DECISION DOCUMENT

One Flushing
Brownfield Cleanup Program
Flushing, Queens County
Site No. C241185
December 2016

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

DECLARATION STATEMENT - DECISION DOCUMENT

One Flushing
Brownfield Cleanup Program
Flushing, Queens County
Site No. C241185
December 2016

Statement of Purpose and Basis

This document presents the remedy for the One Flushing 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 the Environmental Conservation (the Department) for the One Flushing 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

All on-site soils that exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8 will be excavated and transported off-site for disposal. Approximately 16,000 cubic yards of contaminated soil will be removed from the site. If necessary, clean fill meeting the requirements of 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. Vapor Intrusion Evaluation

As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

Conditional Track 1

The intent of the remedy is to achieve a Track 1 unrestricted use, therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan (SMP) and Environmental Easement (EE) will be required to address the SVI evaluation and implement actions as needed; if a mitigation or monitoring action is needed, a Track 1 cleanup can only be achieved if the mitigation system or other required action is no longer needed within five years of the date of the Certificate of Completion.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy will achieve a Track 2 restricted residential cleanup which will require the imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below.

4. 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.

5. 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 engineering control that may need to be installed based on the vapor intrusion evaluation discussed in Paragraph 3 above.
This plan includes, but may not be limited to:

- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion of future 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;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Declaration

The remedy conforms to 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.

December 27, 2016

Date

Robert J. Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

One Flushing
Flushing, Queens County
Site No. C241185
December 2016

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 repositories:

Queens Public Library - Flushing
41-17 Main Street
Flushing, NY 11355
Phone: 718-990-0728

Queens Community Board 7
133-32 41st Road - Room 3B
Flushing, NY 11355
Phone: 718-359-2800

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 One Flushing Site is a 0.99 acre property located in an urban area at 133-55 41st Avenue in Flushing, Queens County. The Port Washington branch of the Long Island Rail Road (LIRR) is located immediately to the north of the site.

Site Features:
The entire site is currently being used as a public parking lot called Flushing Municipal Lot 3; consisting of 156 parking spaces. There are currently no buildings on the site.

Current Zoning and Land Use:
Zoning for the site is Commercial (C4-2). C4 districts are mapped in regional commercial centers, such as Flushing, that are located outside of the central business districts. C4-2 areas are mapped in more densely built areas. The surrounding properties are currently used for a combination of commercial and high density residential housing. The nearest residential area is located to the southeast of the site across 41st Avenue.

Past Use of the Site:
The Site was developed as early as 1886 with dwellings and a railroad depot. From 1886 until at least 1970 residential dwellings were present at the site. An auto repair garage, with a gasoline tank, was located on the site from 1939 to at least 1962. The current parking lot has been present since at least 1980.

Site Geology and Hydrogeology:
The site is approximately 30 feet above mean sea level and the surrounding area slopes gently west-northwest towards Flushing Creek. The subsurface geologic units in Queens County consist of sequences of unconsolidated sediments that are underlain by crystalline bedrock and overlain by mostly glacial upper deposits. The two major hydrogeologic units in the area of the site are general types of glacial deposits that consist of poorly sorted mixtures of clay, silt, sand, gravel, and boulders. The average depth to groundwater is 10 to 16 feet below grade. Groundwater flow is west-northwest towards Flushing Creek.

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 which allows for unrestricted use of the site was evaluated.

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

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant 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 contaminants of concern identified at this site are:

benzene
toluene
ethylbenzene
xylene (mixed)
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
tetrachloroethene (PCE)
trichloroethene (TCE)
dichloroethene (1,2-)
mercury
lead

The contaminants 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), and pesticides.

Soil:
Petroleum-related contaminants; benzene at a maximum concentration of 5.8 parts per million (ppm), toluene (130 ppm), ethylbenzene (180 ppm), xylene (1,000 ppm) 1,2,4-trimethylbenzene (580 ppm) and 1,3,5-trimethylbenzene (170 ppm) were encountered above restricted residential soil cleanup objectives (RRSCOs) and protection of groundwater standards in soil in and around the former location of a gasoline station underground storage tank to a depth to at least 23 feet below grade. Lead (550 ppm) and mercury (2.2 ppm) were detected above RR SCOs in the site-wide fill that covers the property to a depth of 10 feet. The data do not indicate any off-site impacts in soil related to this site.

Groundwater:
Naturally occurring metals were detected in all groundwater samples. The sample from a well at the upgradient east end of the site was found to contain low concentrations of chlorinated VOCs including tetrachloroethene (PCE) (12 parts per billion (ppb)), trichloroethene (TCE) (6.4 ppb), and dichloroethene (DCE) (25 ppb).

The sample from a well installed at the former service station location contained low concentrations of the same hydrocarbon compounds detected in soil: toluene (13 ppb), ethylbenzene (8.8 ppb), xylene (50 ppb) and 1.2.4-trimethylbenzene (12 ppb). The data do not indicate any off-site impacts in groundwater related to this site.

Soil Vapor:
A variety of hydrocarbon compounds were detected at low concentrations in all samples. Of the seven soil vapor locations, PCE (121 micrograms per cubic meter (µg/m3)), TCE (120 µg/m3) and 1,2-DCE (206 µg/m3) were detected in one location that was in proximity to the groundwater well impacted by the same VOCs.

Presently the site is a parking lot with no above grade structures; therefore there is no current potential for soil vapor intrusion. Because PCE, TCE and DCE were not detected in any on-site soils and were only found in groundwater and soil vapor at the east end of the site, the source appears to be off-site. The data do not indicate any off-site impacts in soil vapor related to this site. Additional sampling will be conducted to determine whether further investigation is needed off-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.*

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in the groundwater and/or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying 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 the buildings, is referred to as soil vapor intrusion. Because there is no on-site building, 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 the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. Additional evaluation is needed to determine whether actions are needed to address soil vapor intrusion off-site.

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.

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 Conditional Track 1 remedy.

The selected remedy is referred to as the soil excavation 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

All on-site soils that exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8 will be excavated and transported off-site for disposal. Approximately 16,000 cubic yards of contaminated soil will be removed from the site. If necessary, clean fill meeting the requirements of 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. Vapor Intrusion Evaluation

As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

Conditional Track 1
The intent of the remedy is to achieve a Track 1 unrestricted use, therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan (SMP) and Environmental Easement (EE) will be required to address the SVI evaluation and implement actions as needed; if a mitigation or monitoring action is needed, a Track 1 cleanup can only be achieved if the mitigation system or other required action is no longer needed within five years of the date of the Certificate of Completion.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy will achieve a Track 2 restricted residential cleanup which will require the imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below.

4. 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.

5. 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.

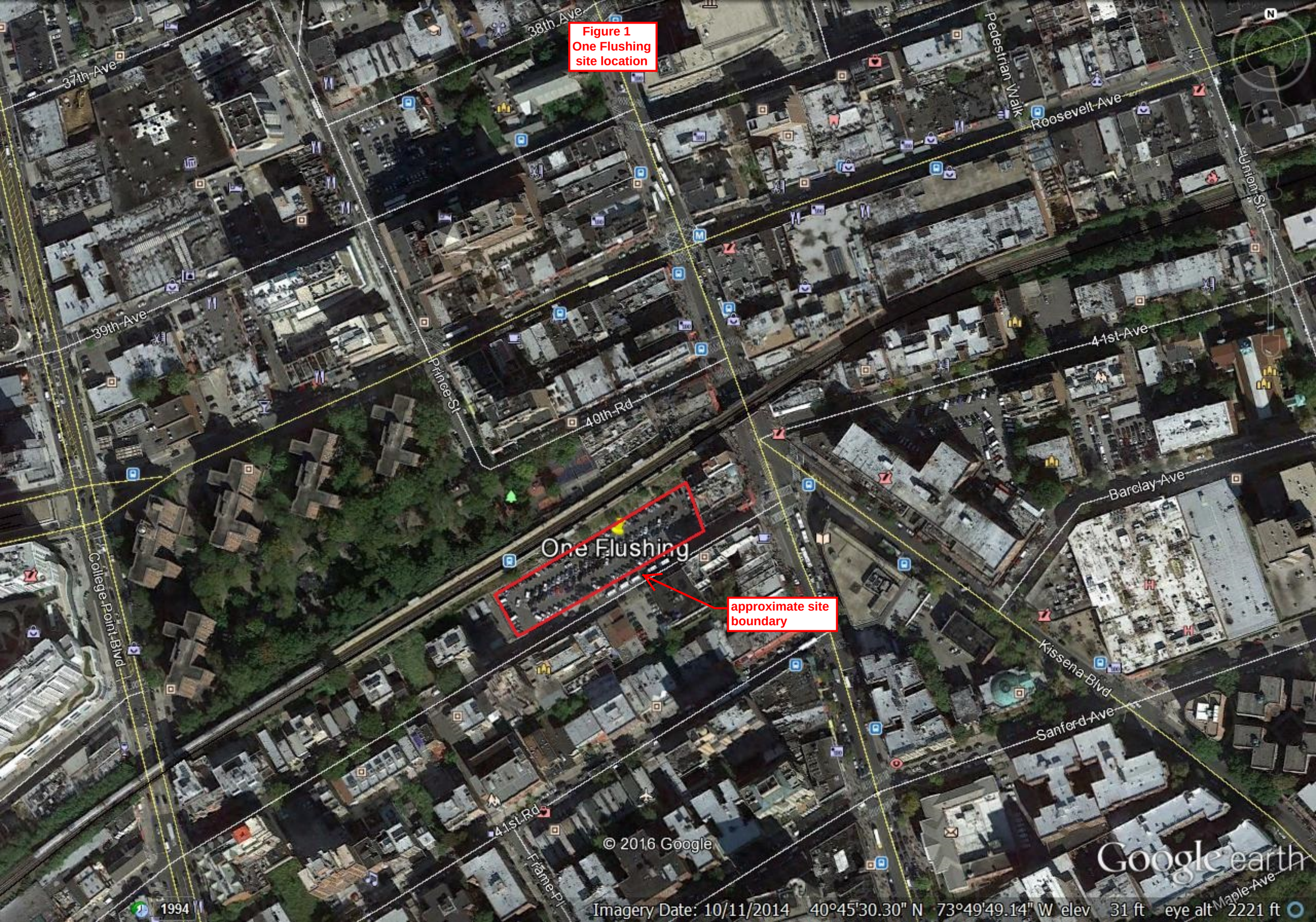
Engineering Controls: The engineering control that may need to be installed based on the vapor intrusion evaluation discussed in Paragraph 3 above.
This plan includes, but may not be limited to:
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion of future 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

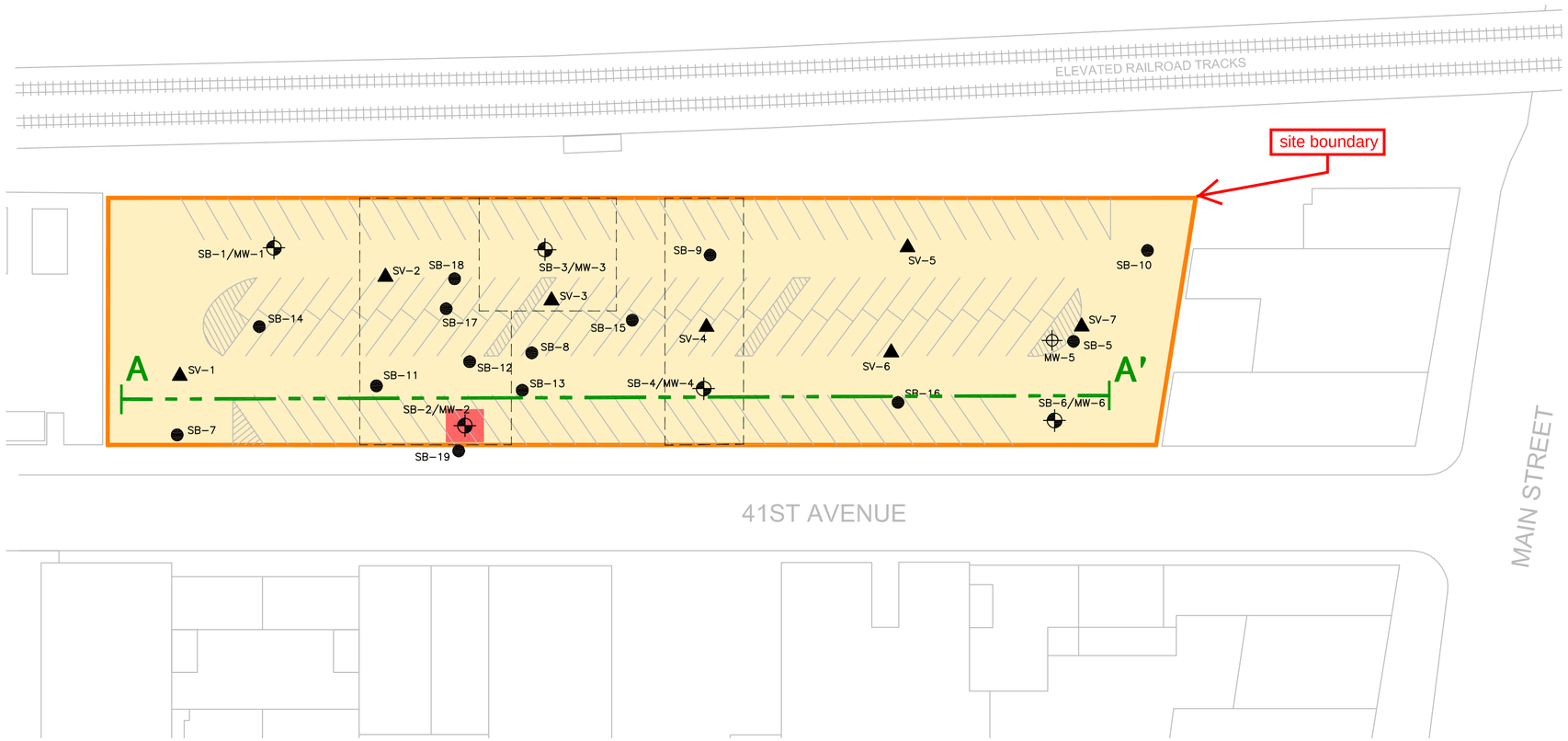
• the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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;
• a schedule of monitoring and frequency of submittals to the Department;
• monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Figure 1
One Flushing
site location



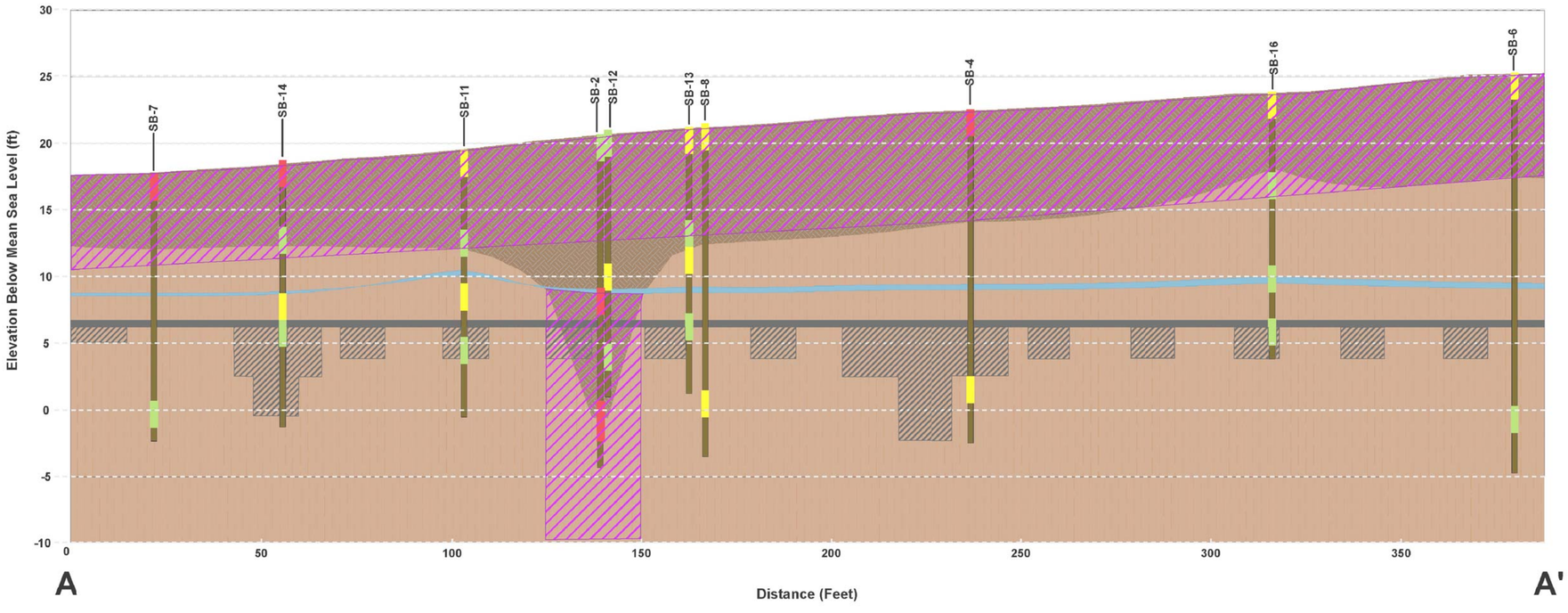


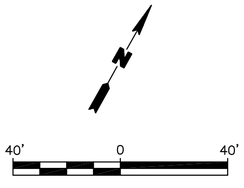
LEGEND

- PROPERTY BOUNDARY site boundary
- SB-1/MW-1 — SOIL BORING/GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-5 — GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION INSTALLED BY MUESER RUTLEDGE 2015
- SB-5 — SOIL BORING LOCATION AND DESIGNATION
- SV-1 — SOIL VAPOR SAMPLE LOCATION AND DESIGNATION
- ENTIRE FOOTPRINT TO BE EXCAVATED 10 FT BELOW GRADE (HISTORICAL FILL)
- AREA TO BE EXCAVATED 30 FT BELOW GRADE (PETROLEUM HYDROCARBON IMPACT)
- NATIVE
- FILL
- WATER LEVEL
- EXCAVATION LINE
- FOOTINGS AND ELEVATOR PITS
- REMEDIAL EXCAVATION AREA
- NO EXCEEDANCE
- EXCEEDS NYSDEC PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES FOR ONE OR MORE ANALYTES
- EXCEEDS NYSDEC PART 375 RESTRICTED USE SOIL CLEANUP OBJECTIVES FOR ONE OR MORE ANALYTES

NOTES

1. PETROLEUM HYDROCARBON IMPACT EXCAVATION AREA APPROXIMATELY 20 FT X 20 FT X 30 FT DEEP.
2. HISTORIC FILL EXCAVATION AREA SITE WIDE TO APPROXIMATELY 10 FT DEEP.
3. MEUSER RUTLEDGE CONSULTING ENGINEERS DETAILS OF SUPPORT OF EXCAVATION REQUIRED FOR REMEDIATION INCLUDED IN APPENDIX L OF REMEDIAL ACTION WORK PLAN.





Title:

TRACK 1 UNRESTRICTED USE CLEANUP

ONE FLUSHING
133-45 41ST AVENUE
FLUSHING, QUEENS, NEW YORK

Prepared For:

MONADNOCK DEVELOPMENT

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: C.S.
Prepared by: J.A.D.
Project Mgr: W.M.
File: 2581.0001Y117

Figure 2

V:\CAD\PROJECTS\2581Y\0001Y\117\2581.0001Y117.01.DWG