DECISION DOCUMENT

168 8th Street
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224266
June 2019

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

DECLARATION STATEMENT - DECISION DOCUMENT

168 8th Street
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224266
June 2019

Statement of Purpose and Basis

This document presents the remedy for the 168 8th 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 168 8th 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, 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 with balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development;
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at

a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

All soils in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal. In addition, a "hot spot" of chromium and copper in the northeastern portion of the site will be excavated to depths ranging from 2 to 5 feet. The remedy also includes excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination. An IRM was completed by the Volunteer in October 2017, prior to entry into the BCP to remove a "hot spot" of chlorinated solvents to depths of 19 feet at the northern portion of the site.

Approximately 1,700 tons of contaminated soil will be removed for remedial purposes and additional soil may be removed across the entire site as part of the redevelopment.

3. Backfill

On-site soil which does not exceed protection of groundwater SCOs and restricted-residential SCOs criteria may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may be brought in to replace the excavated soil.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 6.

4. Monitored Natural Attenuation

Groundwater contamination will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination, the effectiveness of the IRM remedy and also MNA indicators, which will provide an understanding of the (biological activity) breaking down the contamination. It is anticipated that contamination will decrease by an order of magnitude in a reasonable period of time. A baseline report of MNA parameters will be provided prior to construction activities, and subsequent reports of the attenuation will be provided at a frequency determined in the Site Management Plan.

5. Vapor Mitigation

Any future on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and groundwater.

6. Cover System

A site cover will be required to allow for restricted-residential use of the site in areas where the upper two feet of exposed surface soil will exceed the restricted-residential soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for

cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

7. 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 County NYCDOH; and
- require 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 Cover System and Vapor Mitigation 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 or surface water 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 Cover System and the Sub-Slab Depressurization System to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the Department.

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

inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

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

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.

June 21, 2019

Date

Gerard Burke, Director
Remedial Bureau B

DECISION DOCUMENT

168 8th Street
Brooklyn, Kings County
Site No. C224266
June 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:

Brooklyn Public Library - Pacific Branch
25 4th Avenue
Brooklyn, NY 11217

Brooklyn Community Board 6
Attn: Gary Reilly
250 Baltic Street
Brooklyn, NY 11201

Brooklyn Public Library - Central Library
10 Grand Army Plaza
Brooklyn, NY 11238

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 and Site Features:
The site is located in the Gowanus neighborhood, a mixed-use urban area of Brooklyn, NY, which includes residential, commercial, and manufacturing areas. The site consists of one tax lot (Block 1003, Lot 11) totaling approximately 13,500 square feet or 0.31 acre. The site is a vacant concrete- and gravel-covered lot and is fenced. The northern portion of the site is approximately one to two feet lower in elevation in comparison to the southern portion of the lot, and a concrete ramp located on the east-central portion of the lot connects these two areas for vehicle access. The site is bordered to the north by 8th Street followed by a two-story commercial building and three-story residential buildings; to the east by three- and four-story residential buildings; to the west by a one-story institutional building ("American Legion Hall") with a parking lot followed by a one-story commercial building with a parking lot ("Enterprise Rent-A-Car") and four-story residential buildings with one first-floor commercial tenant; and, to the south by 9th Street followed by a one story commercial building ("Top Notch Auto Repair") and three-story residential buildings.

Current Zoning and Land Use:
The site is zoned for residential use (R6A for the southern portion of the lot and R6B for the northern portion of the lot). Residential districts permit community facilities such as schools. The site has been vacant for approximately 25 years.

Past Use of the Site:
Historic records indicate that the site was first developed as farmland. A residential building, which was demolished in the late 1800s, was present on the southern portion of the site. From the late 1800s to the early 1900s, the site was occupied by an ink manufacturer (1888 to 1906), a storage facility (1906 to 1926) with a gauge manufacturer (circa 1917), a chemical laboratory (1926), and a machine works facility (1928 to 1934). In the mid- to late-1900s the site was occupied by a garage and a gasoline station (from approximately 1926 to at least 1951), a plumbing supply/metal products manufacturer (1945 to 1965), and a textile factory (1976 to 1992). A fire occurred on the site in the early 1990s and the lot has been vacant since approximately 1992. An IRM was completed by the Volunteer in October 2017, prior to entry into the BCP, to remove a "hot spot" of chlorinated solvents to depths of 19 feet at the northern portion of the site.

Site Geology and Hydrogeology:
The geology of Kings County consists of unconsolidated glacial deposits overlying crystalline bedrock. Bedrock is estimated to be 200 feet below ground surface (bgs). Fill material consisting of brown sand, silts with fine gravel, coal, and brick fragments was encountered at the site to a maximum depth of approximately 10 feet bgs. Deeper, native material consisting of sand, silt and clay was encountered to 20 feet bgs.

Based on information collected during the site investigations, the predominant direction of groundwater flow is northwesterly, and the depth to groundwater at the site ranges from approximately 13 to 19 feet bgs.

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 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 this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are 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:

cis-1,2-dichloroethene
trichloroethene (TCE)
1,1-dichloroethene
chromium
tetrachloroethene (PCE)
copper

naphthalene

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.

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals. Soil vapor was analyzed for VOCs.

Soil - No VOCs were detected at concentrations exceeding the applicable Restricted-Residential Use Soil Cleanup Objectives (RRSCO) or Protection of Groundwater Soil Cleanup Objectives (PGWSCOs) during the 2018 Remedial Investigation (RI). The PGWSCOs are applicable to those contaminants identified in groundwater. In previous investigations, trichloroethene (TCE) was detected in one shallow soil sample at 8.44 parts per million (ppm), which exceeds the PGWSCO of 0.47 ppm but is lower than the RRSCO value of 21 ppm. Several metals were found, including chromium at a maximum concentration of 1,710 ppm (RRSCO is 180 ppm) and copper at a maximum concentration of 344 ppm (RRSCO is 270 ppm). A remedial excavation was completed by the Volunteer in October 2017, prior to entry into the BCP, to remove a “hot spot” of chlorinated solvents to depths of 19 feet at the northern portion of the site. Data does not indicate any off-site impacts in soil related to this site.

Groundwater - Chlorinated solvents were detected in several wells during the 2018 RI. Cis-1,2-dichloroethene (cis-1,2-DCE) was detected above the Ambient Water Quality Standard (AWQS) of 5 parts per billion (ppb) at a maximum concentration of 13 ppb. TCE was detected at a maximum concentration of 39 ppb, which exceeds the AWQS value of 5 ppb. Naphthalene was detected at a maximum concentration of 26 ppb (AWQS is 10 ppb) in the proximity of the underground storage tank. Chromium was detected at a maximum concentration of 262 ppb (AWQS is 50 ppb) in

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

Soil Vapor - Several chlorinated solvent VOCs were detected at elevated concentrations in soil vapor samples during the 2018 RI. Cis-1,2-DCE was detected at a maximum concentration of 350 micrograms per cubic meter (ug/m3) and TCE at a maximum concentration of 12,000 ug/m3. In previous investigations, tetrachloroethene (PCE) was detected at a maximum concentration of 940 ug/m3 and 1,1-dichloroethene (1,1-DCE) at a maximum concentration of 10 ug/m3 in the northern portion of the site. Data indicates 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.*

People who enter the site could contact contaminants in the soil by walking on the soil, digging or otherwise disturbing the soil. 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 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. Because the site is vacant, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. Additional investigation is needed to evaluate the potential for 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

- 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 4: Restricted-residential cleanup.

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

The elements of the selected remedy, as shown in Figures 2, 3 and 4, 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 with balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development;
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

All soils in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal. In addition, a "hot spot" of chromium and copper in the northeastern portion of the site will be excavated to depths ranging from 2 to 5 feet. The remedy also includes excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination. An IRM was completed by the Volunteer in October 2017, prior to entry into the BCP to remove a "hot spot" of chlorinated solvents to depths of 19 feet at the northern portion of the site.

Approximately 1,700 tons of contaminated soil will be removed for remedial purposes and additional soil may be removed across the entire site as part of the redevelopment.

3. Backfill

On-site soil which does not exceed protection of groundwater SCOs and restricted-residential SCOs criteria may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) may be brought in to replace the excavated soil.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 6.

4. Monitored Natural Attenuation

Groundwater contamination will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination, the effectiveness of the IRM remedy and also MNA indicators, which will provide an understanding of the (biological activity) breaking down the contamination. It is anticipated that contamination will decrease by an order of magnitude in a reasonable period of time. A baseline report of MNA parameters will be provided prior to construction activities, and subsequent reports of the attenuation will be provided at a frequency determined in the Site Management Plan.

5. Vapor Mitigation

Any future on-site buildings will be required to have a Vapor Mitigation system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and groundwater.

6. Cover System

A site cover will be required to allow for restricted-residential use of the site in areas where the upper two feet of exposed surface soil will exceed the restricted-residential soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a

component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

7. 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 County NYCDOH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan

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

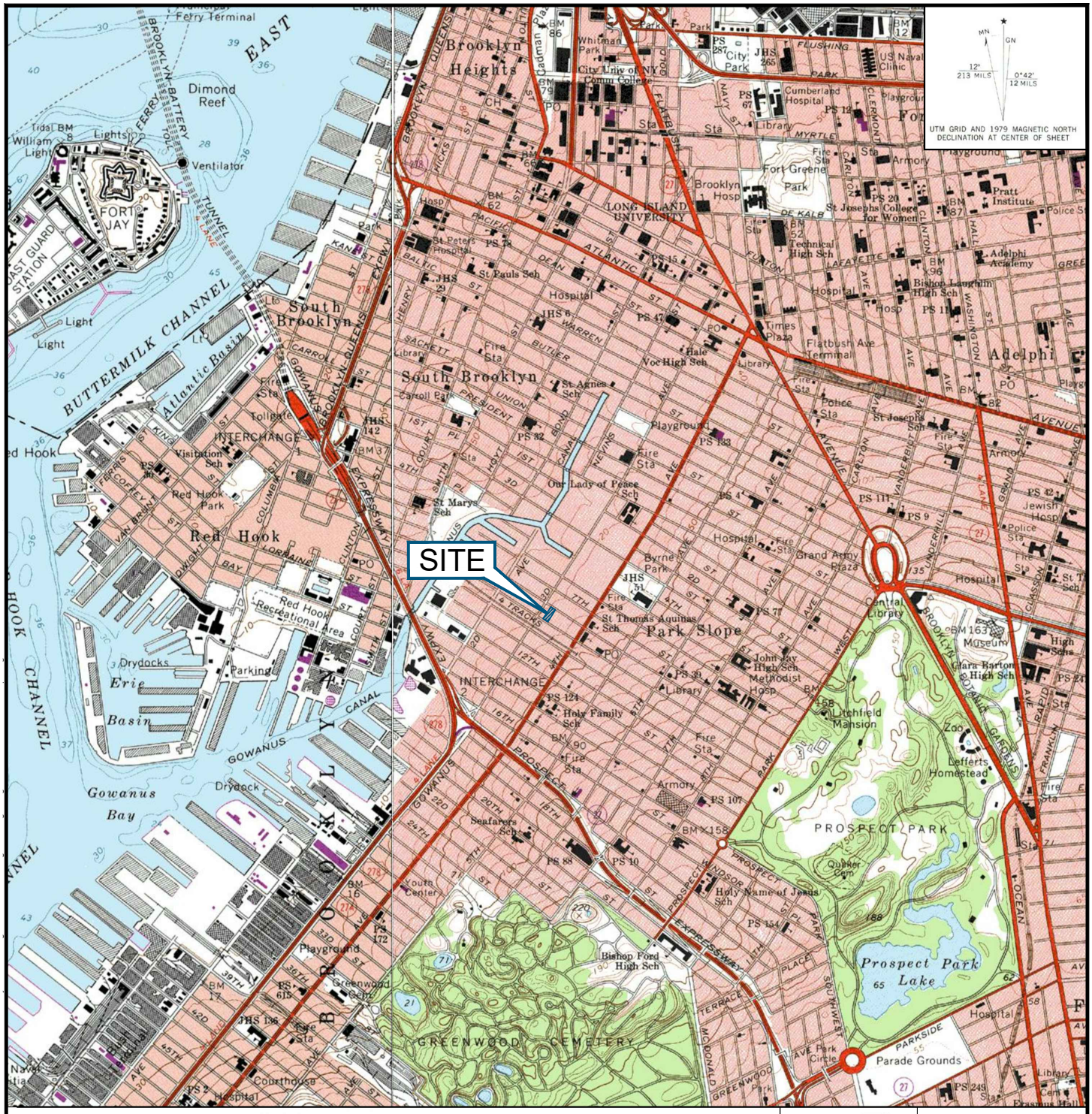
a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
    - Institutional Controls: The Environmental Easement discussed above.
    - Engineering Controls: The Cover System and Sub-Slab Depressurization 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 or surface water 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 Cover System and the Sub-Slab Depressurization System to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the Department.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

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



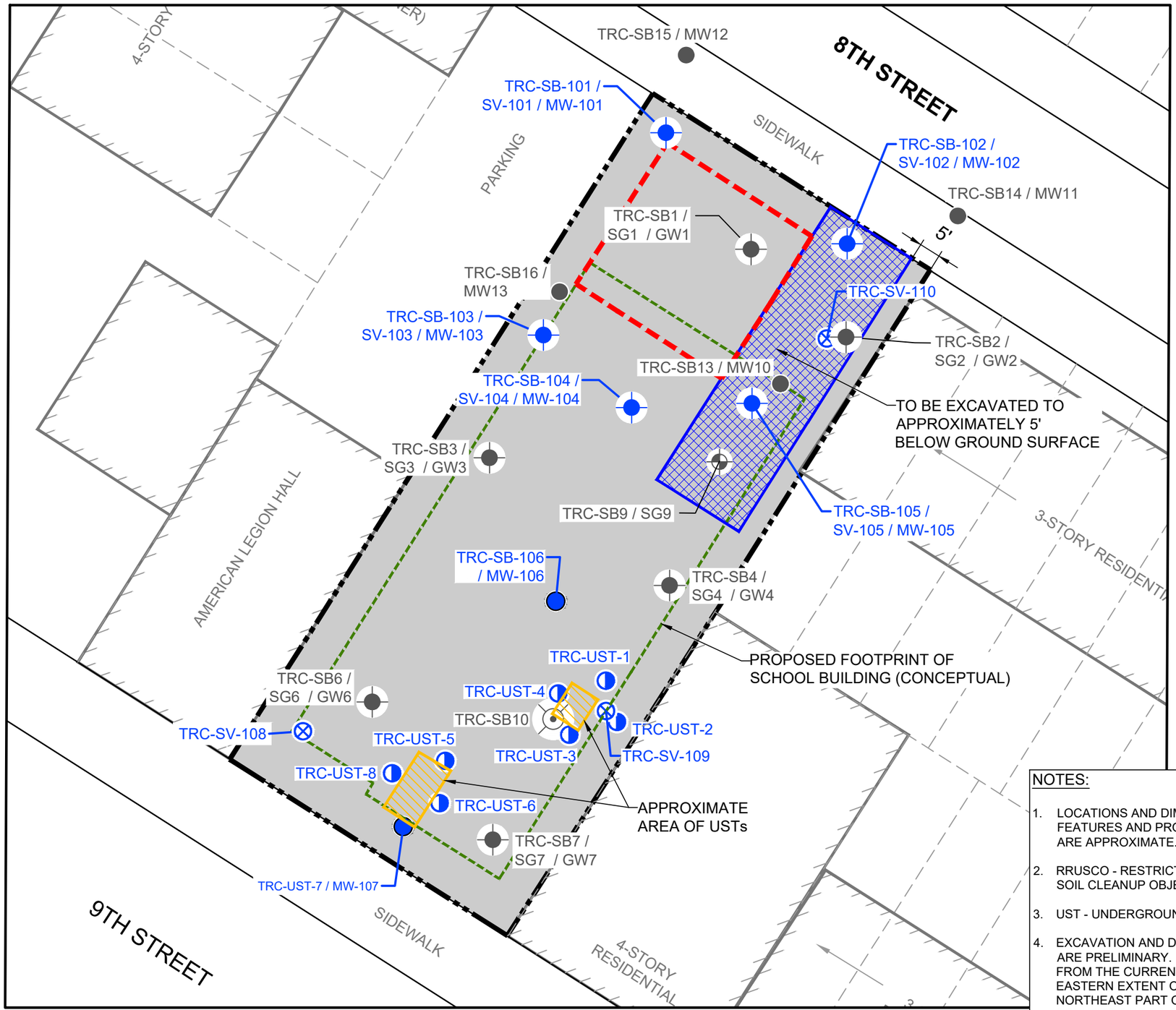
PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224266
PROPOSED PRE-KINDERGARTEN FACILITY K710
168 8TH STREET - BLOCK: 1003, LOT: 11
BROOKLYN, NY 11215

TITLE:

SITE LOCATION MAP

DRAWN BY:	H. DELGADO
CHECKED BY:	L. O'HARA
APPROVED BY:	D. SCHMIDT
DATE:	JANUARY 2019
PROJ. NO.:	315824
FILE:	Figure 1 - Site Location Map.dwg

FIGURE 1



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- STREET AND SIDEWALK BOUNDARIES
- BUILDING FOOTPRINT
- APPROXIMATE LIMITS OF INTERIM REMEDIAL MEASURE(IRM) EXCAVATION AREA BACKFILLED WITH CLEAN SOIL (OCTOBER / NOVEMBER 2017)
- PROPOSED FOOTPRINT OF SCHOOL BUILDING (CONCEPTUAL)
- TRC-SBX — SOIL SAMPLING LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2012)
- TRC-SBX / SGX — SOIL AND SOIL VAPOR SAMPLING LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2012)
- TRC-SBX / SGX / GWX — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLING LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2012)
- TRC-SBX / GWX — SOIL AND GROUNDWATER SAMPLING LOCATION AND IDENTIFICATION NUMBER (JANUARY 2013)
- TRC-SB-X / SV-X / MW-X — SOIL, SOIL VAPOR SAMPLING, AND PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (MAY 2018)
- TRC-SB-X / MW-X OR TRC-UST-X / MW-X — SOIL SAMPLING AND PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (APRIL / MAY 2018)
- TRC-SV-X — SOIL VAPOR SAMPLING LOCATION AND IDENTIFICATION NUMBER (MAY 2018)
- TRC-UST-X — SOIL SAMPLING LOCATION AND IDENTIFICATION NUMBER (MAY 2018)
- PROPOSED CHROMIUM AND COPPER EXCAVATION AREA (ABOVE RRUSCOs) TO BE EXCAVATED TO APPROXIMATELY 5' BELOW GROUND SURFACE
- APPROXIMATE AREA OF USTs TO BE EXCAVATED TO 10-12' BELOW GROUND SURFACE
- MINIMUM OF TWO FEET OF SOIL TO BE EXCAVATED

W N E

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.
2. RRUSCO - RESTRICTED-RESIDENTIAL USE SOIL CLEANUP OBJECTIVE
3. UST - UNDERGROUND STORAGE TANK
4. EXCAVATION AND DEVELOPMENT PLANS ARE PRELIMINARY. CHANGES ARE LIKELY FROM THE CURRENT CONCEPT. THE EASTERN EXTENT OF EXCAVATION IN THE NORTHEAST PART OF THE SITE MAY BE REDUCED DUE TO STRUCTURAL CONCERNS ASSOCIATED WITH THE EAST-ADJACENT BUILDING.

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224266
PROPOSED PRE-KINDERGARTEN FACILITY K710
168 8TH STREET - BLOCK: 1003, LOT: 11
BROOKLYN, NY 11215

TITLE:

PROPOSED EXCAVATION AREA

DRAWN BY:	H. DELGADO	PROJ NO.:	315824
CHECKED BY:	L. O'HARA		**FIGURE 2**
APPROVED BY:	D. SCHMIDT		
DATE:	FEBRUARY 2019		

FILE NO.: Figure 14 - Prop. Excavation Area.dwg

0 25' 50'

SCALE: 1" = 25'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- STREET AND SIDEWALK BOUNDARIES
- BUILDING FOOTPRINT
- PROPOSED FOOTPRINT OF SCHOOL BUILDING (CONCEPTUAL)
- BUILDING FOOTPRINT TO BE DEPRESSURIZED

W N E

NOTE:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND PROPERTY BOUNDARIES ARE APPROXIMATE.

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
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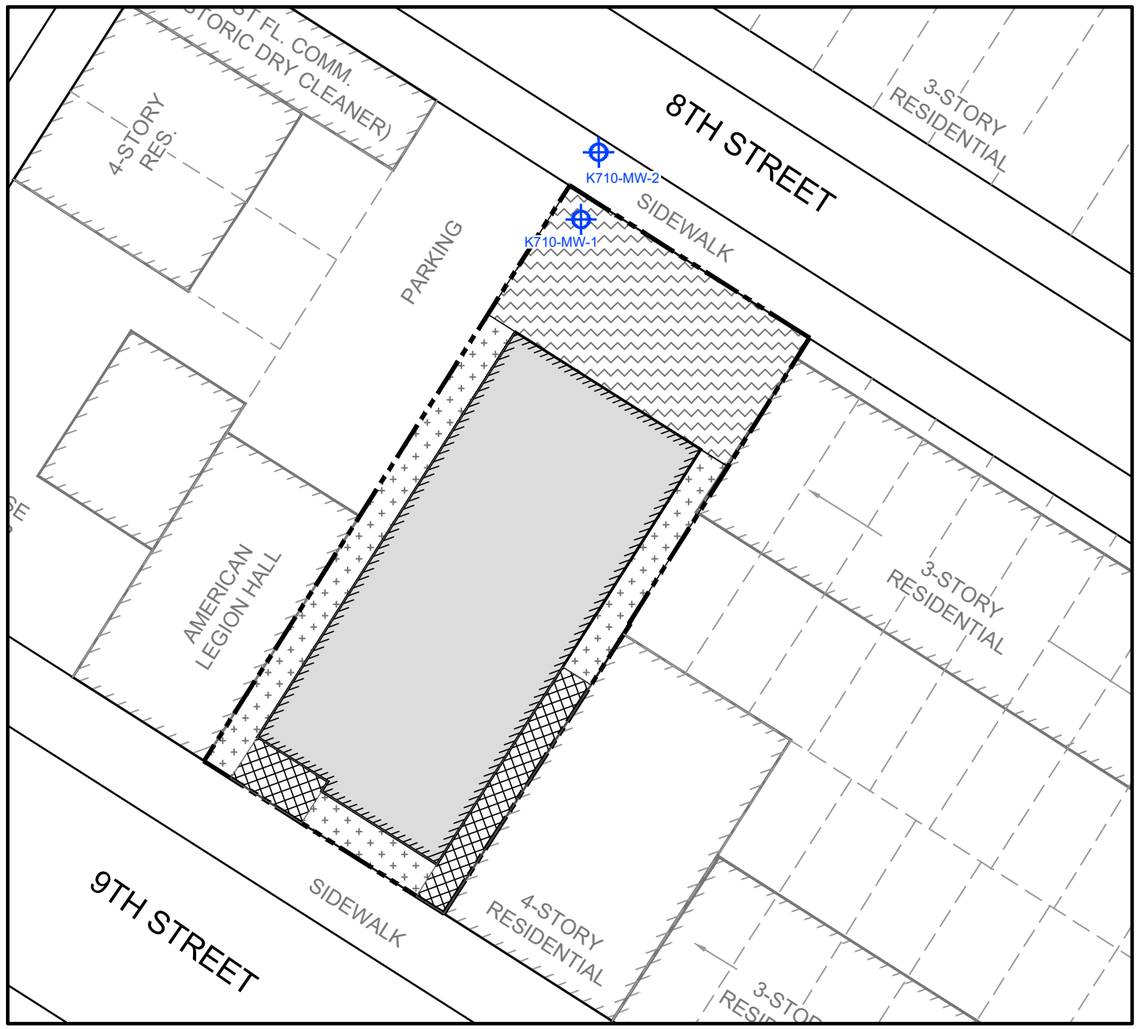
168 8TH STREET - BLOCK: 1003, LOT: 11
BROOKLYN, NY 11215

TITLE:

PROPOSED BUILDING FOOTPRINT TO BE DEPRESSURIZED

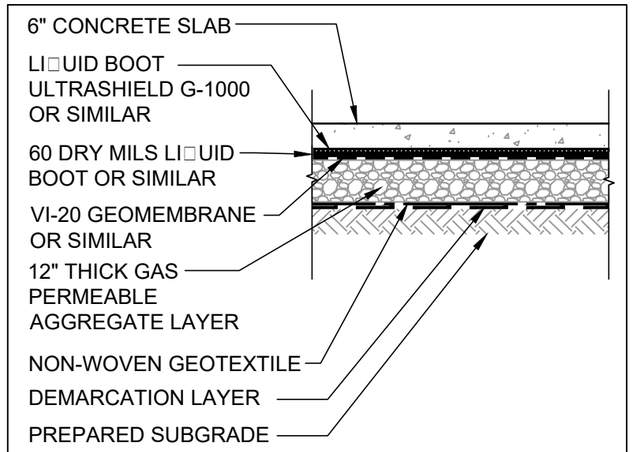
DRAWN BY:	H. DELGADO	PROJ NO.:	315824
CHECKED BY:	L. O'HARA		**FIGURE 3**
APPROVED BY:	D. SCHMIDT		
DATE:	FEBRUARY 2019		

FILE NO.: Figure 17 - Prop. Bldg.Footprint to be Depressurized.dwg

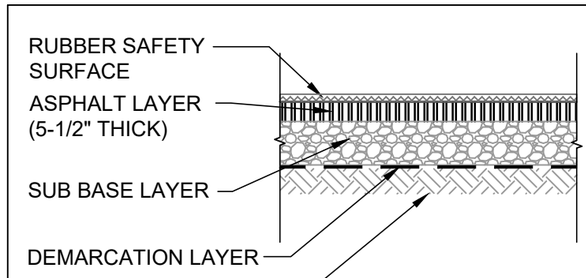


0 40' 80'

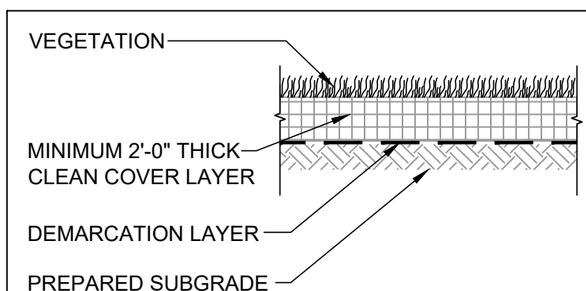
SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"



DETAIL A - BUILDING
NTS



DETAIL B - PLAYGROUND
NTS



DETAIL C - LANDSCAPED AREAS
NTS

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- PROPOSED BUILDING FOOTPRINT (CONCEPTUAL)
- LOT BOUNDARY
- STREET AND SIDEWALK BOUNDARIES
- CONCRETE BUILDING SLAB (REFER TO DETAIL A)
- RUBBER SAFETY SURFACE OVER ASPHALT (REFER TO DETAIL B)
- LANDSCAPING (REFER TO DETAIL C)
- CONCRETE COVER
- K710-MW-X — PROPOSED PERMANENT GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

W N E

NOTES:

1. DIMENSIONS AND LOCATIONS OF PHYSICAL FEATURES ARE APPROXIMATE.
2. DEVELOPMENT PLANS ARE PRELIMINARY AND LIKELY TO CHANGE DURING SCHOOL DESIGN.
3. PROPOSED LOCATIONS OF PERMANENT GROUNDWATER MONITORING WELLS ARE APPROXIMATE. EXISTING MONITORING WELL TRC-MW-101 MAY BE USED IN LIEU OF INSTALLING NEW WELL AT THE LOCATION OF K710-MW-1. LOCATION MAY BE ADJUSTED IN THE FIELD.

SOURCE:
NYCSCA CONCEPTUAL PLAN FOR PUBLIC SCHOOL PS710K, MARCH 23, 2015.

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
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BROOKLYN, NY 11215

TITLE:

PROPOSED SITE COVERS

DRAWN BY:	H. DELGADO	PROJ NO.:	315824
CHECKED BY:	L. O'HARA		
APPROVED BY:	D. SCHMIDT		**FIGURE 4**
DATE:	FEBRUARY 2019		

FILE NO.: Figure 16 - Proposed Site Covers.dwg