DECISION DOCUMENT

555 Grand Street
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224185
April 2014

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

DECLARATION STATEMENT - DECISION DOCUMENT

555 Grand Street
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224185
April 2014

Statement of Purpose and Basis

This document presents the remedy for the 555 Grand Street site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 555 Grand Street site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design
   A remedial design program will be implemented to provide the details necessary for the construction, operation, 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 gas 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. Soil Vapor Extraction
Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

A pilot test program will be implemented to design the SVE system. The number of SVE wells, depth, screen length, etc., including which technology will be used to treat the extracted VOCs prior to it being discharged to the atmosphere, will be determined based on the SVE system design document.

3. Vapor Mitigation
The on-site building, and any future on-site buildings, will be required to have a sub-slab depressurization system (SSDS), or a similar engineered system, to prevent the migration of vapors into the building from soil and/or groundwater.

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

5. Institutional Control
Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);

- allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject

to local zoning laws;

- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;

- requires compliance with the Department approved Site Management Plan.

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 SVE system discussed in Paragraph 2, the sub-slab depressurization system (SSDS) discussed in Paragraph 3 and the site cover system discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;

- descriptions of the provisions of the environmental easement including any land use and/or 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 soil vapor and indoor air to assess the performance and effectiveness of the remedy, including a provision for implementing actions recommended to address exposures;

- a schedule of monitoring and frequency of submittals to the Department;

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance,

monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- 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.

7. Contingency for Groundwater Treatment
A contingency for the remediation of groundwater with chemical oxidant injections should significant levels of chlorinated VOC (CVOC) contamination related to the site be confirmed through supplemental testing.

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.

April 23, 2014

Date

Robert Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

555 Grand Street
Brooklyn, Kings County
Site No. C224185
April 2014

SECTION 1: SUMMARY AND PURPOSE

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

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

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

SECTION 2: CITIZEN PARTICIPATION

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

Brooklyn Public Library
Leonard Street Branch
81 Devoe Street
Brooklyn, NY 11211
Phone: 718-486-3365

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

Site Location: The site is located in the Williamsburg section of Brooklyn, Kings County. The site is approximately 100 feet west of the intersection of Grand Street and Lorimer Street on the north side of the Grand Street.

Site Features: The site has approximately 25 feet of frontage on Grand Street and is .058 acres. The entire lot is currently developed with a three-story mixed use (residential and commercial) building; there is a basement present below approximately 65 percent of the building and the remaining 35 percent of the building is slab on grade. The structure was built in 1887.

Current Zoning and Land Use: The site is currently inactive (vacant), and is zoned for R7A residential with a C2-4 commercial overlay. The surrounding parcels are currently used for a combination of commercial and residential, and utility right-of-ways.

Past Use of the Site: The site was most recently used as a dry cleaner between 1999 and 2013, and also had residential tenants on the second and third floor. Various retail stores operated on the property between 1934 and 1992. According to the regulatory database, the site was listed as a RCRA SQG (small quantity generator).

Site Geology and Hydrogeology: Subsurface soils at the site consist of a mixture of silty non-native fill, to a depth of approximately 2 feet below basement slab grade followed by sandy-silt to a depth of approximately 4 feet below basement slab grade. Groundwater depth is approximately 22.5 feet below the ground surface and is expected to flow easterly.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

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

SECTION 5: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Volunteer(s) does/do not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are anticipated off-site impacts that require remedial activities; accordingly, 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
- indoor and outdoor air
- 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:

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:

TETRACHLOROETHYLENE (PCE) MERCURY
TRICHLOROETHENE (TCE)

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: Based upon the investigations conducted to date, the primary contaminants of concern for this site are PCE and TCE in soil vapor, and mercury in soil. It appears that elevated concentrations of contaminants in soil vapor may not be limited to the on-site area.

Soil – Soil sampling was limited to on-site. Of the six soil samples collected at the site (to a depth of four feet below the basement slab) no volatile organic compounds (VOCs) were detected above the unrestricted use Soil Cleanup Objective (SCO). Very low concentrations of PCE (0.420 ppm) were detected in shallow soil (0-2 feet), however, the concentration is below the unrestricted use SCO (for PCE which is 1.3 ppm). Various SVOCs slightly exceeded Restricted Residential Soil Cleanup Objectives (RRSCOs) and various metals exceeded

RRSCOs, with mercury being the most significant exceedance at 2.72 ppm. Site related soil contamination is not expected to extend off-site based on the available data.

During January and February 2014 supplemental soil investigations were conducted at the site as a part of the RI. In January seven soil borings were advanced down to a depth of four feet below the basement slab. PCE (0.0064 ppm) was detected in only one location. Again in February 2014, during monitoring well installation, six soil samples were collected from throughout the site at varying depths (12 to 28 feet below grade). The highest concentration of PCE detected was 0.29 ppm at a depth of 12 feet below the basement slab (which is below the unrestricted use SCO of 1.3 ppm).

Groundwater – In February 2014 two monitoring wells were installed on-site. Groundwater samples collected from three monitoring wells (the two newly installed on-site wells and one existing off-site well located on the sidewalk in front of/upgradient of the site) detected very low concentration of PCE; the highest PCE concentration detected was 16 ppb in an on-site monitoring well (NYSDEC groundwater quality standards for PCE is 5 ppb). TCE was not detected in any samples.

Soil Vapor and Indoor Air – Soil vapor samples were collected in July 2013 while dry cleaning operations were still being performed at the site. Elevated concentrations of PCE and TCE have been detected in on-site sub-slab soil vapor and indoor air samples. PCE and TCE concentrations in sub-slab soil vapor ranged from 7,730 micrograms per cubic meter (ug/m3) to 228,000 ug/m3 and 84.8 ug/m3 to 623 ug/m3, respectively. PCE was detected in indoor air samples at concentrations up to 6,230 ug/m3 and TCE was detected at concentrations up to 13.7 ug/m3. Elevated levels of PCE (3,930 ug/m3) and some TCE (3.92 ug/m3) were also detected in the ambient air sample collected in front of the site. Contaminated soil vapor may be migrating off-site.

Special Resources Impacted/Threatened: The site is located in the urban area and Fish and a Wildlife Impact Analysis is not warranted.

Significant Threat: The site represents a significant threat to the public health.

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 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 buildings, is referred to as soil vapor

intrusion. On-site soil vapor intrusion sampling has identified impacts to indoor air quality and actions to address exposure concerns are necessary in the event the building is re-occupied. The potential for soil vapor intrusion to occur in off-site buildings will be evaluated.

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.

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.

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 SVE and Cover System remedy.

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

1. Remedial Design
   A remedial design program will be implemented to provide the details necessary for the construction, operation, 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;

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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/or groundwater use restrictions;
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- 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 soil vapor and indoor air to assess the performance and effectiveness of the remedy, including a provision for implementing actions recommended to address exposures;
- a schedule of monitoring and frequency of submittals to the Department;

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
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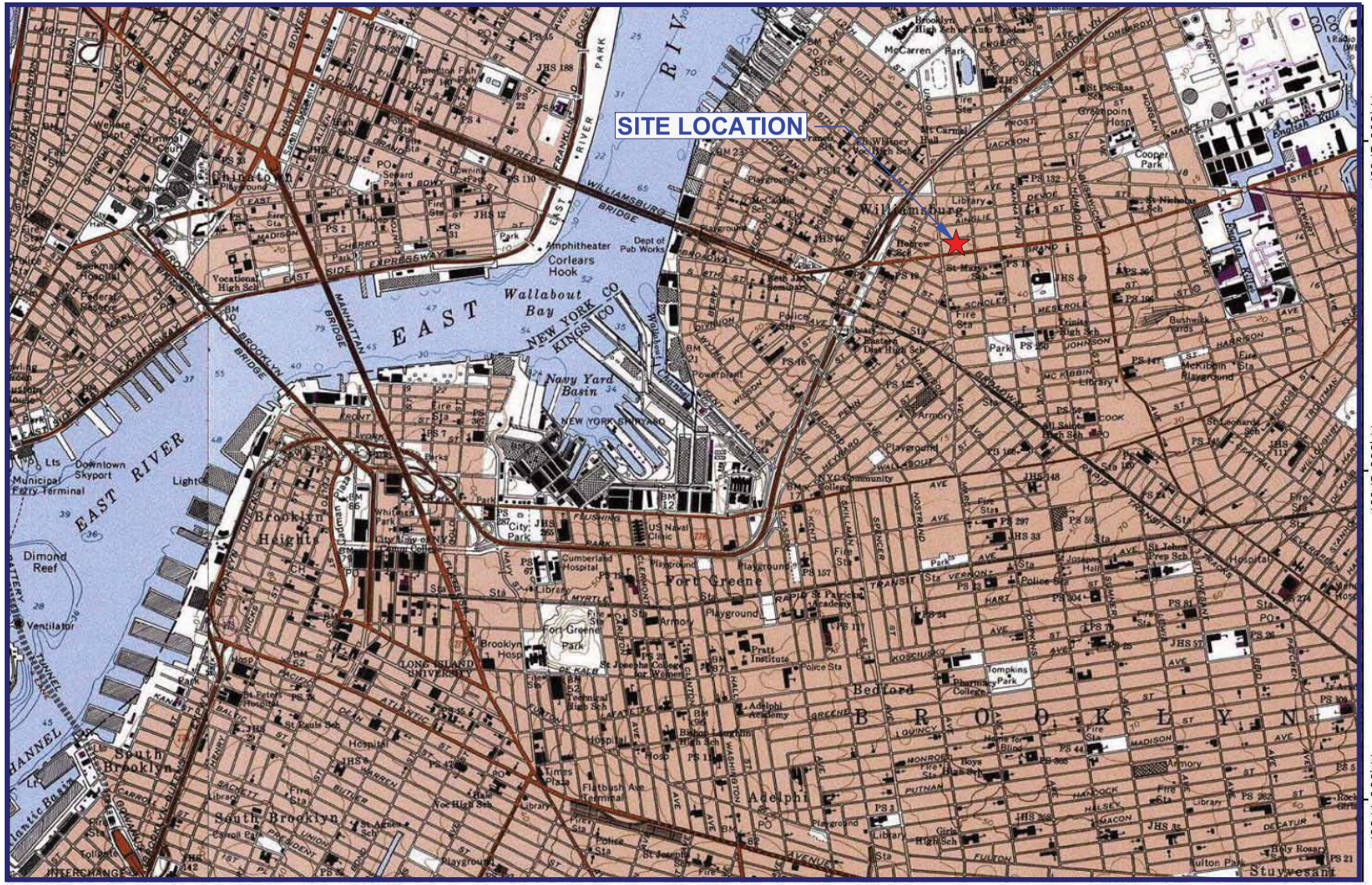
- providing the Department access to the site and O&M records.

7. Contingency for Groundwater Treatment
A contingency for the remediation of groundwater with chemical oxidant injections should significant levels of chlorinated VOC (CVOC) contamination related to the site be confirmed through supplemental testing.



USGS Brooklyn Quadrangle 1995, Contour Interval = 10 feet

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555 GRAND STREET
BROOKLYN, NY

FIGURE 1 SITE LOCATION MAP

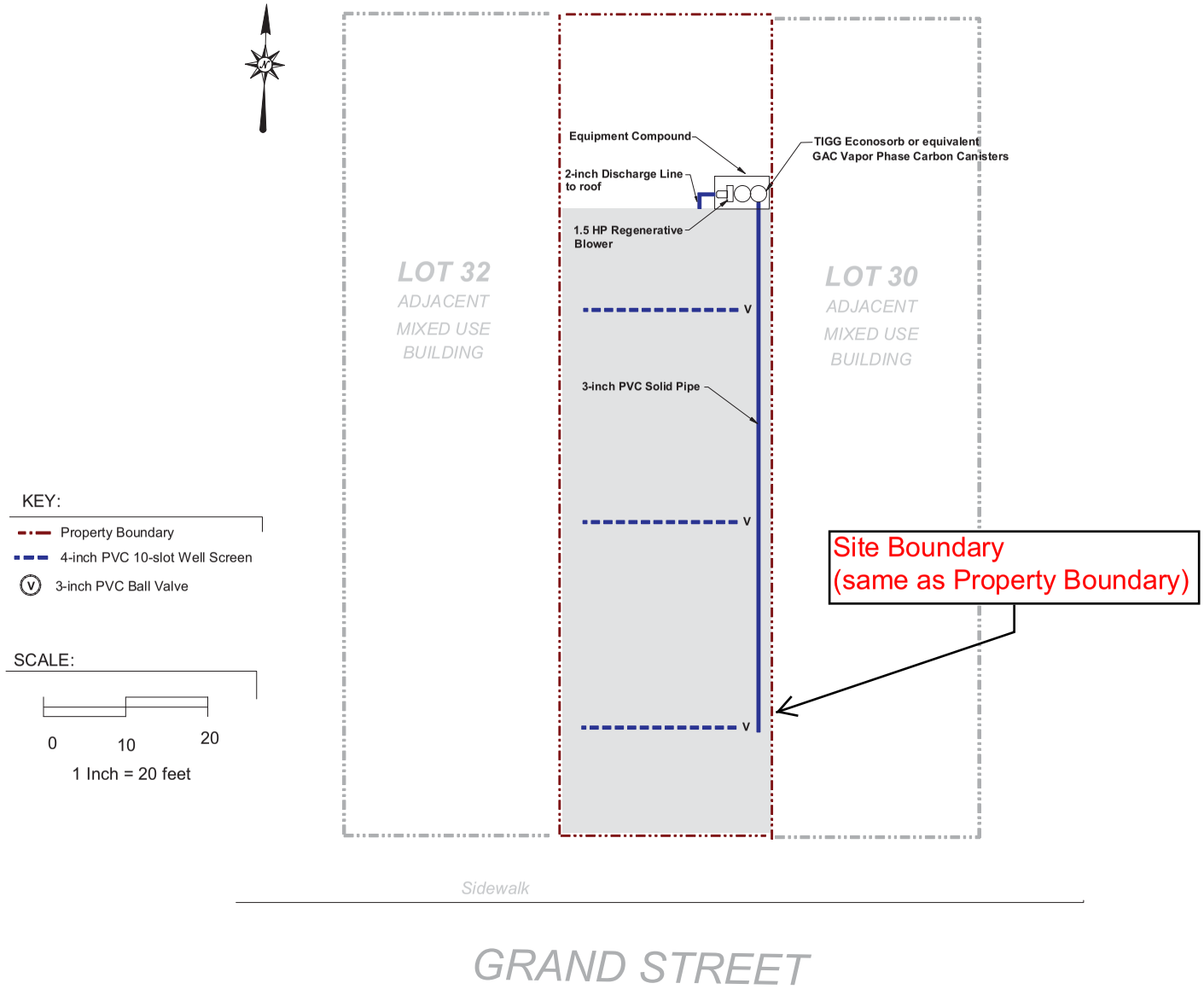

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FIGURE [redacted] 2