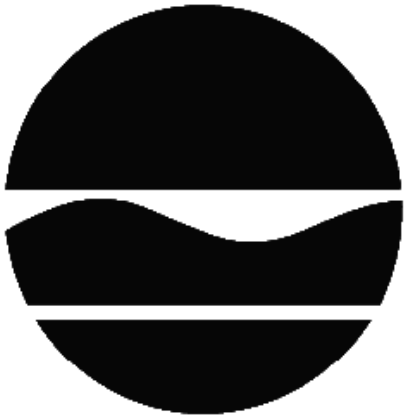
DECISION DOCUMENT

44-30 Purves Street
Brownfield Cleanup Program
Long Island City, Queens County
Site No. C241162
November 2014



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

44-30 Purves Street
Brownfield Cleanup Program
Long Island City, Queens County
Site No. C241162
November 2014

Statement of Purpose and Basis

This document presents the remedy for the 44-30 Purves Street site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 44-30 Purves Street site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. **Remedial Design**

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. **Excavation**

The remediation will include excavation and off-site disposal of contaminant source areas,

including grossly contaminated soil (if encountered). Underground Storage Tanks (USTs) will be properly closed and removed from the site. Soil which exceeds the restricted residential use SCOs, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal. At a minimum, the site will be excavated to 2.5 feet below grade surface, with some areas excavated to depths of 9 feet to remove potentially hazardous fill. The top two feet of any exposed surface soil must meet the restricted residential use SCOs as per 6 NYCRR Part 375-3.8(e).

Approximately 5,800 cubic yards of soil will be removed from the site. On-site soil which does not exceed the above excavation criteria or the protection of groundwater SCOs for any constituent may be used elsewhere on this site beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of the 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

3. **Cover System**

A site cover will be required to allow for restricted residential use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4. **Groundwater Treatment**

Any dewatering at the site during development is anticipated in specific areas to enable the excavation and foundation work. Contaminated groundwater from dewatering operations will be treated as necessary prior to discharge to the municipal sewer system.

5. **Vapor Mitigation**

Any enclosed sub-grade parking garages which are included for any future on-site building(s) are required by the New York City Mechanical Code to provide ventilation. For any areas of the future site building(s) which do not include ventilated parking on the lowest level, a sub-membrane depressurization system , or other similar engineered system, will be installed (as depicted on Figure 3) in accordance with the Final Guidance for evaluating Soil Vapor Intrusion in the State of New York (October 2006).

6. **Institutional Control**

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted residential,

commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;

- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;
- requires compliance with the Department approved Site Management Plan.

7. **Site Management Plan**

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
   - Institutional Controls: The Environmental Easement discussed above.
   - Engineering Controls: The cover system and sub-membrane depressurization system discussed above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - provisions for the management and inspection of the identified engineering controls;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - a schedule of monitoring and frequency of submittals to the Department.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.



November 25, 2014

Date

Robert Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

44-30 Purves Street
Long Island City, Queens County
Site No. C241162
November 2014

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Queens Library-Court Square
2501 Jackson Avenue
Long Island City, NY 11101
Phone: 718-937-2790

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email

listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The site is located at 44-30 Purves Street in Long Island City, New York. The site is an irregular-shaped parcel and is denoted on New York City tax maps as Block 268, Lot 1 (formerly Lots 1, 26, 25, 24). The site is on the southern portion of the city block bordered by Jackson Avenue to the north, Purves Street to the east, Thomson Avenue to the south, and 44th Drive to the west. It should be noted that the property immediately adjacent to the site is also in the BCP (see site no. C241164).

Site Features: The site is approximately 0.62 acres in size and is currently vacant. It is currently covered with a concrete slab and overgrown vegetation. A retaining wall supports the Thomson Avenue and 44th Drive sidewalks. The sidewalk grade of Purves Street is at approximately site grade. The site was previously improved with multiple buildings and was used for various manufacturing and industrial purposes.

Current Zoning and Land Use: The site is in the Special Long Island City Mixed Use District within Area B of Queens Plaza Subdistrict. The zoning designation is M1-5/R9 (manufacturing with a residential overlay). The site has been vacant since around 2006.

Past Use of the Site: The site most recently was used for automobile repair and carpet storage. Previous uses also include a chemical laboratory, a filter cleaner company, a hardware warehouse, a paper embossing company, a taxi repair facility, a controller manufacturing company, a pine chemical company, and a freight company.

Site Geology and Hydrogeology: Depth to groundwater has been measured at 4.5 to 7 feet below ground surface and flows to the east-northeast toward Purves Street. The subsurface strata at the site consists of historic urban fill extending to depths from 1.5 to 11 feet below ground surface (bgs), underlain by sand with varying amounts of silt and gravel. Sandy silt to clayey silt was found underlying the sand layer, and the silt is underlain by clay and/or peat above bedrock. Decomposed and weathered rock was observed at depths from approximately 44 to 48 feet bgs. Gray and white schist bedrock was observed at depths ranging from approximately 44 to 61 feet bgs.

The nearest body of water is the Dutch Kills, located approximately 0.25 miles south-southeast of the site.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

1,1,1-TRICHLOROETHANE	BARIUM
cis-1,2-Dichloroethene	CHROMIUM
TETRACHLOROETHYLENE (PCE)	MERCURY
TRICHLOROETHENE (TCE)	BENZO(B)FLUORANTHENE
VINYL CHLORIDE	BENZO(A)PYRENE
SELENIUM	Chrysene
LEAD	BENZ(A)ANTHRACENE
ARSENIC	Petroleum Products

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination:

Based upon the investigations performed to date, the primary contaminants of concern are volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. On February 20, 2014, spill No. 1310949 was reported for the northeastern portion of the site when petroleum related soil contamination was encountered during a Phase II Environmental Site Investigation. The spill is still open.

Soil - Soil exhibiting petroleum impacts (staining, odor, and elevated PID readings) was observed at depths approximately 2 to 10 feet below grade surface throughout the site, including the area adjacent to potential underground storage tanks. Chlorinated VOCs were detected in soil samples at the site at concentrations below their respective unrestricted use soil cleanup objectives (UUSCOs). The historic fill layer (material present down to approximately 11 feet below surface grade) contains SVOCs, pesticides, polychlorinated biphenyls (PCBs) and metals at levels exceeding the UUSCOs, and SVOC and metals exceeding the restricted residential use SCOs (RRUSCOs). SVOCs were detected at concentrations exceeding the RRUSCOs within the fill layer throughout the site. SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), include: benzo(a)anthracene detected at a maximum concentration of 4.54 ppm, benzo(b)fluoranthene at a maximum concentration of 3.54 ppm, chrysene at a maximum concentration of 4.38 ppm and benzo(a)pyrene at a maximum concentration of 4.66 ppm. The UUSCO for all these SVOCs is 1 ppm by comparison. Metals concentrations were detected above their respective RRUSCOs within the historic fill site-wide at depths ranging from surface grade to 9 feet bgs. In soil, lead was detected at a maximum concentration of 61,000 ppm compared to the RRUSCO of 400 ppm; arsenic was detected at a maximum concentration of 35.8 ppm compared to the RRUSCO of 16 ppm; barium was detected at a maximum concentration of 4,340 ppm compared to the RRUSCO of 400 ppm; mercury was detected at a maximum concentration of 14.9 ppm compared to the RRUSCO of 0.81 ppm; trivalent chromium was detected at a maximum concentration of 251 ppm compared to the RRUSCO of 180 ppm. Site-related soil contamination is not expected to extend off-site based on the available data.

Groundwater - Chlorinated VOCs are the primary contaminants of concern in groundwater. Chlorinated VOCs were detected in groundwater at concentrations exceeding the ambient water quality standards (AWQS) in the northeastern and southeastern portions of the Site. Tetrachloroethene (PCE) and its breakdown products were detected in groundwater at concentrations exceeding the AWQS, including: PCE, cis-1,2-dichloroethene (DCE), 1,1,1-Trichloroethane (TCA) and trichloroethylene (TCE) detected at maximum concentrations of 620 parts per billion (ppb), 64 ppb, 26 ppb and 77 ppb, respectively, compared to the AWQS of 5 ppb; and vinyl chloride detected at a maximum concentration of 3.6 ppb compared to the AWQS of 2 ppb. Higher concentrations were identified in two off-site monitoring wells on the Purves Street side walk immediately adjacent to the site boundary (up to 1,500 ppb of PCE). One of the two off-site monitoring wells on the Purves Street side walk immediately adjacent to the site boundary was installed during the remedial investigation at the Brownfield Cleanup Program site

immediately adjacent to the site (see site no. C241164). The chlorinated VOCs in groundwater appear to be related to an off-site source. Higher concentrations of VOCs were observed off-site in both soil and groundwater and additional off-site investigation will be conducted by the Department to further evaluate the source of this contamination. Metals detected in groundwater at concentrations exceeding the AWQS include selenium detected at 17 ppb compared to the AWQS of 10 ppb. Metals in groundwater are likely associated with the fill layer and reflect the quality of regional groundwater.

Soil vapor - VOCs including those related to petroleum and chlorinated solvents were detected at elevated concentrations in on-site soil vapor. PCE was detected as high as 1,500 micrograms per cubic meter (ug/m3) and TCE as high as 200 ug/m3. PCE and TCE were detected at elevated concentrations throughout the site and their concentrations were highest in the eastern portion of the site along Purves Street and in the southeastern portion of the site adjacent to Lot 31.

Significant threat:
NYSDEC and NYSDOH have determined that this site does not pose a significant threat to human health or the environment.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Direct contact with contaminants in the soil is unlikely because the site is fenced and partially covered by pavement. Volatile organic compounds in groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Environmental sampling indicates soil vapor is contaminated on-site and actions have been recommended to address the potential for soil vapor intrusion to occur in future on-site buildings. Additional sampling will be completed to determine if soil vapor intrusion is a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Excavation with Site Cover System remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. **Remedial Design**

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;

- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. **Excavation**

The remediation will include excavation and off-site disposal of contaminant source areas, including grossly contaminated soil (if encountered). Underground Storage Tanks (USTs) will be properly closed and removed from the site. Soil which exceeds the restricted residential use SCOs, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal. At a minimum, the site will be excavated to 2.5 feet below grade surface, with some areas excavated to depths of 9 feet to remove potentially hazardous fill. The top two feet of any exposed surface soil must meet the restricted residential use SCOs as per 6 NYCRR Part 375-3.8(e).

Approximately 5,800 cubic yards of soil will be removed from the site. On-site soil which does not exceed the above excavation criteria or the protection of groundwater SCOs for any constituent may be used elsewhere on this site beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of the 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

3. **Cover System**

A site cover will be required to allow for restricted residential use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

4. **Groundwater Treatment**

Any dewatering at the site during development is anticipated in specific areas to enable the excavation and foundation work. Contaminated groundwater from dewatering operations will be treated as necessary prior to discharge to the municipal sewer system.

5. **Vapor Mitigation**

Any enclosed sub-grade parking garages which are included for any future on-site building(s) are

required by the New York City Mechanical Code to provide ventilation. For any areas of the future site building(s) which do not include ventilated parking on the lowest level, a sub-membrane depressurization system , or other similar engineered system, will be installed (as depicted on Figure 3) in accordance with the Final Guidance for evaluating Soil Vapor Intrusion in the State of New York (October 2006).

6. **Institutional Control**

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;
- requires compliance with the Department approved Site Management Plan.

7. **Site Management Plan**

A Site Management Plan is required, which includes the following:

d. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
   - Institutional Controls: The Environmental Easement discussed above.
   - Engineering Controls: The cover system and sub-membrane depressurization system discussed above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - provisions for the management and inspection of the identified engineering controls;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

e. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - a schedule of monitoring and frequency of submittals to the Department.

f. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

Figure 1 – Site Location Map

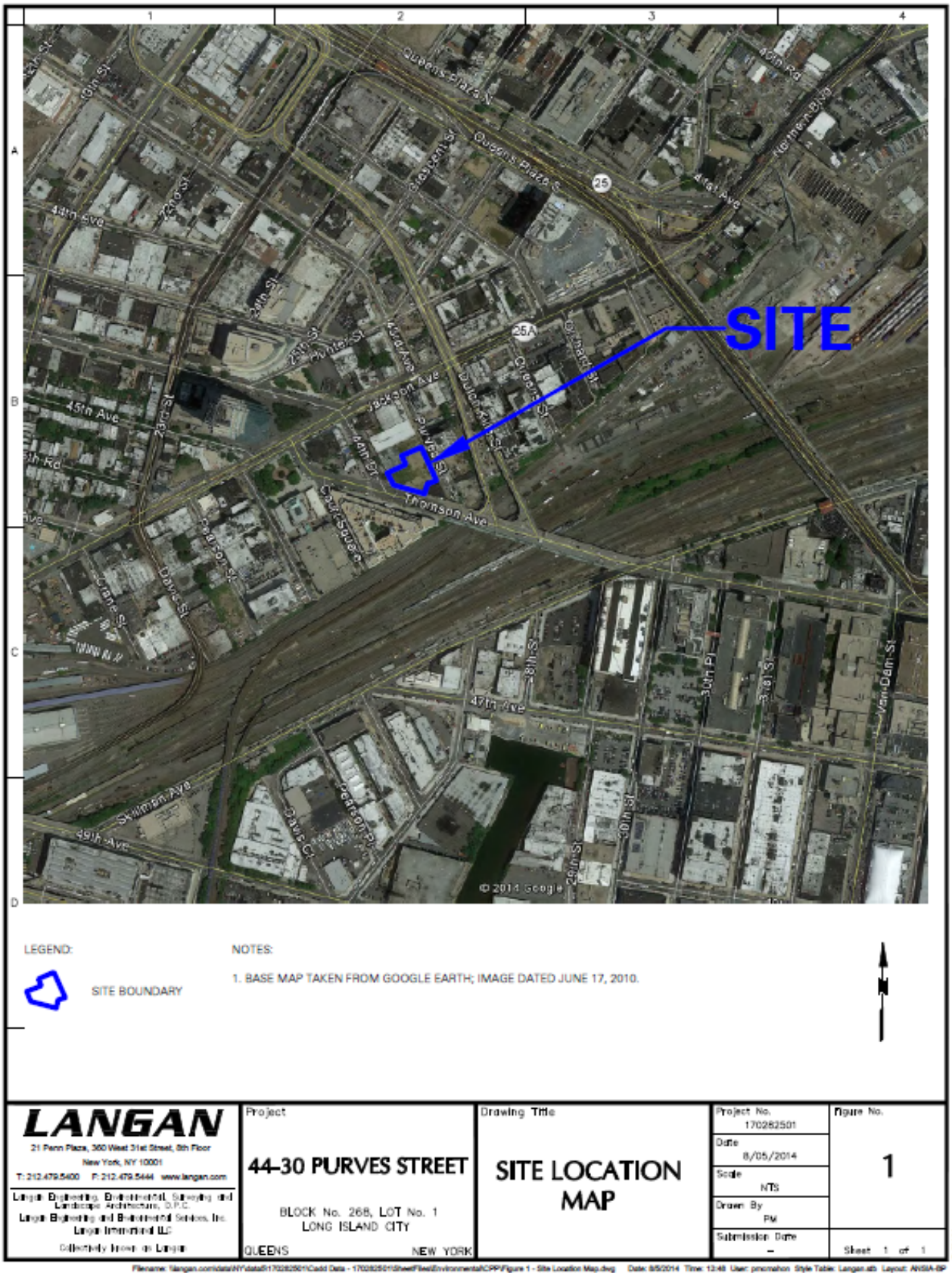


Figure 2 – Excavation Plan

