ASTORIA, NEW YORK**

**NYSDEC SITE No.: C241181**

**CONSTRUCTION HEALTH & SAFETY PLAN (CHASP)**

**MARCH 2017**

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**POP DISPLAYS MANUFACTURING SITE  
30-80 12<sup>TH</sup> STREET and 30-77 VERNON BOULEVARD  
ASTORIA, NEW YORK  
NYSDEC SITE No.: C241181**

**HEALTH & SAFETY PLAN (HASP)**

**MARCH 2017**

**1.0 PURPOSE**

The purpose of this Construction Health and Safety Plan (CHASP) is to establish the protocol for protecting H2M personnel as well as other on-site and off-site personnel under contract to H2M from incidents that may arise while performing field activities at the former POP Displays Manufacturing Site in Astoria, New York, herein referred to as the "Site". This plan establishes personnel protection standards, mandatory operational procedures, and provides contingencies for situations that may arise while field work is being conducted at the Site. This plan has been prepared for investigation and remediation activities associated with air, soil and groundwater impacts identified during the Remedial Investigation (RI) completed at the Site. The contaminants of concern include, polycyclic aromatic hydrocarbons (PAHs), chlorinated volatile organic compounds (CVOCs), and heavy metals (specifically iron and selenium).

All H2M field personnel and H2M's subcontractors will be required to abide by the procedures set forth in this CHASP. By following the procedures outlined in this CHASP, the possibility that personnel at the Site or the surrounding community will be injured or exposed to Site-related hazards during field activities will be minimized. In accordance with Occupational Safety and Health Administration (OSHA), this CHASP shall be made available to any other contractor, subcontractor, OSHA personnel, and to personnel of other federal, state, or local agencies with regulatory authority over the Site, as necessary. Subcontractors and other on-site personnel must attend and participate in Site safety meetings. Health and safety issues that may arise because of unforeseen Site conditions while the job is in progress may require that this plan be re-evaluated and changed accordingly to assure that the risk to Site workers is minimized. Any changes that require the CHASP to be modified shall be considered addenda, and those changes will be made by H2M. No work may occur that involve proposed changes to the CHASP until the addenda acceptable. A copy of this CHASP will be maintained at the project Site for the duration of the field project.

Personnel performing the field work may potentially encounter contaminated materials resulting in conditions that are potentially unsafe. In addition to the potential risks associated with the physical,



chemical, biological and toxicological properties of the material(s) which may be encountered, other types of hazards (i.e., electricity, water, temperature, heavy equipment, falling objects, loss of balance, tripping, etc.) can have an adverse effect on the health and safety of Site personnel. It is important that personal protective equipment (PPE) and safety requirements be appropriate to protect against the potential hazards. PPE will be selected based on the type(s), concentration(s), and route(s) of personnel exposure from hazardous substances at the Site. In situations where the type of materials and possibilities of contact are unknown or the potential hazards are not clearly identifiable, a more subjective (but conservative) determination will be made of the PPE required for initial safety. In addition, a documented job briefing will be conducted at the start of each day to identify scope and potential hazards that may be encountered during the workday.

At a minimum, H2M's subcontractors will follow this CHASP by adopting it as their own.

## **2.0 SITE CONDITIONS AND SCOPE OF WORK**

The Site is located in the County of Queens, New York and is identified on the tax maps of Queens County, New York as Tax Block 504, Lot 3. The Site is located between 30<sup>th</sup> Drive to the northeast, 12<sup>th</sup> Street to the southeast, 31<sup>st</sup> Avenue to the southwest and Vernon Boulevard to the northwest. The East River is adjacent to the Subject Property to the west.

The Site (currently consolidated Block 504 Lot 3 but formerly lots 21 and 3) encompasses a total of approximately 2.75 acres. As noted above the Site was formed from two separate properties. Former Lot 21 covers 2.24 acres and formerly contained a large industrial building as well as parking lots on both the East and West sides of this Lot. The industrial building was demolished in early 2016 and all that remains is the concrete slab-on-grade. Former Lot 3 is 0.48 acres in size, and contains a one story commercial building slated for demolition in June 2017.

The remedial and construction elements performed concurrently during the remedial action portion of the development work will consist of the following field activities: (1) excavation and removal of soil. The entire footprint of the project area (100% of the property) will be excavated to an approximate elevation of -5.0 feet mean sea level (msl) (15 to 25 feet below grade (ftbg)) for development purposes. Approximately 120,000 tons of soil will be removed from the Site and properly disposed at an appropriately licensed or permitted facility; (2) Excavation and removal of one underground storage tank (UST) identified at the southern portion of former Lot 3; (3) Collection and analysis of confirmation end-point samples to determine the performance of the remedy; (4) dewatering; and installation of a waterproofing/vapor barrier system and a sub-grade ventilated parking garage.

### 3.0 PERSONNEL SAFETY

Personnel involved in field operations must often make complex decisions regarding Site personnel and public safety. To make these decisions correctly requires more than elementary knowledge. For example, selecting the most effective PPE requires not only expertise in the technical areas of respirators, protective clothing, air monitoring, physical stress, etc., but also experience and professional judgment. Only competent, qualified personnel having the technical judgment to evaluate a particular situation and determine the appropriate safety requirements will perform field investigations at the Site. These individuals, through a combination of professional education, on-the-job experience, specialized training, and continual study, have the knowledge and experience to make sound decisions.

#### 3.1 Training and Medical Surveillance

All personnel involved in the Site spill investigation and remediation program will be trained to carry out their designated field operations. Training will be provided in the use of all equipment, including respiratory protection apparatus and protective clothing; safety practices and procedures; general safety requirements; and hazard recognition and evaluation.

H2M's medical surveillance program consists of baseline medical examinations conducted on newly hired personnel, personnel leaving the firm, and annually in accordance with the OSHA standards. The medical program is conducted by a licensed physician, knowledgeable in internal and occupational medicine, and a report of physical fitness of the individual to perform field activities is provided to H2M. The testing and examination may include, but is not limited to, blood pressure, spirometry, blood and urine testing for heavy metals, electrocardiogram, a periodic chest X-ray, and a general physical examination.

Each H2M employee and subcontractor performing field services must sign for, and will be provided with, a copy of this CHASP, indicating they have read and understood its contents. The CHASP will be verbally reviewed with all personnel on site by H2M and the review will be documented. The Construction Health Site and Safety Plan Acknowledgment Form is included in **Appendix A**.

#### 3.2 Health and Safety Manager

The Health and Safety Manager shall be responsible for overall implementation and coordination of the Health and Safety Program for field personnel at the Site. Responsibilities include providing adequate staffing, materials, equipment, and time needed to safely accomplish the tasks under the Site spill investigation and remediation program. The Health and Safety Manager is also responsible for taking

appropriate corrective actions when unsafe acts or practices arise. The Health and Safety Manager for the investigation project is Paul Lageraen, P.E., of H2M.

### **3.3 Site Health and Safety Officer**

Mr. Greg Cellamare is the Site Health and Safety Officer for this project. The Site Health and Safety Officer advises the Site Investigation field team supervisor(s) on all aspects of health and safety on-site. Further, the Site Health and Safety Officer has the authority to stop work if any operation threatens workers or public health and safety. Specific responsibilities include:

1. Determine that all personnel protective equipment is available and properly utilized by field personnel at the Site.
2. Assure that all personnel are familiar with standard operating safety procedures and additional instructions contained in the CHASP.
3. Assure that all personnel are aware of the hazards associated with the field operations.
4. Conduct and document daily Site safety briefings for field personnel.
5. Inspect and document the Site for hazards before field operations.
6. Determine personal protection levels including clothing and equipment for personnel and periodic inspection of protective clothing and equipment.
7. Monitor of Site conditions prior to initiation of field activities, and at various intervals during on-going operations as deemed necessary for any changes in Site hazard conditions. (Monitoring parameters include, but are not limited to, volatile organic contaminant levels in the atmosphere, chemical hazard information, and weather conditions.)
8. Inspect equipment decontamination procedures. It should be noted that all equipment used at the facility will be decontaminated prior to mobilizing to the Site.
9. Prepare reports pertaining to incidents resulting in physical injuries or exposure to hazardous materials.
10. Available through presence on-site or in contact at all times during Site operations.

Paul Lageraen, P.E. may designate another qualified H2M employee as the Site Health and Safety Officer. All designees will be familiar with all aspects of the HASP and their responsibilities. At all times the Site Health and Safety Officer shall report directly to the Health and Safety Manager.

### **3.4 Weapons and Firearms Policy**

The use, possession, or transportation of firearms and other weapons while on the Owner's premises is prohibited unless specifically authorized by the Owner. Individuals found in violation of this policy will be removed from the Owner's premises immediately and, when appropriate, such individuals will be reported to the proper law enforcement agencies.

#### 4.0 MANAGEMENT OF CHANGE

To consistently comply with Health and Safety regulations, including those identified prior to project inception, as well as any additional requirements, which become apparent during the field activities, all H2M personnel and subcontractors will adhere to the following guidelines regarding the management of change. The chain of command previously discussed provides a method of communicating changes in the working conditions or scope that may require modifications to the CHASP.

On-Site personnel shall immediately notify the Site Health and Safety Officer and/or Health and Safety Manager if any change in the working conditions or change in the scope of work to be performed could affect adherence to or create additional potential Health and Safety considerations not identified or addressed in the HASP. Based on the Site spill investigation and remediation program, potential changes in working conditions include the following:

- Adverse weather conditions;
- Site contaminants or hazards not previously identified;
- Changes to the scope of work;
- Unexpected waste generation.

To ensure compliance with Health and Safety regulations, H2M has prepared contingency plans for the above possibilities.

Adverse weather conditions affect the ability to perform work and can compromise the safety of on-site personnel. It may be necessary to alter the work schedule to accommodate inclement weather. In addition, should the working environment present more of a health hazard than previously anticipated, the level of personal protective equipment may be increased, as described below. In preparation, all H2M personnel are trained in the use of Level C and D PPE.

If additional Site contaminants or hazards not previously identified are encountered, or changes in scope of work are identified, the Site Health and Safety Officer will assess on-site personnel to ensure they are adequately trained for dealing with the newly identified contaminant, potential hazard, or modified scope of work. Personnel will be replaced, as required, to ensure properly trained personnel are conducting field activities. If unanticipated wastes are generated during the Site spill investigation and remediation program, the H2M Authorized Representative will be notified and the wastes will be stored at an approved location until the wastes can be characterized and approved for off-site disposal. Any additional material will be containerized in New York State Department of Transportation (NYSDOT) approved 55-gallon drums for off-site disposal. If it is determined that the drums cannot be stored on the site, H2M will utilize the "10-day in transit" allowance pending waste characterization results. Waste characterization samples will be collected by H2M and will consist of composite samples from the drums.

## 5.0 LEVELS OF PROTECTION

Only properly trained personnel wearing the appropriate PPE will be permitted near Site activities. The purpose of the personal protective clothing and equipment is to minimize exposure to hazards while working on-site. Careful selection and use of adequate PPE should protect the respiratory system, skin, eyes, face, hands, feet, head, body, and hearing of Site personnel. The level of protection will be selected in accordance with applicable guidance, rules and regulations.

The appropriate level of protection is determined prior to the initial entry on-site and based on available information and preliminary monitoring data of the Site. Subsequent information may warrant changes in the original level selected and will trigger a management of change evaluation. Appropriate equipment to protect personnel against exposure to known or anticipated chemical hazards has been divided into two categories (i.e., Levels C and D) according to the degree of protection afforded. At present, the conditions at the Site indicate that Level D will be the appropriate protection for use at the Site.

The following subsections provide a general overview of the various levels of personal protection and their requirements associated with each (Level C and D), that are available for potential use during spill remediation operations.

### 5.1 Level C Protection

Level C protection will be used by all personnel if the conditions outlined in Section 5.1.1 are encountered.

#### 5.1.1 Criteria for Selection

Meeting these criteria permits use of Level C Protection:

- a. Measured air concentrations of identified substances will be reduced by the respirator to, at or below the substance's exposure limit, and the concentration is below the assigned protection factor (APF) of the respirator.
- b. Atmospheric contaminant concentrations do not exceed Immediately Dangerous to Life or Health (IDLH) levels.
- c. Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.
- d. Job functions have been determined not to require self-contained breathing apparatus (SCBA).

- e. Total volatile organic compound (VOC) readings register between 5 parts per million (ppm) calibration gas equivalent (cge) and 50 ppm cge above background on instruments. If TVOC levels are greater than 1/2 Permissible Exposure Level (PEL) of the primary contaminants of concern (Section 6.0) respiratory protection shall be required (Level C, B, or A).
- f. Air will be monitored periodically (as conditions warrant).
- g. Cartridges are available and are approved by National Institute for Occupational Safety and Health (NIOSH) for the specific chemical(s) encountered.

#### 5.1.2 Personal Protective Equipment

- a. Full-face, air purifying, canister-equipped respirator (NIOSH-approved).
- b. Chemical-resistant clothing (coveralls; hooded, two-piece chemical splash suits; chemical-resistant hood and apron; disposable chemical-resistant coveralls).
- c. Coveralls.\*
- d. Gloves, chemical-resistant.
- e. Boots, steel toe and shank.
- f. Boots cover (outer), chemical-resistant (disposable\*).
- g. Hard hats (non-white) must be worn always.
- h. Escape mask, as may be required based on-site hazards.
- i. Orange Reflective High-visibility vests (United States Department of Transportation [USDOT]-approved)\*\*
- j. Metatarsal protection will be worn when jack hammering, saw cutting and pressure washing.

\* Optional

\*\* Vests must be worn when working in areas exposed to or adjacent to vehicle traffic.

#### 5.1.3 Limiting Criteria

- a. Atmospheric concentration of chemicals must not exceed IDLH levels.
- b. The atmosphere must contain at least 20.9 percent oxygen.
- c. Must have sufficient information available regarding specific compounds, and their concentrations, likely to be encountered.
- d. The contaminant concentrations as measured using a photo-ionization detector (PID) do not exceed the APF of the respirator.

#### 5.1.4 Minimum Decontamination Procedures

Station 1: Equipment drop.

Station 2: Outer boot and glove removal.

Station 3: Canister or mask change.

Station 4: Boots, gloves and outer garment removal.

Station 5: Face piece removal.

Station 6: Field wash.

## 5.2 Level D Protection

### 5.2.1 Criteria for Selection

Meeting these criteria allows the use of Level D protection:

- a. No hazardous air pollutants have been measured.
- b. Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.
- c. Extensive information on suspected hazards/risks is known.

### 5.2.2 Personal Protective Equipment

- a. General work clothes or coveralls, long sleeve.
- b. Gloves.
- c. Boots/shoes, leather or chemical-resistant, steel toe and shank.
- d. Boots (outer), chemical/resistant (disposable)\*.
- e. Safety glasses or chemical splash goggles when there is a splash hazard.
- f. Hard hats (non-white) must be worn always. Face shields and safety glasses or goggles must be worn where there is a splash hazard.
- g. Hearing protection within all operational areas and when work functions include the potential to generate sound levels more than permissible exposure limits.
- h. Orange Reflective High-visibility vests (USDOT-approved)\*\*
- i. If there is a potential for dermal contact, a Tyvek suit will be worn.
- j. Metatarsal protection will be worn when jack hammering, saw cutting and pressure washing.

\* Optional

\*\* Vests must be worn when working in areas exposed to or adjacent to vehicle traffic.

### 5.2.3 Limiting Criteria

- a. The atmosphere contains at least 20.9 percent oxygen. If oxygen levels drop below 19.5 percent, the decision will be made in the field to evacuate and ventilate or to stop work.
- b. VOC concentrations in the breathing zone are below established concentration levels (contaminant and instrument specific criteria).

#### 5.2.4 Minimum Decontamination Procedure

Station 1: Equipment drop.

Station 2: Hand and face wash.

### 5.3 Duration of Work Period

The anticipated duration of the work period will be established prior to daily activities. The work will only be performed during daylight hours (700 to 1800 hours, weekdays). Other factors that may affect the length of time personnel may work include:

- a. Air supply consumption (however, SCBA assisted work - Level A and Level B is not anticipated);
- b. Suit/ensemble, air purifying chemical cartridge, permeation and penetration by chemical contaminants;
- c. Ambient temperature and weather conditions; and
- d. Contractual requirements.

#### 5.3.1 Ambient Temperature

The ambient temperature has a major influence on the duration of work periods as it effects both the worker and the protective integrity of ensembles, as well as the operation and reliability of the monitoring equipment. When ambient temperatures rise or fall to a level potentially hindering personnel performance or becomes a threat to personal safety, consideration shall be given to stop work and recommence work when temperatures or conditions are less severe.

## 6.0 DETERMINATION OF THE SITE-SPECIAL LEVEL OF HAZARD AND LEVEL OF PROTECTION

Categories of personnel protection required depend on the degree of hazard and probability of exposure by a route of entry into the body. For this Site, the most probable potential route of entry is via inhalation and potentially by dermal adsorption of contaminants encountered during Site remediation activities.

Based upon Site data generated to date, it is anticipated that Level D will be required for Site activities. The determination of Level D protection is based upon field work that will be performed in open, well-ventilated areas and that the potential for accidents and injuries due to obstructions caused by and/or magnified by the use of Level C protection (i.e., slip/trip hazards) is greater than the potential for problems associated with potential exposure from contaminants using Level D protection. Should conditions change, a re-evaluation of PPE will be performed.

The following PPE are required for Level D.



- a. General flame resistant work clothes or coveralls. Long sleeve.
- b. Gloves. Disposable chemical resistant gloves (neoprene, nitrile, etc.) are required during soil sampling activities; otherwise, during other activities such as vacuum excavation, leather gloves may be worn due to no chemical hazards.
- c. Boots/shoes, leather or chemical-resistant, with protective toe guards. Steel toe and shank.
- d. Boots (outer), chemical/resistant (disposable) are optional; and may be worn if Site conditions are wet or muddy.
- e. Safety glasses with side shields or chemical splash goggles are required when there is a splash hazard or hazard from flying debris.
- f. Hard hats (non-white) must be worn always. Face shields, with either safety glasses with side shields or goggles, must be worn where there is a splash hazard.
- g. Hearing protection within all operational areas and when work functions include the potential to generate sound levels more than permissible exposure limits.
- h. Orange Reflective High-visibility vests (USDOT-approved)\*
- i. When conducting intrusive activities, 1 kilovolt (kV) dielectric gloves (currently tested and stamped with expiration date) with leather protective over gloves will be worn.

\* Vests must be worn when working in areas exposed to or adjacent to vehicle traffic.

## 6.1 Chemical Hazards

PAHs, CVOCs, and heavy metals (specifically iron and selenium) are the site contaminants of concern that will potentially be encountered in the areas of the Site. Other volatile organics and semi-volatile organics may also be encountered. From a respiratory perspective, PAHs, and CVOCs are generally of greater concern, particularly because they are more likely to exist in the worker's breathing zone. In moderate exposure, these compounds all produce similar effects, irritant to eyes, skin, nose and throat, cause nausea and dizziness. The primary hazard for SVOCs is dermal contact and possible ingestion. For other petroleum products, the primary contaminants of concern typically include volatile aromatics (e.g., benzene, toluene, trimethyl benzene, and xylenes), semi-volatiles (e.g., naphthalene), hydrogen sulfide and particulates. Since the volatile component of these materials are the primary concern for inhalation exposure and benzene has the most stringent PEL of those identified, the exposure limit for benzene was used as a guide in establishing the threshold for respiratory levels of protection to be used on-Site. The 8 hour PEL for benzene is identified as 1 ppm (29 CFR 1910.1028). The short term PEL for benzene is 5 ppm (29 CFR 1910.1028).

Since vapor emissions from remediation typically occurs on an intermittent basis in short durations when suspect materials are encountered, the short-term exposure limit (STEL) for benzene of 5 ppm was selected as an action level. If suspect materials are regularly encountered, air monitoring will be

conducted within the worker breathing zone. Any subcontractors have the option of relying on H2M's reading or may collect their own.

A chemical hazard assessment for the following activities is described below:

1. Mobilization/demobilization of personnel and equipment.
2. Collection of soil, water and wipe samples.
3. Decontamination of non-dedicated equipment (conducted using Alconox<sup>[1]</sup>).

<b>Hazard</b>	<b>Monitoring</b>	<b>Engineering Control</b>	<b>Administrative Control</b>	<b>Personal Protective Equipment (PPE)</b>
Inhalation	PID	Adequate ventilation, dust suppression, if necessary	Only trained personnel will be allowed; air monitoring will be conducted in confined areas	None
Dermal	None	None	Only trained personnel will be allowed	Disposable gloves will be worn, Disposable boot covers will be worn, as necessary.

Note:

1. Alconox cleaner (or similar) will be brought to the site to decontaminate non-dedicated tools and equipment encountering potentially impacted materials. No other chemical will be brought to the Site.

## 6.2 Fugitive Dust

Fugitive dust can be an issue of concern during work in all areas of the Site. In addition to a Community Air Monitoring Program (CAMP), the Site Health and Safety Officer will make qualitative evaluations of the amount of particulate matter suspended in the air due to the investigation and remediation activities being performed. If Site activities or weather conditions cause a significant volume of dust to be suspended in the air, work will be suspended and appropriate engineering controls and/or dust suppression measures will be implemented prior to commencing work.

## 6.3 Physical Hazards

Safeguards to general Site dangers include:

- All utilities will be marked by appropriate authorities prior to intrusive work.

- Hard hats and safety vests shall be worn. White-colored hard hats are not permitted in the work area.
- The work area will be clutter-free to minimize trip hazards.
- All contractor tools will be maintained in a safe condition and used properly.
- Only workers who have been trained in the use of a particular tool/equipment may operate that tool/equipment.
- All tools will be inspected prior to use and ensure proper operation and structural integrity.
- All hand tools that are damaged will be removed from the job site until they are repaired.
- Removing any guards from a power tool is prohibited and operating a power tool with any guards removed is prohibited.
- Physical barriers will be provided around the work area.

In addition to exposure to potential chemical hazards, there are also inherent physical hazards associated with conducting Site remediation activities. Due to the heavy equipment required to conduct the investigation and remediation activities, including excavator/backhoe, vactor/guzzler trucks and drill rigs, physical hazards will be present during the Site investigation and remediation program. Therefore, all personnel must be cognizant of activities surrounding them while working at the Site. Hard hats are required to be worn during all field activities. All work must be performed in strict accordance with OSHA requirements.

#### **6.4 Electrical Hazards**

Due to the nature of the Site location, portable power generation equipment may be required. The following guidelines will be followed during Site activities:

- a. All field personnel will be aware of the location and hazard involved with nearby electrical circuits and protective measures taken;
- b. All vehicles/equipment operating within the Site area shall be grounded once stopped/placed for operation/used
- c. All subsurface utilities within the Work Zone will be identified, located and cleared of the presence of underground utilities prior to any groundbreaking activities.
- d. Saw cutting will not be permitted directly over utilities no matter what depth they are located.
- e. Lockout/Tagout will be implemented as necessary in accordance with applicable guidances, rules and regulations.

#### **6.5 Underground Utility Clearance**

Subsurface utilities may be present at the Site. Not only do these utilities potentially provide preferential pathways for contaminants to migrate, they pose a serious safety concern associated with the performance of intrusive remediation activities that must be addressed. The key activities that comprise the process are listed below.

- a. Request Code 753 Utility Mark-Out as per the State of New York requirements at least 72 hours prior to the commencement of any intrusive field work;
- b. Conduct a Site walk with participation from; contractors (i.e., drillers, excavators, etc.), private facility managers/property owners. The purpose of the Site walk is to review all planned locations where intrusive activities will be performed, adjust the locations of planned borings away from utilities as marked out (as necessary) and collectively determine the appropriate utility clearance activities that will be performed at each location. All decisions and/or concerns will be documented.
- c. Performance of utility clearance activities including any utility clearance actions that are deemed necessary during the Site Walk.
  1. If any intrusive activities are being performed within seven (7) feet of a critical utility (e.g. electric feeder, gas transmissions line, fiber optic cables, etc.), or within two feet of other subsurface utilities, those utilities shall first be exposed by manual or vacuum excavation methods.

\*It should be noted that H2M will not access any manholes or vaults. If a manhole cover has been removed from ANY type of manhole, a manhole cage (guard rail on three sides with chains on the fourth) must be immediately set up about the opening.

#### **6.6 Above Ground Utility Clearance**

Due to the proximity of the site to overhead utilities, precautions will be taken to ensure safety for on-Site personnel. The main safety concern is the adjacent utility pole that supports high voltage power lines directly above the test pit area. The following guidelines will be followed during Site activities:

- a. All field personnel will be aware of the location and hazard involved with nearby overhead power lines.
- b. All vehicles/equipment operating within the Site area shall be grounded once stepped/placed for operation/used.
- c. A clearance of 35 feet will be maintained between the electrical lines and all equipment and machinery, during both use and storage.
- d. Lockout/Tagout will be implemented as necessary in accordance with applicable guidances, rules and regulations.
- e. Any anomalies regarding the overhead power lines (i.e. sparking, new potential hazards) will be reported to H2M.

#### **6.7 Hearing Conservation**

The scope of work at the Site may require the use of heavy machinery, such as vacuum equipment and trucks. In addition to being a physical hazard, this equipment can also pose a noise hazard that can lead to hearing loss, as well as prevent on-site personnel from being able to hear Site alarms and

communication devices, such as wireless phones and radios. Excessive noise is also a nuisance to the surrounding community and efforts will be taken to minimize unnecessary noise. To conserve hearing and minimize noise hazards, the following guidelines will be followed during Site activities:

- a. When possible, quieter equipment will be utilized;
- b. Workers will be rotated to minimize the length of exposure to high noise activities;
- c. OSHA-approved PPE will be worn to mitigate the amount of noise exposure (i.e., ear plugs and muffs).
- d. If sound levels are above 75 decibel A (dB[A]) hearing protection will be used.

All work will be conducted in accordance with applicable guidance, rules and regulations.

## **6.8 Bloodborne Pathogens Exposure Control Plan**

The purpose of the Bloodborne Pathogens Exposure Control Plan is to minimize the occupational risk of exposure to bloodborne pathogens and to maintain a safe working environment. If an injury does occur, PPE will be used to minimize exposure (i.e. gloves and safety glasses) to bloodborne pathogens. In addition, a first aid kit will be provided to H2M staff for field activities.

## **6.9 Confined Space**

Confined space is defined as any space (i.e. piece of equipment, sump, tank, tanker, rail car, sewer, vault, pit, etc.) that is entered through a restricted opening and has poor natural ventilation with a potential for having within it, hazardous air contaminants or a lack of oxygen or any other serious safety or health hazard. Exit in an emergency could be difficult. This may be summarized as follows:

- Limited means of entry or exit (limited by configuration, location, size, number, etc.).
- Poor natural ventilation that could contain, retain or produce oxygen deficient, flammable, or toxic atmosphere.
- Not intended for continuous worker occupancy.
- More than four feet deep (trench).

Confined spaces may only be entered by contractors or agents when the following conditions are met:

1. Training – The foreman must have received recent (within a year) training on confined space entry and rescue techniques. Participating workers must have been trained as either an Attendant or an Entrant. If petroleum tank entry or excavation of petroleum contaminated material or other hazardous waste is required, all employees must also have completed 40-hour OSHA Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training.
2. Cardiopulmonary resuscitation (CPR) / First aid – A minimum of two subcontractors working for H2M within the operation must maintain current (within a year), valid

CPR/first aid training. One of these individuals must remain outside of the confined space always.

3. Monitoring – Appropriate monitoring equipment must be available for continuous monitoring of the space by the Attendant and/or Entrant.
4. Permit – A Confined Space Entry Permit (and any other required permits such as a hot work permit) is properly and thoroughly completed and valid for appropriate time periods.
5. Energy Isolation – The space is isolated from all mechanical, pneumatic, hydraulic, electrical, etc. forms of energy that may be inadvertently or unexpectedly introduced to the confined space.
6. Emergency Procedure – Emergency procedures have been established and will be discussed with all crew members and other appropriate parties (i.e., property owners, general contractors, subcontractors, etc) prior to the start of work each day.
7. Communication Systems – A Communication System will be established and understood by all workers involved in the activities.
8. Non-Entry Rescue Equipment – Non-entry rescue or rescue entry are selected based on the scope of work and site conditions.
9. Safety Meeting – A mandatory safety meeting will be held at the start of each workday to discuss appropriate information and will be documented.

The following procedures will be followed during confined space entry by all subcontractors when a confined space entry is required in a facility which does not have a written permit required confined space entry program or that program is inadequate. The following procedures must be followed for each confined space that is entered even if a single job requires entering several spaces.

1. Conduct the safety meeting after the space has been characterized and acceptable entry conditions have been identified and prior to entry. Additional safety meetings shall be completed whenever new tasks are initiated and/or different Attendants/Entrants are engaged. At a minimum, the following information must be discussed:
  - Chemical and physical hazards of the space and surrounding areas
  - Emergency procedures
  - Work assignments
2. Inform the owner or general contractor and/or other contractors of the location of the confined space, the hazards therein and the date and duration of the planned entry and document.
3. Isolate the space to eliminate non-atmospheric hazards using the Lockout/Tagout procedures. Note: If there are no atmospheric hazards, the confined space can be re-classified as non-permit required confined space.
4. Purge, inert, flush, or ventilate the space as necessary to eliminate or control atmospheric hazards.
5. Test the space to verify that atmospheric conditions are acceptable. **IF ATMOSPHERIC HAZARDS CANNOT BE CONTROLLED TO SAFE LEVELS WITHOUT THE USE OF**

ATMOSPHERIC SUPPLYING RESPIRATORS OR ELIMINATED, WORKERS WHO ARE NOT PART OF AN ENTRY RESCUE TEAM WILL NOT ENTER THE SPACE.

6. Ensure that a means of communication has been established (e.g. two-way radios, hand signals, etc).
7. Ensure that PPE, lighting, barriers and shields, means of entry/exit (e.g. Ladder) and non-entry rescue equipment is present.
8. Ensure that an emergency entry rescue service is available, has been notified, is capable of responding, and is on call. The emergency entry rescue service may be a subcontractor team or another vendor.
9. Ensure that an attendant is present and capable of periodic or continuous air monitoring.
10. Ensure that at least one of the crew involved in the entry is certified for First Aid, CPR and an Automated External Defibrillator (AED) use.
11. Complete subcontractor's Confined Space Entry Permit. Before the Supervisor allows entry to proceed, the Supervisor and Attendants and all Entrants must sign the form indicating that they understand all operational aspects and health and safety issues relating to the assigned work.
12. List the completed entry permit at the entrance to the confined space with a warning sign containing the following information:  
" Danger – Permit-Required Confined Space- Authorized Personnel Only"
13. Install barriers to protect Entrants from external hazards presented by pedestrians and vehicles.
14. Proceed with entry.
15. Conduct air monitoring periodically or continuously, as needed based on the type of confined space entered and its characterization.
16. Evacuate and re-evaluate the space if:
  - There is a change in the configuration or use of, or the type of work conducted or materials used in, the confined space;
  - New information regarding a hazard in or near a confined space is identified;
  - An employee or authorized representative provides a reasonable basis for believing that the initial hazard determination was inadequate;
  - An unauthorized entry into the confined space occurs;
  - Detection of a hazard in or near the confined space that is not addressed by the entry permit;
  - Detection of a hazard level in or near a Permit Required Confined Space that exceeds the planned conditions specified in the entry permit; and
  - The occurrence, during an entry operation, of an injury, fatality or near-miss.
17. The Supervisor shall terminate the entry and cancel the permit when:
  - The task which required entry is complete.
  - An unacceptable condition occurs in or near the space.
  - There is a shift change.

### 6.9.1 Air Monitoring

Air monitoring will be performed as per the CAMP plan included in the approved Remedial Action Work Plan (RAWP).

## 7.0 DESIGNATED WORK ZONES

Work zones will be determined prior to commencement of specific field activities. The area encompassing the activity and a sufficient offset distance will be demarcated as the Work/Exclusion Zone. The Work/Exclusion Zone will be demarcated with temporary barriers. Of special consideration will be those areas to be located in or near the public right of way. Only qualified and necessary field personnel with the proper PPE and training will be allowed into the designated zone. An upgrade to the appropriate level of PPE for field personnel will be evaluated using the procedures identified in previous sections before personnel are allowed to re-enter the Work/Exclusion Zone.

## 8.0 DECONTAMINATION STATIONS

Decontamination stations will be located within the Contaminant Reduction Zone to be used for the cleaning of all heavy equipment, vehicles, tools and supplies required for the completion of Site activities. Personnel decontamination procedures for the appropriate levels of protection are described in Section 5.0. It should be noted that all tools and equipment shall be decontaminated before they are brought on site.

## 9.0 SITE ACCESS CONTROL

Designated Work Zones will be limited only to those personnel with the proper training and PPE and required for the performance of field activities. Personnel will be required to provide information including name, company, address, phone number, qualifications and purpose for Site visit prior to entry into the work areas.

Appropriate traffic controls and barricades will be utilized in areas of vehicular and pedestrian traffic. Local requirements for traffic control will be adhered to (e.g., obtaining appropriate permits, and provisions for a flagman), as may be warranted.

## 10.0 VEHICLE AND MECHANICAL EQUIPMENT CONTROL

### 10.1 Vehicle Control



All vehicles used on-site will be maintained and operated in a safe manner for the protection of the operator, Site personnel and the surrounding community. Accordingly, vehicles will only be operated by trained personnel with applicable licenses and training. Vehicles will be registered and inspected as per New York State requirements. Any vehicle left on-site overnight will be in a secured area and/or will have appropriate warning devices. All vehicles will be fully lowered and blocked during repair and when not in use. All equipment will have functional backup warning signals.

While working, all vehicles and mechanized equipment that contain liquid reservoirs (e.g., hydraulic tanks, gas tanks) will be underlain with plastic. Each vehicle will be equipped with spill containment and cleanup material on location (e.g. sorbent pads, spill packs) to contain potential releases from the vehicles.

## **10.2 Mechanical Equipment Control**

All hand and power tools utilized on-site by H2M personnel will be used and maintained in a safe and appropriate manner in accordance with applicable OSHA regulations.

## **11.0 CHEMICAL SAFETY**

Chemicals used and encountered on-site must be handled carefully to ensure worker safety and prevent spills. To ensure proper chemical management, the following guidelines have been established:

- Material Safety Data Sheets (MSDSs) for every chemical brought on-site will be maintained on-Site throughout the duration of work and will be made available to all personnel;
- All chemical delivery and storage containers and/or equipment will be in good condition and clearly labeled;
- All personnel will be familiar with and have access to the appropriate PPE for the chemicals or hazards present;
- Spill containment equipment, such as absorbent pads, will be stored on-site;
- Any chemical spill will be reported immediately;
- All unused chemicals used by H2M or our contractors will be removed from the Site at the end of the day and upon completion of work.

## **12.0 PERSONAL HYGIENE**

The following personal hygiene rules must be followed while performing work at the Site:

1. Eating, drinking, chewing gum or tobacco, smoking, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the work area. Smoking is not permitted anywhere on Site.
2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities. Moist towelettes or soap and water will be

provided to the H2M employees and subcontractors. These items will be available within the work area.

3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
4. No facial hair (i.e., beards), which interferes with a satisfactory fit of the mask-to-face seal, is allowed on personnel required who wear respiratory protective equipment.
5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, walking through puddles, mud and discolored surfaces; kneeling on ground; leaning, sitting, or placing equipment on drums, containers, vehicles, or the ground will be avoided.
6. Medicine and alcohol can increase the effects from exposure to toxic chemicals. Prescribed drugs will not be taken by personnel on-site where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician.
7. All workers are required to abstain from the consumption of alcohol for the 5-hour period preceding their scheduled tour of duty, unless special exceptions are made associated with call-out requests. In these cases, the worker is required to notify the company if they are fit-for-duty when they are called-out for unscheduled work. If the decision is made for the worker to report, additional program requirements may need to be satisfied. Under no circumstances are covered workers permitted to consume alcohol during any tour of duty. Workers must be aware that abstaining from alcohol consumption for 5 hours may not be sufficient to ensure that they are fit for duty.

### **13.0 CONTINGENCY PLAN**

Section 13.0 shall serve as the investigation and remediation Contingency Plan. It has been developed to identify precautionary measures, possible emergency conditions, and emergency procedures. This plan shall be implemented by the Site Health and Safety Officer.

#### **13.1 Emergency Medical Care and Treatment**

This section addresses emergency medical care and treatment of field personnel, resulting from possible exposures to toxic substances and injuries due to accidents. The following items will be included in emergency care provisions:

- a. Name, address and telephone number of the nearest medical treatment facility will be conspicuously posted. Directions for locating the facility, plus the travel time, will be readily available. (**Appendix B**).
- b. Names and telephone numbers of ambulance service, police and fire departments, and procedures for obtaining these services will be conspicuously posted.
- c. Procedure for prompt notification of the H2M Site Health and Safety Officer.

In addition, the following emergency equipment will be available, if necessary, at the project Site always when any field activities are being performed.

1. Emergency eyewash fountains and first aid equipment will be readily available on-site and located in an area known to all personnel. Eyewash stations shall be American National Standards Institute (ANSI)-approved portable emergency eye wash station.
2. Readily available dry-chemical fire extinguisher. The extinguisher must have an annual inspection tag/ring. Additionally, there must be a monthly inspection tag that is completed by an inspector (with initials and date) and the inspections must be no more than 30 days apart.

### 13.2 Off-Site Emergency Medical Care

The Site Health and Safety Officer shall pre-arrange for access to emergency medical care services at a convenient and readily accessible medical facility and establish emergency routes. The Site Health and Safety Officer shall establish emergency communications with emergency response services.

### 13.3 Personnel Accidents

Any bodily injuries occurring because of an accident during the operation at the Site will be handled in the following manner:

- a. First aid equipment will be available on-site for minor injuries. If the injuries are not considered minor, proceed to the next step. At least one person on Site will have a current First Aid/CPR certification if the Site is more than 5 miles from the nearest hospital.
- b. The local first aid squad rescue unit, a paramedic unit, the local hospital and the Site Health and Safety Officer shall be notified of the nature of the emergency.
- c. The injured employee shall be transported by emergency vehicle to the local hospital.
- d. H2M shall be notified of the nature of the emergency immediately.
- e. A written report shall be prepared by the Site Health and Safety Officer detailing the events and actions taken during the emergency within 24 hours of the accident. A copy of this report will be provided to H2M.
- f. See **Appendix B** for a list of emergency contacts in Site area and a route to the hospital.

The H2M Safety Officer shall be notified immediately regarding any injury, accident, spill, fire, explosion, etc. involving any member of the project team (including subcontractors) and members of the public. H2M embraces empowering all workers on site to be able to call a Time Out if a heretofore-unanticipated safety and/or environmental concern develops on a project.

### 13.4 Personnel Exposure

If any person is splashed or otherwise excessively contaminated by chemicals, the following procedure will be undertaken:

- a. Disposable clothing contaminated with observable amounts of chemical residue is to be removed and replaced immediately.

- b. In the event of direct skin contact in Level D, the affected area is to be washed immediately with soap and water, or other solutions as directed by medical personnel. These materials will be located within the immediate work area.
- c. The Site Health and Safety Officer or other individuals holding a current first aid certificate will determine the immediate course of action to be undertaken. This may involve using the first aid kit and/or eyewash stations.

#### 13.4.1 Weather

Adverse weather conditions are an important consideration in planning and conducting Site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of importance is heat stress resulting when protective clothing decreases natural body ventilation. One or more of the following will help reduce heat stress:

- a. Provide plenty of liquids to replace body fluids (water and electrolytes) lost because of sweating. The commercial mixes may be preferable for those employees on a low sodium diet.
- b. Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. Long cotton underwear help absorb moisture and protect the skin from direct contact with heat absorbing protective clothing.
- c. Install mobile showers and/or hose down facilities to reduce body temperature and cool protective clothing.
- d. In extremely hot weather, conduct operations in the early morning or evening.
- e. Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc.
- f. In hot weather, rotate shifts of workers wearing impervious clothing.
- g. In the event of thunder or lightning, work will be suspended until lightning and thunder has subsided for a minimum of 30 minutes.

#### 13.4.2 Heat Stress

If field operations are conducted in the warm summer months, heat related fatigue will be closely monitored. Monitoring of personnel wearing impervious clothing or wearing respiratory protection shall commence when the ambient temperature is 70 degrees Fahrenheit (°F) or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceed 85 °F, workers should be monitored for heat stress after every work period. The following screening mechanism will be used to monitor for heat stress:

Heart rate (HR) will be periodically measured by the radial pulse for 30 seconds during a resting period. The HR should not exceed 110 beats per minute. If the HR is higher, the next work

period should be shortened by 33 percent. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33 percent.

Heat-related illnesses range from heat fatigue to heat stroke, the most serious. Heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing may have to be cut off. Less serious forms of heat stress require prompt attention or they may lead to a heat stroke. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately. Heat-related problems can be categorized into:

<u>Heat Rash:</u>	Caused by continuous exposure to hot and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.
<u>Heat Cramps</u>	Caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.
<u>Heat Exhaustion</u>	Caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.
<u>Heat Stroke:</u>	The most severe form of heat stress. The body must be cooled immediately to prevent severe injury and/or death. Signs and symptoms are: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Some of the symptoms of heat stress are: hot dry skin, fever, nausea, cramps, red or spotted skin, confusion, lightheadedness, delirium, rapid pulse, convulsions, and unconsciousness. For workers suffering from heat stress, the following actions should be taken:

1. Remove the victim to a cool area
2. Loosen clothing
3. Thoroughly soak the victim in cool water or apply cold compresses
4. Call for medical assistance.

### 13.4.3 Cold Stress

If field operations are conducted in the cold winter months, cold stress will be monitored. Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10 °F air with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18 °F.

As a rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

#### Frost Nip or

Incipient Frostbite: Characterized by suddenly blanching or whitening of skin.

Superficial Frostbite: Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.

Deep Frostbite: Tissues are cold, pale and solid; extremely serious injury.

Hypothermia: Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperatures. Its symptoms are usually exhibited in five stages: (1) shivering; (2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body temperature to less than 95 °F; (3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; (4) freezing of the extremities; and (5) death.

## 13.5 Fire

The telephone number to the local fire department will be posted along with other emergency numbers conspicuously on-site at all times. (**Appendix B**). In the event of a fire occurring at the Site, the following actions will be undertaken by the Site Health and Safety Officer:

- a. Evacuate all unnecessary personnel from the area of the fire and Site, if necessary.
- b. Contact the local fire and police departments informing them of the fire and any injuries if they have occurred.

- c. Contact the local hospital of the possibility of fire victims.
- d. Contact the Site Health and Safety Officer, Health and Safety Manager, and the H2M Project Manager.

### **13.6 Personnel Protective Equipment Failure**

If any Site worker experiences a failure or alteration of PPE that affects the protection factor, that person and his/her buddy shall immediately leave the Work/Exclusion Zone. Re-entry shall not be permitted until the equipment has been repaired or replaced to the satisfaction of the Site Health and Safety Officer.

### **13.7 Spill Prevention and Containment**

Personnel on-site shall be adequately trained in the operation and maintenance of equipment used on-site. Equipment shall be inspected daily to minimize the potential for spillage of equipment related fluids. Personnel shall also be adequately trained to recognize and respond to a spill situation. Absorbent materials will be maintained on-site for potential spill containment and mitigation. Sewers, manholes, and underground vaults shall be effectively protected from water and soil generated from excavation activities and oils and other chemicals that may be released during work.

### **14.0 CALLING A TIME OUT**

The purpose of this guideline is to outline how a “Time Out” or work stoppage is called by a Contractor’s employee due to a safety, health and/or an environmental concern and how the “Time Out” is to be resolved prior to proceeding with work.

#### **14.1 Introduction**

H2M’s commitment to safety, health, and environmental excellence requires that all work proceed only after it is safe and environmentally sound. The responsibility for ensuring that this takes place rests with every worker performing on H2M projects. Effectively meeting these responsibilities depends upon open communication between individuals and their supervisors prior to work beginning, and – in certain cases – after safety, health and/or environmental issues are identified. All jobs should begin with a pre-job briefing in which all safety, health, and environmental issues are addressed.

#### **14.2 Time Out Guidelines**

When a safety, health or environmental concern arises on a job, employees are encouraged to call a “Time Out”. Upon calling a “Time Out”, the worker must immediately notify his/her supervisor and

provide him/her with information regarding the nature of the safety, health or environmental concern. When a "Time Out" is called, work stops.

The supervisor should contact or meet with the worker with the intent of resolving the worker's concerns. If the concerns are resolved to the satisfaction of the worker and the supervisor the "Time Out" is over and work proceeds. If the concerns are not resolved to the satisfaction of the worker and/or the supervisor, work does not proceed, and the following process should be followed to resolve the concerns:

- The H2M site representative is to be contacted to obtain assistance in resolving the concerns. Using his/her expertise, safety, health, and environmental rules, regulations, and procedures, the H2M site representative will attempt to resolve the matter. The H2M site representative may call upon his/her project EH&S representative and/or subject matter experts from other areas of H2M, as necessary, including, but not limited to Engineering, Corporate EH&S, the work rules committee, or operations.
- In emergency and other situations where extensive job and procedural reviews are necessary to resolve the concerns, an alternate work plan, where practical, will be implemented to complete the job, pending resolution of the "Time Out." In this instance, before proceeding with any work prior to the resolution of this "Time Out," it is the responsibility of the Contractor's Site Supervisor, the H2M site representative and his/her project EH&S representative to ensure that the work will be performed in full accord with safety, health, and environmental procedures, that all rules and regulations are followed and that the work also satisfactorily minimizes safety, health, and environmental risks.

When a "Time Out" has been called, and the worker and supervisor resolve the issue themselves and the work proceeds, the supervisor should notify the H2M site representative. In all "Time Out" situations, the H2M project EH&S representative will review the incident in a timely manner, determine if the "Time Out" has implications outside the specific project, and take steps, as appropriate, to communicate and work to prevent its reoccurrence.

## **15.0 SUMMARY**

The CHASP establishes practices and procedures to be followed so that the welfare and safety of workers and the public are protected. It is important that personal equipment and safety requirements be appropriate to protect against the potential or known hazards at a Site. Protective equipment will be based upon the type(s), concentration(s), and routes of personal exposure from substances at the Site, as well as the potential for hazards due to heavy equipment use, vision impairment, weather, etc. All Site operation planning incorporates an analysis of the hazards involved and procedures for preventing or minimizing the risk to personnel. The following summarizes the rules that must be obeyed:



- a. The CHASP will be made available to all H2M personnel doing field work on-site. All personnel must sign this plan, indicating they have read and understood its terms.
- b. All H2M personnel will be familiar with standard operating safety procedures and additional instructions contained in the Health and Safety Plan.
- c. All H2M personnel going on-site will be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
- d. Any H2M personnel protection equipment (e.g., respiratory protection, protective clothing) determined to be appropriate for certain Site activities shall be required to be worn by all personnel entering the work areas.
- e. Based on present knowledge and conditions, Level D protection will be the required PPE. PFDs will be required when working or traveling in a boat or working on a dock.

**APPENDIX A**

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HASP ACKNOWLEDGEMENT FORM

**SITE WORKER**  
**HEALTH AND SAFETY STATEMENT FORM**

I have read the Health and Safety Plan (HASP) for the former POP Displays Remedial Investigation (Site) and I have reviewed and understand the potential hazards and the precautions/contingencies of each potential hazard.

I agree to abide by the stipulations of this HASP and further agree to hold H2M, harmless from, and indemnify against, any accidents which may occur as a result of activities at the Site regardless of whether or not they were covered in the HASP.

Name: \_\_\_\_\_ Representing: \_\_\_\_\_

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**APPENDIX B**

HOSPITAL DIRECTIONS

## EMERGENCY CONTACT INFORMATION

The following section(s) provides the emergency telephone numbers, and hospital directions/contacts.

### Emergency Telephone Numbers

- EMERGENCY DIAL 911
- Mount Sinai Hospital Queens 718-267-4285
- Police Emergency 911
- Fire Emergency 911
- Rescue Squad 911
- N.Y. Poison Control Center (800) 222-1222
- National Response Center and Terrorist Hotline (800) 424-8802
- American Association of National Poison Control (800) 222-1222
- Center for Disease Control (800) 311-3435
- Utility Mark-Out (800) 962-7962

## HOSPITAL INFORMATION AND DIRECTIONS

### Mount Sinai Hospital Queens

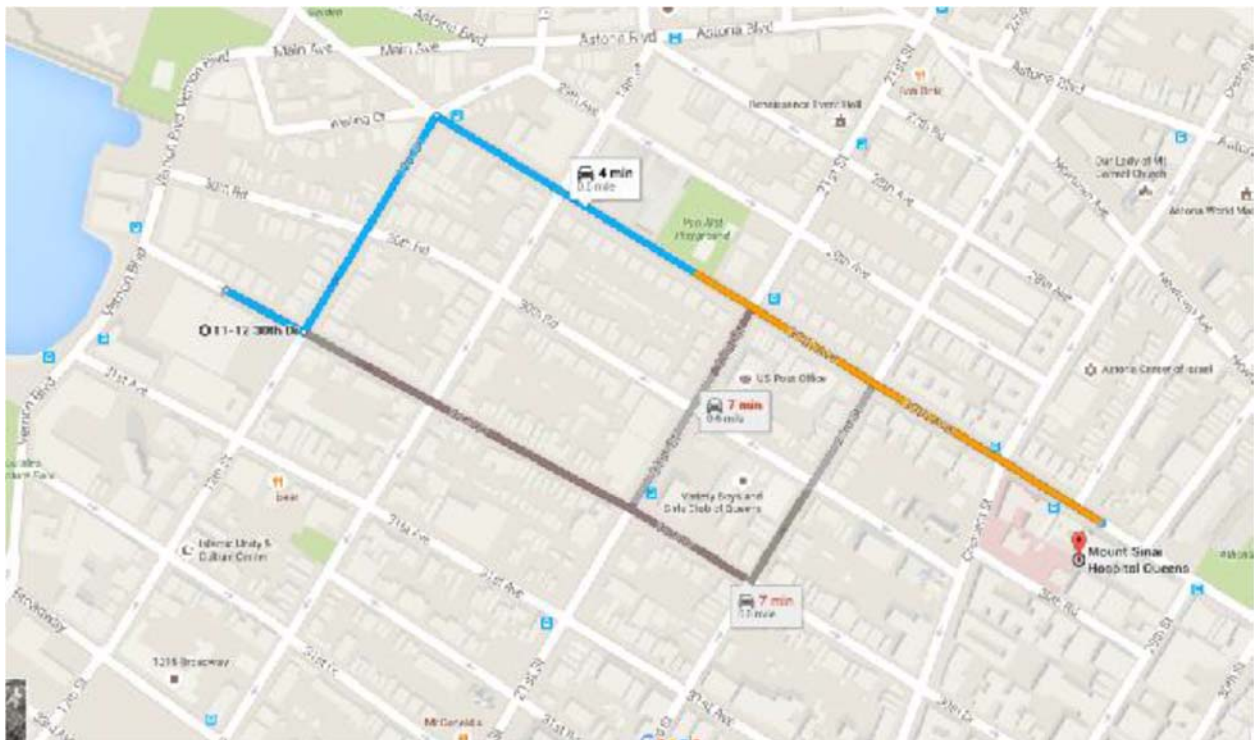
25-10 30th Ave, Astoria, NY 11102

**718-267-4285**

#### Directions to Hospital

1. Head southeast on 30th Dr toward 12th St 269 ft
2. Turn left at the 1st cross street onto 12th St 0.1 mi
3. Turn right onto 30th Ave Destination will be on the right.

### Hospital Location Map





**APPENDIX 5  
MANUFACTURER SPECIFICATIONS  
FOR WATERPROOFING/VAPOR BARRIER**

## PREPRUFE® 300R & 160R

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites

### Description

Preprufe® 300R & 160R membranes are unique composite sheets comprising a thick HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating.

Unlike conventional non-adhering membranes, which are vulnerable to water ingress tracking between the unbonded membrane and structure, the unique Preprufe bond to concrete prevents ingress or migration of water around the structure.

The Preprufe R System includes:

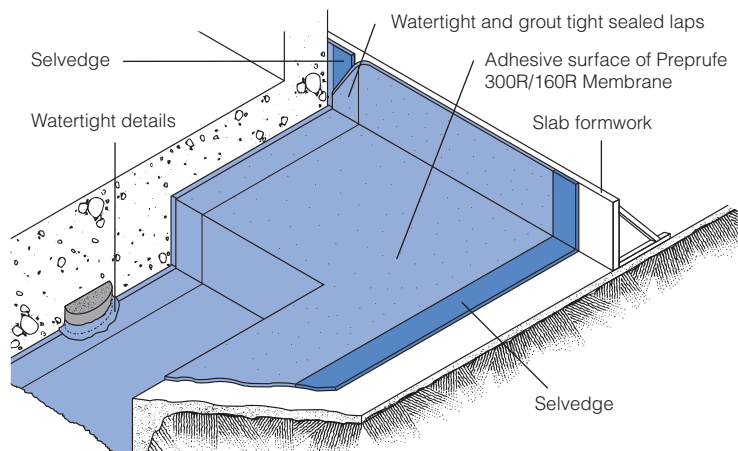
- **Preprufe 300R**—heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- **Preprufe 160R**—thinner grade for blindside, zero property line applications against soil retention systems.
- **Preprufe Tape LT**—for covering cut edges, roll ends, penetrations and detailing (temperatures between 25°F (-4°C) and 86°F (+30°C)).
- **Preprufe Tape HC**—as above for use in Hot Climates (minimum 50°F (10°C)).
- **Bituthene® Liquid Membrane**—for sealing around penetrations, etc.
- **Adcor™ ES**—waterstop for joints in concrete walls and floors
- **Preprufe Tieback Covers**—preformed cover for soil retention wall tieback heads
- **Preprufe Preformed Corners**—preformed inside and outside corners

Preprufe 300R & 160R membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane or Procor® fluid applied membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.

### Advantages

- **Forms a unique continuous adhesive bond to concrete poured against it**—prevents water migration and makes it unaffected by ground settlement beneath slabs
- **Fully-adhered watertight laps** and detailing
- **Provides a barrier to water, moisture and gas**—physically isolates the structure from the surrounding ground
- **BBA Certified** for basement Grades 2, 3, & 4 to BS 8102:1990
- **Zero permeance** to moisture
- **Solar reflective**—reduced temperature gain
- **Simple and quick to install**—requiring no priming or fillets
- **Can be applied to permanent formwork**—allows maximum use of confined sites
- **Self protecting**—can be trafficked immediately after application and ready for immediate placing of reinforcement
- **Unaffected by wet conditions**—cannot activate prematurely
- **Inherently waterproof, non-reactive system:**
  - not reliant on confining pressures or hydration
  - unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant**—effective in most types of soils and waters, protects structure from salt or sulphate attack



Drawings are for illustration purposes only. Please refer to [graceconstruction.com](http://graceconstruction.com) for specific application details.

## Installation

The most current application instructions, detail drawings and technical letters can be viewed at [graceconstruction.com](http://graceconstruction.com). For other technical information contact your local Grace representative.

Preprufe 300R & 160R membranes are supplied in rolls 4 ft (1.2 m) wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of Preprufe Membrane and Preprufe Tape are interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

### Substrate Preparation

**All surfaces**—It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability (see Figure 1).

**Horizontal**—The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

**Vertical**—Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment.

### Membrane Installation

Preprufe can be applied at temperatures of 25°F (-4°C) or above. When installing Preprufe in cold or marginal weather conditions 55°F (<13°C) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application. Alternatively, Preprufe Low Temperature (LT) is available for low temperature condition applications. Refer to Preprufe LT data sheet for more information.

**Horizontal substrates**—Place the membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed (see Figure 2).

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

Refer to Grace Tech Letter 15 for information on suitable rebar chairs for Preprufe.

**Vertical substrates**—Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Immediately remove the plastic release liner.

Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to

overlap. Roll firmly to ensure a watertight seal.

**Roll ends and cut edges**—Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly (see Figure 3). Immediately remove printed plastic release liner from the tape.

### Details

Refer to Preprufe Field Application Manual, Section V Application Instructions or visit [graceconstruction.com](http://graceconstruction.com). This manual gives comprehensive guidance and standard details.

### Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (0.5 in. (12 mm) or less) and slices by applying Preprufe Tape centered over the damaged area and roll firmly. Remove the release liner from the tape. Repair holes and large punctures by applying a patch of Preprufe membrane, which extends 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with Preprufe Tape, remove the release liner from the tape and roll firmly. Any areas of damaged adhesive should be covered with Preprufe Tape. Remove printed plastic release liner from tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape, rolling firmly. Alternatively, use a hot air gun or similar to activate adhesive and firmly roll lap to achieve continuity.

### Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe membrane and tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Following proper ACI guidelines, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

### Removal of Formwork

Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems.

A minimum concrete compressive strength of 1500 psi (10 N/mm<sup>2</sup>) is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

Refer to Grace Tech Letter 17 for information on removal of formwork for Preprufe.

Figure 1

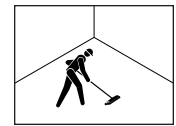


Figure 2

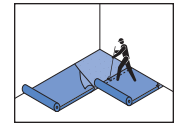
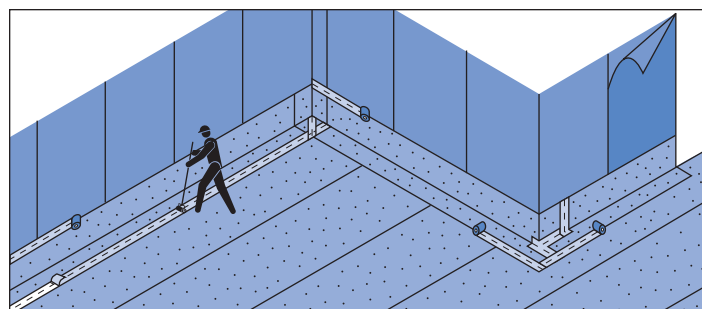
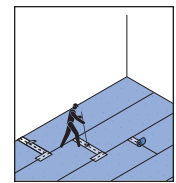


Figure 3

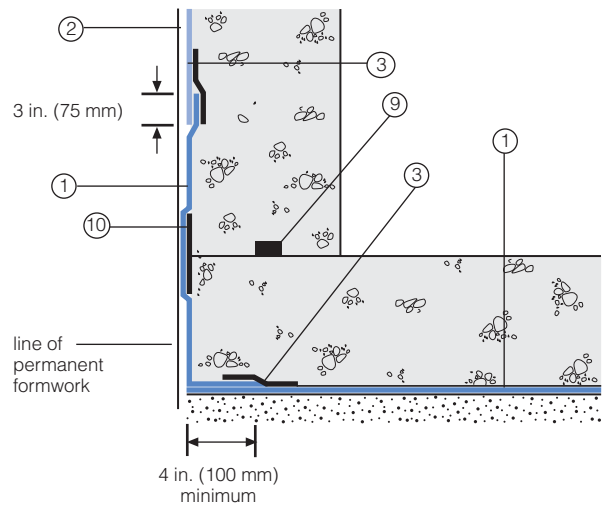


## Detail Drawings

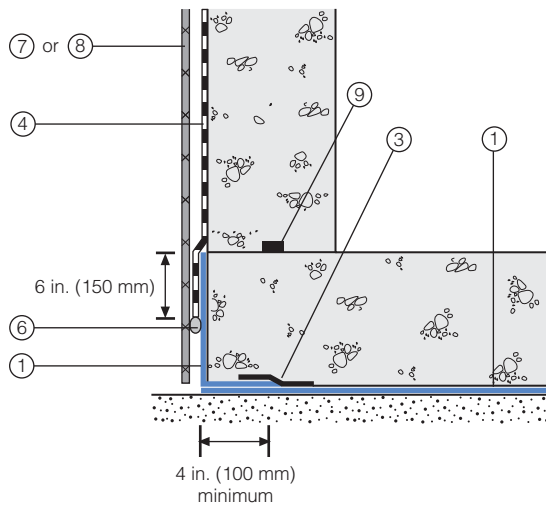
Details shown are typical illustrations and not working details. For a list of the most current details, visit us at [graceconstruction.com](http://graceconstruction.com).

For technical assistance with detailing and problem solving please call toll free at 866-333-3SBM (3726).

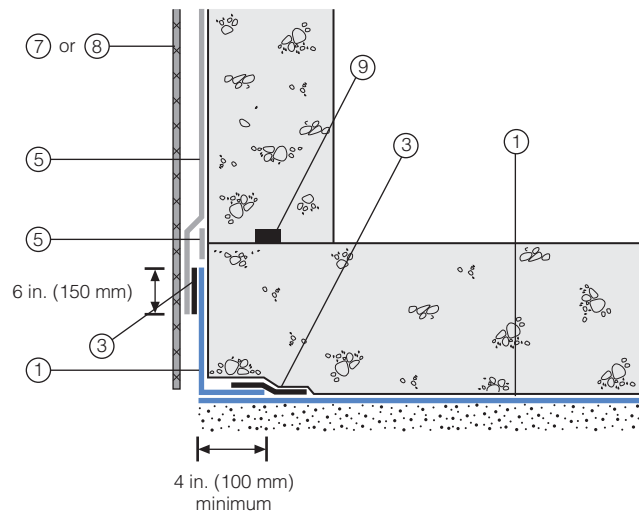
### Wall base detail against permanent shutter



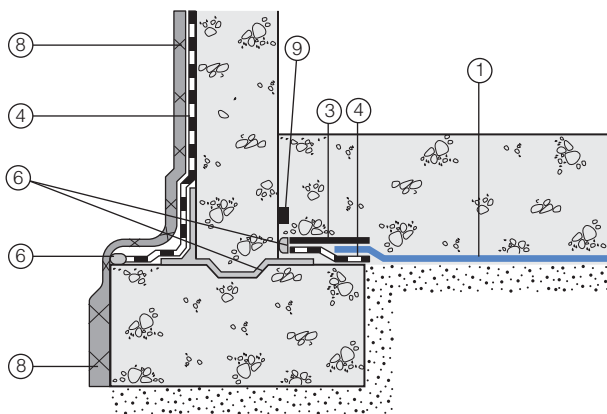
### Bituthene wall base detail (Option 1)



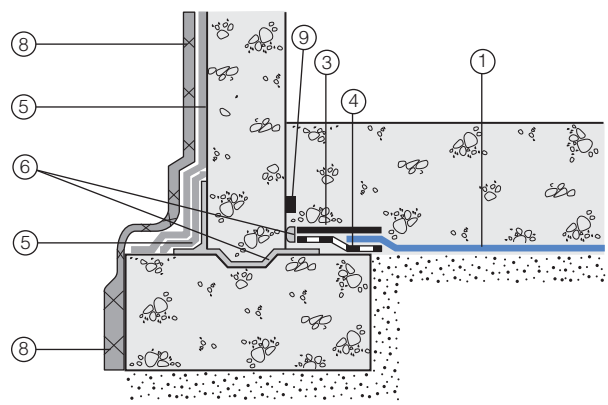
### Procor wall base detail (Option 1)



### Bituthene wall base detail (Option 2)



### Procor wall base detail (Option 2)



- 1 Preprufe 300R
- 2 Preprufe 160R
- 3 Preprufe Tape
- 4 Bituthene

- 5 Procor
- 6 Bituthene Liquid Membrane
- 7 Protection

- 8 Hydroduct®
- 9 Adcor ES
- 10 Preprufe CJ Tape

## Supply

Dimensions (Nominal)	Preprufe 300R Membrane	Preprufe 160R Membrane	Preprufe Tape (LT or HC*)
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	
Roll size	4 ft x 98 ft (1.2 m x 30 m)	4 ft x 115 ft (1.2 m x 35 m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	392 ft <sup>2</sup> (36 m <sup>2</sup> )	460 ft <sup>2</sup> (42 m <sup>2</sup> )	
Roll weight	108 lbs (50 kg)	92 lbs (42 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)
* LT denotes Low Temperature (between 25°F (-4°C) and 86°F (+30°C)) HC denotes Hot Climate (50°F (>+10°C))			
<b>Ancillary Products</b>			
Bituthene Liquid Membrane—1.5 US gal (5.7 liter) or 4 US gal (15.1 liter)			

## Physical Properties

Property	Typical Value 300R	Typical Value 160R	Test Method
Color	white	white	
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	ASTM D3767
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385, modified <sup>1</sup>
Low temperature flexibility	Unaffected at -20°F (-29°C)	Unaffected at -20°F (-29°C)	ASTM D1970
Resistance to hydrostatic head	231 ft (71 m)	231 ft (71 m)	ASTM D5385, modified <sup>2</sup>
Elongation	500%	500%	ASTM D412, modified <sup>3</sup>
Tensile strength, film	4000 psi (27.6 MPa)	4000 psi (27.6 MPa)	ASTM D412
Crack cycling at -9.4°F (-23°C), 100 cycles	Unaffected, Pass	Unaffected, Pass	ASTM C836
Puncture resistance	221 lbs (990 N)	100 lbs (445 N)	ASTM E154
Peel adhesion to concrete	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D903, modified <sup>4</sup>
Lap peel adhesion	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D1876, modified <sup>5</sup>
Permeance to water vapor transmission	0.01 perms (0.6 ng/(Pa × s × m <sup>2</sup> ))	0.01 perms (0.6 ng/(Pa × s × m <sup>2</sup> ))	ASTM E96, method B
Water absorption	0.5%	0.5%	ASTM D570

### Footnotes:

- Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
- Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 0.125 in. (3 mm) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
- Elongation of membrane is run at a rate of 2 in. (50 mm) per minute.
- Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
- The test is conducted 15 minutes after the lap is formed (per Grace published recommendations) and run at a rate of 2 in. (50 mm) per minute.

### Specification Clauses

Preprufe 300R or 160R shall be applied with its adhesive face presented to receive fresh concrete to which it will integrally bond. Only Grace Construction Products approved membranes shall be bonded to Preprufe 300R/160R. All Preprufe 300R/160R system materials shall be supplied by Grace Construction Products, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

NOTE: Use Preprufe Tape to tie-in Procor with Preprufe.

### Health and Safety

Refer to relevant Material Safety data sheet. Complete rolls should be handled by a minimum of two persons.

[www.graceconstruction.com](http://www.graceconstruction.com)

For technical assistance call toll free at 866-333-3SBM (3726)

Adcor is a trademark and Preprufe, Bituthene and Hydroduct are registered trademarks of W. R. Grace & Co.—Conn. Procor is a U.S. registered trademark of W. R. Grace & Co.—Conn., and is used in Canada under license from PROCOR LIMITED.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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**GRACE**

**APPENDIX 6**  
**GENERIC PROCEDURES FOR MANAGEMENT**  
**OF UNDERGROUND STORAGE TANKS**

## APPENDIX 6

### GENERIC PROCEDURES FOR MANAGMENT OF USTs

Prior to tank removal, the following procedures should be followed:

- Remove all fluid to its lowest draw-off point.
- Drain and flush piping into the tank.
- Vacuum out the “tank bottom” consisting of water product and sludge.
- Dig down to the top of the tank and expose the upper half.
- Remove the fill tube and disconnect the fill, gauge, product, vent lines and pumps. Cap and plug open ends of lines.
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location.
- Render the tank safe and check the tank atmosphere to ensure that vapors have been satisfactorily purged from the tank.
- Clean tank or remove to storage yard for cleaning.
- If the tank is to be moved, it must be transported by licensed waste transporter. Plug and cap all holes prior to transport leaving a ½-inch vent hole located at the top of the tank during transport.
- After cleaning, the tank must be made acceptable for disposal at a scrap yard, cleaning the tanks interior with a high-pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal, the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.).
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with a calibrated photoionization detector (PID).

#### Impacted Soil Excavation Methods

The excavation of any impacted soil will be performed following the removal of the existing tanks. Soil excavation will be performed in accordance with the procedures described under Section 5.5 of Draft DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined in the field, and will depend on the horizontal and vertical extent of contaminated soils as identified through physical examination (PID response, odor,

staining, etc.). Collection of verification samples will be performed to evaluate the success of the removal action as specified in this document.

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

- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan.
- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated.
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile, or dispose of, separate from the impacted soil.
- If additional USTs are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued trenching around the perimeter to minimize its disturbance.
- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc.) an attempt will be made to remove it, to the extent not limited by the site boundaries or the bedrock surface. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separated dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present.
- Excavated soils which are temporarily stockpiled on-site will be covered with tarp material while disposal options are determined. Tarp will be checked daily and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property.
- Once the site representative and regulatory personnel are satisfied with the removal effort, verification of confirmatory samples will be collected from the excavation in accordance with DER-10.