DECISION DOCUMENT

1500 Astor Avenue
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203105
August 2019

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

DECLARATION STATEMENT - DECISION DOCUMENT

1500 Astor Avenue
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203105
August 2019

Statement of Purpose and Basis

This document presents the remedy for the 1500 Astor Avenue 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 1500 Astor Avenue 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, 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; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at the 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

Excavation and off-site disposal of contaminant source areas, including chlorinated solvent-impacted soil above the water table in the parking lot area that exceed the applicable protection of groundwater soil cleanup objectives (SCOs) for individual volatile organic compounds (VOCs) present in groundwater. Excavation and off-site disposal of all on-site soils which exceed commercial SCOs, as defined by 6 NYCRR Part 375-6.8 in the upper 15 feet. If a Track 2 commercial cleanup is achieved, a cover system will not be a required element of the remedy. Approximately 74 cubic yards of contaminated soil will be removed from the site.

3. Backfill

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

4. Cover System

If a Track 2 commercial cleanup is not achieved, a site cover will be required to allow for commercial use of the site in areas where the upper one foot 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 one foot 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. In-situ Chemical Oxidation and Sump Treatment

In-Situ chemical oxidation (ISCO) will be implemented to treat chlorinated VOCs in groundwater. A chemical oxidant will be released into the subsurface to destroy the contaminants identified both on and off-site where elevated chlorinated VOC concentrations were detected in groundwater. In addition to the ISCO, the existing sump in the basement of the Eastchester Road building, which pumps groundwater to the combined sewer under a NYCDEP permit, will be retrofitted with a granular activated carbon filter to remove chlorinated VOCs from the groundwater prior to discharge to the combined sewer.

6. Vapor Mitigation

The on-site building fronting Eastchester Road will be required to have a sub-slab depressurization system (SSDS), or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater. The basement sump will also be retrofitted with a vapor-tight cover to prevent contaminated groundwater entering the sump from contributing to indoor air contamination. The on-site building fronting Astor Avenue will continue to be monitored for soil vapor intrusion.

7. 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 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 County DOH; and
- Requires compliance with the Department approved Site Management Plan.

8. 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 vapor mitigation system, cover system, ISCO, and sump treatment system discussed above

   This plan includes, but may not be limited to
   - An Excavation Plan which details the provision for management of future excavations in the areas of remaining contamination;
   - 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;
   - A description 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:
   - Monitoring of the 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 building on the site, as may be required by the Institutional and Engineering Control Plan discuss above.

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:

- Procedures for operating and maintaining the remedy;
- Compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- 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.

August 19, 2019

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

1500 Astor Avenue
Bronx, Bronx County
Site No. C203105
August 2019

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:

New York Public Library Eastchester branch
1385 East Gun Hill road
Bronx, NY 10469
Phone: (718) -65-3-3292

Bronx Community Board #11
Attn: Tony Signorile
1741 Colden Avenue
Bronx, NY 10462
Phone: (718) -892-6262

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

Location:
The site is located at 1500 Astor Avenue in the Pelham Garden neighborhood of the Bronx, New York. The site is an L-shaped 0.66-acre parcel and is identified as Block 4393, Lot 1 on the New York City Tax Map.

Site Features:
The site is comprised of two adjoining buildings, one of which fronts on Astor Avenue (1500 Astor Avenue) and the second on Eastchester Road (2300-2314 Eastchester Road). A parking lot is located behind the two buildings. The Astor Avenue building is two stories high. The Eastchester Road building is a one-story building with a full basement, that is used for storage.

Current Zoning and Land Use:
The site is located in an R4A residential-zoned area with a C1-2 commercial overlay for a portion of the lot. The Astor Avenue building is currently occupied by medical offices while the Eastchester Road building is divided into five commercial spaces/units. The surrounding area is generally residential with some commercial uses north of the site along Eastchester Road. Based on the OER searchable property environmental E-database, no public schools, hospitals or day care centers are located within 500 feet of the site. The Jacobi Medical Center is located approximately 950 feet south of the site.

Past Uses of the Site:
The site was generally undeveloped land until the construction of the existing building in 1940. The only previous development is a portion of a residential dwelling, shown on the 1919 Sanborn fire insurance map. Known site uses have included residential, a funeral home, a bowling alley, a nursery, dry cleaners and retail/office tenants.

Site Geology and Hydrogeology:
The subject property is located at an elevation of approximately 60 feet above mean sea level (ft-msl) and bedrock is estimated to be present at approximately 45 feet-msl. This is consistent with site-specific boring logs, which noted bedrock at 11 to 14.5 feet below grade (ft-bg), or 49 to 45 ft-msl.

The overburden is composed predominantly of silt with some sand. Groundwater was encountered

at depths ranging from approximately 6 to 10 ft-bg. Groundwater flow direction is expected to be to the south-southwest.

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 commercial use (which allows for 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 Volunteer. The Volunteer does not have an obligation to address off-site contamination. The Department has determined that the site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement action is necessary.

The Department will seek to identify any parties (other than the Volunteer(s)) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought, or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

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:

tetrachloroethene (PCE)
trichloroethene (TCE)
cis-1,2-dichloroethene
benzo(a)anthracene
benzo(a)pyrene

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

- groundwater
- soil
- soil vapor intrusion

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. Based on investigations conducted to date at the subject property, the primary contaminants of concern for the site are tetrachloroethylene (PCE) and its associated degradation compounds.

Soil - PCE and its breakdown products were detected in soil at concentrations exceeding the Part 375 protection of groundwater soil cleanup objectives (PGSCOs), with a maximum PCE concentration of 280 parts per million (ppm) and a maximum cis-1,2-dichloroethene (DCE) concentration of 4.7 ppm. For comparison, the PGSCO for PCE is 1.3 ppm and for DCE is 0.25 ppm. No other VOCs were detected at concentrations exceeding either the PGSCO or the commercial use SCO (CSCO). SVOCs were detected at concentrations exceeding the CSCOs including benzo(a)anthracene at 1.5 ppm (CSCO is 1 ppm) and benzo(a)pyrene at 1.1 ppm (CSCO is 1 ppm). No metals, pesticides or PCBs were detected at concentrations exceeding the CSCOs. Data does not indicate any off-site impacts in soil related to this site.

Groundwater - PCE was detected in groundwater at a maximum concentration of 2,100 parts per billion (ppb); trichloroethene (TCE) at a maximum concentration of 30 ppb; and DCE at a maximum concentration of 110 ppb. These results exceed the ambient water quality standard (AWQS) of 5 ppb for each contaminant. No other VOCs were detected at concentrations exceeding their respective AWQS. No SVOCs, metals, pesticides or PCBs were detected at concentrations exceeding their respective AWQS. Data has confirmed that there are off-site impacts in groundwater related to this site.

Soil Vapor, Sub-Slab Vapor and Indoor Air - PCE was detected in soil vapor at a maximum concentration of 6,630 micrograms per cubic meter (ug/m3); TCE at a maximum concentration of 288 ug/m3; and DCE at maximum concentration of 73 ug/m3. The highest concentrations of PCE and TCE were detected in the rear of the building fronting Eastchester Road. Sub-slab soil vapor samples collected beneath the Eastchester Road building contained PCE at a maximum concentration of 6630 ug/m3. PCE was detected in indoor air in the same building at a maximum concentration of 10.0 ug/m3 and TCE was detected at a maximum concentration of 0.21 ug/m3. These levels are below the NYSDOH air guideline values of 30 and 2 ug/m3 for PCE and TCE,

respectively. Data collected indicates that additional actions are needed to further evaluate soil vapor intrusion 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 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. The potential exists for people to inhale site contaminants in on-site buildings due to soil vapor intrusion. Additional investigation is necessary to further evaluate the potential for soil vapor intrusion in nearby structures.

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 2: Restricted use with generic soil cleanup objectives remedy.

The selected remedy is referred to as the Source Material Excavation, Cover System, ISCO and Vapor Mitigation remedy.

The elements of the selected remedy, as shown in Figure 3 through 6, are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, 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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- 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 the 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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7. 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 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 County DOH; and
- Requires compliance with the Department approved Site Management Plan.

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

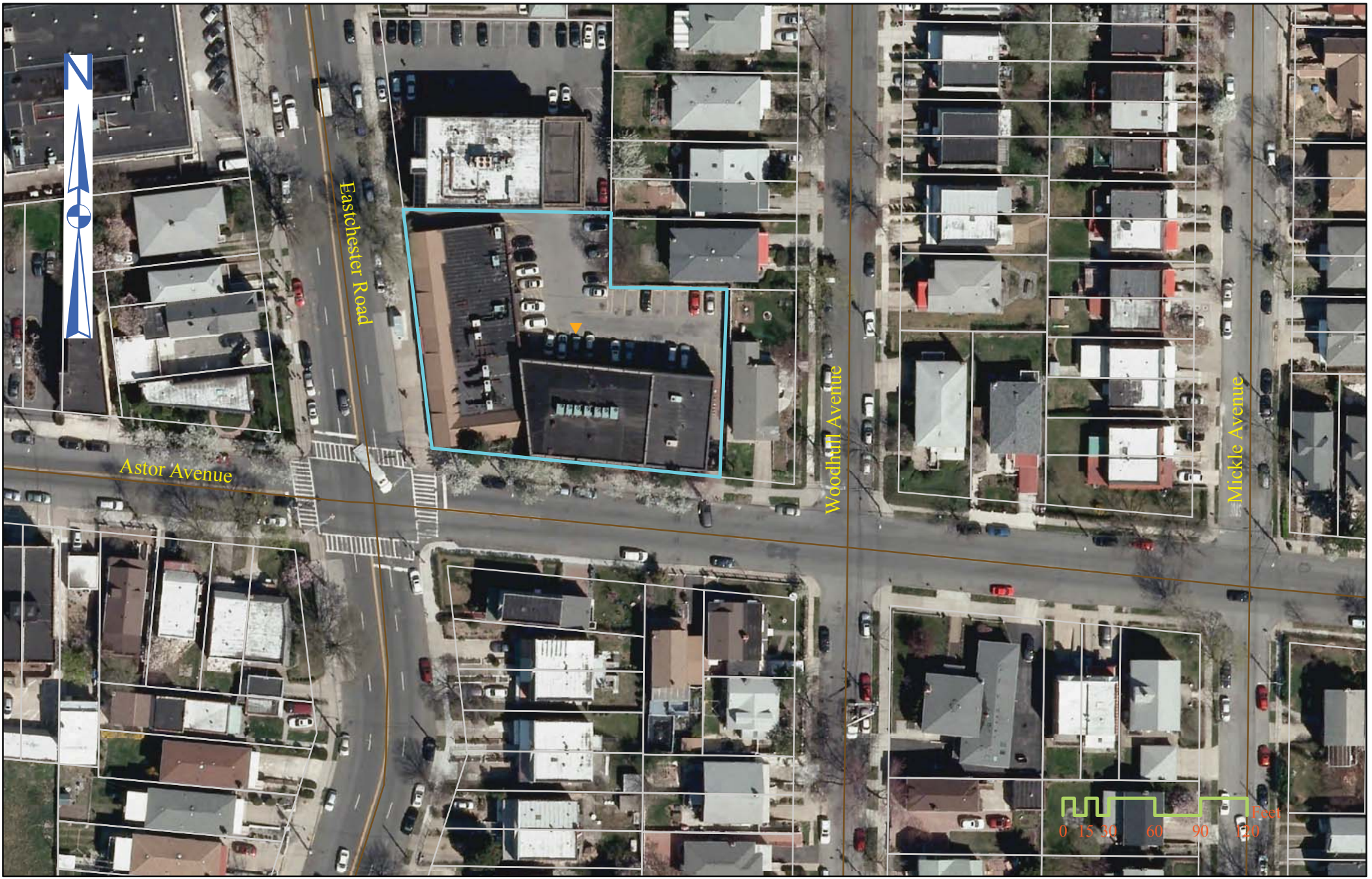
a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
   - Institutional controls: The Environmental Easement discussed above
   - Engineering controls: The vapor mitigation system, cover system, ISCO, and sump treatment system discussed above

   This plan includes, but may not be limited to
   - An Excavation Plan which details the provision for management of future excavations in the areas of remaining contamination;
   - 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;
   - A description 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:
   - Monitoring of the 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 building on the site, as may be required by the Institutional and Engineering Control Plan discuss above.

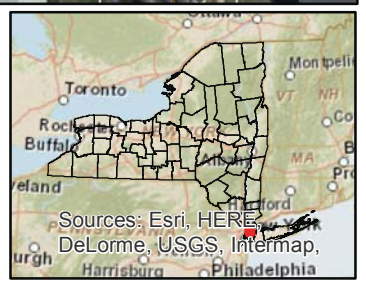
c. An Operation and Maintenance (O&M) plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - Procedures for operating and maintaining the remedy;
   - Compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - Maintaining site access controls and Department notification; and

- Providing the Department access to the site and O&M records.



NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

Figure 1 - Site Boundary Map
1500 Astor Avenue
Site No. C203105



Site
Remedial Action Work Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

Drawing Title
Site Layout

Drawing No
Figure 2

Site
Remedial Action Work Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

Drawing Title
Proposed Post-Remedial End-Point Sample Locations

Drawing No
Figure 3

Site
Remedial Action Work Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

Drawing Title
Proposed Groundwater Chemical Oxidation Treatment Locations

Drawing No
Figure 4

Site
Remedial Action Work Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

Drawing Title
Proposed Sump Discharge Treatment

Drawing No
Figure 5

Site
Remedial Action Work Plan
1500 Astor Avenue
Bronx, New York
Block 4393, Lot 1

Drawing Title
Proposed Soil Vapor Venting Layout, Cellar

Drawing No
Figure 6