DECISION DOCUMENT

Bedford Union Armory
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224252
January 2019

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

DECLARATION STATEMENT - DECISION DOCUMENT

Bedford Union Armory
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224252
January 2019

Statement of Purpose and Basis

This document presents the remedy for the Bedford Union Armory 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 Bedford Union Armory 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
Portions of the on-site buildings (specifically the southern portion of the head house and eastern parking facility) will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal to implement the remedy. Prior to demolition, buildings will undergo abatement of hazardous materials, including asbestos-containing materials, lead-based paint, and polychlorinated biphenyl-containing materials.

Excavation and off-site disposal of contaminant source areas, including:

- underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination; and
- lead-contaminated soil exceeding 3900 ppm in the upper 5 feet in the firing range area.

Excavation and off-site disposal of all on-site soils which exceed unrestricted use soil cleanup objectives (UUSCOs) as defined by 6 NYCRR Part 375-6.8 in areas within the footprints of proposed Buildings 2 and 3. At a minimum, the soil in the proposed Building 2 footprint will be excavated to a depth of approximately 10 feet below grade and soil in the proposed Building 3 footprint will be excavated to a depth of approximately 15 feet below grade. If a Track 1 cleanup is achieved within the footprints of Buildings 2 and 3, a Cover System will not be a required element of the remedy in these areas. The foundation and slab in the location of proposed Building 1 will remain undisturbed. The southern and eastern portions of the site will achieve Track 1, and the remainder of the site will achieve a Track 4 cleanup. A survey map will be required to show/identify the different cleanup tracks.

Approximately 20,000 cubic yards of contaminated soil will be removed from the site.

3. Backfill
Confirmation samples will be collected and analyzed to demonstrate achievement of unrestricted use soil cleanup objectives in areas within the footprints of proposed Buildings 2 and 3. Clean fill meeting the requirements of the 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site. The estimated quantity of soil to be imported to the site for backfill and cover soil is 2,000 cubic yards. No soil/fill is expected to be reused/relocated on site.

4. Cover System
A site cover currently exists in the proposed Building 1 footprint and will be maintained to allow for restricted residential use of this portion of the site. Any site redevelopment will maintain the existing cover in areas within the proposed Building 1 footprint of the site. The site cover may include paved surface parking areas, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Vapor Intrusion Evaluation
As part of the remedy, a soil vapor intrusion evaluation will be completed for the entire site. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

6. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the Track 4 portion of 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, commercial and industrial uses 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.

7. Site Management Plan

A Site Management Plan is required for the Track 4 area of the site, 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 controls remain in place and effective:
   - Institutional Controls: The Environmental Easement discussed above.
   - Engineering Controls: The Cover System discussed above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
   - 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;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - a schedule of monitoring and frequency of submittals to the Department; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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 protected of public health and the environment.

January 3, 2019

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

Bedford Union Armory
Brooklyn, Kings County
Site No. C224252
December 2018

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:

Brooklyn Public Library - Bedford Branch
496 Franklin Avenue
Brooklyn, NY 11238
Phone: (718) 623-0012

Brooklyn Community Board 9
890 Nostrand Avenue
Brooklyn, NY 11225
Phone: (718) 778-9279

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 1555 Bedford Avenue in an urban area of the Crown Heights neighborhood of Brooklyn. It is identified on New York City tax maps as Block 1274, Lot 1. The site is bordered by Union Street to the north, multi-story residential and mixed-use buildings followed by Rogers Avenue to the east, President Street to the south, and Bedford Avenue to the west.

Site Features: The site is approximately 2.80 acres in size and is currently developed with a vacant three-story building, which contains a single story open drill hall; the head house, which previously contained sleeping quarters, showers, artillery ranges, stables, and kitchen and laundry areas; and the parking facility, which previously contained a vehicle maintenance shop and a battery charging room. The footprint of the building covers the entire site.

Current Zoning and Land Use: The site is located in a R6 residential zone, and is currently vacant. The adjoining parcels are used for residential purposes, with the surrounding area generally consisting of residential, commercial, and institutional (schools and churches) use.

Past Uses of the Site: The site was undeveloped before 1903. The original armory structure was built in 1903 with an expansion into the eastern portion of the parcel in the 1930s, which was converted to a parking facility in the 1960s. From about 1904 until 2013 the site was used as a military armory, including storage and maintenance of military vehicles and equipment, vehicle refueling, and artillery ranges located in the basement. Portions of the building had also been used for various film productions between 1991 and 2012.

Site Geology and Hydrogeology: The site elevation is about 130 feet above sea level. The site is located in a developed area of Brooklyn that is generally covered with paved roads, walkways and buildings. The building is generally underlain by fill material used for construction and development since the 1800s. The subsurface strata beneath the site consists of historic fill material generally characterized by loose medium-to-coarse brown sand with varying amounts of silt, gravel, ash, and metal extending to depths of about 1 to 21 feet below grade surface (bgs). The historic fill material is underlain by native soil generally consisting of fine-to-coarse reddish brown sands with varying amounts of gravel and clay. Bedrock is anticipated to be at a depth of greater than 150 feet.

Groundwater is present at a depth of approximately 130 feet below grade (about elevation 9.5 feet) and flows towards the northwest.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

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

SECTION 5: ENFORCEMENT STATUS

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

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

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

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor 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:

lead
tetrachloroethene (PCE)
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo[k]fluoranthene
dibenz[a,h]anthracene
chrysene
indeno(1,2,3-CD)pyrene
carbon tetrachloride
chloroform

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), herbicides and pesticides. Based on investigations conducted to date, the primary contaminants of concern at the site are VOCs, SVOCs and metals.

Soil - The only VOC detected during the remedial investigation was acetone, which is a common lab contaminant and is not necessarily representative of soil quality at the site. SVOCs were identified at concentrations exceeding the restricted residential use soil cleanup objectives (RRSCOs) in only four soil sample locations. SVOCs, specifically polycyclic aromatic hydrocarbons (PAHs), were detected in the firing range area at concentrations exceeding their respective RRSCOs, including: benzo(a)anthracene detected at a maximum concentration of 20.4 parts per million (ppm), benzo(a)pyrene at a maximum concentration of 33.6 ppm, benzo(b)fluoranthene at a maximum concentration of 25.8 ppm, benzo(k)fluoranthene at a maximum concentration of 22.5 ppm, dibenzo(a,h)anthracene at a maximum concentration of 6.6 ppm, chrysene at a maximum concentration of 20.6 ppm and indeno[1,2,3-cd]pyrene at a maximum concentration of 14.5 ppm. Metals were identified in soil throughout the site. In shallow soil, lead was detected in the firing range area at up to 26,600 ppm, compared to its RRSCO of 400 ppm. No pesticides, herbicides or PCBs were detected at concentrations exceeding their respective RRSCO. The SVOCs and metals present in the soil appear to be associated with the historic use as a military armory, including storage and maintenance of military vehicles and equipment, vehicle refueling, and artillery ranges. Data does not indicate any off-site impacts in soil related to this site.

Groundwater - In groundwater, VOCs, SVOCs and metals were detected at concentrations exceeding the Ambient Water Quality Standard (AWQS). Chloroform and tetrachloroethene (PCE) were the only two VOCs detected in groundwater. PCE was found at a maximum concentration of 6.42 parts per billion (ppb), above its AWQS of 5 ppb, on the eastern portion of the site. SVOCs were detected in the firing range at concentrations exceeding the AWQS including: benzo(a)anthracene, benzo(a)pyrene and chrysene detected at maximum concentrations of 0.0769 ppb, 0.0385 and 0.0769 ppb, respectively, compared to their AWQS of 0.002 ppb. The SVOCs detected appear to coincide with relatively high PAH concentrations in soil. The naturally occurring metals magnesium, manganese, and sodium were detected in groundwater at concentrations above their respective AWQS. No PCBs, pesticides or herbicides were detected in groundwater. Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were detected in the groundwater samples at a maximum concentration of 30.9 parts per

trillion (ppt) combined. Data does not indicate any off-site impacts in groundwater related to this site.

Soil vapor, sub-slab vapor, and indoor air - Chlorinated solvent VOCs were identified in on-site indoor air, soil vapor, and sub-slab soil vapor. The maximum concentrations of PCE and TCE were detected in sub-slab samples at 41 micrograms per cubic meter (ug/m3), and 4.2 ug/m3, respectively. PCE was detected in indoor air at a maximum concentration of 1 ug/m3, below the NYSDOH air guideline for PCE of 30 ug/m3. TCE was not detected in any ambient or indoor air samples. Carbon tetrachloride was detected in all soil vapor, sub-slab vapor and indoor air samples. Carbon tetrachloride was detected in at a maximum concentration of 34 ug/m3 in soil vapor, 1.3 ug/m3 in sub slab vapor and 0.34 ug/m3 in indoor air, respectively. Vinyl chloride was not detected in soil vapor, sub-slab vapor, or indoor air samples. 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*.

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 may move into the soil vapor (air spaces within the soil), which in turn may move into nearby 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 there is no occupied 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 future on-site development. In addition, sampling indicates soil vapor intrusion 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 contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- 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 Multiple Cleanup Tracks 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;
- 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
Portions of the on-site buildings (specifically the southern portion of the head house and eastern parking facility) will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal to implement the remedy. Prior to demolition, buildings will undergo abatement of hazardous materials, including asbestos-containing materials, lead-based paint, and polychlorinated biphenyl-containing materials.

Excavation and off-site disposal of contaminant source areas, including:
- underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination; and
- lead-contaminated soil exceeding 3900 ppm in the upper 5 feet in the firing range area.

Excavation and off-site disposal of all on-site soils which exceed unrestricted use soil cleanup objectives (UUSCOs) as defined by 6 NYCRR Part 375-6.8 in areas within the footprints of proposed Buildings 2 and 3. At a minimum, the soil in the proposed Building 2 footprint will be excavated to a depth of approximately 10 feet below grade and soil in the proposed Building 3 footprint will be excavated to a depth of approximately 15 feet below grade. If a Track 1 cleanup is achieved within the footprints of Buildings 2 and 3, a Cover System will not be a required element of the remedy in these areas. The foundation and slab in the location of proposed Building 1 will remain undisturbed. The southern and eastern portions of the site will achieve Track 1, and the remainder of the site will achieve a Track 4 cleanup. A survey map will be required to show/identify the different cleanup tracks.

Approximately 20,000 cubic yards of contaminated soil will be removed from the site.

3. Backfill
Confirmation samples will be collected and analyzed to demonstrate achievement of unrestricted use soil cleanup objectives in areas within the footprints of proposed Buildings 2 and 3. Clean fill meeting the requirements of the 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site. The estimated quantity of soil to be imported to the site for backfill and cover soil is 2,000 cubic yards. No soil/fill is expected to be reused/relocated on site.

4. Cover System
A site cover currently exists in the proposed Building 1 footprint and will be maintained to allow for restricted residential use of this portion of the site. Any site redevelopment will maintain the existing cover in areas within the proposed Building 1 footprint of the site. The site cover may include paved surface parking areas, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Vapor Intrusion Evaluation
As part of the remedy, a soil vapor intrusion evaluation will be completed for the entire site. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

6. Institutional Controls
Imposition of an institutional control in the form of an environmental easement for the Track 4 portion of 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, commercial and industrial uses 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.

7. Site Management Plan
A Site Management Plan is required for the Track 4 area of the site, which includes the following:

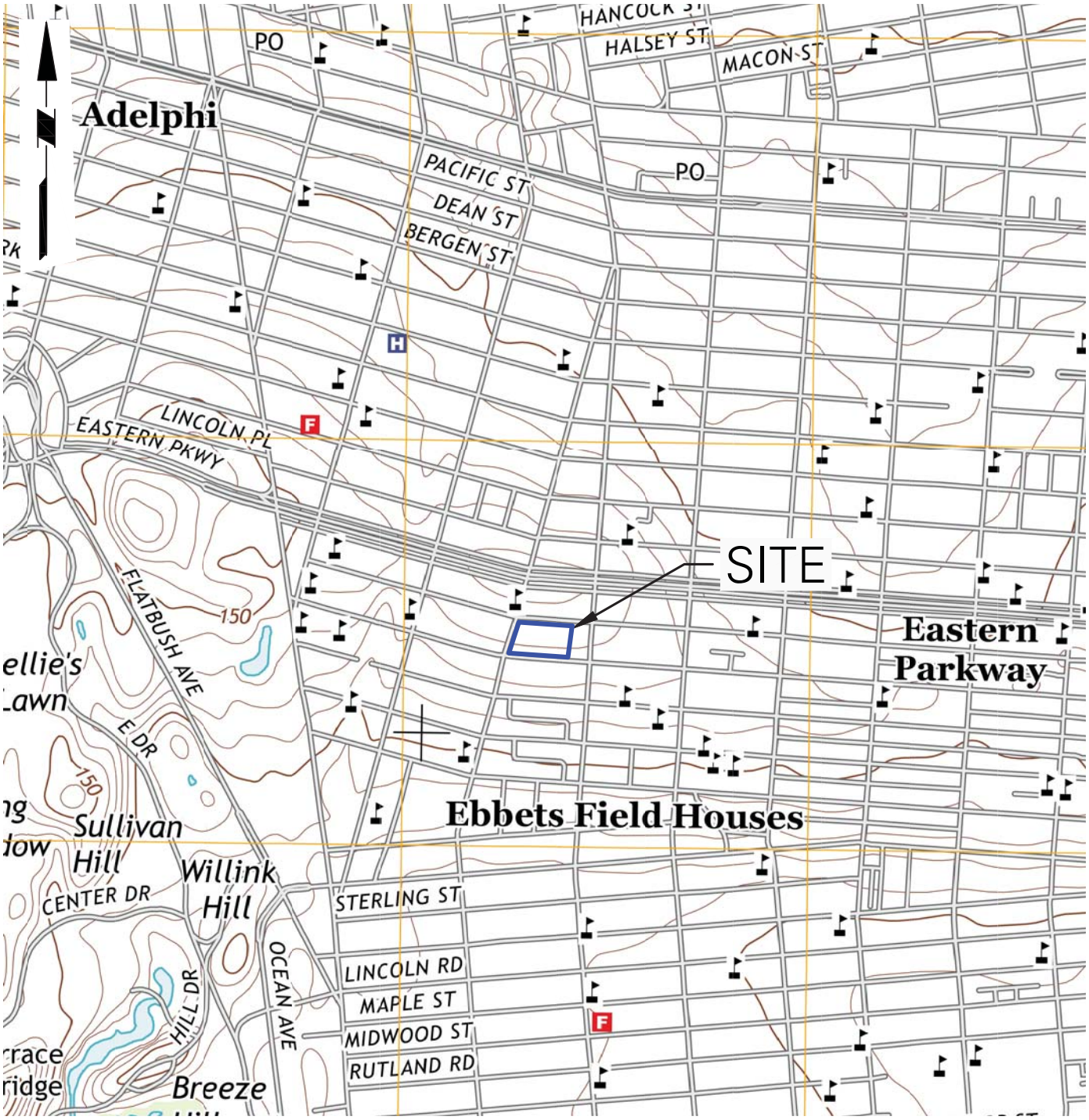
a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional controls remain in place and effective:
   - Institutional Controls: The Environmental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

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
   - 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;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan

includes, but may not be limited to:

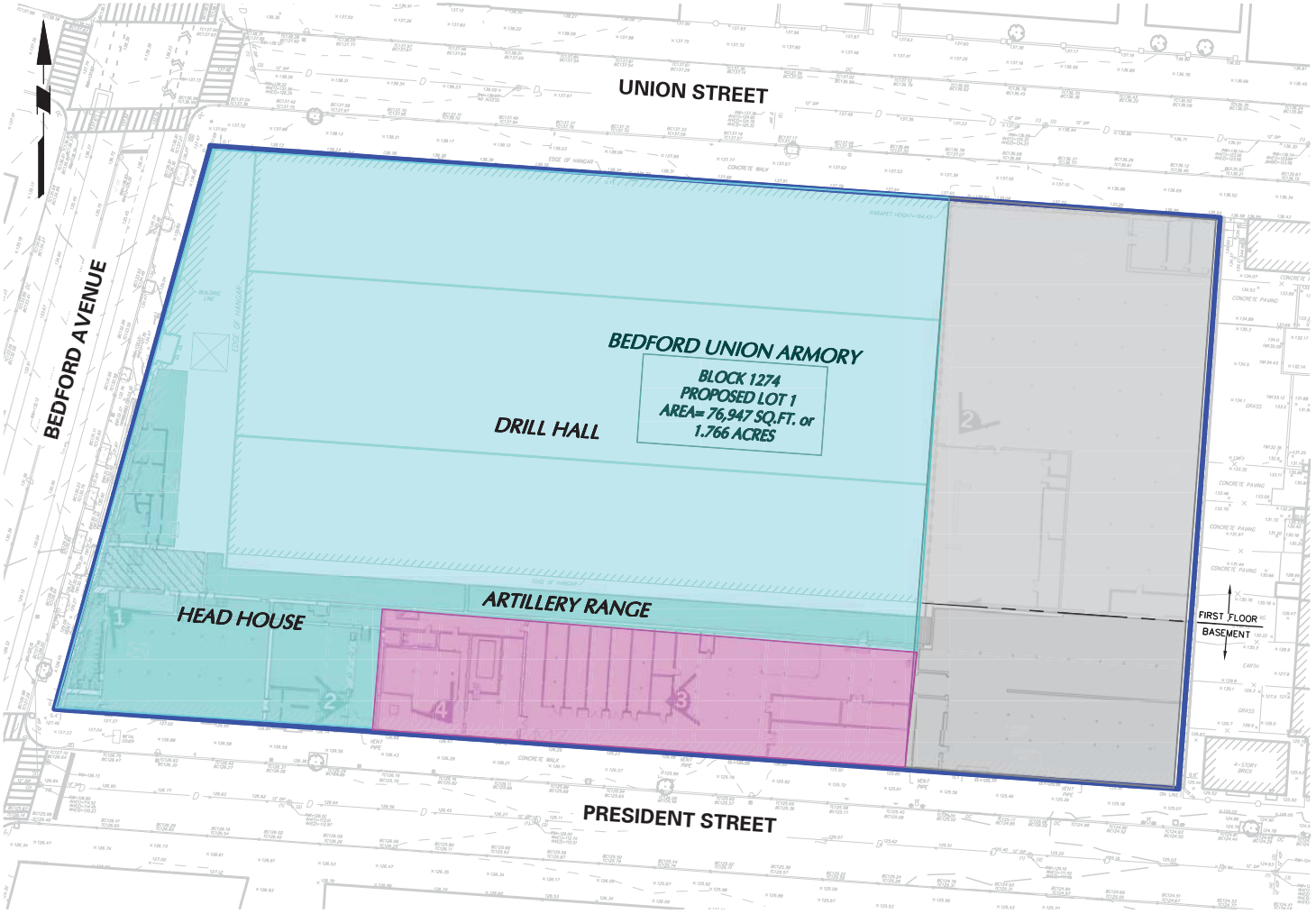
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.



MAP REFERENCE: USGS 7.5 MINUTE BROOKLYN, N.Y., TOPOGRAPHIC QUADRANGLE, DATED 1967, REVISED 2016

APPROXIMATE SITE BOUNDARY

	Project **BEDFORD UNION ARMORY** **1555 BEDFORD AVENUE** BLOCK No. 1274, LOT No. 1 BROOKLYN KINGS NEW YORK	Figure Title **SITE LOCATION MAP**	Project No. 170404402 Date 5/11/2018 Scale NTS Drawn By AS / Checked By BG Submission Date	Figure No. **1**



LEGEND:

- SITE BOUNDARY
- APPROXIMATE BUILDING 1 FOOTPRINT (PORTION OF EXISTING BUILDING TO REMAIN)
- APPROXIMATE PROPOSED BUILDING 2 FOOTPRINT (PORTION OF EXISTING BUILDING TO BE DEMOLISHED)
- APPROXIMATE PROPOSED BUILDING 3 FOOTPRINT (PORTION OF EXISTING BUILDING TO BE DEMOLISHED)

NOTES:

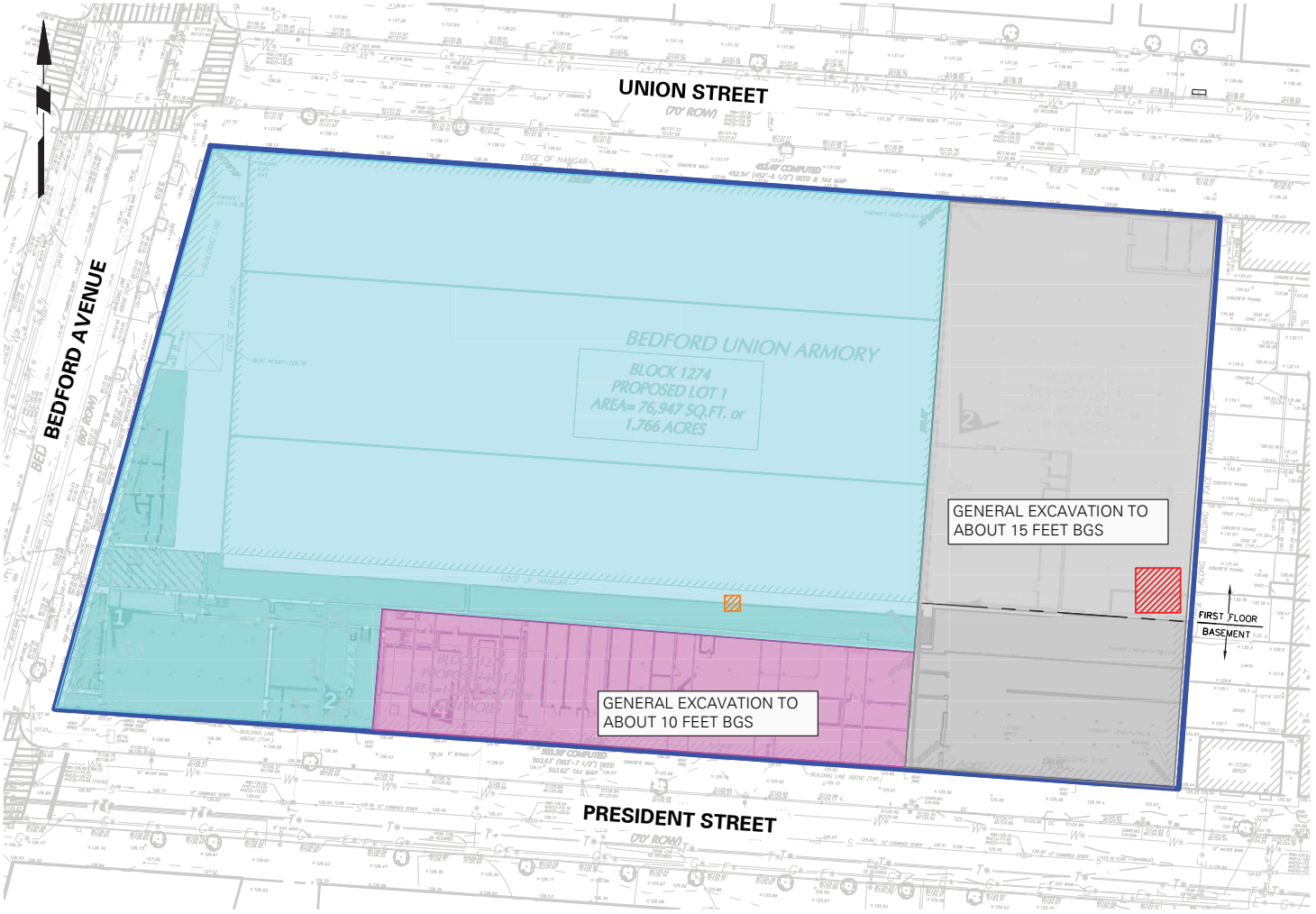
1. BASEMAP IS A SURVEY PREPARED BY LANGAN, DATED JUNE 2, 2016 AND BASEMENT AND FIRST FLOOR PLANS, PROVIDED BY MARVEL ARCHITECTS.

50 0 25 50
SCALE IN FEET

Project
BEDFORD UNION ARMORY
1555 BEDFORD AVENUE
BLOCK No. 1274, LOT No. 1
BROOKLYN
KINGS NEW YORK

Figure Title
SITE LAYOUT PLAN

Project No. 170404402	Figure No. 2
Date 5/27/2018	
Scale 1" = 50'	
Drawn By VZ / Checked By BG	
Submission Date	



LEGEND:

- SITE BOUNDARY
- APPROXIMATE BUILDING 1 FOOTPRINT (TRACK 4 CLEANUP)
- APPROXIMATE PROPOSED BUILDING 2 FOOTPRINT (TRACK 1 CLEANUP)
- APPROXIMATE PROPOSED BUILDING 3 FOOTPRINT (TRACK 1 CLEANUP)
- APPROXIMATE LOCATION OF HOT SPOT EXCAVATION TO ABOUT 5 FEET BGS
- APPROXIMATE LOCATION OF HOT SPOT EXCAVATION TO ABOUT 25 FEET BGS

NOTES:

1. BASEMAP IS A SURVEY PREPARED BY LANGAN, DATED JUNE 2, 2016 AND BASEMENT AND FIRST FLOOR PLANS, PROVIDED BY MARVEL ARCHITECTS.
2. BGS = BELOW GRADE SURFACE

50 0 25 50
SCALE IN FEET

Project
BEDFORD UNION ARMORY
1555 BEDFORD AVENUE
BLOCK No. 1274, LOT No. 1
BROOKLYN
KINGS NEW YORK

Figure Title
SELECTED REMEDY - COMBINED TRACK 1 & TRACK 4 CLEANUP

Project No.	170404402
Date	5/27/2018
Scale	1" = 50'
Drawn By	VZ
Checked By	BG
Submission Date	

Figure No.
3