

# DECISION DOCUMENT

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215 Moore Street and 232 Seigel Street  
Brownfield Cleanup Program  
Brooklyn, Kings County  
Site No. C224409  
July 2025



**Department of  
Environmental  
Conservation**

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

# DECLARATION STATEMENT - DECISION DOCUMENT

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Brooklyn, Kings County  
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## **Statement of Purpose and Basis**

This document presents the remedy for the 215 Moore Street and 232 Seigel Street 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 (NYSDEC) for the 215 Moore Street and 232 Seigel Street site and the public's input to the proposed remedy presented by NYSDEC.

## **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.
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be

constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise™ (available in the Sustainable Remediation Forum [SURF] library) or similar Department accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

## **2. Excavation**

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

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead; and
- soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards.

### *Track 2 Area*

Excavation and off-site disposal of all on-site soils which exceed commercial SCOs, as defined by 6 NYCRR Part 375-6.8 in the upper 15 feet across the majority of the site. If a Track 2 restricted residential cleanup is achieved, a Cover System will not be a required element of the remedy.

### *Track 4/Petroleum Source Areas*

All soils in the upper one foot which exceed the commercial SCOs will be excavated and transported off-site for disposal. This area includes the two areas where petroleum source contamination has been identified. Deeper excavation to approximately 12 feet to remove source areas as discussed above.

Approximately 34,540 cubic yards of contaminated soil will be removed from the site. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify that SCOs for the site have been achieved. If confirmation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify DEC, submit the sample results and, in consultation with DEC, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved.

To ensure proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated site material. Waste characterization sampling will be performed exclusively for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

### **3. Backfill**

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

### **4. Cover System**

A site cover will be required in the Track 4 area where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs), to allow for future commercial use of the site. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

### **5. In-Situ Treatment using Activated Carbon**

Activated carbon will be added to the subsurface to capture and prevent the migration of contaminants of concern. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of the contaminants of concern. The activated carbon mixture consists of water, PetroFix™ micron-scale activated carbon, and an anaerobic electron acceptor blend (sodium nitrate/ammonium sulfate as white powder), and will be added to the subsurface in the southeastern and south central portion of the site in an approximately 3,528 square foot area where gasoline-related compounds were elevated in the groundwater via injection wells screened from 10 to 24 feet.

Monitoring will be required within and down-gradient of the treatment zone. A monitoring well network will be installed, and monitoring will be conducted for contaminants of concern, geochemical parameters, and QuantArray®/mRNA analysis to evaluate biodegradation.

## **6. Groundwater Extraction and Treatment**

Groundwater extraction and treatment will be implemented to facilitate remedial excavation. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to allow excavation below the static water table. The extracted groundwater will be treated using a settling tank and activated carbon prior to discharge to the municipal sewer system.

## **7. Vapor Mitigation**

Any 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.

## **8. Institutional Controls**

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 NYSDEC 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 commercial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the NYSDEC approved Site Management Plan.

## **9. 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 Remedy Element 8.
  - Engineering Controls: The cover system, monitoring well network, and sub-slab depressurization system, and monitoring plan described in Remedy Element 4, 5, and 7, respectively.

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 that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper one foot of exposed surface soil exceeds 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

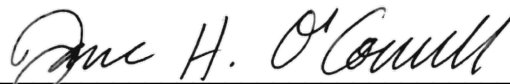
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- b. Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
  - monitoring of groundwater to assess the performance and effectiveness of the remedy;
  - a schedule of monitoring and frequency of submittals to the NYSDEC;
  - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
- 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 system(s); and
  - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

### **Declaration**

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration NYSDEC guidance, as appropriate. The remedy is protective of public health and the environment.

July 2, 2025

Date

  
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Jane H. O'Connell, P.G  
Regional Remediation Engineer

# DECISION DOCUMENT

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Brooklyn, Kings County  
Site No. C224409  
July 2025

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## **SECTION 1: SUMMARY AND PURPOSE**

The New York State Department of Environmental Conservation (NYSDEC), 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, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance, based on the reasonably anticipated use of the property.

NYSDEC 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**

NYSDEC 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 NYSDEC 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:

DECInfo Locator - Web Application  
<https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C224409>

Bushwick Library  
340 Bushwick Avenue  
Brooklyn, NY 11206  
Phone: (718) 602-1348

Brooklyn Community Board 1  
435 Graham Avenue  
Brooklyn, NY 11211  
Phone: (718) 389-0009

### **Receive Site Citizen Participation Information By Email**

Please note that NYSDEC'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 215 Moore Street and 232 Seigel Street within an urban, mixed-use area of Brooklyn, NY and is identified on the Kings County Tax Map as Tax Block 3100, Lot 22 and lot 45. (Prior to lot merger, Lot 22 formerly consisted of Lots 22, 26, 32, 34, 41, 47, 56, 61, 63, 66, 67, and 68.) The site is bounded by Seigel Street to the north, White Street to the east, Moore Street to the south, and warehouses and a glass fabrication facility to the west followed by Bushwick Avenue. The area surrounding the site consists of residential, commercial, and industrial properties.

**Site Features:** The site is currently vacant and consists of an open-air storage lot, a previously constructed sub-grade concrete building foundation, and a vacant warehouse building. The site cover consists of concrete building slabs, asphalt pavement, and gravel cover.

**Current Zoning and Land Use:** The site is in M1-1 and M1-2 manufacturing zoning districts.

**Past Use of the Site:** The site was developed with several small dwellings and sheds as early as 1888. By 1907, the subject property was developed with numerous small dwellings, stores, and larger commercial and industrial facilities fronting Moore and Seigel Streets. By the 1980s, all buildings on the northern half of the site along Seigel Street were demolished and the resulting vacant area was used for dumpster storage. By 2015, the northern half of the site and former Lots 66, 67, and 68 were vacant and undeveloped. By 2017, the existing building foundation was constructed on former Lot 34, and by 2019 a second story addition was partially constructed on the building on former Lot 56. The remainder of the undeveloped area was in use as a contractor's storage yard. Historical on-site operations/uses of environmental significance included a lumber yard (1907 to 1933), paint and varnish operation (1907), metal works (1951), various manufacturing operations (boxes, metals, doors, paint, steel tanks) (1933 to 2007), metal smelting (1951 to 1968), and automotive garages and repair facilities with petroleum bulk storage (1933 to 2007).



Site Geology and Hydrogeology: The subsurface consists of non-native fill underlying the existing surface to depths of about 1 to 12 feet below grade surface (bgs). A native soil layer consisting of brown to gray sand with varying amounts of clay and gravel was observed below the fill layer throughout the site. Light to dark gray discontinuous clay layers, with thicknesses between 0.33 to 4 feet, were observed in the southeastern part of the site. Groundwater was encountered at depths of approximately 6.05 to 9.67 feet bgs, and flows in a northeasterly direction towards English Kills/Newtown Creek.

A site location map is attached as Figure 1.

#### **SECTION 4: LAND USE AND PHYSICAL SETTING**

NYSDEC 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, or an alternative that restricts the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) 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 Applicant does not have an obligation to address off-site contamination. However, NYSDEC 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. NYSDEC 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:

|                        |                        |
|------------------------|------------------------|
| 1,2,4-trimethylbenzene | dibenz[a,h]anthracene  |
| benzene                | indeno(1,2,3-cd)pyrene |
| ethylbenzene           | arsenic                |
| naphthalene            | barium                 |
| butylbenzene           | lead                   |
| n-propylbenzene        | mercury                |
| toluene                | isopropylbenzene       |
| xylene (mixed)         | sec-butylbenzene       |
| benzo(a)anthracene     | 1,4-dioxane            |
| benzo(a)pyrene         | 1,3,5-trimethylbenzene |
| benzo(b)fluoranthene   | heptane                |
| benzo(k)fluoranthene   | hexane                 |
| chrysene               |                        |

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.

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), metals, polychlorinated biphenyls (PCBs), per- and polyfluoroalkyl substances (PFAS), and pesticides. Soil vapor was analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern include petroleum related VOCs, and urban fill related SVOCs and metals.

Soil - Several VOCs were detected near current and historic underground storage tanks (USTs) in the south central and southeastern portions of the site above their respective Commercial Use Soil Cleanup Objectives (CUSCOs) and/or Protection of Groundwater Soil Cleanup Objectives (PGWSCOs). VOCs detected included maximum concentrations of 1,2,4-trimethylbenzene at 1000 parts per million (ppm) compared to the CUSCO of 190 ppm and PGWSCO of 3.6 ppm, acetone at 1200 ppm (CUSCO of 500 ppm, PGWSCO of 0.05 ppm), benzene at 99 ppm (CUSCO of 44 ppm, PGWSCO of 0.06 ppm), ethylbenzene at 460 ppm (CUSCO of 390 ppm, PGWSCO of 1 ppm), naphthalene at 220 ppm (PGWSCO of 12 ppm), n-butylbenzene at 48 ppm (PGWSCO of 12 ppm), n-propylbenzene at 140 ppm (CUSCO of 500 ppm, PGWSCO of 11 ppm), sec-butylbenzene at 18 ppm (PGWSCO of 11 ppm), toluene at 120 ppm (PGWSCO of 0.7 ppm), and total xylenes at 1900 ppm (CUSCO of 500 ppm, PGWSCO of 1.6 ppm).

SVOCs were detected throughout the site, including maximum concentrations of benzo(a)anthracene at 89 ppm (CUSCO of 5.3 ppm, PGWSCO of 1 ppm), benzo(a)pyrene at 92

ppm (CUSCO of 1 ppm, PGWSCO of 22 ppm), benzo(b)fluoranthene at 110 ppm (CUSCO of 5.6 ppm, PGWSCO of 1.7 ppm), benzo(k)fluoranthene at 37 ppm (PGWSCO of 1.7 ppm), chrysene at 96 ppm (CUSCO of 56 ppm, PGWSCO of 1 ppm), dibenz(a,h)anthracene at 16 ppm (CUSCO of 0.56 ppm), indeno(1,2,3-cd)pyrene at 35 ppm (CUSCO of 5.6 ppm, PGWSCO of 8.2 ppm), and phenol at 0.58 ppm (PGWSCO of 0.33 ppm).

Metals were detected throughout the site, including maximum concentrations of arsenic at 75.8 ppm (CUSCO of 16 ppm), barium at 859 ppm (CUSCO of 400 ppm), lead at 3,180 ppm (CUSCO of 1000 ppm), and mercury at 13.9 ppm (CUSCO of 2.8 ppm). PCBs were found in the central portion of the site at a maximum concentration of 1.4 ppm (CUSCO of 1 ppm).

Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) found at maximum concentrations of 0.00175 ppm and 0.00084 ppm, compared to their respective commercial use guidance values of 0.001 ppm and 0.0008 ppm, respectively.

Data does not indicate any off-site impacts in soil related to this site.

Groundwater - Several VOCs were detected near a suspected UST in the southeastern and southcentral portions of the site exceeding the Ambient Water Quality Standards and Guidance Values (AWQSGVs), including maximum concentrations of 1,2,4,5-tetramethylbenzene at 110 parts per billion (ppb) compared to the AWQSGV of 5 ppb, 1,2,4-trimethylbenzene at 6.5 ppb (AWQSGV of 5 ppb), acetone at 68 ppb (AWQSGV of 50 ppb), ethylbenzene at 14 ppb (AWQSGV of 5 ppb), isopropylbenzene at 100 ppb (AWQSGV of 5 ppb), xylene at 100 ppb (AWQSGV of 5 ppb), naphthalene at 74 ppb (AWQSGV of 5 ppb), n-butylbenzene at 23 ppb (AWQSGV of 10 ppb), n-propylbenzene at 170 ppb (AWQSGV of 5 ppb), sec-butylbenzene at 14 ppb (AWQSGV of 5 ppb), tetrachloroethene, or PCE at 7.9 ppb (AWQSGV of 5 ppb), and toluene at 8.4 ppb (AWQSGV of 5 ppb).

SVOCs were detected in exceedance of their respective AWQSGVs including maximum concentrations of 1,4-dioxane at 2.7 ppb (AWQSGV of 0.35 ppb), benzo(a)anthracene at 1.2 ppb (AWQSGV of 0.002 ppb), benzo(a)pyrene at 0.9 ppb (AWQSGV of 0.0 ppb), benzo(b)fluoranthene at 1 ppb (AWQSGV of 0.002 ppb), benzo(k)fluoranthene at 0.39 ppb (AWQSGV of 0.002 ppb), chrysene at 1.2 ppb (AWQSGV of 0.002 ppb), indeno(1,2,3-cd)pyrene at 0.57 ppb (AWQSGV of 0.002 ppb), naphthalene at 39 ppb (AWQSGV of 10 ppb), and phenol at 53 ppb (AWQSGV of 1 ppb).

For metals, dissolved sodium, iron, and manganese were detected at concentrations exceeding AWQSGVs. However, these are naturally occurring minerals and are not considered to be site specific contaminants of concern.

PFOS was found at a maximum concentration of 66.6 parts per trillion (ppt) compared to the AWQSGV of 2.7 ppt, and PFOA was found at a maximum concentration of 144 ppt compared to the AWQSGV of 6.7 ppt.

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

Soil Vapor, Sub-Slab Soil Vapor, and Indoor Air - Petroleum related VOCs were detected in soil vapor throughout the site, including maximum concentrations of benzene at 1400 micrograms per cubic meter (ug/m3), ethylbenzene at 3900 ug/m3, cyclohexane at 406 ug/m3), 2,2,4-trimethylpentane at 12,300 ug/m3, 1,2,4-trimethylbenzene at 302 ug/m3, 1,3,5-trimethylbenzene at 162 ug/m3, o-xylene at 405 ug/m3, m,p-xylene at 6080 ug/m3, heptane at 623 ug/m3, hexane at 2420 ug/m3, and toluene at 6080 ug/m3. Petroleum-related VOCs were detected in co-located indoor air and sub-slab vapor samples, including benzene (15.5 ug/m3 in indoor air (IA), 1.05 ug/m3 in sub-slab soil vapor (SSSV)), 1,2,4-trimethylbenzene (16.3 ug/m3 in IA, 2.81 ug/m3 in SSSV), o-xylene (11.5 ug/m3 in IA, 2.98 ug/m3 in SSSV), and m,p-xylene (32.1 ug/m3 in IA, 9.77 ug/m3 in SSSV).

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*.

Since the site is fenced and covered with asphalt, concrete, or gravel people will not come into contact with site-related soil and groundwater contamination unless they dig below the surface. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by public water supply that obtains water from a different source not affected by this contamination. Currently there are no occupied buildings on the site. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development.

#### **6.5: Summary of the Remediation Objectives**

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

##### **Groundwater**

###### **RAOs for Public Health Protection**

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

#### **RAOs for Environmental Protection**

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

### **Soil**

#### **RAOs for Public Health Protection**

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

#### **RAOs for Environmental Protection**

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

### **Soil Vapor**

#### **RAOs for Public Health Protection**

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

## **SECTION 7: ELEMENTS OF THE SELECTED REMEDY**

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Multiple Cleanup Track Commercial Use remedy.

The selected remedy is referred to as the Excavation, In-Situ Groundwater Treatment, and Vapor Mitigation remedy.

The elements of the selected remedy, as shown in Figures 2 through 5, 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.
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise™ (available in the Sustainable Remediation Forum [SURF] library) or similar Department accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

## **2. Excavation**

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

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead; and
- soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards.

### *Track 2 Area*

Excavation and off-site disposal of all on-site soils which exceed commercial SCOs, as defined by 6 NYCRR Part 375-6.8 in the upper 15 feet across the majority of the site. If a Track 2

restricted residential cleanup is achieved, a Cover System will not be a required element of the remedy.

#### *Track 4/Petroleum Source Areas*

All soils in the upper one foot which exceed the commercial SCOs will be excavated and transported off-site for disposal. This area includes the two areas where petroleum source contamination has been identified. Deeper excavation to approximately 12 feet to remove source areas as discussed above.

Approximately 34,540 cubic yards of contaminated soil will be removed from the site. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify that SCOs for the site have been achieved. If confirmation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify DEC, submit the sample results and, in consultation with DEC, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved.

To ensure proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated site material. Waste characterization sampling will be performed exclusively for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

### **3. Backfill**

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

### **4. Cover System**

A site cover will be required in the Track 4 area where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs), to allow for future commercial use of the site. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

### **5. In-Situ Treatment using Activated Carbon**

Activated carbon will be added to the subsurface to capture and prevent the migration of contaminants of concern. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of the contaminants of concern. The activated carbon mixture consists of water, PetroFix™ micron-scale activated carbon, and an anaerobic electron acceptor blend (sodium nitrate/ammonium sulfate as white powder), and will be added to the subsurface in the southeastern and south central portion of the site in an approximately



3,528 square foot area where gasoline-related compounds were elevated in the groundwater via injection wells screened from 10 to 24 feet.

Monitoring will be required within and down-gradient of the treatment zone. A monitoring well network will be installed, and monitoring will be conducted for contaminants of concern, geochemical parameters, and QuantArray<sup>®</sup>/mRNA analysis to evaluate biodegradation.

## **6. Groundwater Extraction and Treatment**

Groundwater extraction and treatment will be implemented to facilitate remedial excavation. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to allow excavation below the static water table. The extracted groundwater will be treated using a settling tank and activated carbon prior to discharge to the municipal sewer system.

## **7. Vapor Mitigation**

Any 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.

## **8. Institutional Controls**

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 NYSDEC 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 commercial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the NYSDEC approved Site Management Plan.

## **9. Site Management Plan**

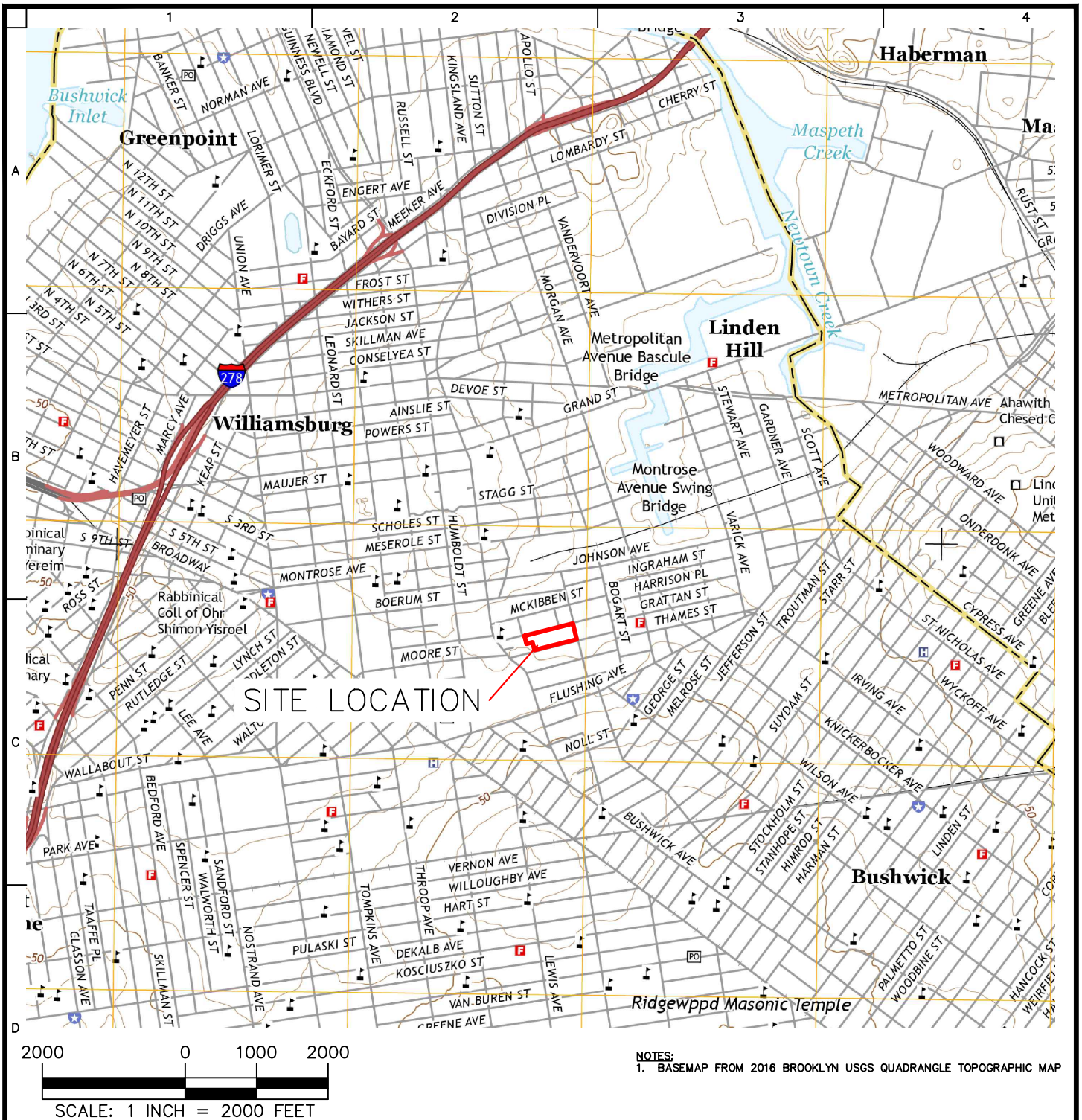
A Site Management Plan is required, which includes the following:

- 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 Remedy Element 8.
  - Engineering Controls: The cover system, monitoring well network, and sub-slab depressurization system, and monitoring plan described in Remedy Element 4, 5, and 7, respectively.

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 that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper one foot of exposed surface soil exceeds 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. Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
  - a schedule of monitoring and frequency of submittals to the NYSDEC;
  - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.
- 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 system(s); and
  - compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.



NOTES:  
1. BASEMAP FROM 2016 BROOKLYN USGS QUADRANGLE TOPOGRAPHIC MAP

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Project  
**215 MOORE STREET AND  
232 SEIGEL STREET**  
BLOCK No. 3100, P/O LOT No. 22  
AND LOT No. 45  
BROOKLYN  
KINGS COUNTY NEW YORK

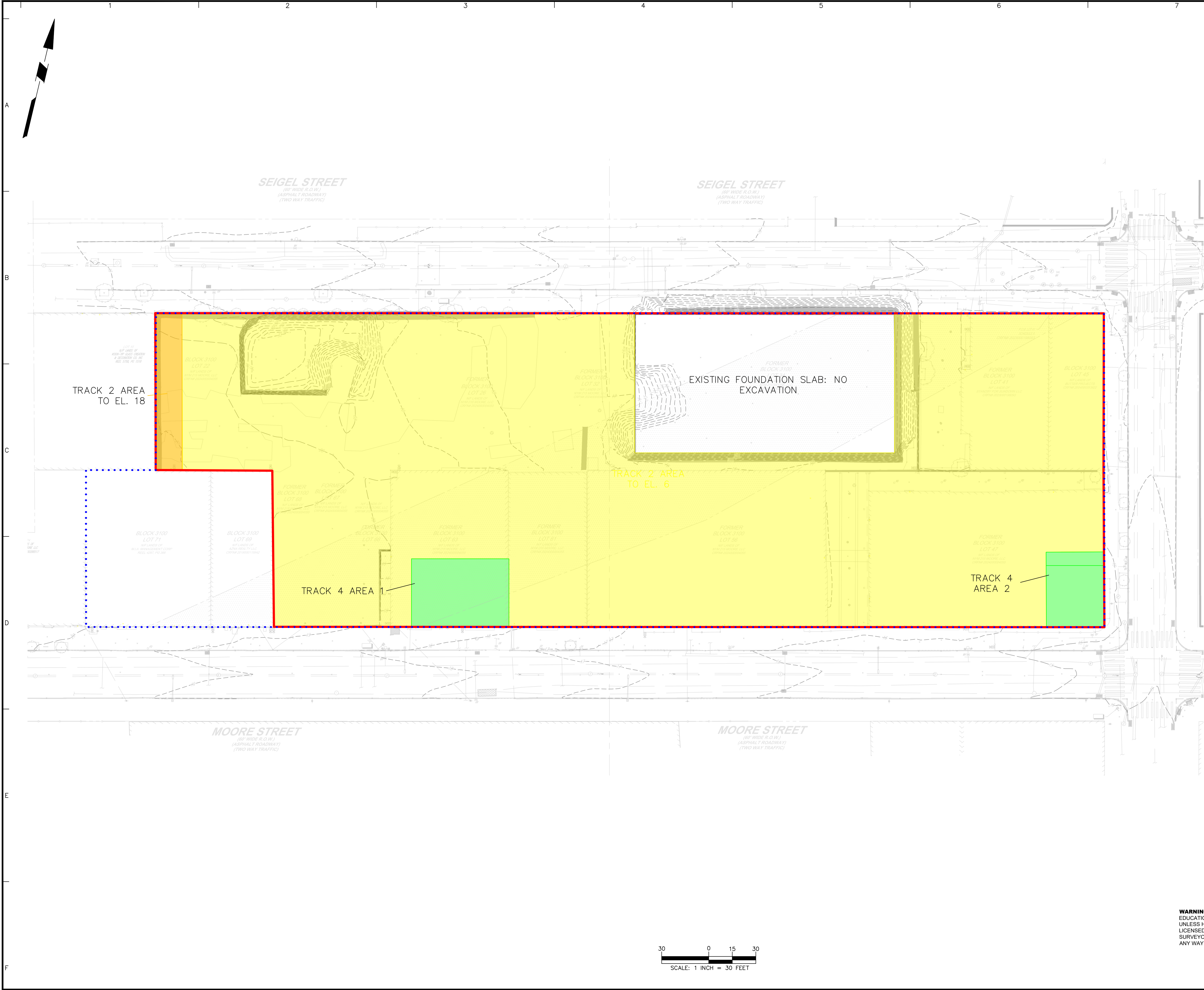
Figure Title  
**SITE LOCATION  
MAP**

Project No.  
170805302  
Date  
6/2/2025  
Drawn By  
RL  
Checked By  
ERA

Figure  
**1**  
Sheet 1 of 16

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- LEGEND
- APPROXIMATE BCP SITE BOUNDARY
  - APPROXIMATE DEVELOPMENT SITE BOUNDARY
  - APPROXIMATE EXTENT OF TRACK 2 REMEDIAL EXCAVATION TO EL. 18 (2 FEET BGS)
  - APPROXIMATE EXTENT OF TRACK 2 REMEDIAL EXCAVATION TO EL. 6 (9 TO 14 FEET BGS)
  - APPROXIMATE EXTENT OF TRACK 4 REMEDIAL EXCAVATION TO EL. 6 (9 TO 12 FEET BGS)

- GENERAL NOTES:
- ALL ELEVATIONS SHOWN HEREIN ARE WITH RESPECT TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88). TYPICAL DATUM CONVERSIONS ARE AS FOLLOWS:  
  
NGVD29 = NAVD88 + 1.079 FEET
  - BOUNDARY AND TOPOGRAPHIC SURVEY BASE MAP TAKEN FROM SURVEY TITLED "BOUNDARY AND TOPOGRAPHIC SURVEY", PREPARED BY CONTROL POINT ASSOCIATES INC PC, DATED 26 APRIL 2024.

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**215 MOORE STREET  
AND 232 SEIGEL STREET**

BLOCK No. 3100, P/O LOT No. 22 AND LOT No. 45  
BROOKLYN

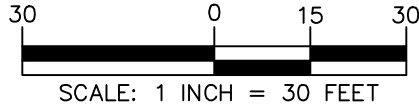
KINGS COUNTY NEW YORK

Figure Title

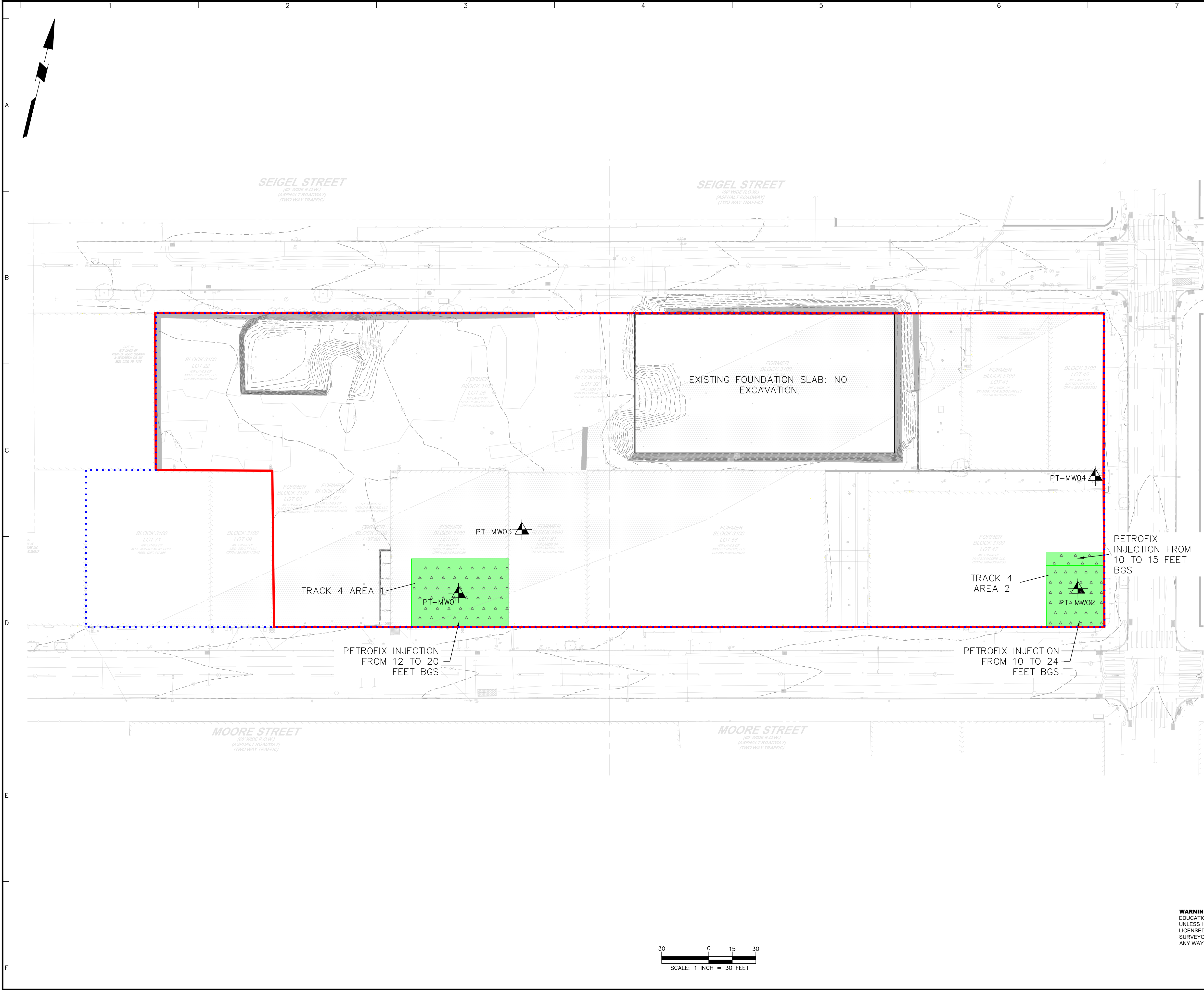
**ALTERNATIVE 2: SPLIT  
TRACK 2/ TRACK 4  
CLEANUP PLAN - SOIL**

|             |                |
|-------------|----------------|
| Project No. | Figure         |
| 170805302   | 2              |
| Date        |                |
| 6/3/2025    |                |
| Drawn By    |                |
| RL          | Sheet 12 of 16 |
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| ERA         |                |

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LEGEND

APPROXIMATE BCP SITE BOUNDARY

APPROXIMATE DEVELOPMENT SITE BOUNDARY

APPROXIMATE EXTENT OF GROUNDWATER TREATMENT AREAS

APPROXIMATE LOCATION OF PRE- AND POST-TREATMENT GROUNDWATER MONITORING WELL

PROPOSED PETROFIX INJECTION POINT

- GENERAL NOTES:
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NGVD29 = NAVD88 + 1.079 FEET
  - BOUNDARY AND TOPOGRAPHIC SURVEY BASE MAP TAKEN FROM SURVEY TITLED "BOUNDARY AND TOPOGRAPHIC SURVEY", PREPARED BY CONTROL POINT ASSOCIATES INC PC, DATED 26 APRIL 2024.
  - REMEDATION OF IMPACTS WILL BE PERFORMED VIA IN-SITU INJECTIONS OF PETROFIX™ FROM EL. 6 TO EL. -2 (ABOUT 12 TO 20 FEET BGS) IN AREA 1, FROM EL. 6 TO EL. 1 (ABOUT 10 TO 15 FEET BGS) IN THE NORTHERN PART OF AREA 2, AND FROM EL. 6 TO EL. -8 (ABOUT 10 TO 24 FEET BGS) IN THE SOUTHERN PART OF AREA 2.

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BLOCK No. 3100, P/O LOT No. 22 AND LOT No. 45

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KINGS COUNTY

NEW YORK

Figure Title

ALTERNATIVE 2: SPLIT TRACK 2/ TRACK 4 CLEANUP PLAN - GROUNDWATER

Project No.

170805302

Date

6/5/2025

Drawn By

RL

Checked By

ERA

Figure

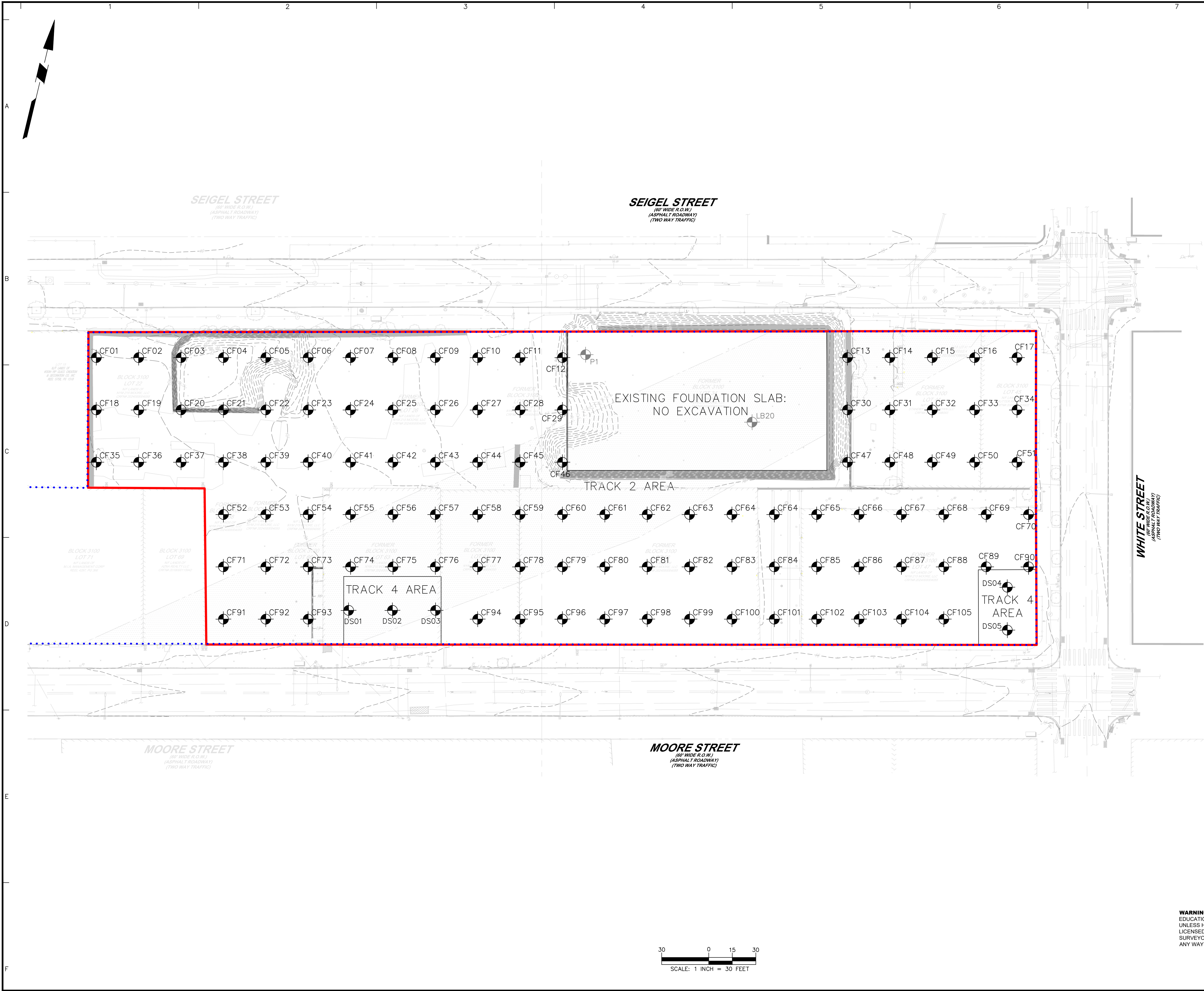
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Sheet 13 of 16

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Filename: \\langan.com\data\NYC\data\3170805301\Project Data\CAD-Environmental\RAWP Figures\RAWP FIGURES.dwg Date: 6/5/2025 Time: 09:41 User: kristiano Style Table: Langan.stb Layout: FIGURE 9B - ALTERNATIVE 2 - SPLIT TRACK2-4 PLAN - GROUNDWATER





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KINGS COUNTY NEW YORK

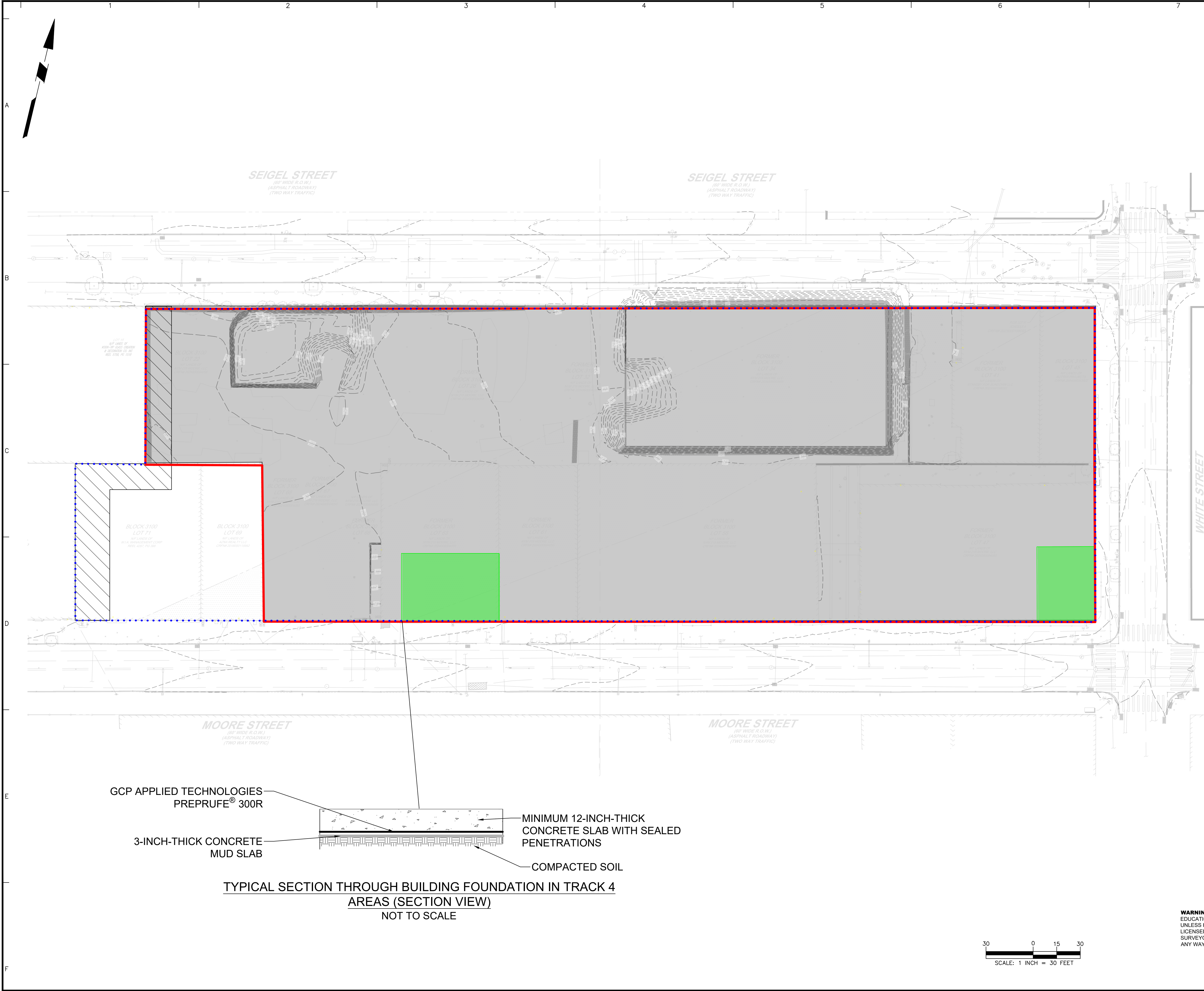
Figure Title

**PROPOSED  
ENDPOINT SAMPLE  
LOCATION PLAN**

|             |                |
|-------------|----------------|
| Project No. | Figure         |
| 170805302   | 4              |
| Date        |                |
| 6/4/2025    |                |
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LEGEND

APPROXIMATE BCP SITE BOUNDARY

APPROXIMATE DEVELOPMENT SITE BOUNDARY AND EXTENT OF COMPOSITE COVER SYSTEM (12-INCH-THICK SLAB)

APPROXIMATE TRACK 4 AREAS

APPROXIMATE SUB-SLAB DEPRESSURIZATION AREA

APPROXIMATE EXTENT OF TRACK 2 AREA

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  - BOUNDARY AND TOPOGRAPHIC SURVEY BASE MAP TAKEN FROM SURVEY TITLED "BOUNDARY AND TOPOGRAPHIC SURVEY", PREPARED BY CONTROL POINT ASSOCIATES INC PC, DATED 26 APRIL 2024.
  - THE SSDS DESIGN DRAWINGS ARE INCLUDED IN APPENDIX J OF THE RAWP

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Project

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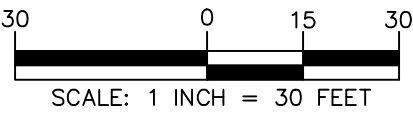
KINGS COUNTY NEW YORK

Figure Title

**ENGINEERING  
CONTROLS PLAN**

|             |                |
|-------------|----------------|
| Project No. | Figure         |
| 170805302   | 5              |
| Date        |                |
| 6/3/2025    |                |
| Drawn By    |                |
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TYPICAL SECTION THROUGH BUILDING FOUNDATION IN TRACK 4  
AREAS (SECTION VIEW)  
NOT TO SCALE

GCP APPLIED TECHNOLOGIES  
PREPRUFE® 300R

3-INCH-THICK CONCRETE  
MUD SLAB

MINIMUM 12-INCH-THICK  
CONCRETE SLAB WITH SEALED  
PENETRATIONS

COMPACTED SOIL