DECISION DOCUMENT

2864 Atlantic Avenue Redevelopment
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224349
February 2023

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

DECLARATION STATEMENT - DECISION DOCUMENT

2864 Atlantic Avenue Redevelopment
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224349
February 2023

Statement of Purpose and Basis

This document presents the remedy for the 2864 Atlantic Avenue Redevelopment 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 2864 Atlantic Avenue Redevelopment 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.
- 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

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

- soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
- 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; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

Excavation and off-site disposal of all on-site soils which exceed Unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8 to a depth of 8 feet below grade across the site plus to a depth of 14 feet to remove hotspots of lead and petroleum. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy. Collection and analysis of confirmation and documentation samples at the remedial excavation depths will be used to verify that SCOs for the site have been achieved. If confirmation/documentation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify DEC, submit the sample results and, 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.

Approximately 5,650 cubic yards of contaminated soil will be removed from the site.

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. In-Situ Chemical Oxidation

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum-based volatile organic compounds and semi-volatile organic compounds in groundwater. An alkaline activated persulfate will be injected into the subsurface to destroy the contaminants across the entire site where gasoline-related compounds were elevated in the groundwater. Currently the injection is anticipated to be via wells screened from 30 to 50 feet; however, the method and depth of injection will be confirmed during the remedial design.

Monitoring will be conducted for contaminants of concern upgradient and downgradient of the treatment zone, and within the treatment zone.

5. Soil Vapor Intrusion Evaluation
As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

6. Local Institutional Controls
If no Environmental Easement (EE) or Site Management Plan (SMP) is needed to achieve soil, groundwater, or soil vapor remedial action objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOHMH code, which prohibits potable use of groundwater without prior approval.

Conditional Track 1
The intent of the remedy is to achieve a Track 1 unrestricted use; therefore, no EE or SMP is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then an SMP and EE will be required to address the SVI evaluation and implement actions as needed; if a mitigation or monitoring action is needed, a Track 1 cleanup can only be achieved if the mitigation system or other required action is no longer needed within 5 years of the date of the Certificate of Completion.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required, and the remedy will achieve a Track 2 restricted residential cleanup.

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 NYSDOHMH; 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 in Paragraph 7 above.

   This plan includes, but may not be limited to:
   - descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;

- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- 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 groundwater to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department;
   - monitoring for vapor intrusion for any 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 protective of public health and the environment.

Feb. 3, 2023

Date

Jane H. O'Connell, Regional Remediation Engineer
Region 2

DECISION DOCUMENT

2864 Atlantic Avenue Redevelopment
Brooklyn, Kings County
Site No. C224349
February 2023

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, 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.

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:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C224349

Brooklyn Community Board 5
127 Pennsylvania Avenue, 2nd Floor
Brooklyn, NY 11207
Phone: (718) 819-5487

Cypress Hills Library
1197 Sutter Ave. at Crystal St.
Brooklyn, NY 11208
Phone: (718) 277-6004

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

Site Location: The 0.42-acre site is located at 2864 Atlantic Avenue in the Cypress Hills neighborhood of Brooklyn, NY, and is designated as Brooklyn Tax Block 3965, Lot 11. The site is bounded to the north by Atlantic Avenue, to the east by Jerome Street, to the south by 2-story residential buildings, and to the west by Barbey Street followed by another BCP site (Site No. C224255). The Long Island Railroad (LIRR) is located approximately 40 feet to the north of the site, beneath Atlantic Avenue.

Site Features: The site is currently vacant. Prior to the Interim Remedial Measure (IRM) activities performed between June and August 2022, the site was improved with a Speedway gas station complete with pump dispensers, four 10,000-gallon and one 600-gallon underground storage tanks (USTs) that were decommissioned in January 2022, a 275 sq-ft convenience store, and a 325 sq-ft storage building. As per the approved March 2022 IRM Work Plan (IRMWP), all above-grade site features were demolished and/or removed, and the site was backfilled to grade with clean stone.

Current Zoning and Land Use: The site is zoned R8-A for residential use and includes a commercial C2-4 overlay. The surrounding properties are currently used for commercial, residential, and warehousing/manufacturing purposes. The nearest residential buildings immediately adjoin the Site to the south. The proposed mixed-use commercial/residential development of this property is consistent with the current zoning. As a result of the CEQR process, Block 3965 Lot 11 was assigned an environmental E-Designation (E-366) - East New York Rezoning Action, for hazardous materials, noise (window wall attenuation & alternative means of ventilation), and air (HVAC fuel limited to natural gas) resulting from a City Environmental Quality Review (CEQR) effective 20 April 2016 (CEQR #15DCP102K). Satisfaction of the E-Designation requirements is subject to review and approval by the New York City Mayor's Office of Environmental Remediation (NYCOER) to obtain a Notice to Proceed (NTP) or a Notice of No Objection (NNO) prior to obtaining building permits.

Past Land Use: The site was first developed in the early 1950s with a garage and two gasoline tanks. By 1965, the entire site was occupied by a gas filling station that was developed with an overhead canopy and a one-story office building. The site remained unchanged until January 2022 when all on-site fuel tanks were decommissioned, and the gas station was permanently closed. Records for historic bulk petroleum storage (PBS No. 2-297747) list a total of forty-three former USTs for the site. Three spill incidences have been reported at the site since 1992. As of January 2023, Spill Case 98-30002 is still active due to petroleum releases impacting soil, groundwater, and soil vapor at the Site.

Site Geology and Hydrogeology: The stratigraphy of the site, consists primarily of historic fill material generally consisting of brown to dark brown, coarse to medium sand with varying amounts of glass, gravel, brick, asphalt, and silt was observed from surface grade to approximately 2 to 4 feet below ground surface (ft-bgs) in each soil boring. The urban fill layer was underlain by a potential native layer consisting of brown to orange-brown coarse to fine sand with varying amounts of silt and gravel and intermittent clay lenses. Bedrock underlying the site is present at depths greater than 100 ft-bgs and is part of the Raritan formation consisting of unconsolidated coastal plain deposits. Groundwater was encountered during previous investigations at approximately 25 to 35 ft-bgs and groundwater flow is anticipated to flow to the southeast.

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 that restrict 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 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, 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

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:

xylene (mixed)	benzo(b)fluoranthene
1,2,4-trimethylbenzene	chrysene
1,3,5-trimethylbenzene	benzo(a)anthracene

benzo(k)fluoranthene	ethylbenzene
lead	benzene

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.

The following IRM has been completed at this site based on conditions observed during the Limited Phase II Environmental Site Investigation.

IRM Tank Removal

Based on the initial results of the November 2021 Phase II Investigation, it was determined that on-site retail petroleum operations, specifically an ongoing spill case (98-30002) regarding a petroleum leak from one or more of the five USTs located in the southeast portion of the parcel, was the main source of petroleum-related VOC contamination throughout the site. An IRM was conducted in June 2022 which included the demolition of all on-site structures as well as the excavation/removal of four 10,000-gallon tanks, one 600-gallon tank, and approximately 1,900 cubic yards of surrounding contaminated soil. Five end-point samples and four side-wall samples were taken at the remedial excavation depth to confirm that SCOs had been achieved. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) was brought in to complete the backfilling of the excavation and establish the designed grades at the site. The IRM activities were documented in a Construction Completion report approved in January 2023.

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), per- and polyfluoroalkyl substances (PFAS), and pesticides. Soil vapor samples were analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern are SVOCs and lead in soil, SVOCs and petroleum-related VOCs in groundwater, and petroleum-related VOCs in soil vapor.

Soil – One VOC of concern, total xylene, was detected at a maximum concentration of 1.7 parts per million (ppm), exceeding the Unrestricted Use Soil Cleanup Objective (UUSCO) of 0.26 ppm and the Protection of Groundwater Soil Cleanup Objective (PGWSCO) of 1.6 ppm. Several SVOCs were detected at concentrations exceeding the UUSCOs and PGWSCOs, including benzo(a)anthracene (max. 7.1 ppm, UUSCO and PGWSCO is 1 ppm), benzo(b)fluoranthene (max. 8.3 ppm, UUSCO is 1 ppm, PGWSCO is 1.7 ppm), benzo(k)fluoranthene (max. 2.2 ppm, UUSCO is 0.8 ppm, PGWSCO is 1.7 ppm), and chrysene (max. 7.4 ppm, UUSCO and PGWSCO is 1 ppm). For metals in soil, lead was detected at a maximum concentration of 932 ppm (UUSCO is 64 ppm). For PFAS compounds, perfluorooctanesulfonic acid (PFOS) was detected at a maximum concentration of 1.25 parts per billion (ppb), exceeding the guidance value for unrestricted use of 0.88 ppb. Data does not indicate any off-site impacts in soil related to this site.

Groundwater – Several VOCs were identified in groundwater samples at concentrations above the Ambient Water Quality Standards (AWQSs), including 1,2,4-trimethylbenzene (max. 3,800 ppb, AWQS is 5 ppb), 1,3,5-trimethylbenzene (max. 760 ppb, AWQS is 5 ppb), ethylbenzene (max. 1,500 ppb, AWQS is 5 ppb), o-xylene (max. 1,300 ppb, AWQS is 5 ppb), p/m-xyelene (max. 5,200 ppb, AWQS is 5 ppb), and benzene (max. 22 ppb, AQWS is 1 ppb). Several SVOCs were identified at concentrations exceeding the AWQSs, including benzo(a)anthracene (max. 0.12 ppb, AWQS is 0.002 ppb), benzo(b)fluoranthene (max. 0.18 ppb, AWQS is 0.002 ppb), benzo(k)fluoranthene (max. 0.06 ppb, AWQS is 0.002 ppb), and chrysene (max. 0.13 ppb, AWQS is 0.002 ppb). Several dissolved metals were detected in groundwater, including iron, manganese, and sodium. These are naturally occurring metals and are not considered to be site-related contaminants. PFOS and perfluorooctanoic acid (PFOA) were detected in groundwater at maximum concentrations of 105 parts per trillion (ppt) and 92.1 ppt, respectively. These concentrations exceed the applicable Maximum Contaminant Level (drinking water standard) of 10 ppt each. Data does not indicate any off-site impacts in groundwater-related to this site.

Soil Vapor – Several petroleum-related VOCs were detected in soil vapor throughout the site, including benzene (max. 69.6 micrograms per cubic meter (ug/m3)), toluene (max. 288 ug/m3), ethylbenzene (max. 34 ug/m3), total xylenes (max. 29.4 ug/m3), 2,2,4-trimethylpentane (max. 27,200 ug/m3), n-hexane (max. 9,060 ug/m3), 2-butanone (max. 2,140 ug/m3), heptane (max. 1,750 ug/m3), 1,2,4-trimethylbenzene (max. 29.6 ug/m3), and 1,3,5-trimethylbenzene (max. 7.18 ug/m3). 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.*

The site is fenced, restricting public access; however, persons 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 (air spaces within the soil) can

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, soil vapor intrusion is not a current concern; however, it may be a concern for future on-site buildings. Environmental 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 ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

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 1: Unrestricted use remedy.

The selected remedy is referred to as the Soil Excavation, Groundwater Treatment, and Soil Vapor Intrusion Evaluation 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 will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

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

- soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
- 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; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

Excavation and off-site disposal of all on-site soils which exceed Unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8 to a depth of 8 feet below grade across the site plus to a depth of 14 feet to remove hotspots of lead and petroleum. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy. Collection and analysis of confirmation and documentation samples at the remedial excavation depths will be used to verify that SCOs for the site have been achieved. If confirmation/documentation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify DEC, submit the sample results and, 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.

Approximately 5,650 cubic yards of contaminated soil will be removed from the site.

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. In-Situ Chemical Oxidation

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum-based Volatile Organic Compounds and semi-volatile organic compounds in groundwater. An alkaline activated persulfate will be injected into the subsurface to destroy the contaminants area across the entire site where gasoline-related compounds were elevated in the groundwater via injection wells screened from 30 to 50 feet. The method and depth of injection will be determined during the remedial design.

Monitoring will be conducted for contaminants of concern upgradient and downgradient of the treatment zone, and within the treatment zone.

5. Soil Vapor Intrusion Evaluation

As part of the Track 1 remedy, a soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

6. Local Institutional Controls

If no Environmental Easement (EE) or Site Management Plan (SMP) is needed to achieve soil, groundwater, or soil vapor remedial action objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOHMH code, which prohibits potable use of groundwater without prior approval.

<u>Conditional Track 1</u>

The intent of the remedy is to achieve a Track 1 unrestricted use; therefore, no EE or SMP is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then an SMP and EE will be required to address the SVI evaluation and implement actions as needed; if a mitigation or monitoring action is needed, a Track 1 cleanup can only be achieved if the mitigation system or other required action is no longer needed within 5 years of the date of the Certificate of Completion.

In the event that Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required,

and the remedy will achieve a Track 2 residential cleanup.

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 NYSDOHMH; 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:

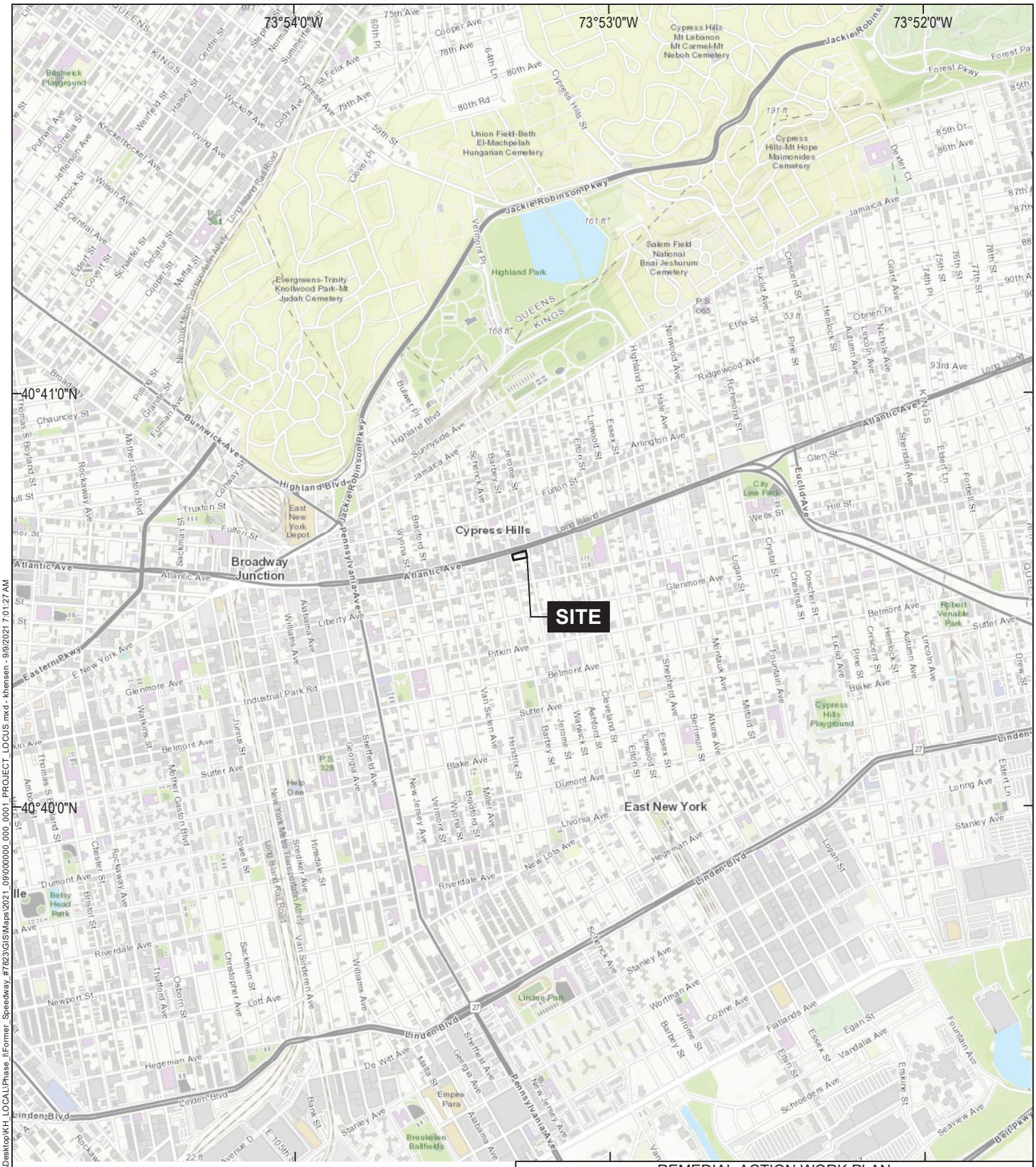
- Institutional Controls: The Environmental Easement discussed in Paragraph 7 above.

This plan includes, but may not be limited to:

- descriptions of the provisions of the environmental easement including any land use or groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- 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 groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.



HALEY ALDRICH

REMEDIAL ACTION WORK PLAN
2864 ATLANTIC AVENUE
SPEEDWAY #7823
BROOKLYN, NY

PROJECT LOCUS

MAP SOURCE: ESRI
SITE COORDINATES: 40°40'36"N, 73°53'17"W

APPROXIMATE SCALE: 1 IN = 2000
June 2022

FIGURE 1

GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\Phase_II\Former_Speedway_#7823\GIS\Maps\2021_09\000000_000_0001_PROJECT_LOCUS.mxd - khensen - 9/9/2021 7:01:27 AM

LEGEND

- COMMUTER RAIL LINE
- SITE BOUNDARY
- EXCAVATION TO 8 FT BGS
- EXCAVATION TO 14 FT BGS

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

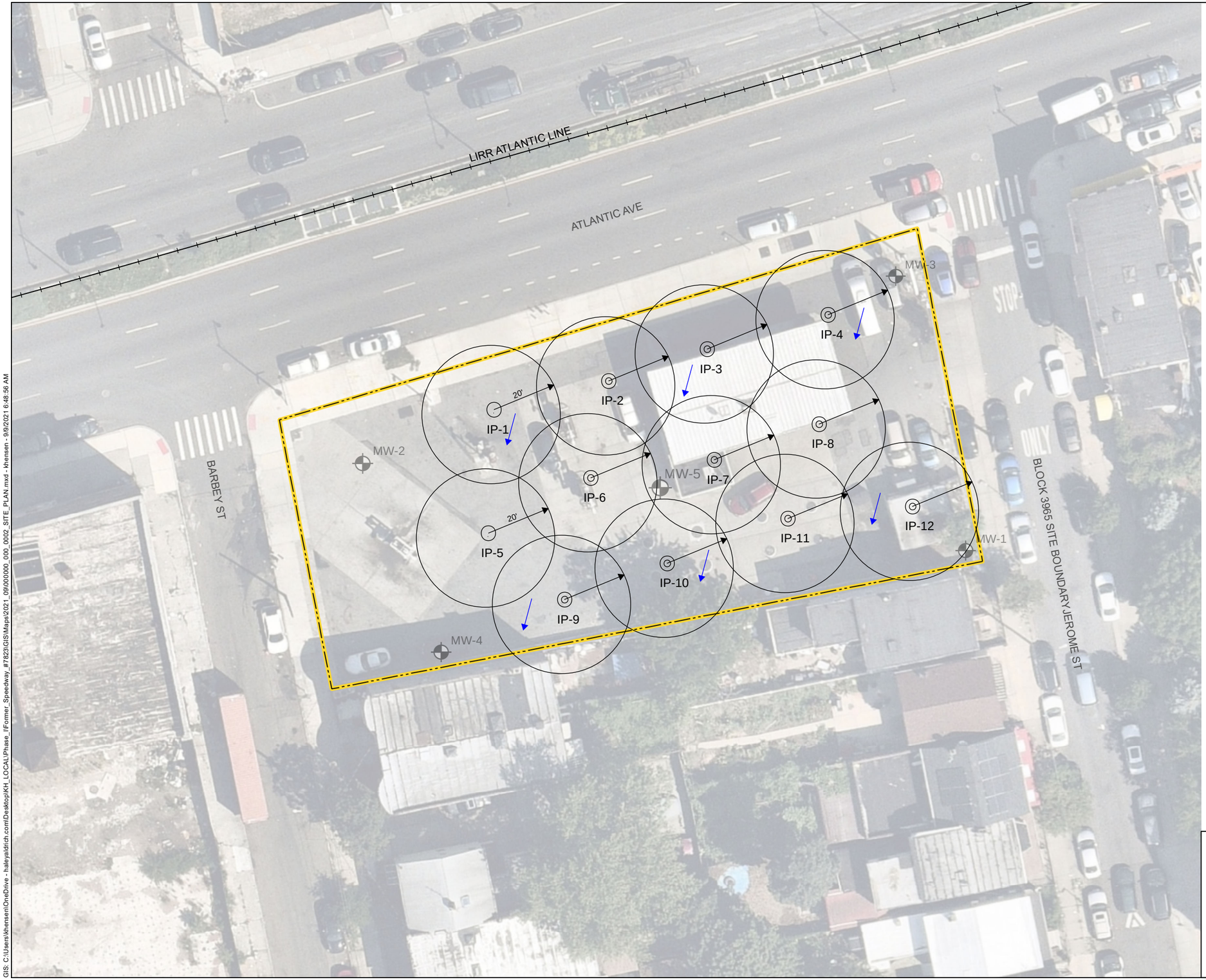
REMEDIAL ACTION WORK PLAN
SPEEDWAY #7823
2864 ATLANTIC AVENUE REDEVELOPMENT
BROOKLYN, NEW YORK

TRACK 1 EXCAVATION PLAN

MAY 2022

FIGURE 2

GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\Phase_I\Former_Speedway_#7823\GIS\Maps\2021_09\000000_000_0002_SITE_PLAN.mxd - khensen - 9/9/2021 6:48:56 AM



LEGEND

- COMMUTER RAIL LINE
- SITE BOUNDARY
- PROPOSED INJECTION POINT
- APPROXIMATE RADIUS OF INFLUENCE
- PROPOSED PERMANENT MONITORING WELL LOCATION
- GROUNDWATER FLOW DIRECTION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021

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SCALE IN FEET

HALEY ALDRICH

REMEDIAL ACTION WORK PLAN
SPEEDWAY #7823
2864 ATLANTIC AVENUE REDEVELOPMENT
BROOKLYN, NEW YORK

CONCEPTUAL IN-SITU CHEMICAL OXIDATION INJECTION PLAN

JANUARY 2023

FIGURE 3

GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\Phase_I\Former_Speedway_#7823\GIS\Maps\2021_09\000000_000_0002_SITE_PLAN.mxd - khensen - 9/9/2021 6:48:56 AM

LEGEND

- COMMUTER RAIL LINE
- SITE BOUNDARY
- PROPOSED PERMANENT MONITORING WELL LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
3. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021

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SCALE IN FEET

HALEY ALDRICH

REMEDIAL ACTION WORK PLAN
SPEEDWAY #7823
2864 ATLANTIC AVENUE
BROOKLYN NY

GROUNDWATER MONITORING WELL LOCATION PLAN

JUNE 2022

FIGURE 4

GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\Phase_II\Former_Speedway_#7823\GIS\Maps\2021_09\000000_000_0002_SITE_PLAN.mxd - khensen - 9/6/2021 6:48:56 AM

LEGEND

- COMMUTER RAIL LINE
- SITE BOUNDARY
- PROPOSED ENDPOINT SAMPLE LOCATION
- PROPOSED SIDEWALL SAMPLE LOCATION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021
4. ALL SUPERSTRUCTURES WERE DEMOLISHED IN MAY 2022.

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SCALE IN FEET

HALEY ALDRICH

REMEDIAL ACTION WORK PLAN
SPEEDWAY #7823
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

ENDPOINT SAMPLE PLAN

J ULY 2022

FIGURE 5

GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\Phase_I\Former_Speedway_#7823\GIS\Maps\2021_09\000000_000_0002_SITE_PLAN.mxd - khensen - 9/9/2021 6:48:56 AM