# DECISION DOCUMENT

Former Anglo Chemical and Rubber Site
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224337
August 2023


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

# DECLARATION STATEMENT - DECISION DOCUMENT

Former Anglo Chemical and Rubber Site
Brownfield Cleanup Program
Brooklyn, Kings County
Site No. C224337
August 2023

**Statement of Purpose and Basis**

This document presents the remedy for the Former Anglo Chemical and Rubber 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 Former Anglo Chemical and Rubber 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$^{TM}$ (available in the Sustainable Remediation Forum [SURF] library) or similar Department accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

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

2. Excavation

Excavation and off-site disposal of all on-site soils which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8 to a depth of approximately 17 feet below grade across the site. If found on the site, any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination will be excavated and properly disposed off-site. Approximately 10,000 cubic yards of contaminated soil will be removed from the site.

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

To ensure proper handling and disposal of excavated material, waste characterization sampling

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

3. Backfill

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

4. 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, if necessary.

5. Local Institutional Controls

If no environmental easement or Site Management Plan is needed to achieve soil, groundwater or soil vapor intrusion remedial action objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code, which prohibits potable use of groundwater without prior approval.

Conditional Track 1

The intent of the remedy is to achieve Track 1 unrestricted use; therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan and Environmental Easement 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 soil, 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.

6. In-situ solidification

In-situ solidification (ISS) will be implemented at the site where end-point samples do not meet protection of groundwater SCOs for metals. The treatment zone is estimated to extend from approximately 17 feet below grade to approximately 25 feet below grade in areas where elevated metals are present below the water table. ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents or other binding agents using excavators. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. ISS will be subject

to performance standards to ensure homogeneity of the solidified monolith. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination.

Groundwater monitoring will be required down-gradient of the ISS treatment area. Monitoring will be conducted for contaminants of concern.

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 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 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 NYCDOHMH; and
- require compliance with the DEC 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 remedial element 7 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater 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;
- 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.

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 DEC;
- 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.

Aug. 11, 2023

Date

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

# DECISION DOCUMENT

Former Anglo Chemical and Rubber Site
Brooklyn, Kings County
Site No. C224337
August 2023

## 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.

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

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 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=C224337

Brooklyn Public Library - Greenpoint Branch
107 Norman Avenue
Brooklyn, NY 11222
Phone: (718) 389-4394

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

**Receive Site Citizen Participation Information By Email**

Please note that 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

Site Location: The site is located at 1-9 Wythe Avenue, in the Greenpoint neighborhood of Brooklyn, NY. The 0.382-acre site is identified on the New York City tax map as Block 2641 Lots 1, 3 and 4. The site is bound by Wythe Avenue followed by a vacant lot to the north, Banker Street followed by three 1-story industrial use buildings and a vacant lot to the east, North 15th Street followed by a 1-story and a 2-story industrial use buildings to the west, and the intersection of North 15th Street and Banker Street to the south.

Site Features: The site is a triangular shaped vacant lot which formerly had three one-story manufacturing facilities located in the northern portion of the property. The former buildings were demolished in 2022.

Current Zoning and Land Use: The site is zoned for M1-2 which allows for light manufacturing, commercial and residential uses. The surrounding properties are currently used for commercial and warehousing/manufacturing purposes.

Past Land Use: The site was developed between 1916 and 1942 with a 1-story building noted as a paint and varnish manufacturer on the eastern portion, barrel storage on the western portion and manufacturing on the northern and central portions. In 1951 the barrel storage area was expanded to the southeastern portion of the site. Between 1965 and 1981 the layout of the site remained the same; however, the operations were updated as "inflammable liquid canning". Between 1982 and 1993 the site use consisted of unspecified manufacturing, and an additional warehouse was erected in the southwest corner of the property. Recently the site was used for multiple commercial operations including active furniture woodworking and a kitchen counter remodeling shop.

Site Geology and Hydrogeology: The stratigraphy of the site consists of approximately 3 feet of historic fill underlain by 5 feet of brown sand with varying degrees of silt, and gravel. Groundwater was encountered at approximately 9 ft below grade surface and groundwater flow

is to the west towards Bushwick inlet, which is located approximately 1,000 feet from the site.

A site location map is attached as Figure 1.

## SECTION 4: LAND USE AND PHYSICAL SETTING

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 restricts 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) against unrestricted use standards, criteria and guidance values (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, 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

### 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. 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 contaminants of concern identified at this site is/are:

| | |
|---|---|
| | indeno(1,2,3-cd)pyrene |
| benzene | lead |
| toluene | mercury |
| xylene (mixed) | copper |
| benzo(a)anthracene | arsenic |
| benzo(a)pyrene | 1,2,4-trimethylbenzene |
| benzo(b)fluoranthene | 1,3,5-trimethylbenzene |
| dibenzo(a,h)anthracene | ethylbenzene |

The contaminants 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), polychlorinated biphenyls (PCBs), pesticides, per- and polyfluoroalkyl substances (PFAS), and metals. 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 (primarily arsenic) in soil, VOCs and arsenic in groundwater, and VOCs in soil vapor.

Soil - Soil samples were collected during the Remedial Investigation (RI) at depths ranging from the site's current grade to 12 feet below grade. Several SVOCs exceed unrestricted use soil cleanup objectives (UUSCOs) across the site including benzo(a)anthracene at a maximum concentration of 44.2 parts per million (ppm), benzo(a)pyrene at a maximum concentration of 45.8 ppm, and benzo(b)fluoranthene at a maximum concentration of 33.2 ppm, all compared to their respective UUSCOs of 1 ppm; dibenzo(a,h)anthracene at a maximum concentration of 9.58 ppm compared to its UUSCO of 0.33 ppm; and indeno(1,2,3-cd)pyrene at a maximum concentration of 26.3 ppm compared to its UUSCO of 0.5 ppm.

There were exceedances of UUSCOs for metals in soils, including, but not limited to, arsenic at a maximum concentration of 1,220 ppm (UUSCO is 13 ppm), copper at a maximum concentration of 1,470 ppm (UUSCO is 50 ppm), lead at a maximum concentration of 16,400 ppm (UUSCO is 63 ppm), and mercury at a maximum concentration of 47.2 ppm (UUSCO is 0.18 ppm).

The emerging contaminants perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected at maximum concentrations of 26.2 parts per billion (ppb) and 9.38 ppb respectively, above their respective unrestricted use guidance values of 0.88 ppb and 0.66 ppb. 1,4-Dioxane was not detected in any soil samples. No VOCs, PCBs or pesticides were detected at concentrations exceeding their respective UUSCOs.

The elevated levels of SVOCs and metals encountered in on-site soils are likely the result of the placement of historic fill or historic industrial use. Data does not indicate any off-site impacts in soil related to this site.

Groundwater: Five VOCs were detected in groundwater above their respective Ambient Water Quality Standards (AWQSs) including 1,2,4-trimethylbenzene at a maximum concentration of 25.9 parts per billion, or ppb (AWQS is 5 ppb), 1,3,5-trimethylbenzene at a maximum concentration of 114 ppb (AWQS is 5 ppb), benzene at a maximum concentration of 5.14 ppb (AWQS is 1 ppb), naphthalene at a maximum concentration of 5,740 ppb (AWQS is 10 ppb), and xylene at a maximum concentration of 9.22 ppb (AWQS is 5 ppb).

The following SVOCs were detected at concentrations exceeding their respective standards: acenaphthene at a maximum concentration of 88.9 ppb (AWQS is 20 ppb); benzo(a)anthracene at a maximum concentration of 0.63 ppb (AWQS is 0.002 ppb); benzo(a)pyrene at a maximum concentration of 0.8 ppb (AWQS is 0.002 ppb); benzo(b)fluoranthene at a maximum concentration of 0.618 ppb (AWQS is 0.002 ppb); benzo(k)fluoranthene at a maximum concentration of 0.582 ppb (AWQS is 0.002 ppb); chrysene at a maximum concentration of 0.594 ppb (AWQS is 0.002 ppb); fluorene at a maximum concentration of 66.7 ppb (AWQS is 50 ppb); indeno(1,2,3-cd)pyrene at a maximum concentration of 0.558 ppb (AWQS is 0.002 ppb) and phenanthrene at a maximum concentration of 111 ppb (AWQS is 50 ppb).

Dissolved metals detected on-site in filtered groundwater samples exceeded AWQS for arsenic at a maximum concentration 146 ppb (AWQS is 25 ppb), magnesium at 39,000 ppb (AWQS is xx ppb), manganese at 1,330 ppb (AWQS is 300 ppb), and sodium at 279,000 ppb (AWQS is 20,000 ppb).

Perfluorooctanoic acid (PFOA) was detected exceeding its AWQS guidance value of 6.7 ppt at a maximum concentration of 57 ppt. Perfluorooctanesulfonic acid (PFOS) was detected exceeding its AWQS guidance value of 2.7 ppt at a maximum concentration of 26.5 ppt. 1,4-Dioxane was not detected in any of the groundwater samples.

No on-site source of VOCs was encountered in sites soils. The presence of SVOCs in groundwater is likely due to the presence of entrained sediments in groundwater samples. The presence of arsenic in groundwater is likely attributable to contaminated site soils consisting of historic fill. Arsenic was detected in a filtered off-site groundwater sample collected adjacent to the site at a concentration of 176 ppb. The presence of metals in groundwater besides arsenic is likely due to naturally occurring minerals. PFAS concentrations are similar in upgradient and downgradient monitoring wells. No source of PFAS contamination was identified on site. Data does not indicate any off-site impacts in groundwater related to the site.

Soil Vapor: Tetrachloroethene and trichloroethene were each detected at a maximum concentration of 24 micrograms per cubic meter (ug/m3) in soil vapor. Total benzene, toluene, ethylbenzene, xylene (BTEX) was detected in soil vapor at a maximum concentration of 86,100 ug/m3 with benzene being detected at a maximum concentration of 35,000 ug/m3, toluene being detected at a maximum concentration of 7,000 ppb, ethylbenzene being detected at a maximum concentration of 11,000 ppb, and total xylenes being detected at a maximum concentration of 33,100 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, vacant, and is covered by pavement and building slabs. People who enter the site will not come into contact with site-related soil and groundwater contamination unless they dig below the surface. Contaminated groundwater at the site is not used for drinking or other

purposes and the site is served by 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 buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. The potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site redevelopment. Environmental sampling indicates that 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.

**RAOs for Environmental Protection**

- Remove the source of groundwater 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 the 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 remedy.

The selected remedy is referred to as the Excavation and Vapor Evaluation remedy.

The elements of the selected remedy, as shown in Figure 2, is 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), SiteWiseTM (available in the Sustainable Remediation Forum [SURF] library) or similar Department accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and

sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

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

2. Excavation

Excavation and off-site disposal of all on-site soils which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8 to a depth of approximately 17 feet below grade across the site. If found on the site, any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination will be excavated and properly disposed off-site. Approximately 10,000 cubic yards of contaminated soil will be removed from the site.

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

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

3. Backfill

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

4. 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, if necessary.

5. Local Institutional Controls

If no environmental easement or Site Management Plan is needed to achieve soil, groundwater or soil vapor intrusion remedial action objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOH code, which prohibits potable use of groundwater without prior approval.

Conditional Track 1

The intent of the remedy is to achieve Track 1 unrestricted use; therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan and Environmental Easement 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 soil, 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.

6. In-situ solidification

In-situ solidification (ISS) will be implemented at the site where end-point samples do not meet protection of groundwater SCOs for metals. The treatment zone is estimated to be located towards the center of the site and extend from approximately 17 feet below grade to approximately 25 feet below grade in areas where elevated metals are present below the water table. ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents (typically Portland cement) or other binding agents using excavators. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. ISS will be subject to performance standards to ensure homogeneity of the solidified monolith. The solidified mass will then be covered with a cover system as described in remedy element 5 to prevent direct exposure to the solidified mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination.

Groundwater monitoring will be required down-gradient of the ISS treatment area. Monitoring will be conducted for contaminants of concern.

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 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 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 NYCDOHMH; and
- require compliance with the DEC 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 remedial element 7 above.

This plan includes, but may not be limited to:
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater 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;
- 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.

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 ;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above

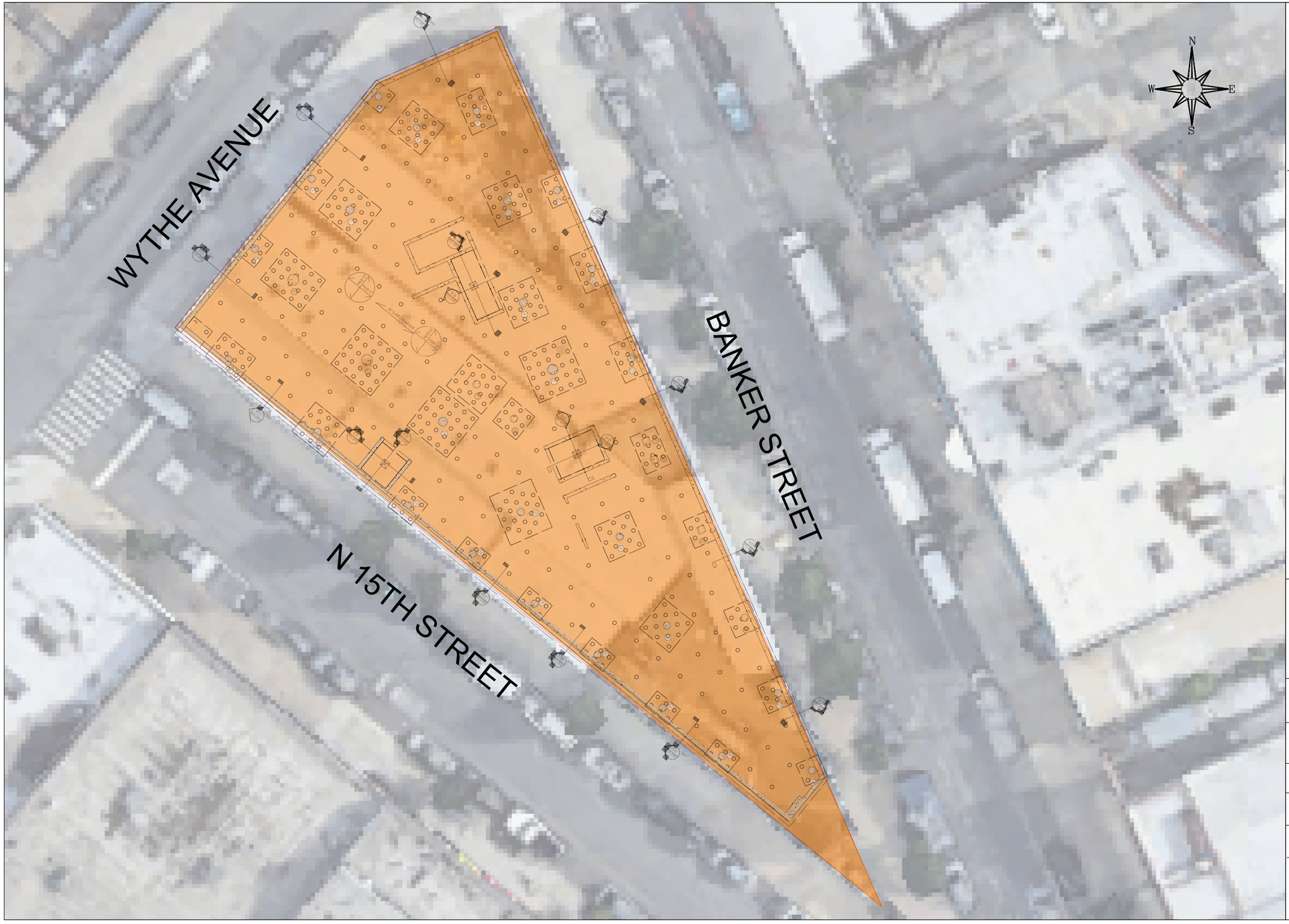

# Site Map

## Former Anglo Chemical and Rubber Site

1-9 Wythe Avenue
City of Brooklyn, Kings County
Site No. C224337

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

Decision Document Figure 1:
Site Location Map





# vEKtor consultants

t: +1.347.871.0750
f: +1.347.402.7735
e: info@vektorconsultants.com
www.vektorconsultants.com


Legend:

- Site Boundary
- Excavation to 17' bgs

Notes:

1. All feature locations are approximate
2. Figure shows planned excavation to17 feet across the entire site

Scale:

0 10' 20' 40'

| | |
|---|---|
| Figure No. | 10 |
| Figure Name: | Alternative 1: Track 1 Cleanup |
| Report: | RAWP |
| Date: | 7/14/2023 |
| Drawn By: | KB |
| Site Address: | 1-9 Wythe Avenue<br>Brooklyn, New York |

Decision Document Figure 2: Excavation Depths