DECISION DOCUMENT

101 East 150th Street Brownfield Cleanup Program Bronx, Bronx County Site No. C203154 May 2025



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

DECLARATION STATEMENT - DECISION DOCUMENT

101 East 150th Street Brownfield Cleanup Program Bronx, Bronx County Site No. C203154 May 2025

Statement of Purpose and Basis

This document presents the remedy for the 101 East 150th Street 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 101 East 150th Street site and the public's input to the proposed remedy presented by 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), SiteWiseTM (available in the Sustainable Remediation Forum [SURF] library) or similar NYSDEC accepted tool. Water consumption, greenhouse gas emissions, renewable and nonrenewable 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 Further, progress with respect to green and sustainable sustainable remediation goals. 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. Cover System

A site cover will be required in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs), to allow for future restricted residential use of the site. Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

3. Soil Vapor Extraction (SVE)

Soil vapor extraction (SVE) will be implemented 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 subsurface 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 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.

SVE wells will be installed into the vadose zone and approximately screened from 3 feet below the ground surface to a depth of approximately 10 feet. 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.

Upon system startup, SVE wells will be tested to confirm vacuum influence and effectiveness of the system. Vacuum monitoring points will be installed near the site's western boundary to evaluate SVE effectiveness at preventing off-site migration of contaminated vapors.

4. Vapor Mitigation

Any future 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 the subsurface.

5. 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 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 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 NYC; and
- require compliance with the NYSDEC approved Site Management Plan.

6. 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 7.
- Engineering Controls: The Cover System, Soil Vapor Extraction (SVE), and Vapor Mitigation Systems discussed in Remedy Elements 2, 3 and 4.

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 or surface water use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- 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 and soil vapor to assess the performance and effectiveness of the remedy. If necessary, additional groundwater treatment may be implemented; and
- a schedule of monitoring and frequency of submittals to the NYSDEC.

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.

May 28, 2025

Date

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Jane H. O'Connell, P.G. Regional Remediation Engineer

DECISION DOCUMENT

101 East 150th Street Bronx, Bronx County Site No. C203154 May 2025

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.

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: <u>CITIZEN PARTICIPATION</u>

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 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=C203154

Bronx Community Board 4 1650 Selwyn Avenue, Suite 11A Bronx, NY 10457 Phone: (718) 299-0800 Melrose Library-New York Public Library 910 Morris Avenue Bronx, NY 10451 Phone: (718) 665-6255

Receive Site Citizen Participation Information By Email

Please note that NYSDEC's Division of Environmental Remediation (DER) is "going paperless" The ultimate goal is to distribute citizen relative to citizen participation information. 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. public for encourage the to sign up 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 approximately 2.27 acres in area and is located at 101 East 150th Street in the Lower Concourse neighborhood of the Bronx. Alternate addresses for the site include 586 River Avenue, 580 River Avenue and 595 Gerard Avenue. The site is comprised of one New York City tax lot designated as Block 2354, Lot 1 and is bounded to the north by a NYC-owned surface parking lot, to the east by Gerard Avenue, to the south by East 150th Street, and to the west by River Avenue. The boundaries of the site correspond to the current tax map boundaries.

Site Features:

Previously, the site was occupied by a 2-story warehouse with cellar that had a footprint of 30,345-square feet on the southern portion of the property. The cellar and first floors were used as a self-storage facility and the second floor was occupied by a public school (PS 723X). The school was operating pursuant to a special permit issued by the BSA in 2004 (BSA Cal. No 05-04-BZ). The northern portion of the property was a parking lot for the building and parking area for buses and delivery trucks. The parking lot occupied approximately 69% of the lot area. All previous structures have been demolished. The site is currently being redeveloped into a charter school.

Current Zoning and Land Use:

The site is zoned M1-2 for light manufacturing use. The site is located in a mixed industrial, commercial, and residential neighborhood. The nearest residential properties are located approximately 50 feet to the south (across East 150th Street) and 150 feet to the east (along Walton Avenue). The proposed development will be a 2,400-student K-12 charter school. A school is a permitted use in the zoning district but requires the issuance of a special permit by the New York City Board of Standards and Appeals.

Past Use of the Site:

Records from 1891 through the early-1900s show the site as athletic fields. By the late-1900s,

the site was used as a lumber storage yard. From the early 1930s until 1950, the site was used as an athletic field/recreational facility with a club house. In 1952, the building formerly occupying the southern portion of the site was constructed. The rest of the property was used as athletic fields and then later converted into a parking area for the building. The building with a cellar first used by a shoe factory as office and warehouse space from ca 1952 to 1981, and an electronic parts manufacturer from approximately 1984 to the 1990s. By 2001, the property was foreclosed, and ownership eventually sold to Gerard Avenue LLC. In 2003, the New York City Department of Buildings granted a change of use of the building's cellar and ground floor from electronic part manufacturing to commercial self-storage use, and the change of use of second floor of the property from office spaces to classrooms and instructional spaces. In 2019, the site was sold to 580 Gerard LLC, which continued the self-storage and school operations at the property. The Applicant purchased the site in December 2021.

Site Geology and Hydrogeology:

According to the 1992 USGS publication Bedrock and Engineering Geologic Maps of Bronx County and Parts of New York and Queens Counties (Baskerville 1992), Bronx County is underlain by high grade metamorphic bedrock consisting of a sequence of Cambrian and Ordovician gneiss, schistose-gneiss, and marble. The bedrock beneath the site is expected to be the Inwood Marble (white calcite-dolomite) interlayered with units of Walloomsac and Manhattan Schists. The eastern portion of the site along Gerard Avenue is at an elevation (EL) +23 to EL +27 feet North American Vertical Datum of 1988 (NAVD88). The topography along River Avenue is lower and ranges between EL +15 and EL +21 feet. The former parking area was cut down from the adjacent street elevations and ranged between EL +8 and EL +12 feet.

The site-specific geology consists of a surface layer of concrete or asphalt ranging from 0.5 ft to 1.0 ft below ground surface (bgs), underlain by a fill layer, which primarily consisted of wellgraded sand with varying amounts of gravel, rock, brick, ash, and organic material to a depth of 7 ft bgs. Native soil consists of pre-dominantly well-graded brown sand, interbedded with silt and clay layers. A decomposed rock layer is present below the sand/silt and clay/sand zone, with bedrock encountered at depths of about 40 to 100 feet bgs. The groundwater depth is between 8.9 ft and 9.1 ft bgs. Groundwater flows west towards the Harlem River, which is located approximately 750 feet from the site.

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

SECTION 4: LAND USE AND PHYSICAL SETTING

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, an alternative 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) 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 Participant. NYSDEC, in consultation with NYSDOH, have determined that the site poses a significant threat to public health and/or the environment. The Applicant has an obligation to address on-site and off-site contamination. Accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: <u>Summary of the Remedial Investigation</u>

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
- indoor air
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. 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: <u>http://www.dec.ny.gov/regulations/61794.html</u>

6.1.2: <u>RI Results</u>

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

tetrachloroethene (PCE) trichloroethene (TCE) 1,1,1-trichloroethane cis-1,2-dichloroethene 1,2,4-trimethylbenzene naphthalene benzo(a)anthracene benzo(a)pyrene benzo(b)fluoranthene

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.

The following IRMs have been substantially completed at this site based on conditions observed during the RI. Most of the soil removal activities were completed as IRMs, with the exception of approximately 1000 cubic yards of soil to be excavated around the building perimeter in order to install the SVE system and final site cover.

Excavation and Groundwater Treatment - Northern Portion of Site

The following activities were undertaken as part of an approved IRM Work Plan dated June 2023:

- The existing on-site buildings have been demolished; parking lot cap was removed and materials which could not be beneficially reused on site were taken off-site for proper disposal;
- Hotspot removal in the northern areas of the site with chlorinated and petroleum impacts that exceeded Protection of Groundwater SCOs (PGSCOs) were excavated to approximately 5 and 10 feet below ground surface (bgs);
- In-situ groundwater treatment by direct application of RegenOx® in hotspot areas;

- Soils in the upper two feet of the northern portion of the site which exceed the restricted residential SCOs (RRSCOs) were excavated and transported off-site for disposal;
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination; and
- Import of clean material that meets the lower of the protection of groundwater or restricted residential SCOs for use as backfill.

Additional GW Treatment, SSDS, & Cover System - Northern Portion

The following activities were undertaken as part of an approved Supplemental IRM Work Plan dated October 2023:

- Additional in-situ groundwater treatment by direct application of RegenOx® in hotspot areas for chlorinated and petroleum VOCs in northern portion of site;
- Installation of SSDS components in the northern portion; and
- Installation of a cover system consisting of the building structures.

Excavation and Groundwater Treatment - Southern Portion of Site

The following activities were undertaken as part of an approved Supplemental Interim Remedial Measures Work Plan Southern Extension, dated January 2024:

- Hotspot removal was performed in the southern areas where chlorinated impacts were identified that exceeded Protection of Groundwater SCOs to approximately 5 and 7 feet below ground surface (bgs);
- In-situ groundwater treatment was performed by direct application of RegenOx® in hotspot areas;
- Soils in the upper two feet of the site which exceed the restricted residential SCOs were excavated and transported off-site for disposal;
- Any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination were removed and transported off-site for disposal;
- SSDS components were installed;
- Clean material that meets the lower of the protection of groundwater or restricted residential SCOs was imported for use as backfill; and
- A cover system consisting of the building structures was installed.

6.3: <u>Summary of Environmental Assessment</u>

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

Soil - Prior to the soil removal IRM, several VOCs were detected in soil exceeding the PGSCO and/or Restricted-Residential SCO (RRSCO), including maximum concentrations of 1,2,4-trimethylebenzene at 560 parts per million, or ppm (PGSCO is 3.6 ppm and RRSCO is 52 ppm), naphthalene at 16 ppm (PGSCO is 12 ppm), trichloroethene (TCE) at 150 ppm (PGSCO is 0.47 ppm and RRSCO is 21 ppm), tetrachloroethene (PCE) at 12 ppm (PGSCO is 1.3 ppm), and cis-1,2-dichloroethene (DCE) at 3.2 ppm (PGSCO is 0.25 ppm). Several SVOCs were detected including maximum concentrations of benzo(a)anthracene at 17 ppm (PGSCO is 1.7 ppm and RRSCO is 1 ppm), benzo(a)pyrene at 13 ppm (RRSCO is 1 ppm), and benzo(b)fluoranthene at 14 ppm (RRSCO is 1 ppm). Perfluorooctanesulfonic acid (PFOS) was detected at a maximum concentration of 0.879 ppb below the protection of groundwater guidance value of 1 ppb and the restricted-residential guidance value of 44 ppb. No metals, PCBs or pesticides were detected at concentrations exceeding the RRSCOs.

Following completion of the soil removal IRMs, confirmation sampling identified only one sampling location above SCOs with 1,2,4-trimethylebenzene detected at a maximum concentration of 5.6 ppm over the PGSCO of 3.6 ppm, but below the RRSCO value of 52 ppm.

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

Groundwater - Prior to the IRMs, several chlorinated VOCs were detected in groundwater monitoring wells at concentrations exceeding the Ambient Water Quality Standards and Guidance Values (AWQSGVs), including maximum concentrations of 1,1,1-trichloroethane at 16 parts per billion, or ppb (AWQSGV of 5 ppb), cis-1,2-DCE at 16 ppb (AWQSGV is 5 ppb), and TCE at 52 ppb (AWQSGV is 5 ppb). Several petroleum VOCs were detected including maximum concentrations of naphthalene at 170 ppb (AWQSGV is 10 ppb), 1,2,4trimethylebenzene at 360 ppb (AWQSGV is 5 ppb), and ethylbenzene at 84 ppb (AWQSGV is 5 ppb). Petroleum impacts detected in upgradient groundwater monitoring wells are partially attributed to an upgradient off-site source, BCP Site No. C203142, located at 586 Gerard Avenue. SVOCs found included maximum concentrations of benzo(a)anthracene at 0.07 ppb (AWQSGV is 0.002 ppb). Dissolved metals exceeding AWQSGVs include sodium, magnesium, and manganese. These are naturally occurring metals and are not considered to be site-specific contaminants of concern. For pesticides, dieldrin was detected at a maximum concentration of 0.008 ppb (AWQSGV is 0.004 ppb). PFOS was detected at a maximum concentration of 30.9 parts per trillion, or ppt (NYS adopted maximum contaminant level (MCL) for ambient water quality guidance values is 2.7 ppt) and perfluorooctanoic acid (PFOA) at a maximum concentration of 48.1 ppt (AWQSGV is 6.7 ppt). No PCBs were detected exceeding AWQSGVs. Post-IRM treatment groundwater monitoring will be performed during site management.

Data indicates the potential for off-site impacts in groundwater related to the site.

Soil Vapor, Sub-Slab Soil Vapor, and Indoor Air - Several chlorinated VOCs were detected in soil vapor, sub-slab soil vapor, and indoor air samples. 1,1,1-Trichloroethane was detected in soil vapor samples at a maximum concentration of 52,200 micrograms per cubic meter (ug/m3). Cis-1,2-DCE was detected in soil vapor samples at a maximum concentration of 218,000 ug/m3. TCE was detected in soil vapor samples at a maximum concentration of 59,700 ug/m3 and in indoor air samples at a maximum concentration of 0.81 ug/m3. PCE was detected in soil vapor samples at a maximum concentration of 62.5 ug/m3.

Data indicates the potential for off-site impacts in soil vapor related to the site.

6.4: <u>Summary of Human Exposure Pathways</u>

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 who enter the site could come into contact with site contaminants in the soil by digging or otherwise disturbing the soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater and soil may move into the soil vapor (air spaces within the soil), which in turn 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 of buildings, is referred to as soil vapor intrusion. Environmental sampling indicates actions are needed to address soil vapor intrusion in on-site buildings. Environmental sampling indicates soil vapor intrusion is a potential concern for off-site buildings.

6.5: <u>Summary of the Remediation Objectives</u>

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:

<u>Groundwater</u>

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.

<u>Soil</u>

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.

<u>Soil Vapor</u>

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 4: Restricted Residential remedy.

The selected remedy is referred to as the Excavation, Soil Vapor Extraction, Vapor Mitigation and Cover System with Site Management remedy.

The elements of the selected remedy, as shown in Figures 3 through 5, are as follows:

1. Remedial Design

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

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

ecological, economic and social goals;

- 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 NYSDEC accepted tool. Water consumption, greenhouse gas emissions, renewable and nonrenewable 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. Cover System

A site cover will be required in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs), to allow for future restricted residential use of the site. Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

3. Soil Vapor Extraction (SVE)

Soil vapor extraction (SVE) will be implemented 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 subsurface 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 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.

SVE wells will be installed into the vadose zone and approximately screened from 3 feet below the ground surface to a depth of approximately 10 feet. 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.

Upon system startup, SVE wells will be tested to confirm vacuum influence and effectiveness of the system. Vacuum monitoring points will be installed near the site's western boundary to evaluate SVE effectiveness at preventing off-site migration of contaminated vapors.

4. Vapor Mitigation

Any future 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 the subsurface.

5. 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 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 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 NYC; and
- require compliance with the NYSDEC approved Site Management Plan.

6. 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 7.
- Engineering Controls: The Cover System, Soil Vapor Extraction, and Vapor Mitigation

Systems discussed in Remedy Elements 2, 3 and 4.

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 or surface water use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- 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 and soil vapor to assess the performance and effectiveness of the remedy; if necessary, additional groundwater treatment may be implemented; and
- a schedule of monitoring and frequency of submittals to the NYSDEC.

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.







SCALE IN FEET





7. LOCATIONS AND SIZING OF PIPING MAY REQUIRE ADJUSTMENTS FOLLOWING RESULTS OF THE SOIL VAPOR EXTRACTION PILOT TEST.

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SUCCESS ACADEMY S|C|H|0|0|L|S

101 East 150th Street, Bronx, NY 10451

Success Academy Charter Schools 95 Pine Street, New York, NY 10005 ARCHITECT Skidmore, Owings & Merrill LLP 250 Greenwich St, New York, 10007 OWNER'S REPRESENTATIVE DBI Projects 1261 Broadway 9th floor, New York, NY 10001 CIVIL ENGINEER Philip Habib & Associates 102 Madison Avenue, New York, NY 10016 STRUCTURAL ENGINEER LERA Consulting Structural Engineers 40 Wall Street, New York, NY 10005 MEPF ENGINEER Ventrop Engineering Consulting Group, PLLC 369 W 34th Street, New York, NY 10001 VERTICAL TRANSPORTATION Lerch Bates 1430 Broadway, New York, NY 10018 AV & IT Alia 55 Broad Street, New York, NY 10004 LIGHTING SBLD Studio 575 Bloomfield Ave, Montclair, NJ 07042 CODE CONSULTING Code Consulting, Inc. 215 West 40th Street, New York, NY 10018 FOOD SERVICES CONSULTANT Davella Studios 450 Lexington Avenue - FL 4, New York, NY 10017 LANDSCAPE ARCHITECT SWA/Balsley 31 W 27th Street, New York, NY 10001 GEOTECHNICAL CONSULTANT Mueser Rutledge Consulting Engineers 225 W 34th St. #6, New York, NY 10122 ENVIRONMENTAL CONSULTAN GZA 104 West 29th Street, 10th Floor, New York, NY 10001 ENCLOSURE CONSULTANT Hatfield Group 285 W Broadway, New York, NY 10013 SUSTAINABILITY CONSULTAN Socotec 151 W 42nd Street, New York, NY 10036 ACOUSTICS Cerami & Associates 1001 Avenue of the Americas, New York, NY 10018 SIGNAGE AND WAYFINDING CONSULTANT Pentagram 250 Park Avenue South, New York, NY 10003 SECURITY CONSULTANT Introba (formerly Ross & Baruzzini) 1450 Broadway, Office 15-102, New York, NY 10018 HARDWARE CONSULTANT arkaSpecs, Inc. 12 Phyllis Ln, Rock Tavern, NY 12575 THEATRICAL CONSULTANT Harvey Marshall Berling Associates 173 W 81st St, New York, NY 10024 COMMISSIONING FST Technical Services 30 Broad Street, Suite 1500, New York, NY 10004 KEYPLAN **RIVER AVE** GERARD AVE





NOTES

BASE MAP DEVELOPED FROM DRAWING Z-100 TITLED ZONING FLOOR PLAN - CELLAR, PREPARED BY SKIDMORE, OWINGS & MERRILL LLP, ORIGINAL SCALE $\frac{1}{16}$ "=1', DATED SEPTEMBER 9, 2022.

2. THIS PLAN SHALL NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE PURPOSES EXCEPT FOR THE SUB-SLAB DEPRESSURIZATION

SYSTEM. 3. THE SUBSLAB DEPRESSURIZATION SYSTEM COUPLES WITH THE REQUIREMENTS OF THE 2008 NYC MECHANICAL CODE SECTION 512, "SUBSLAB EXHAUST

SYSTEMS".

4. THE SUBSLAB DEPRESSURIZATION SYSTEM IS NOT A "HAZARDOUS EXHAUST SYSTEM" AS DEFINED BY THE 2008 NYC MECHANICAL CODE SECTION 510. 5. THE EXTENTS OF THE BUILDING CONSTRUCTION BENEATH THE FLOOR SLABS SHALL BE LINED WITH VAPOR BARRIER.

6. SLOPE HORIZONTAL PIPE A MINIMUM OF 1% UNIFORMLY AWAY FROM THE SUB-SLAB DEPRESSURIZATION SYSTEM VERTICAL RISERS.

7. COORDINATE ALL WORK FOR SSDS INSTALLATION WITH OTHER TRADES BEFORE INSTALLATION.

8. REFER TO DRAWING H-004 FOR SECTION VIEW.

9. THE SSDS AND GAS PERMEABLE BACKFILL WILL NOT BE PLACED IN LOCATIONS WITH EXCAVATION BELOW THE WATER TABLE.

10. THE GAS PERMEABLE MATERIAL WILL COMPLY WITH THE FOLLOWING GRADATION:
 1-1/2 INCH
 100

 1-INCH
 90-100

 3/4-INCH
 20-55

 1/2-INCH
 0-5

ROOM LOCATION (CELLAR LEVEL)		
FUTSAL COURT		
FUTSAL COURT		
WATER CLOSET		
HALLWAY		
STAIRWAY		
STORAGE ROOM		
LAUNDRY ROOM		
CAFETERIA SUPPORT		

DETAIL CALLOUT	S.	JHB	JANUARY 9, 2023	
E/DESCRIPTION BY DATE Y WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT TE DRAWING. THE DRAWING SHALL NOT BE TRANSFERED, REUSED, TANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER RITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA. 01 EAST 150TH STREET RONX, NEW YORK 10451				
S AND SITE COVER PLAN				
mental of NY Scientists	mental of NY Scientists 586 RIVER AVE., LLC			
/ED BY: RPM I BY: JHB CT NO.	CHECKED BY: SMK SCALE: 1"=20' REVISION NO. 1	FIGU	JRE	
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