

# DECISION DOCUMENT

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13-12 Beach Channel Drive  
Brownfield Cleanup Program  
Far Rockaway, Queens County  
Site No. C241254  
April 2022



**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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13-12 Beach Channel Drive  
Brownfield Cleanup Program  
Far Rockaway, Queens County  
Site No. C241254  
April 2022

## **Statement of Purpose and Basis**

This document presents the remedy for the 13-12 Beach Channel Drive site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 13-12 Beach Channel Drive 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**

The existing on-site buildings will be demolished and materials which can't be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy. Excavation and off-site disposal of contaminant source areas, including 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.

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

Approximately 400 tons of contaminated soil will be removed from the site.

## **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. 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 groundwater.

## **5. Soil Vapor Extraction (SVE)**

Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

A minimum of three SVE wells will be installed into the vadose zone. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

## **6. In-Situ Groundwater Treatment Using Activated Carbon and Enhanced Biodegradation**

Activated carbon will be added to the subsurface to capture and prevent the migration of trichloroethene (TCE) and tetrachloroethene (PCE) onto the site from an off-site, upgradient source. In-situ enhanced biodegradation will be employed to treat PCE and TCE in groundwater in the area downgradient of the off-site dry cleaner. The biological breakdown of contaminants through anaerobic reductive dichlorination will be enhanced by biodegradation enhancers. The method and depth of injection will be determined during the remedial design. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation. Prior to the full implementation of this technology, on-site pilot scale studies will be conducted to more clearly define design parameters.

## 7. 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 the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the Department approved Site Management Plan.

## 8. Site Management Plan

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

- a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
  - Institutional Controls: The Environmental Easement discussed in Paragraph 7.
  - Engineering Controls: The sub-slab depressurization system discussed in Paragraph 4 and the SVE system in Paragraph 5.

This plan includes, but may not be limited to:

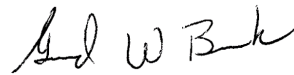
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
  - descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
  - provisions for the management and inspection of the identified engineering controls;
  - maintaining site access controls and Department notification; and
  - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
- b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
    - monitoring for vapor intrusion for any buildings on the site, and monitoring of groundwater may be required by the Institutional and Engineering Control Plan discussed above.
    - a schedule of monitoring and frequency of submittals to the Department.
  - c. Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active SVE and vapor mitigation systems. The plan includes, but is not limited to:
    - procedures for operating and maintaining the system; and
    - compliance inspection of the system 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 Department guidance, as appropriate. The remedy is protective of public health and the environment.

April 29, 2022



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Date

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Gerard Burke, Director  
Remedial Bureau B

# DECISION DOCUMENT

13-12 Beach Channel Drive  
Far Rockaway, Queens County  
Site No. C241254  
April 2022

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## **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=C241254>

Queens Community Board 14  
1931 Mott Avenue #311  
Queens, NY 11691  
Phone: (718) 471-7300

Queens Public Library - Central  
89-11 Merrick Boulevard  
Jamaica, NY 11432  
Phone: (718) 990-0700

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

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at <http://www.dec.ny.gov/chemical/61092.html>

### **SECTION 3: SITE DESCRIPTION AND HISTORY**

#### **Location:**

The site is located at 13-12, 13-16, and 13-24 Beach Channel Drive in the Far Rockaway section of Queens, NY. The 0.76-acre site is identified as Block 15528, Lots 5, 6, and 9 on the New York City Tax Map. The site is bounded by Beach Channel Drive to the west, a 1-story commercial building and a 3-story residential building to the north, Redfern Avenue to the east, and several 1 story commercial buildings and 2 story commercial/residential buildings to the south.

#### **Site Features:**

The site is currently developed with three vacant structures. Lot 5 is developed with a single-story former fast-food restaurant, Lot 6 is developed with a three-story former church and apartment building, while Lot 9 is developed with a single-story former drive-through carwash.

#### **Current Zoning and Land Use:**

The site is zoned R6 (residential) with a C2-4 (commercial) overlay. The site is also located within the Special Downtown Far Rockaway District (DFR).

#### **Past Use of the Site:**

According to NYC Department of Buildings records, Lot 5 was undeveloped until circa 1971, at which point the parcel was developed with the current one-story commercial fast-food restaurant structure and remained as such until at least 2006. Lot 6 was developed circa 1895 with a dwelling and shed, located centrally on the parcel, which was razed and replaced with a new residential building and shed on the western portion of the parcel as early as 1933. The shed was removed at some point between 1951 and 1981. This residential/commercial building remains on the site and was historically occupied by an animal hospital (circa 1981) and a church (circa 2017). Lot 9 was undeveloped until circa 1951 at which point the parcel was developed with a one-story car wash facility and remained as such until at least 2006.

#### **Site Geology and Hydrogeology:**

The elevation of the site ranges from approximately 17 feet above mean sea level (msl) to 25 feet

above msl. There is an approximate 6-foot elevation change from the east to west. Subsurface materials consisting of historic fill material containing sand, gravel, cobbles, brick, coal, and glass fragments, were encountered from the surface to a depth of three feet below ground surface (bgs). The fill material is underlain by native deposits consisting of fine to coarse tan sand with some silt.

Groundwater is present at depths of approximately 17 bgs, as measured from monitoring wells across the site. Groundwater flows in a northwest direction. Groundwater in this area of Queens is not used as a source of potable water.

A site location map is attached as Figure 1.

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

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

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

#### **SECTION 5: ENFORCEMENT STATUS**

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Volunteer does not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are necessary.

The Department will seek to identify any parties (other than the Volunteer) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

#### **SECTION 6: SITE CONTAMINATION**

##### **6.1: Summary of the Remedial Investigation**

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

- characterize site conditions;



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

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

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

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

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

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: <http://www.dec.ny.gov/regulations/61794.html>

#### **6.1.2: RI Results**

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

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

cis-1,2-dichloroethene

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

- groundwater
- soil
- soil vapor intrusion

## **6.2: Interim Remedial Measures**

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

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

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

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

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), per- and polyfluoroalkyl substances (PFAS), and pesticides. Soil vapor was sampled for VOCs. Based on the investigations conducted to date, the primary contaminants of concern are VOCs and SVOCs in soil; VOCs, SVOCs, and metals in groundwater; and VOCs in soil vapor.

Soil - SVOCs were found at concentrations exceeding the applicable restricted residential soil cleanup objectives (RRSCOs) including benzo(a)anthracene (max of 6.8 parts per million (ppm); RRSCO is 1 ppm), benzo(a)pyrene (max of 7 ppm; RRSCO is 1 ppm), benzo(b)fluoranthene (max of 8.8 ppm; RRSCO is 1 ppm), benzo(k)fluoranthene (max of 2.3 ppm; RRSCO is 3.9 ppm), chrysene (max of 6 ppm; RRSCO is 3.9 ppm), dibenz(a,h)anthracene (max of 0.92 ppm; RRSCO is 0.33 ppm), indeno(1,2,3-cd)pyrene (max of 4.2 ppm; RRSCO is 0.5 ppm). These contaminants were detected in one soil boring located in the southwest portion of the site. One VOC was found at concentrations exceeding the applicable PGWSCOs including tetrachloroethene (PCE) (max of 5.5 ppm; PGWSCO is 1.3 ppm). PCE was detected in soil borings in two hotspot areas near the southern border of the site. No metals, PCBs, and pesticides were detected above applicable SCOs. PFAS were detected at trace concentrations below the protection of groundwater guidance values.

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

Groundwater - Exceedances of the ambient groundwater quality standards (AWQS) for VOCs included chloroform (max of 28 parts per billion (ppb); AWQS of 7 ppb) and tetrachloroethene (PCE) (max of 240 ppb; AWQS of 5 ppb). These VOCs were detected in groundwater samples

throughout the site. SVOCs detected in exceedance of AWQS include benzo(a)anthracene (max of 0.07 ppb; AWQS is 0.002 ppm), benzo(a)pyrene (max of 0.12 ppb; AWQS is 0.0 ppb), benzo(b)fluoranthene (max of 0.21 ppm; AWQS is 0.002 ppb), benzo(k)fluoranthene (max of 0.07 ppb; AWQS is 0.002 ppb), chrysene (max of 0.08 ppm; AWQS is 0.002 ppb), and indeno(1,2,3-cd)pyrene (max of 0.17 ppm; AWQS is 0.002 ppb). Dissolved metals in exceedance of AWQS include iron (max of 7,200 ppb; AWQS is 300 ppb), manganese (max of 2,686 ppb; AWQS is 300 ppb), and sodium (max of 525,000 ppb; AWQS is 20,000 ppb). Emerging contaminants in exceedance of AWQS include perfluorooctanoic acid (PFOA) (max of 56.4 parts per trillion (ppt)) and perfluorooctanesulfonic acid (PFOS) (max of 94.3 ppt) were detected above NYSDOH maximum contaminant level (MCL, the drinking water standard) of 10 ppt each in monitoring wells throughout the site. There are no public water supply wells within a half a mile and there is a municipal prohibition for use of groundwater at the site.

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

Soil Vapor - VOCs were detected in the soil vapor throughout the site. VOCs detected in soil vapor included tetrachloroethene (PCE) (max of 271,000 micrograms per cubic meter (ug/m<sup>3</sup>)), trichloroethene (TCE) (max of 1,460 ug/m<sup>3</sup>), and cis-dichloroethene (max of 706 ug/m<sup>3</sup>).

Data indicates 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*.

People are not expected to come into contact with contaminated soil since the site is covered with buildings and pavement. People are not drinking site-related contaminants in the groundwater since the area is served by a public water supply not affected by this contamination. 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. The site is vacant so inhalation of site contaminants in indoor air via vapor intrusion is not a current concern. However, the potential exists for inhalation of site contaminants due to soil vapor intrusion for any future on-site development or occupancy. The potential exists for indoor air impacts from site contaminants off-site and additional investigations are needed to evaluate this exposure pathway in the event that access is granted.

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

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

The remedial action objectives for this site are:

### **Groundwater**

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

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

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

- Remove the source of ground or surface water contamination.

### **Soil**

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

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

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

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

### **Soil Vapor**

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

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

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

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

The selected remedy is a Track 2: Restricted use with generic soil cleanup objectives remedy.

The selected remedy is referred to as the Excavation, SVE, Vapor Mitigation, and In-Situ Groundwater Treatment Using Activated Carbon and Enhanced Bioremediation 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;
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- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
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- 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.

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

Approximately 400 tons of contaminated soil will be removed from the site.

## **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.

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A minimum of three SVE wells will be installed into the vadose zone. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon

which removes the VOCs from the air prior to it being discharged to the atmosphere.

## **6. In-Situ Groundwater Treatment Using Activated Carbon and Enhanced Biodegradation**

Activated carbon will be added to the subsurface to capture and prevent the migration of trichloroethene (TCE) and tetrachloroethene (PCE) onto the site from an off-site, upgradient source. In-situ enhanced biodegradation will be employed to treat PCE and TCE in groundwater in the area downgradient of the off-site dry cleaner. The biological breakdown of contaminants through anaerobic reductive dichlorination will be enhanced by biodegradation enhancers. The method and depth of injection will be determined during the remedial design. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation. Prior to the full implementation of this technology, on-site pilot scale studies will be conducted to more clearly define design parameters.

## **7. 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 the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH; and
- require compliance with the Department approved Site Management Plan.

## **8. Site Management Plan**

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

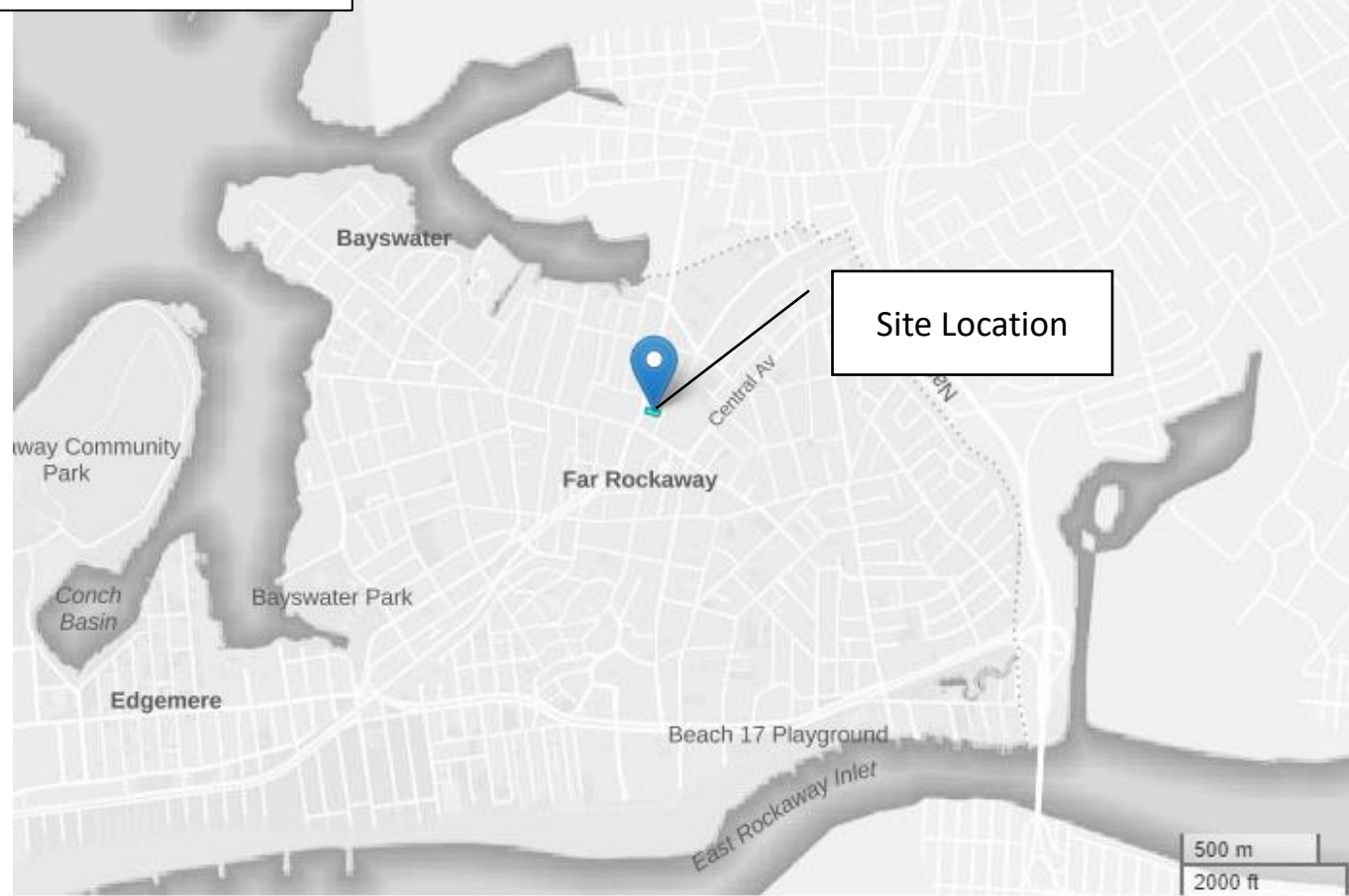
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  - Institutional Controls: The Environmental Easement discussed in Paragraph 7.
  - Engineering Controls: The sub-slab depressurization system discussed in Paragraph 4 and the SVE system in Paragraph 5.

This plan includes, but may not be limited to:

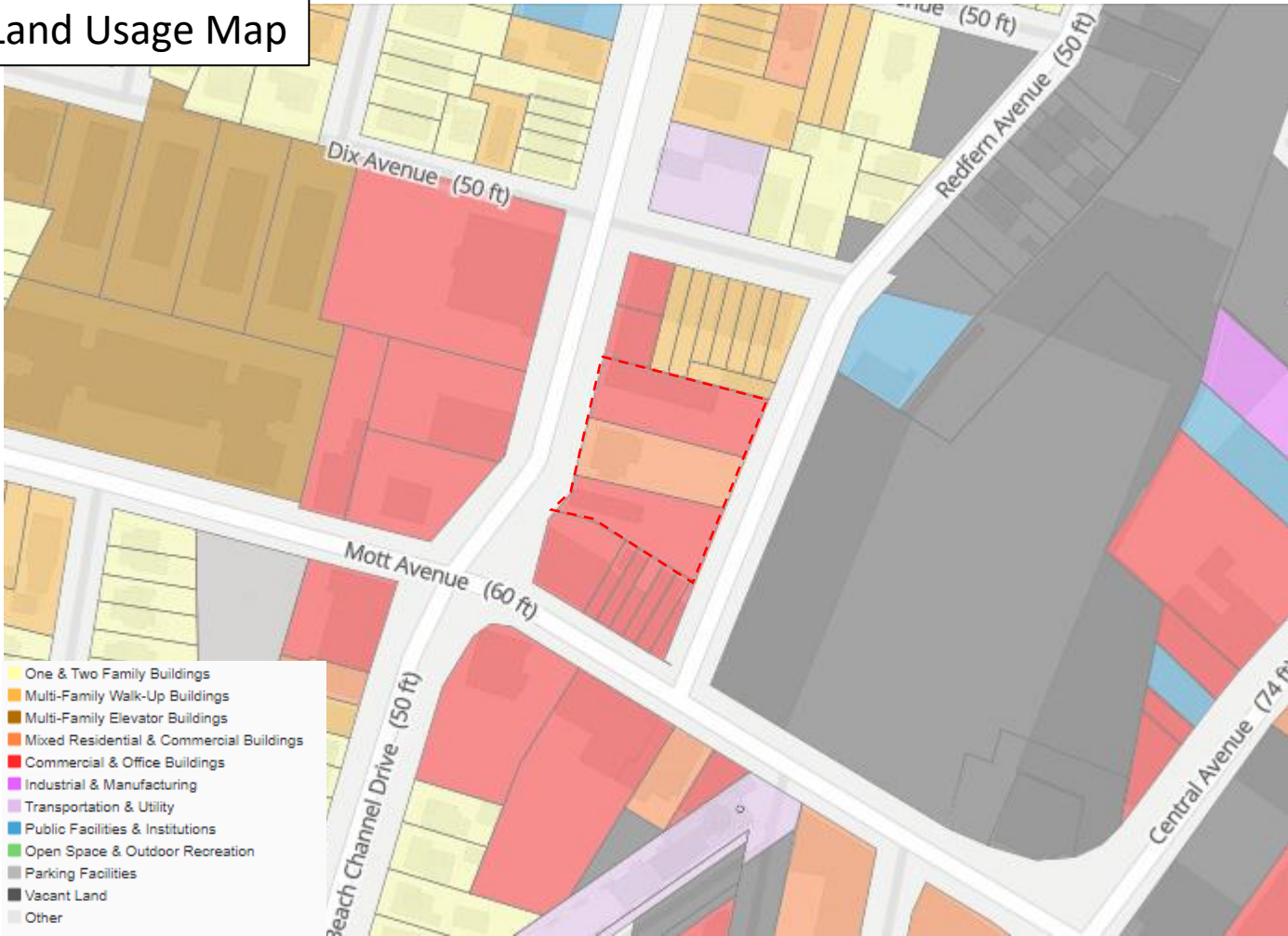
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
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- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

- b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring for vapor intrusion for any buildings on the site, and monitoring of groundwater may be required by the Institutional and Engineering Control Plan discussed above.
  - a schedule of monitoring and frequency of submittals to the Department.
- c. Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active SVE and vapor mitigation systems. The plan includes, but is not limited to:
- procedures for operating and maintaining the system; and
  - compliance inspection of the system to ensure proper O&M as well as providing the data for any necessary reporting.

### Site Location Map



### Land Usage Map



### Site Topographic Map



### Legend

Site Boundaries



### NOTES:

Base maps:

- Site Location Map - NYCOER SPEED Map
- Land Usage Map - NYC Planning ZoLa Map
- Topographic Map - USGS Far Rockaway Quadrangle Topo Map

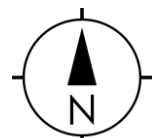
### SITE LOCATION, LAND USAGE, AND TOPOGRAPHIC MAPS

13-16 to 13-30  
Beach Channel  
Drive, Far  
Rockaway, NY

### Figure 1

Project #:	15209
Drawn By:	CJC
Checked By:	GMC
Date:	1/7/21

### Revisions

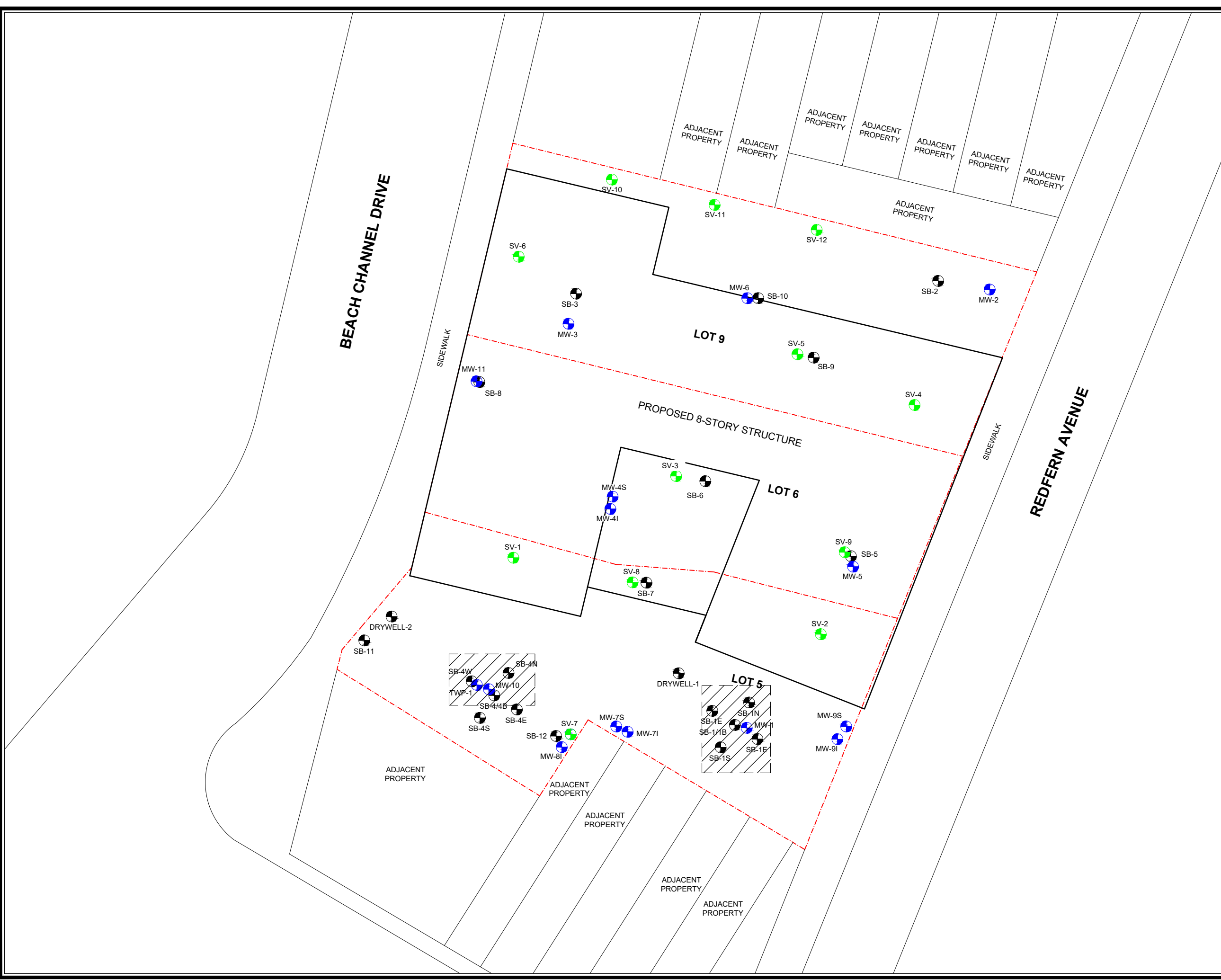
Not to scale

### IMPACT ENVIRONMENTAL CLOSURES, INC.

170 KEYLAND COURT  
BOHEMIA, NEW YORK 11716  
TEL (631) 269-8800  
FAX (631) 269-1599







### LEGEND

- SOIL BORING LOCATION
- GROUNDWATER SAMPLE LOCATION
- SOIL VAPOR SAMPLE LOCATION
- APPROXIMATE PROPERTY LINE
- REMEDIAL EXCAVATION

PROJECT

NORTH

0' 30' 60'

- NOTES:
- SOIL BORINGS SB-1, SB-1A, SB-2, SB-3, SB-4 SB-5 & SB-6, MONITORING WELLS MW-1 TO MW-3 AND SOIL VAPOR POINTS SV-1 TO SV-6 WERE COLLECTED DURING IEC 202 RIR . THE REMAINDER OF THE SAMPLES WERE COLLECTED DURING THE IEC 2021 RIR.
  - MONITORING WELLS WERE SURVEYED BY IEC ON SEPTEMBER 28, 2021.
  -

### REMEDIAL EXCAVATION

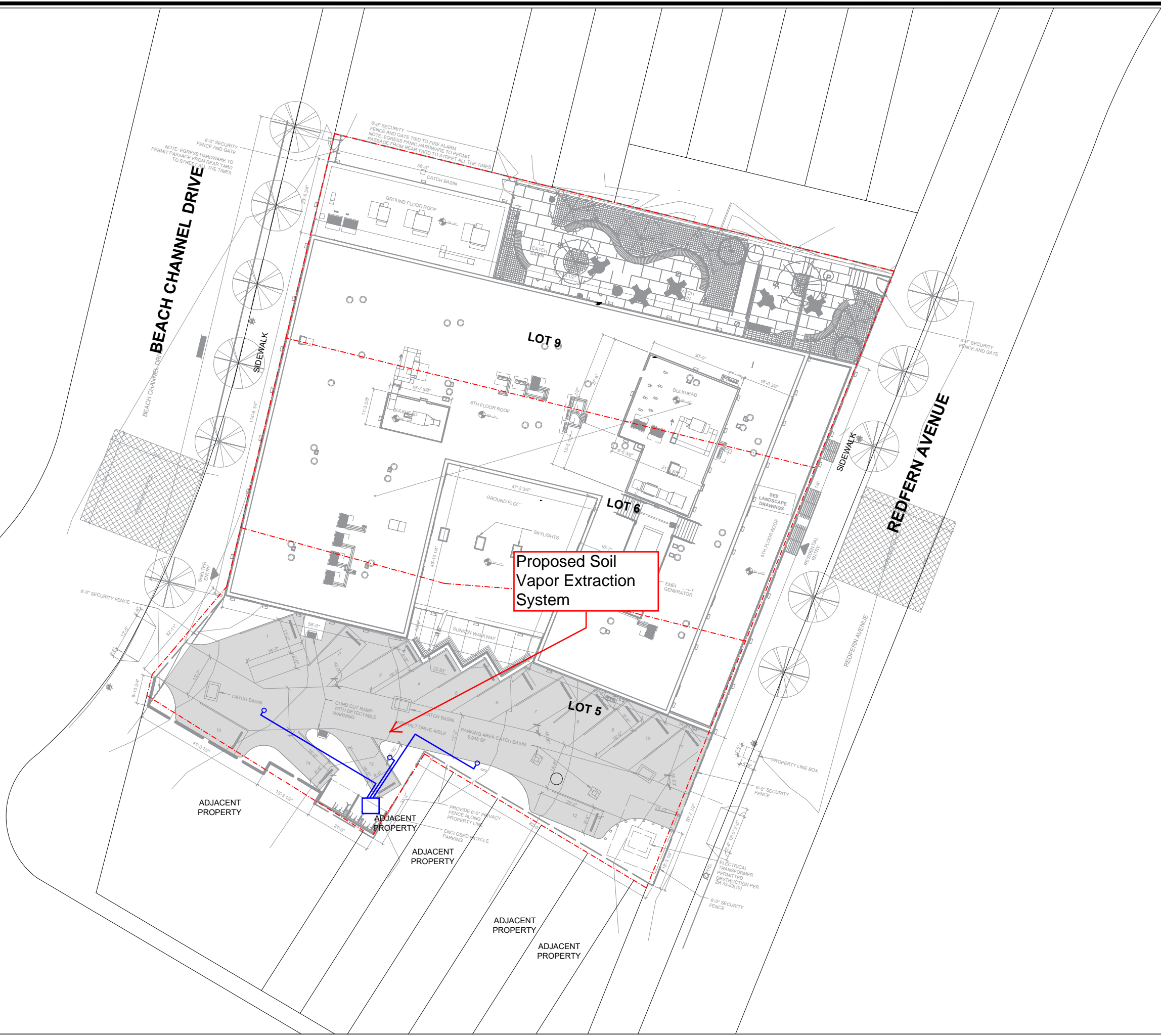
13-12 to 13-24  
Beach Channel Drive  
Queens, New York

PROJECT NO:	15209-01
DESIGNED BY:	LR
DRAWN BY:	AB
CHECKED BY:	GMC
DATE:	12/7/2021
SCALE:	1" = 30'
REVISIONS	

Figure 2

**IMPACT ENVIRONMENTAL CLOSURES, INC.**

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BOHEMIA, NEW YORK 11716  
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**LEGEND**

- 3" SCH. 40 PVC PIPE MIN.
- - - PROPERTY LINE
- SOIL VAPOR EXTRACTION WELL

PROJECT

NORTH

0'      30'      60'

NOTES:

1. SVE WELL QUANTITY AND LOCATIONS ARE SUBJECT TO PILOT WELL TESTING

**PROPOSED SOIL VAPOR EXTRACTION SYSTEM LOCATION**

13-12 to 13-24  
Beach Channel Drive  
Queens, New York

PROJECT NO:	15209-01
DESIGNED BY:	LR
DRAWN BY:	AB
CHECKED BY:	GMC
DATE:	12/3/2021
SCALE:	1" = 30'
REVISIONS	

Figure 3

**IMPACT ENVIRONMENTAL CLOSURES, INC.**

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BOHEMIA, NEW YORK 11716  
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BEACH CHANNEL DRIVE

SEE DETAIL 2

SIDEWALK



SEE DETAIL 1







SEE LANDSCAPE DRAWINGS

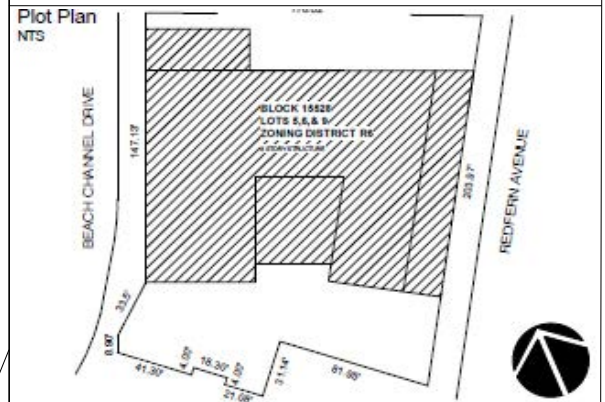
SEE DETAIL 5

REDFERN AVENUE

SIDEWALK

LEGEND

-  APPROXIMATE PROPERTY LINE
-  PROPOSED VAPOR EXTRACTION PIT WITH 4" Ø VERTICAL RISER (TO 1ST FLOOR CEILING)
-  PROPOSED 4" Ø RISER TO ROOF
-  PROPOSED VACUUM MONITORING POINT
-  PROPOSED SSDS OVERHEAD PIPING (1ST FLOOR CEILING)
-  0.5% MIN. SLOPE OF PIPE TOWARD VERTICAL EXTRACTION RISER TO DRAIN CONDENSATE TO SUB-SLAB



SSD System  
First Floor Layout

13-12 to 13-24  
Beach Channel Drive  
Queens, New York

PROJECT NO.	15209-01
DESIGNED BY:	LR
DRAWN BY:	AB
CHECKED BY:	GMC
DATE:	12/3/2021
SCALE:	1" = 20'
REVISIONS	

Figure 4



IMPACT ENVIRONMENTAL  
CLOSURES, INC.

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**LEGEND**

- SOIL BORING LOCATION
- APPROXIMATE PROPERTY LINE
- PRB INJECTION POINT

**PROJECT**

NORTH

NOTES:

**PROPOSED PERMEABLE REACTIVE BARRIER**

13-12 to 13-24  
Beach Channel Drive  
Queens, New York

PROJECT NO:	15209-01
DESIGNED BY:	LR
DRAWN BY:	AB
CHECKED BY:	GMC
DATE:	12/3/2021
SCALE:	1" = 30'
REVISIONS	

Figure 5

**IMPACT ENVIRONMENTAL CLOSURES, INC.**

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