# DECISION DOCUMENT

North America/Pulse Plastics Site
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203144
December 2024


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 North America/Pulse Plastics Site brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the North America/Pulse Plastics Site and the public's input to the proposed remedy presented by the NYSDEC.

**Description of Selected Remedy**

The elements of the selected remedy are as follows:

**1. Remedial Design**

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

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- 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 NYSDEC 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:

- soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

Excavation and off-site disposal of all on-site soils which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8, to depths ranging to 0.5 feet below grade to 4 feet below grade across most of the site with deeper "hotspot" soil excavations ranging from 7 feet below grade up to 18.5 feet below grade. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy. 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 NYSDEC, submit the sample results and, in consultation with the NYSDEC, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved. Approximately 6,500 cubic yards of contaminated soil will be removed from the

site.

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

**3. Backfill**

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

**4. Soil Vapor Extraction**

Soil vapor extraction (SVE) will be implemented along the western boundary to remove volatile organic compound (VOC) vapors from the subsurface and prevent off-site migration of contaminated vapor. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed in the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOC vapors 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. The remedial design details of the SVE system (number of wells, screen length, airflow, discharge control) will be developed and submitted for the NYSDEC approval. Upon system startup, SVE wells will be tested to confirm vacuum influence and effectiveness of the system. If there are no SVE wells located near the site boundary of concern, vacuum monitoring points will be installed near the site boundary to evaluate SVE effectiveness at preventing offsite migration of contaminated vapors.

**5. In-Situ Chemical Oxidation**

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum-related contaminants in groundwater. A chemical oxidant (oxygen-release compound (ORC) or equivalent) will be injected into the subsurface to destroy the contaminants in the northeastern portion of the site, where petroleum-related compounds were elevated in the groundwater. The method and depth of injection will be determined during the remedial design.

Monitoring will be required down-gradient, and within the treatment zone. Monitoring will be conducted for contaminants of concern in and downgradient of the treatment zone. The treatment zone will be monitored for dissolved oxygen and oxidation/reduction potential.

**6. 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.

**7. Local Institutional Controls**

If no Environmental Easement (EE) or Site Management plan (SMP) is needed to achieve soil, groundwater, or soil vapor remedial action objectives, then the following local use restriction

will be relied upon to prevent ingestion of groundwater: Article 141 of the NYCDOHMH code, which prohibits potable use of groundwater without prior approval.

**Conditional Track 1**

The intent of the remedy is to achieve Track 1 unrestricted use; therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, 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, including continued operation of the SVE in Remedy Element 4, 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 a Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy with achieve a Track 2 restricted residential cleanup.

***Conditional Remedial Elements***

**8. Institutional Control**

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allow the use and development of the controlled property for restricted residential 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 NYSDEC approved Site Management Plan.

**9. Site Management Plan**

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

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

   - Institutional Controls: The Environmental Easement discussed in Remedy Element 8 above.

   - Engineering Controls: The soil vapor extraction system discussed in Remedy Element 4, above, and any vapor mitigation system, if determined necessary by soil vapor intrusion evaluation discussed in Remedy Element 6.

   This plan includes, but may not be limited to

- 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 NYSDEC notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater, indoor air and soil vapor to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the NYSDEC; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan, discussed above.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and NYSDEC notification; and
   - providing the NYSDEC access to the site and O&M records.

## Declaration

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

December 11, 2024

Date

Scott Deyette, Director
Remedial Bureau B

# DECISION DOCUMENT

North America/Pulse Plastics Site
Bronx, Bronx County
Site No. C203144
December 2024

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## SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance, based on the reasonably anticipated use of the property.

The NYSDEC has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

## SECTION 2: CITIZEN PARTICIPATION

The NYSDEC seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the NYSDEC in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C203144

NY Public Library - Hunts Point
877 Southern Boulevard
Bronx, NY 10459
Phone: 718-617-0338

Bronx Community Board 2
1029 East 163rd Street
Bronx, NY 10459
Phone: 718-328-9125

**Receive Site Citizen Participation Information By Email**

Please note that the NYSDEC 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 1156 East 165th Street in the Longwood neighborhood of the Bronx and is identified as Block 2756, Lot 90 on the New York City Tax Map. The site is bounded to the north by East 165th Street, to the east by Whitlock Avenue, to the south by ongoing construction of a residential apartment building (completed BCP site C203148, Sonero Metro City Auto) and to the west by residential buildings followed by Longfellow Avenue.

Site Features: The 0.626-acre site is currently a vacant lot that was formerly occupied by an approximately 20,000 square foot single-story building. The site contains grassy areas, asphalt, and minor debris from the demolition of the former structures. The site is secured with fences and locked gates.

Current Zoning and Land Use: The site is located in an R8 residential zoning district with a C2-4 commercial overlay. The neighborhood is mixed-use with generally light industrial, commercial, or residential properties in the surrounding area.

Past Use of the Site: By 1896 the site was developed with a garage and other storage structures. A 1950 Sanborn Fire Insurance map depicted the former single-story building being utilized as a garage containing two 550-gallon gasoline tanks. Until 2000, auto repair facilities operated on-site, during which two petroleum spills were reported: in 1987 approximately 300 gallons of #2 fuel oil were released in the basement of the building (NYSDEC Spill No. 8706894) and in 1992 approximately one gallon of petroleum spilled onto the pavement when a tank was overfilled (NYSDEC Spill No. 9201510). Both spills are now closed. From 2000 to 2017, a plastics manufacturing facility operated on the site, utilizing the former single-story building for office space as well as plastic manufacturing, which included the use and operation of manufacturing equipment and chemical storage.

Site Geology and Hydrogeology: Surface material at the site consists of historic fill containing brown to gray silt mixed with traces of coarse to fine sand and gravel ranging from surface grade

to 12 feet below grade surface (bgs). Native soils beneath the fill layer are predominantly coarse to fine sand with varying amounts of silt, gravel, and cobbles from 4 feet bgs (western portion of site) to 37 feet bgs (eastern portion of site). Bedrock was encountered from 2.5 to 4.5 feet bgs on the western side of the site and generally dips to the east where it was encountered at a maximum depth of 37 feet bgs on the east side of the site. Bedrock was classified as schist and gneiss.

Overburden groundwater is approximately 12 to 15 feet bgs on the eastern portion of the site and generally flows to the east-southeast towards the Bronx River, which is located approximately 0.1 miles east of the site, but groundwater may also flow towards the north near the northeast corner of the site. Bedrock groundwater was measured from approximately 1.6 feet bgs to 13.6 feet bgs.

A site location map is attached as Figure 1, and a site plan is attached as Figure 2.

## SECTION 4: LAND USE AND PHYSICAL SETTING

The NYSDEC may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives that restrict the use of the site to restricted residential use, which allows for commercial use and industrial use as described in Part 375-1.8(g), were evaluated in addition to an alternative that 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, the NYSDEC has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

## SECTION 6: SITE CONTAMINATION

### 6.1: Summary of the Remedial Investigation

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

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

The RI is intended to identify the nature (or type) of contamination that 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 NYSDEC has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

### 6.1.2: RI Results

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

1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
ethylbenzene
toluene
xylenes (mixed)
1,2-dichlorobenzene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(k)fluoranthene
chrysene
dibenz[a,h]anthracene
indeno(1,2,3-cd)pyrene
barium
lead
mercury
tetrachloroethene (PCE)
trichloroethene (TCE)
cis-1,2-dichloroethene (DCE)

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 were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, and per- and polyfluoroalkyl substances (PFAS). Soil vapor was analyzed for VOCs. The primary contaminants of concern are metals and SVOCs in soil, SVOCs and petroleum-related VOCs in groundwater, and chlorinated and petroleum-related VOCs in soil vapor.

**Soil**
Four VOCs were detected at concentrations slightly exceeding their respective unrestricted use soil cleanup objectives (UUSCOs) and/or applicable protection of groundwater soil cleanup objectives (PGWSCOs) in 2 soil samples (out of 38) located in shallow soil in the southern portion of the site up to a depth of 2.5 feet below grade as follows: 1,2,4-trimethylbenzene at a concentration of 5.2 parts per million (ppm) (UUSCO and PGWSCO of 3.6 ppm), toluene at 0.92 ppm (UUSCO and PGWSCO of 0.7 ppm), xylenes (mixed) at 1 ppm (UUSCO of 0.26 ppm), and methyl ethyl ketone at 0.16 ppm (UUSCO of 0.12 ppm).

Several SVOCs were detected at concentrations exceeding their respective UUSCOs or applicable PGWSCOs in 5 of 38 soil samples and up to a depth of six feet below ground surface (bgs) including: benzo(a)anthracene up to 21 ppm (UUSCO of 1 ppm), benzo(a)pyrene up to 24 ppm (UUSCO of 1 ppm), benzo(b)fluorathene up to 31 ppm (UUSCO of 1 ppm), benzo(k)fluoranthene up to 8.5 ppm (UUSCO of 0.8 ppm and PGWSCO of 1.7 ppm), chrysene up to 19 ppm (UUSCO of 1 ppm), dibenzo(a,h)anthracene up to 3 ppm (UUSCO of 0.33 ppm), and indeno(1,2,3-cd)pyrene up to 16 ppm (UUSCO of 0.5 ppm). The detected SVOCs are all polycyclic aromatic hydrocarbons (PAHs), a type of SVOCs often found in historic fill material which is present throughout much of the site.

Metals detected at concentrations exceeding their respective UUSCOs include arsenic up to 16.6 ppm (UUSCO of 13 ppm), barium up to 489 ppm (UUSCO of 350 ppm), cadmium up to 3.28 ppm (UUSCO of 2.5 ppm), copper up to 106 ppm (UUSCO of 50 ppm), lead up to 1,410 ppm (UUSCO of 63 ppm), mercury up to 1.83 ppm (UUSCO of 0.18 ppm), nickel up to 58.6 ppm (UUSCO of 30) and zinc up to 448 ppm (UUSCO of 109).

For PFAS, perfluorooctanesulfonic acid (PFOS) was detected up to 1.18 parts per billion (ppb), above its unrestricted use guidance value of 0.88 ppb. Perfluorooctanoic acid (PFOA) was not detected above its unrestricted use guidance value of 0.66 ppb.

No PCBs, pesticides, or 1,4-dioxane were detected above their respective UUSCOs.

The data do not indicate any off-site impacts in soil related to this site.

**Groundwater**

The following VOCs were detected in groundwater exceeding their respective Class GA Ambient Water Quality Standards and Guidance Values (AWQSGV): 1,2,4,5-tetramethylbenzene up to 8 ppb (AWQSGV is 5 ppb), 1,2,4-trimethylbenzene up to 44 ppb (AWQSGV is 5 ppb), 1,3,5-trimethylbenzene up to 21 ppb (AWQSGV is 5 ppb), 1,2-dichlorobenzene up to 5.7 ppb (AWQSGV is 3 ppb), ethylbenzene up to 6.8 ppb (AWQSGV is 5 ppb), o-xylene up to 42 ppb (AWQSGV is 5 ppb), xylenes (mixed) up to 48 ppb (AWQSGV is 5 ppb), and toluene up to 11 ppb (AWQSGV is 5 ppb).

The following SVOCs were detected in groundwater exceeding their respective AWQSGV which is 0.002 ppb for each contaminant: benzo(a)anthracene up to 0.08 ppb, benzo(a)pyrene up to 0.09 ppb, benzo(b)fluorathene up to 0.11 ppb, benzo(k)fluoranthene up to 0.04 ppb, chrysene up to 0.14 ppb, and indeno(1,2,3-cd)pyrene up to 0.06 ppb.

PFOS was detected at concentrations up to 45.3 parts per trillion (ppt) (AWQSGV of 2.7 ppt) and PFOA was detected at concentrations up to 64.1 ppt (AWQGV of 6.7 ppt). 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.

No pesticides, PCBs, or 1,4-dioxane were detected above AWQSGVs in site groundwater. Excluding naturally occurring metals, such as manganese and sodium, no metals were detected above AWQSGVs in site groundwater.

The data do not indicate any off-site impacts in groundwater related to this site.

**Soil Vapor**

The following chlorinated VOCs were detected in on-site soil vapor: tetrachloroethene (PCE) up to 943 micrograms per cubic meter ($\mu g/m^3$), trichloroethene (TCE) up to 47.1 $\mu g/m^3$, cis-1,2-dichloroethene (DCE) up to 18 $\mu g/m^3$. Various petroleum-related VOCs were detected in on-site soil vapor including 2,2,4-trimethylpentane up to 518 $\mu g/m^3$ and cyclohexane up to 399 $\mu g/m^3$.

The data do not indicate any off-site impacts in soil vapor related to this site.

## 6.4: Summary of Human Exposure Pathways

The site is currently vacant. People who enter the site may come into contact with site-related soil and groundwater contamination if 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 obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor may move into overlying 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 or buildings, is referred to as soil vapor intrusion. Soil vapor intrusion does not represent a current concern because the site is vacant. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. Environmental sampling indicates soil vapor intrusion is a potential 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**

- 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 Conditional Track 1.

The selected remedy is referred to as the Excavation, Soil Vapor Extraction, In-Situ Chemical Oxidation, and Soil Vapor Intrusion Evaluation remedy.

The elements of the selected remedy, as shown in Figure 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;
- Reducing direct and indirect greenhouse gases and other emissions;
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- 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 NYSDEC 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:

- soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

Excavation and off-site disposal of all on-site soils which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8, to depths ranging to 0.5 feet below grade to 4 feet below grade across most of the site with deeper "hotspot" soil excavations ranging from 7 feet below grade up to 18.5 feet below grade. If a Track 1 cleanup is achieved, a Cover System will not be a required element of the remedy. 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/documentation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify NYSDEC, submit the sample results and, in consultation with the NYSDEC, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved. Approximately 6,500 cubic yards of contaminated soil will be removed from the site.

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

**3. Backfill**

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

**4. Soil Vapor Extraction**

Soil vapor extraction (SVE) will be implemented along the western boundary to remove volatile organic compound (VOCs) vapors from the subsurface and prevent off-site migration of contaminated vapor. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed in the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOC vapors 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. The remedial design details of the SVE system (number of wells, screen length, airflow, discharge control) will be developed and submitted for the NYSDEC approval. Upon system startup, SVE wells will be tested to confirm vacuum influence and effectiveness of the system. If there are no SVE wells located near the site boundary of concern, vacuum monitoring points will be installed near the site boundary to evaluate SVE effectiveness at preventing offsite migration of contaminated vapors.

**5. In-Situ Chemical Oxidation**

In-situ chemical oxidation (ISCO) will be implemented to treat petroleum-related contaminants in groundwater. A chemical oxidant (oxygen-release compound (ORC) or equivalent) will be injected into the subsurface to destroy the contaminants in the northeastern portion of the site, where petroleum-related compounds were elevated in the groundwater. The method and depth of injection will be determined during the remedial design.

Monitoring will be required down-gradient, and within the treatment zone. Monitoring will be conducted for contaminants of concern in and downgradient of the treatment zone. The treatment zone will be monitored for dissolved oxygen and oxidation/reduction potential.

**6. 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.

**7. Local Institutional Controls**

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

**Conditional Track 1**

The intent of the remedy is to achieve Track 1 unrestricted use; therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, 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, including continued operation of the SVE in Remedy Element 4, 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 a Track 1 unrestricted use is not achieved, including achievement of groundwater and soil vapor remedial objectives, the following contingent remedial elements will be required and the remedy with achieve a Track 2 restricted residential cleanup.

***Conditional Remedial Elements***

**8. Institutional Control**

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allow the use and development of the controlled property for restricted residential 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 NYSDEC approved Site Management Plan.

**9. Site Management Plan**

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

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

   - Institutional Controls: The Environmental Easement discussed in Remedy Element 8 above.

   - Engineering Controls: The soil vapor extraction system discussed in Remedy Element 4, above, and a sub-slab depressurization system, if determined necessary by soil vapor intrusion evaluation discussed in Remedy Element 6.

   This plan includes, but may not be limited to:

   - 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 NYSDEC notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
    - monitoring of groundwater, indoor air, and soil vapor to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the NYSDEC; and
    - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan, discussed above.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
    - procedures for operating and maintaining the remedy;
    - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
    - maintaining site access controls and NYSDEC notification; and
    - providing the NYSDEC access to the site and O&M records.

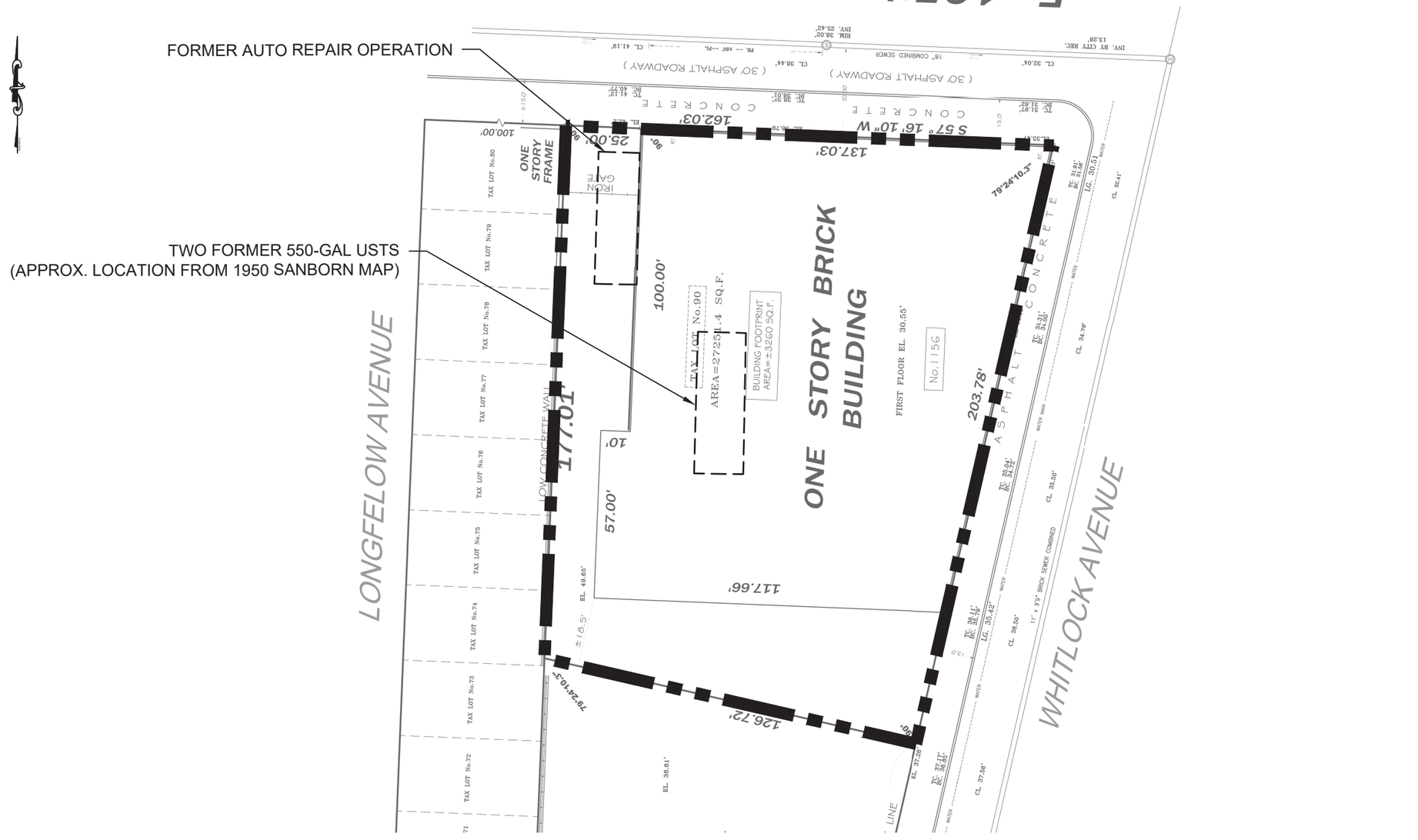

N

0 180 360 Feet

North America/Pulse Plastics Site
Site No. C203144
1156 East 165th Street
Bronx, NY

**Figure 1**
**Site Map**

NEW YORK STATE | Department of Environmental Conservation




SCALE: 1"=40'

0 40 80

LEGEND:

- SITE BOUNDARY

REFERENCE

SITE INFORMATION TAKEN FROM "SUBDIVISION SURVEY" PREPARED BY BIG APPLE LAND SURV. D., DATED AUGUST 25, 2019.



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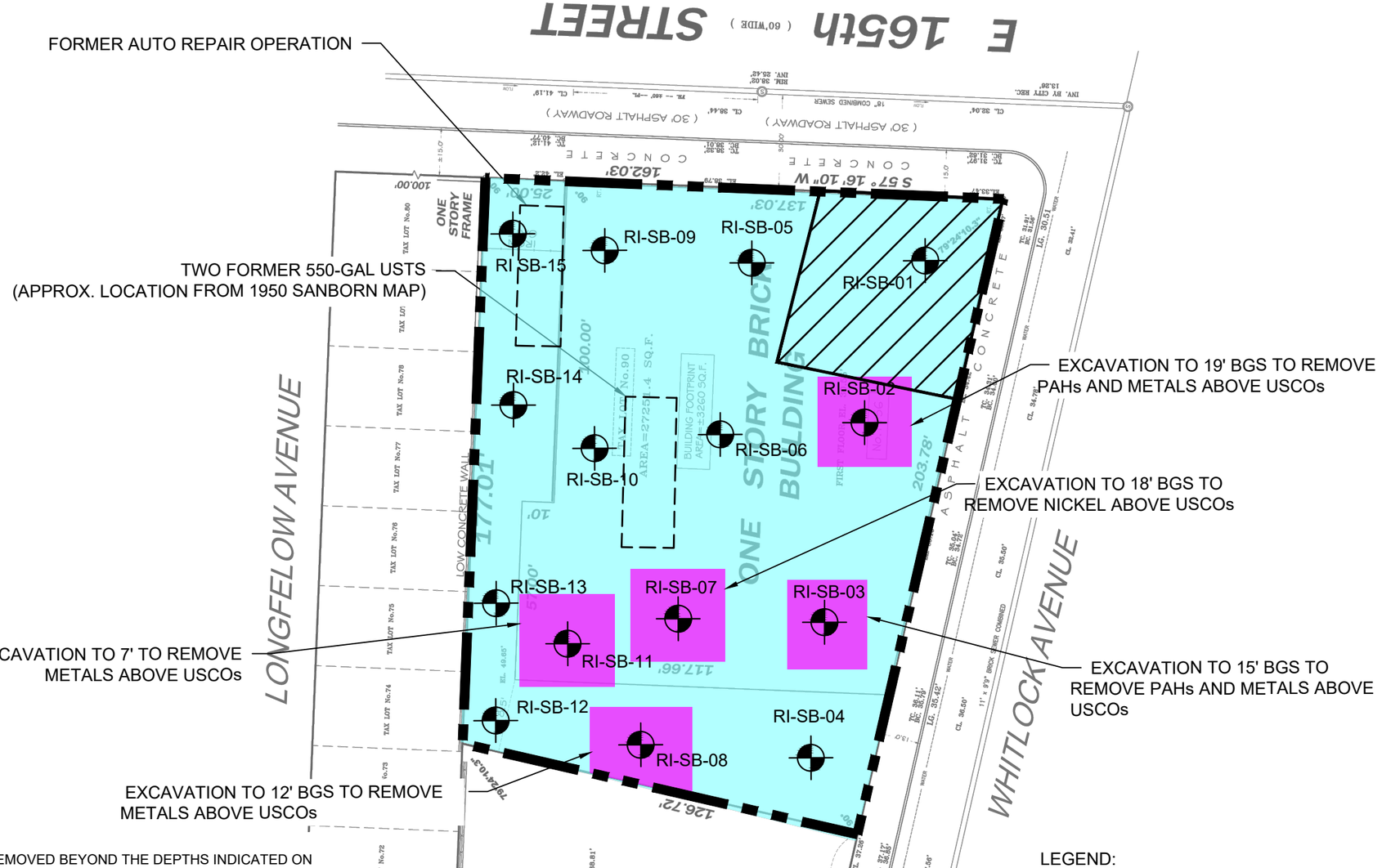
dwg by: aas
chk by: JAM
scale: AS NOTED
date: 05/21/2021

project: NORTH AMERICA/ PULSE PLASTICS
1156 EAST 165TH STREET
BRONX, NY 11419

title: SITE PLAN

job no: 11913
drawing no: FIG 2




NOTE:

1. ANY ADDITIONAL SOIL REMOVED BEYOND THE DEPTHS INDICATED ON THIS PLAN WILL NOT BE CONSIDERED REMEDIAL EXCAVATION, UNLESS REMEDIAL ENDPOINT SAMPLES INDICATE EXCEEDANCES OF USCO'S OR APPLICABLE PG-WSCO'S AT DEEPER DEPTHS. EXCAVATION MEANS AND METHODS ARE DETAILED IN THE RAWP.
2. REMEDIAL EXCAVATION ENDPOINT SAMPLES WILL BE COLLECTED AT A FREQUENCY OF 1 PER 900 SQ FT, OR 1 PER 30 LF FOR SIDEWALLS.
3. SUPPORT OF EXCAVATION WILL BE INSTALLED AROUND THE SITE PERIMETER, IN ORDER TO SAFELY ACHIEVE THE REQUIRED HOTSPOT EXCAVATION DEPTHS WITHOUT UNDERMINING ADJOINING SIDEWALKS OR PROPERTIES.

LEGEND:

- SITE BOUNDARY/SOE BOUNDARY
- RI-SB-01 — BORING NUMBER & APPROX. LOCATION
- 4.5' — PROPOSED HOT SPOT REMEDIAL EXCAVATION DEPTH
- EXCAVATION TO DEPTH OF 4 FT bgs REQUIRED FOR REMEDIAL EXCAVATION BASED ON RI RESULTS
- EXCAVATION TO DEPTHS INDICATED REQUIRED BASED ON RI RESULTS
- PROPOSED GROUNDWATER TREATMENT AREA

SCALE: 1"=40'

0 40 80

REFERENCE
SITE INFORMATION TAKEN FROM "SUBDIVISION SURVEY" PREPARED BY BIG APPLE LAND SURV. D., DATED AUGUST 25, 2019.



N:\ACAD\11913\CAD\WHITLOCK PHASE II\11913.DWG_PRO_SOIL_GW_REMEDIATION_PLAN.DWG 11/06/24 03:43:28PM, qpg, LAYOUT:FIG 3

dwg by: AW
chk by: JM
scale: AS NOTED
date: 11/05/2024

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job no: 11913
drawing no:

FIG 3