

# DECISION DOCUMENT

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Bedford Beverly Redevelopment Site  
Brownfield Cleanup Program  
Brooklyn, Kings County  
Site No. C224384  
January 2024



**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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## **Statement of Purpose and Basis**

This document presents the remedy for the Bedford Beverly Redevelopment 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 (DEC) for the Bedford Beverly Redevelopment Site and the public's input to the proposed remedy presented by DEC.

## **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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- 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 DEC 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:

- 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;
- soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G; and
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

For the Track 1 area of the site, which comprises the entire site area east of Bedford Avenue (Lot 53) and approximately two-thirds of Lot 14, west of Bedford Avenue, excavation and off-site disposal of all on-site soils which exceed unrestricted use soil cleanup objectives (UUSCOs), as defined by 6 NYCRR Part 375-6.8. Approximately 71,200 cubic yards (yd<sup>3</sup>) will be removed from the Track 1 area. Soil will be excavated to approximately 12 feet below ground surface (ft

bgs). Additional deeper excavation will be performed in specified areas to remove contaminants which exceed UUSCOs. The deeper excavation is expected to yield a total of 490 yd<sup>3</sup> of contaminated soil. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy in the Track 1 area of the site.

For the Track 4 area around the Sears Landmark Building, all soils in the upper one foot which exceed the commercial SCOs will be excavated and transported off-site for disposal. Approximately 785 yd<sup>3</sup> 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.

The Track 4 area, outside of, and adjacent to, the on-site building, will be re-graded to accommodate installation of a cover system as described in Paragraph 4.

### **4. Site Cover**

A site cover currently exists (Sears Landmark Building) over a portion of the Track 4 area and will be maintained as part of any future site redevelopment. A site cover will be required around the perimeter of the on-site building (i.e., remainder of the Track 4 area); the site cover may include paved surface parking areas, sidewalks, or soil where the upper one foot of exposed surface soil meets the applicable soil cleanup objectives for commercial use. Any fill brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d)

### **5. Groundwater Remediation – In-situ Chemical Injections**

In-situ chemical injections will be used to treat groundwater contamination in two areas of the site.

In-situ chemical reduction (ISCR) will be implemented to treat chlorinated volatile organic

compounds (VOCs) in groundwater. Zero valent iron (ZVI) and electron donor will be injected into the subsurface to destroy the contaminants in the southwest corner of Lot 14 as shown in Figure 3 via direct push injections from 20 to 30 feet below ground surface (bgs). There will be seven injection points and each point will have a radius of influence of approximately 20 feet.

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum VOCs in groundwater. Alkaline activated persulfate will be injected into the subsurface to destroy the contaminants under the Former Sears Auto Center on Lot 53 via injection wells or injection points from 20 to 30 feet bgs. There will be eight injection points and each point will have a radius of influence of approximately 20 to 30 feet.

Monitoring will be required up-gradient, within, and down-gradient of the treatment zones for petroleum VOCs. Monitoring will be conducted for CVOCs upgradient and downgradient of the treatment zone.

## **6. Vapor Intrusion Evaluation**

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

Track 1 area: The intent of the remedy is to achieve a Track 1 unrestricted use for the majority of the site, therefore, no environmental easement or site management plan is anticipated for the Track 1 portion of the site. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan (SMP) and Environmental Easement (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 for this portion of the site 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 for this portion of the site, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy for the majority of the site, outside of the Track 4 area, will achieve a Track 2 restricted residential cleanup.

Track 4 area: A soil vapor intrusion evaluation is required for the on-site building in the Track 4 area. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then the SVI will be conducted under a Site Management Plan (SMP) and Environmental Easement (EE) to address the SVI evaluation and implement actions as needed.

## **8. Local Institutional Controls for the Track 1 Area**

If no Environmental Easement (EE) or Site Management Plan (SMP) is needed to achieve soil, groundwater, or soil vapor remedial action objectives for the Track 1 area, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the New York City Department of Health and Mental Hygiene (NYCDOHMH) code, which

prohibits potable use of groundwater without prior approval.

## **9. Engineering and Intuitional Controls**

Imposition of an institutional control in the form of an EE and an SMP, as described below, will be required for the Track 4 commercial portion of the site. For the Track 1 area of the site, if soil vapor monitoring or mitigation is necessary after the Certificate of Completion is issued, or if this area achieves a Track 2 restricted residential cleanup as noted above (i.e., doesn't achieve remedial goals within 5 years of the Certificate of Completion), then an EE and an SMP will be required.

### ***Institutional Control***

Imposition of an institutional control in the form of an EE for the controlled portion(s) of the property which will:

- require the remedial party or site owner to complete and submit to the DEC 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 in the Track 2 portion of the site, if necessary, and commercial use in the Track 4 portion of the site as defined by Part 375-1.8(g), although land use is subject to local zoning laws [1];
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH; and
- require compliance with the DEC approved Site Management Plan.

## **10. Site Management Plan**

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

1. 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 9 above.
  - Engineering Controls: The site cover discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations, including required sampling, in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should the building slab or foundation be removed in the future, a cover

system consistent with that described in Paragraph 4 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs)

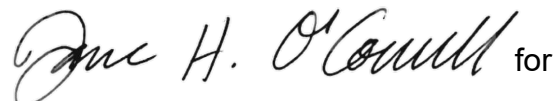
- provisions for the management and inspection of the identified engineering controls;
  - maintaining site access controls and DEC notification; and
  - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
2. a Monitoring Plan to assess the 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 DEC; and
  - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

### **Declaration**

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

January 23, 2024

Date

Handwritten signature of Scott Deyette in cursive, followed by the word "for" in a plain font.

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Scott Deyette, Director  
Remedial Bureau B

# DECISION DOCUMENT

Bedford Beverly Redevelopment Site  
Brooklyn, Kings County  
Site No. C224384  
January 2024

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

The New York State Department of Environmental Conservation (DEC), 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 DEC 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 DEC 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 DEC 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=C224384>

Brooklyn Community Board 14  
810 East 16th Street  
Brooklyn, NY 11230  
Phone: (718) 859-6357



Brooklyn Public Library - Flatbush Branch  
22 Linden Boulevard  
Brooklyn, NY 11226  
Phone: (718) 856-0813

Brooklyn Public Library - Rugby Branch  
1000 Utica Avenue  
Brooklyn, NY 11203  
Phone: (718) 566-0053

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

Please note that the DEC'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 2359 and 2360 Bedford Avenue in the Little Caribbean neighborhood of Brooklyn. The site occupies Block 5133, Lot 14 and Block 5135, Lot 53. The lots are divided by Bedford Avenue. Block 5133 Lot 14 is bound to the north by multi-family residential buildings; to the east by a Lott Street followed by multi-family residential buildings; to the south by Beverly Road followed by multi-family residential buildings; and to the west Bedford Avenue. Block 5135, Lot 53 is bound to the north by a parking lot; to the east by Bedford Avenue; to the south by Beverly Road followed by multi-family residential buildings; and to the west by East 22nd Street followed by residential and commercial buildings.

**Site Features:** The site is 4.31-acres and both lots are currently vacant. Block 5133 Lot 14 is improved with a three-story commercial building (the Sears Landmark Building) and an unpaved area. Block 5135 Lot 53 is an unpaved lot.

**Current Zoning and Land Use:** The site is zoned commercial and residential (C4-2/R6A).

**Past Uses of the Site:** The site was occupied by commercial and industrial facilities since the 1880s. Historical uses include plastic molding manufacturing, auto repair, gasoline filling, parking lots, and retail.

**Site Geology and Hydrology:** The site is underlain by historic fill material extending to approximately 6 to 15 feet below ground surface (ft bgs). The fill material consists of sand and clay with gravel, asphalt, concrete, brick, glass, wood, and slag. Fill material is underlain by native sand with gravel and cobbles extending to the terminus depth of approximately 28 feet.

Bedrock was not encountered but is estimated to be approximately 100 ft bgs. Groundwater was observed approximately 22 to 28 ft bgs and flows south-southwest.

A site location map is attached as Figure 1.

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

The DEC 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 Track 4 area to commercial use (which allows for industrial use) and a Track 1 unrestricted use (which allows for residential, restricted residential, commercial, and industrial use) in the remainder of the site in Part 375-1.8(g) were evaluated.

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 DEC 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
- sub-slab vapor

### **6.1.1: Standards, Criteria, and Guidance (SCGs)**

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The DEC 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:

tetrachloroethene (PCE)	benzo(a)pyrene
1,2,4-trimethylbenzene	benzo(b)fluoranthene
lead	benzo(k)fluoranthene
mercury	chrysene
trichloroethene (TCE)	dibenz[a,h]anthracene
benzo(a)anthracene	indeno(1,2,3-cd)pyrene

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

## **6.2: Interim Remedial Measures**

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

## **6.3: Summary of Environmental Assessment**

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

### Nature and Extent of Contamination:

Soil and groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, per- and polyfluoroalkyl substances (PFAS), and 1,4-dioxane. Soil vapor samples were analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern for the site include SVOCs and metals in soils, VOCs in groundwater, and VOCs in soil vapor.

Soil - Soil data were compared to Unrestricted Use Soil Cleanup Objectives (UUSCO), Protection of Groundwater Soil Cleanup Objectives (PGWSCO) and Commercial Soil Cleanup Objectives (CSCO). SVOCs and metals were both identified throughout the site at depths of up to 14 feet below ground surface (bgs). VOCs identified include methyl ethyl ketone at a maximum concentration of 0.48 parts per million (ppm) (UUSCO and PGWSCO are both 0.12 ppm). SVOCs identified include benzo(a)anthracene at a maximum concentration of 23 ppm (UUSCO and PGWSCO are both 1 ppm), benzo(a)pyrene at a maximum concentration of 19 ppm (UUSCO is 1 ppm), benzo(b)fluoranthene at a maximum concentration of 27 ppm (UUSCO is 1 ppm), benzo(k)fluoranthene at a maximum of 9.2 ppm (UUSCO is 0.8 ppm), chrysene at a maximum of 22 ppm (UUSCO and PGWSCO is 1 ppm), dibenzo(a,h)anthracene at a maximum concentration of 1.7 ppm (UUSCO is 0.33 ppm), and indeno(1,2,3-c,d)pyrene at a maximum of 6.3 ppm (UUSCO is 0.5 ppm). One pesticide was detected in one soil sample; 4,4'-DDD was detected at a maximum of 0.0044 ppm (UUSCO is 0.033 ppm). Metals include barium at a maximum of 760 ppm (UUSCO is 350 ppm), lead at a maximum of 1,010 ppm (UUSCO is 63 ppm), and mercury at a maximum of 1.7 ppm (PGWSCO is 0.18 ppm). Total PCBs were detected at a maximum of 0.25 ppm (UUSCO is 0.1 ppm).

1,4-dioxane was not detected above the reporting limit. Perfluorooctanoic acid (PFOA) was detected at a maximum of 1.66 parts per billion (ppb) which exceeds both the Protection of Groundwater Guidance Value (PGGV) of 1.1 ppb and the Unrestricted Use Guidance Value (UUGV) of 0.66 ppb. Perfluorooctane sulfonic acid (PFOS) was detected at a maximum of 0.58 ppb, which is lower than both the PGGV of 0.66 ppb and the UUGV of 1.1 ppb. There were no known on-site uses of PFAS or PFOA.

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

Groundwater - Groundwater data was compared to Ambient Water Quality Standards and Guidance Values (AWQSGVs). No SVOCs, PCBs, or pesticides were detected above the AWQSGVs. VOCs detected above AWQSGVs include tetrachloroethylene (PCE) detected at a maximum of 11 ppb (AWQSGV is 5 ppb), chloroform at a maximum of 16 ppb (AWQSGV is 7 ppb) and 1,2,4-trimethylbenzene at a maximum of 11 ppb (AWQSGV is 5 ppb).

1,4-Dioxane was not detected above the reporting limit. PFOA was detected at a maximum of 105 parts per trillion (ppt) (human health criteria is 6.7 ppt). PFOS was detected at a maximum of 78.4 ppt (human health criteria is 2.7 ppt). No historical uses or on-site source of PFOA or PFOS were identified. The levels of PFAS and PFOS are slightly higher upgradient than downgradient.

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

Soil Vapor - PCE was detected in sub-slab soil vapor at a maximum concentration of 57 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and in soil vapor at a maximum concentration of 65  $\mu\text{g}/\text{m}^3$ . Trichloroethene (TCE) was detected in sub-slab soil vapor at a maximum concentration 4.2  $\mu\text{g}/\text{m}^3$  and in soil vapor at a maximum concentration of 0.16  $\mu\text{g}/\text{m}^3$ . Methylene chloride was detected in sub-slab soil vapor at a maximum concentration of 18  $\mu\text{g}/\text{m}^3$  and in soil vapor at a maximum concentration of 1.7  $\mu\text{g}/\text{m}^3$ . Petroleum-related VOCs were detected throughout the site.

Data does not indicate potential 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 vacant and access is restricted by a fence. However, people who enter may come into contact with contaminants in soil by walking on the site, digging, or otherwise disturbing the soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into structures 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 structures, is referred to as soil vapor intrusion (SVI). Because the site is vacant, the inhalation of site-related contaminants due to SVI does not represent a current concern. However, the potential exists for inhalation of site contaminants due to SVI for any future on-site development and/or occupancy. Environmental sampling indicates that SVI is not likely a concern for off-site structures from site contaminants.

## **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 Tracks remedy (i.e., Track 1 area with Track 2 fallback, and Track 4).

The selected remedy is referred to as the Excavation, Groundwater Treatment Injections, and Site Cover remedy.

The elements of the selected remedy, as shown in Figure 2 and 3, are as follows:

## **1. Remedial Design**

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
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- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- 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.

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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:

- 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;
- soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G; and
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

For the Track 1 area of the site, which comprises the entire site area east of Bedford Avenue (Lot 53) and approximately two-thirds of Lot 14, west of Bedford Avenue, excavation and off-site disposal of all on-site soils which exceed unrestricted use soil cleanup objectives (UUSCOs), as defined by 6 NYCRR Part 375-6.8. Approximately 71,200 cubic yards (yd<sup>3</sup>) will be removed from the Track 1 area. Soil will be excavated to approximately 12 feet below ground surface (ft bgs). Additional deeper excavation will be performed in specified areas to remove contaminants which exceed UUSCOs. The deeper excavation is expected to yield a total of 490 yd<sup>3</sup> of contaminated soil. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy in the Track 1 area of the site.

For the Track 4 area around the Sears Landmark Building, all soils in the upper one foot which exceed the commercial SCOs will be excavated and transported off-site for disposal. Approximately 785 yd<sup>3</sup> 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, 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.

The Track 4 area, outside of, and adjacent to, the on-site building, will be re-graded to accommodate installation of a cover system as described in Paragraph 4.

### **4. Site Cover**

A site cover currently exists (Sears Landmark Building) over a portion of the Track 4 area and will be maintained as part of any future site redevelopment. A site cover will be required around the perimeter of the on-site building (i.e., remainder of the Track 4 area); the site cover may include paved surface parking areas, sidewalks, or soil where the upper one foot of exposed surface soil meets the applicable soil cleanup objectives for commercial use. Any fill brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d)

### **5. Groundwater Remediation – In-situ Chemical Injections**

In-situ chemical injections will be used to treat groundwater contamination in two areas of the site.

In-situ chemical reduction (ISCR) will be implemented to treat chlorinated volatile organic compounds (VOCs) in groundwater. Zero valent iron (ZVI) and electron donor will be injected into the subsurface to destroy the contaminants in the southwest corner of Lot 14 as shown in Figure 3 via direct push injections from 20 to 30 feet below ground surface (bgs). There will be seven injection points and each point will have a radius of influence of approximately 20 feet.

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum VOCs in groundwater. Alkaline activated persulfate will be injected into the subsurface to destroy the contaminants under the Former Sears Auto Center on Lot 53 via injection wells or injection points from 20 to 30 feet bgs. There will be eight injection points and each point will have a radius of influence of approximately 20 to 30 feet.

Monitoring will be required up-gradient, within, and down-gradient of the treatment zones for petroleum VOCs. Monitoring will be conducted for CVOCs upgradient and downgradient of the treatment zone.

## **6. Vapor Intrusion Evaluation**

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

Track 1 area: The intent of the remedy is to achieve a Track 1 unrestricted use for the majority of the site, therefore, no environmental easement or site management plan is anticipated for the Track 1 portion of the site. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan (SMP) and Environmental Easement (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 for this portion of the site 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 for this portion of the site, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy for the majority of the site, outside of the Track 4 area, will achieve a Track 2 restricted residential cleanup.

Track 4 area: A soil vapor intrusion evaluation is required for the on-site building in the Track 4 area. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then the SVI will be conducted under a Site Management Plan (SMP) and Environmental Easement (EE) to address the SVI evaluation and implement actions as needed.

## **8. Local Institutional Controls for the Track 1 Area**

If no Environmental Easement (EE) or Site Management Plan (SMP) is needed to achieve soil, groundwater, or soil vapor remedial action objectives for the Track 1 area, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the New York City Department of Health and Mental Hygiene (NYCDOHMH) code, which prohibits potable use of groundwater without prior approval.

## **9. Engineering and Intuitional Controls**

Imposition of an institutional control in the form of an EE and an SMP, as described below, will be required for the Track 4 commercial portion of the site. For the Track 1 area of the site, if soil vapor monitoring or mitigation is necessary after the Certificate of Completion is issued, or if this area achieves a Track 2 restricted residential cleanup as noted above (i.e., doesn't achieve remedial goals within 5 years of the Certificate of Completion), then an EE and an SMP will be required.

### ***Institutional Control***

Imposition of an institutional control in the form of an EE for the controlled portion(s) of the property which will:

- require the remedial party or site owner to complete and submit to the DEC 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 in the Track 2 portion of the site, if necessary, and commercial use in the Track 4 portion of the site as defined by Part 375-1.8(g), although land use is subject to local zoning laws [1];
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH; and
- require compliance with the DEC approved Site Management Plan.

## 10. Site Management Plan

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

1. 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 9 above.
  - Engineering Controls: The site cover discussed in Paragraph 4 above.



This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations, including required sampling, in areas of remaining contamination;
  - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
  - a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
  - a provision that should the building slab or foundation be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper 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 DEC notification; and
  - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
2. 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 DEC; and
    - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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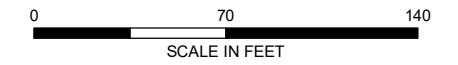


**LEGEND**

-  PARCEL BOUNDARY
-  SITE BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 27 FEBRUARY 2022



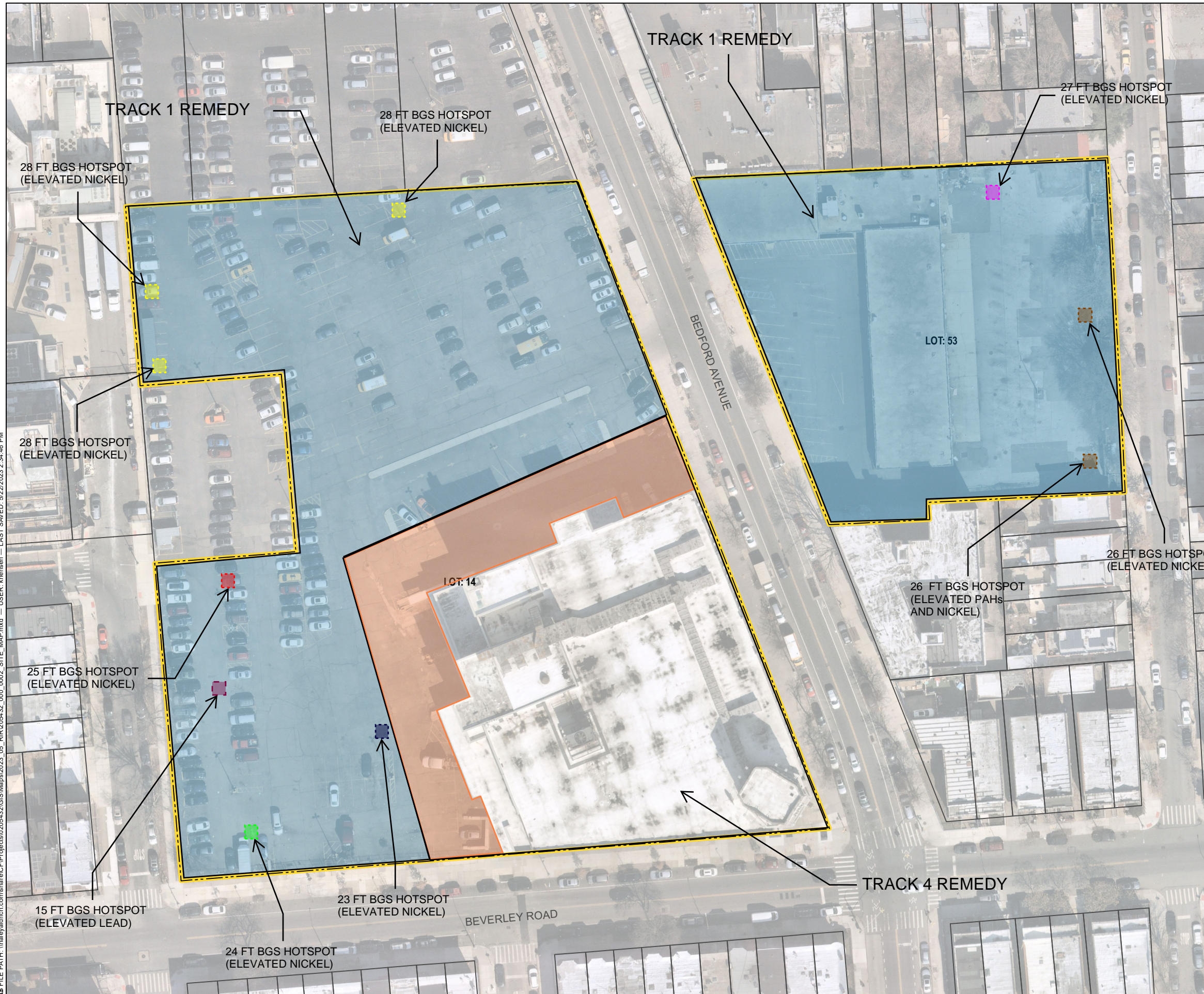
**HALEY ALDRICH** BEDFORD BEVERLY BROWNFIELD SITE  
 2359 AND 2360 BEDFORD AVENUE  
 BROOKLYN, NEW YORK

**SITE MAP**

MAY 2023

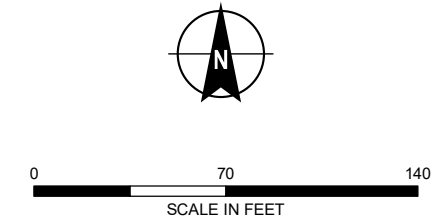
FIGURE 1

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- LEGEND**
- PARCEL BOUNDARY
  - SITE BOUNDARY
  - 1 FT BGS EXCAVATION
  - 12 FT BGS
  - HOTSPOT EXCAVATIONS
  - SUPPORT OF EXCAVATION

- NOTES**
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
  2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
  3. AERIAL IMAGERY SOURCE: NEARMAP, 27 FEBRUARY 2022



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 BROOKLYN, NEW YORK

**ALTERNATE I EXCAVATION PLAN**




JUNE 2023

**FIGURE 2**

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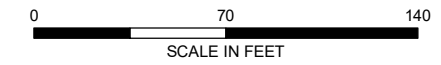


**LEGEND**

-  PARCEL BOUNDARY
-  SITE BOUNDARY
-  PROPOSED POST-REMEDY GROUNDWATER MONITORING WELL APPROXIMATE LOCATIONS

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
3. AERIAL IMAGERY SOURCE: NEARMAP, 27 FEBRUARY 2022



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2359 AND 2360 BEDFORD AVENUE  
BROOKLYN, NEW YORK

**PROPOSED GROUNDWATER  
REMEDY PLAN**

MAY 2023

**FIGURE 3**