

DECISION DOCUMENT

Queensboro Lanes Site
Brownfield Cleanup Program
Queens, Queens County
Site No. C241257
November 2022



**Department of
Environmental
Conservation**

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

DECLARATION STATEMENT - DECISION DOCUMENT

Queensboro Lanes Site
Brownfield Cleanup Program
Queens, Queens County
Site No. C241257
November 2022

Statement of Purpose and Basis

This document presents the remedy for the Queensboro Lanes Site, 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 Queensboro Lanes 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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent

feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

The existing on-site buildings will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy.

All soils in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal.

The remedy involves excavation and off-site disposal of contaminant source areas, including:

- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination;
- soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

In the former parking lot on the northwest corner of the site, the top two feet of soil will be removed, which is approximately 400 cubic yards (cy). Excavation in the area of the former building will remove soils with staining and odors below the existing cellar slab. In addition, any stained soil associated with an existing underground storage tank on the SW corner of the site, and three historic tanks in the southeast corner of the site will be removed if encountered. Approximately 1260 CY of soil will be generated by this effort. If stained and odorous soil remains in this area below the water table after the remedial excavation, or if endpoint samples exceed PGWSCOs for any contaminants found in site groundwater, a remedial design to address the remaining contaminated soil will be developed and submitted to the NYSDEC for review and approval.

A total of approximately 1660 cubic yards (CY) of contaminated soil will be removed from the site. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify that SCOs for the site have been achieved. If confirmation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify the Department, submit the sample results and, in consultation with the Department, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved.

To ensure proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated site material. Waste characterization sampling will be performed exclusively for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil, complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 4.

4. Cover System

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

5. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum.

Institutional Control

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

- require 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);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the Department approved Site Management Plan.

6. 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 in Paragraph 5 above.

-Engineering Controls: The Cover System discussed in Paragraph 4.

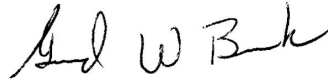
This plan includes, but may not be limited to:

- 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;
 - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs) provisions for the management and inspection of the identified engineering controls;
 - a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
 - 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:
 - monitoring of groundwater to assess the performance and effectiveness of the remedy
 - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above, and
 - a schedule of monitoring and frequency of submittals to the Department.

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 18, 2022



Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

Queensboro Lanes Site
Queens, Queens County
Site No. C241257
November 2022

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, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance, based on the reasonably anticipated use of the property.

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 repositories:

DECInfo Locator - Web Application
<https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C241257>

Queens Community Board 1
45-02 Ditmars Boulevard
Astoria, NY 11105
Phone: (718) 626-1021

Queens Public Library at Long Island City

3744 21st Street, 1st Floor
Long Island City, NY 11101
Phone: (718) 752-3700

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 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

Site Location:

The site is located at 25-01 Queens Plaza North, Queens, NY 11101 and is identified as Tax Block 415, Lot 4. The site is located in a mixed-use urban area. The site is bordered to the north by multi-story mixed-use residential and commercial buildings, to the south by Queens Plaza North and Queensboro Bridge Greenway, to the east by 27th Street and to the west by Crescent Street.

Site Features:

The 0.699-acre site consisted of two adjacent lots (Lots 4 and 10) in Queens, New York, which were merged in 2022. The combined lot faces Queens Plaza North and Crescent Street. The former two-story commercial building was recently demolished. The building was heated by an oil-fired boiler, fueled by a 5,000-gallon underground storage tank, that remains on site after demolition. The remainder of the site is used as a parking lot.

Current Zoning and Land Use:

The site is currently located in an M1-5/R9 (manufacturing/residential) district within the Special Long Island City Mixed Use (LIC) Zoning District, which allows for light industrial uses and residences developed under height factor regulations. The former commercial building was divided into multiple uses, including restaurants, and stores. The surrounding properties are multi-story residential and commercial buildings. Queens Plaza Subway Station is located to the south 100 feet from the site.

Past Use of the Site:

Former Lot 4 – (25-01 Queens Plaza North):

According to a 1936 map, three gasoline tanks were located at the southeast corner of the site. The pedestrian bridge to the Queens Plaza subway station platform was added in 1941. The building has been used for commercial and manufacturing purposes since 1947. In the 1950's the basement of the building was occupied by a bowling alley and a restaurant. The three gas tanks at the southern corner of the site were removed prior to 1950. Manufacturing occurred from the

1970s-1980s. Products included garments, magnetic cassette tapes, and plastic processing. The building was heated by an oil-fired boiler, fueled by a 5000 gallon underground storage tank (UST).

Three petroleum spills have been reported at the site. In 1989, a tank test failure occurred at the site, and was associated with the fill line for the UST. The incident was assigned Spill No. 8905133 by NYSDEC and closed in November 1992. In 1994, the fuel oil UST on the site was changed from No. 4 to No. 2 fuel oil.

In 1997, a traffic accident occurred at the intersection of Crescent Street and Queens Plaza, causing a 50-gallon spill of diesel fuel. The spill was assigned Spill No. 9612175 and was closed on the same day. In 2003, a spill was of No. 2 fuel oil occurred at the site due to a tank test failure. It was assigned Spill No. 0305348 by the NYSDEC, and closed in May of 2007.

Former Lot 10 - 25th Street:

Between 1898 and 1936, historical maps indicate residential usage. A private garage and small store were present on a 1936 map. Lot 10 is depicted as a single paved lot in 1970. It is likely that contaminated historic fill may have been used to level the site.

Site Geology and Hydrogeology:

The elevation of the site is approximately 26 feet above mean sea level. The site is generally flat, and the area slopes slightly to the west towards the East River. The East River is approximately 0.67 miles northwest of the site. Newtown Creek is approximately 0.62 miles to the south of the site. Based on the remedial investigation, groundwater appears to flow to the south/southeast. Groundwater depth at the Site range from approximately 15 to 18 ft below surface grade (bsg).

Subsurface stratigraphy observed during the remedial investigation generally consisted of historic fill composed of varying amounts of sand, gravel, silt, and varying amounts of anthropogenic materials (brick, slag, and glass) extending to depths ranging from 0 to 7 feet bsg in former Lot 10; historic fill was not observed in former Lot 4. The historic fill layer is underlain by native soil consisting of varying amounts of sand, silt, clay and grave. Bedrock is approximately 54.5 ft bgs at 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, an alternative that restricts 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) 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

One or more of the Applicants under the Brownfield Cleanup Agreement is a Participant. The Participants have an obligation to address on-site and off-site contamination. 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
- sub-slab 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:

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 contaminants of concern identified at this site are:

benzo(a)anthracene	chrysene
benzo(a)pyrene	1,2,4-trimethylbenzene
benzo(b)fluoranthene	dibenz[a,h]anthracene
benzo(k)fluoranthene	indeno(1,2,3-cd)pyrene

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:

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, and the emerging contaminants per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. Soil vapor was analyzed for VOCs.

Based on the investigations conducted to date, the primary contaminants of concern are SVOCs in soil, and stained and odorous soil related to past petroleum releases in soil, and petroleum VOCs in groundwater.

Soil:

During RI sampling, SVOCs exceeding the restricted residential soil clean-up objectives (RRSCOs) were identified in one location. The maximum concentration was benzo(b)fluoranthene at 9.1 parts per million (ppm), compared to the RRSCO of 1 ppm. Five other SVOCs (benzo(a)anthracene (8.2 ppm), benzo(a)pyrene (6.8 ppm), chrysene (7.7 ppm), dibenz[a,h]anthracene (1 ppm) and indeno (1,2,3-cd) pyrene (4.6 ppm)) exceeded the RRSCO at this location.

No exceedances of restricted residential soil clean-up objectives (RRSCOs) for VOCs, metals, pesticides, PCBs or emerging contaminants were noted. Field notes indicate petroleum staining and odors were noted in 3 locations during sampling. The maximum PID (photoionization detector) reading for these locations was 297 ppm.

Data does not indicate any off-site impacts in soil related to this site.

Groundwater:

Petroleum-related VOCs were detected at concentrations exceeding the Ambient Water Quality Standards (AWQS). The highest exceedance was 1,2,4-trimethylbenzene at 82 parts per billion (ppb) above the NYSDEC AWQS of 5 ppb. Other petroleum related compounds include 1,3,5-trimethylbenzene (6.1 ppb), benzene (8 ppb), naphthalene (64 ppb) and xylene (16 ppb). The maximum concentration of any of these compounds was 64 ppb, and the highest total VOC concentration was 250 ppb.

Dissolved metals exceeded the AWQS for barium, iron, magnesium, manganese and sodium. These are naturally occurring in groundwater, are not site related and will not be addressed by the remedy.

For PFAs, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations up to 52.2 and 82.8 parts per trillion (ppt) respectively exceeding the Maximum Contaminant Level (drinking water standard) of 10 ppt in groundwater.

1,4 dioxane was reported at concentrations up to 0.383 parts per billion (ppb), which is below the Maximum Contaminant Level (drinking water standard) of 1 ppb in groundwater.

Data does not indicate any off-site impacts in groundwater related to this site.

Sub-Slab Vapor:

Tetrachloroethene (PCE) was detected in soil vapor samples up to 9.7 micrograms per cubic meter (ug/m³). Petroleum-related compounds were identified in soil vapor at the site.

Data does not indicate any off-site impacts in soil vapor related to this site.

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*.

The site is covered by a vacant building and pavement so people are not expected to come in contact with site contaminants in soil. However, persons who enter the site could contact contaminants in the soil by digging or otherwise disturbing the soil. Contaminated groundwater is not used for drinking and the site and surrounding areas are served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the 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. Because the site is vacant, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition, however the potential exists for indoor air impacts in future on-site buildings. Environmental sampling indicates soil vapor intrusion from site contamination is not 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

- Remove the source of groundwater contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated 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 and Cover System remedy.

The elements of the selected remedy, as shown in Figures 2 and 3, 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;
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- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

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All soils in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal.

The remedy involves excavation and off-site disposal of contaminant source areas, including:

- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination;
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In the former parking lot on the northwest corner of the site, the top two feet of soil will be removed, which is approximately 400 cubic yards (cy). Excavation in the area of the former building will remove soils with staining and odors below the existing cellar slab. In addition, any stained soil associated with an existing underground storage tank on the SW corner of the site, and three historic tanks in the southeast corner of the site will be removed if encountered. Approximately 1260 CY of soil will be generated by this effort. If stained and odorous soil remains in this area below the water table after the remedial excavation, or if endpoint samples exceed PGWSCOs for any contaminants found in site groundwater, a remedial design to address the remaining contaminated soil will be developed and submitted to the NYSDEC for review and approval.

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3. Backfill

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Institutional Control

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- require 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);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the Department approved Site Management Plan.

6. 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 in Paragraph 5 above.

-Engineering Controls: The Cover System discussed in Paragraph 4


This plan includes, but may not be limited to:

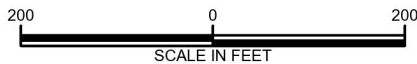
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
 - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
 - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs) provisions for the management and inspection of the identified engineering controls;
 - a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
 - 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:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above, and
 - a schedule of monitoring and frequency of submittals to the Department.



WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

Legend

 Approximate Site Boundary



NOTES:
1. WORLD AERIAL IMAGERY BASEMAP IS PROVIDED THROUGH LANGAN'S ESRI ARCGIS SOFTWARE LICENSING AND ARCGIS ONLINE

LANGAN

21 Penn Plaza, 360 West 31st Street, 8th Floor
New York, NY 10001-2727
T: 212.479.5400 F: 212.479.5444 www.langan.com

Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
Langan International LLC

Collectively known as Langan

Project

**QUEENSBORO
LANES SITE**

BLOCK No. 415, LOT No. 4
NEW YORK

QUEENS

NEW YORK

Figure Title

**SITE LOCATION
MAP**

Project No.
170652801

Date
5/24/2022

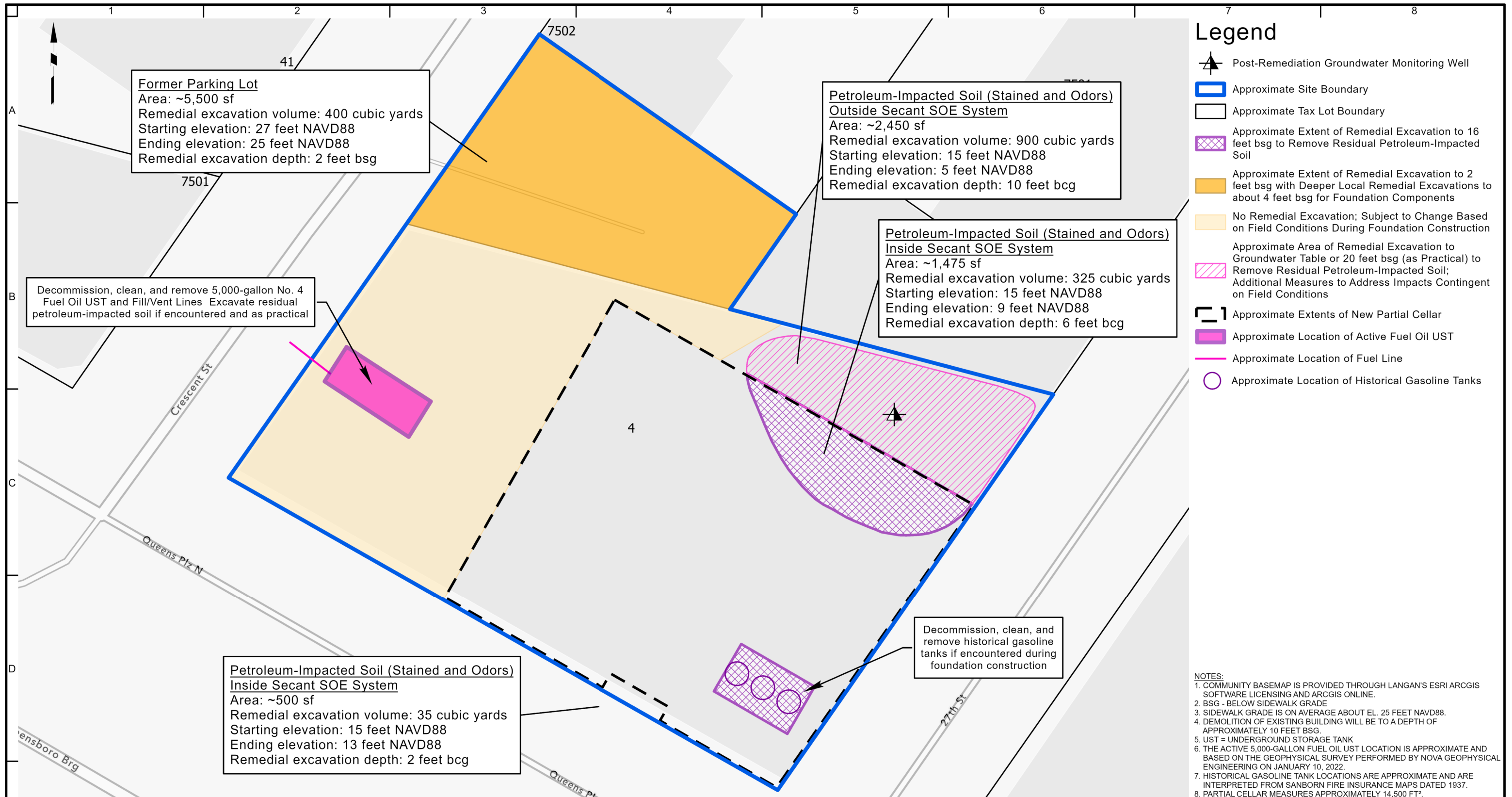
Scale
1"=200'

Drawn By
PDT

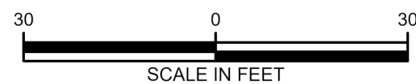
Submission Date

Figure No.

1



WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.



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Project
QUEENSBORO LANES SITE
 BLOCK No. 415, LOT No. 4
 NEW YORK
 QUEENS NEW YORK

Figure Title
Track 4 Cleanup Plan with Estimated Soil Removals

Project No.
 170652801
 Date
 9/22/2022
 Scale
 1"=30'
 Drawn By
 GS

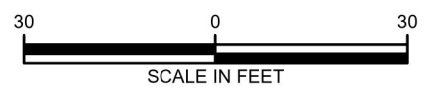
Figure No.
2
 Sheet 20 of 20



- ### Legend
- Approximate Site Boundary
 - Approximate Tax Lot Boundary
 - Concrete Pavement in Courtyard (4-inch Thickness)
 - Clean Soil Cap in Courtyard (Minimum 2-foot Thickness)
 - Concrete Foundation Slab (Varying Thickness)
 - Approximate Extents of New Partial Cellar

- NOTES:**
1. COMMUNITY BASEMAP IS PROVIDED THROUGH LANGAN'S ESRI ARCGIS SOFTWARE LICENSING AND ARCGIS ONLINE.
 2. ALL FEATURES SHOWN ARE APPROXIMATE.
 3. BSG = BELOW SIDEWALK GRADE
 4. CURRENT BUILDING TO BE DEMOLISHED EXTENDS THE ENTIRE SOUTHERN PART OF THE SITE (FORMER LOT 4) WITH A FULL CELLAR THAT EXTENDS DOWN ABOUT 10 FEET BSG.
 5. NEW BUILDING WILL HAVE A PARTIAL CELLAR IN THE SOUTHEASTERN PART OF THE SITE THAT EXTENDS DOWN ABOUT 25 FEET BSG.
 6. PARTIAL CELLAR MEASURES APPROXIMATELY 14,500 FT².

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 Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. 21 Penn Plaza, 360 West 31st Street, 8th Floor New York, NY 10001 T: 212.479.5400 F: 212.479.5444 www.langan.com	Project QUEENSBORO LANES SITE BLOCK No. 415, LOT No. 4 NEW YORK QUEENS NEW YORK	Figure Title COMPOSITE COVER SYSTEM PLAN	Project No. 170652801 Date 9/1/2022 Scale 1"=30' Drawn By GS	Figure No. 3 Sheet 19 of 20