DECISION DOCUMENT

Arch Street Yards (LIRR)
State Superfund Program
Long Island City, Queens County
Site No. 241222
December 2025

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

DECLARATION STATEMENT - DECISION DOCUMENT

Arch Street Yards (LIRR)
State Superfund Program
Long Island City, Queens County
Site No. 241222
December 2025

Statement of Purpose and Basis

This document presents the remedy for the Arch Street Yards (LIRR) site, a Class A inactive hazardous waste disposal 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 and is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Arch Street Yards (LIRR) 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; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

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. In-Situ Chemical Reduction

In-situ chemical reduction (ISCR) will be implemented to treat chlorinated VOCs in soil and groundwater in the northeastern portion of the site, as depicted in Figure 3. Zero valent iron (or similar) will be injected into the subsurface to promote abiotic destruction of contaminants. A Pre-design Investigation (PDI) to refine horizontal and vertical extents of treatment, and a laboratory-scale treatability study of In-Situ Chemical Reduction (ISCR), will be conducted prior to the full implementation of this technology. Based on the results of the PDI and treatability study, Remedial Design documents would be prepared, and USEPA UIC Program permitting would be acquired.

3. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat chlorinated VOCs in soil and groundwater in the northeastern portion of the site, as depicted in Figure 3. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injection of controlled-release carbon source (e.g., guar, emulsified vegetable oil, etc.) and bioaugmentation cultures (i.e., Dehalococcoides sp.) to promote biological reduction of chlorinated ethenes. A Pre-design Investigation (PDI) to refine horizontal and vertical extents of treatment, and a laboratory-scale treatability study of Enhanced Bioremediation will be conducted prior to the full implementation of this technology. Based on the results of the PDI and treatability study, Remedial Design documents would be prepared.

Monitoring will be required up-gradient, down-gradient and within the treatment zone. Monitoring will be conducted for chlorinated VOCs, field parameters and any other parameters recommended by the manufacturer to determine the effectiveness of the groundwater treatment remedies.

4. Cover System

A site cover currently exists and will be maintained to allow for industrial use of the site. The existing site cover consists of a minimum of 1 foot of bluestone, as required in an active railyard. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, sidewalks or soil where the upper one foot of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for industrial use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

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

6. Site Management Plan

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

a. an Institutional 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 controls remain in place and effective:
   - Institutional Controls: The Environmental Easement discussed in Remedy Element 5.
   - Engineering Control: The groundwater monitoring well network required for Remedy Element 2 and Remedy Element 3, and the Cover System discussed in Remedy Element 4 above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - 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;
   - descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
   - maintaining site access controls and NYSDEC notification; and
   - the steps necessary for the periodic reviews and certification of the institutional 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 to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to 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.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

December 24, 2025

Date

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

DECISION DOCUMENT

Arch Street Yards (LIRR)
Long Island City, Queens County
Site No. 241222
December 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 hazardous wastes 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 hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

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

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 repository:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=241222

Queens Library - Long Island City Branch
37-44 21st Street
Long Island City, NY 11101
Phone: (718) 752-3700

Receive Site Citizen Participation Information By Email

Please note that NYSDEC's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup

Program and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The site is in an urban area of Long Island City, Queens County, NY. The site is approximately 0.3 acre in size and is owned by the Long Island Rail Road (LIRR). The site is located north of 49th Avenue beneath the 21st St. bridge. Jackson Avenue borders the site to the west, and Arch Street to the east.

Site Features: The site is located within an active rail yard and is surfaced with blue stone. There are no structures on the site.

Current Zoning and Land Use: The site is zoned M1-3 (manufacturing) with an R7X (residential) overlay. The surrounding parcels are currently used for a combination of residential, commercial, light industrial and utility/transportation rights-of-way.

Past Use of the Site: The site has historically been used as a railroad yard.

Site Geology and Hydrogeology: The Remedial Investigation (RI) identified a surface layer of bluestone to a depth of at least one foot below grade (ft bg) underlain by urban fill consisting of fine sand and silt with some gravel, wood and railroad ties in the upper 5 to 8 ft bg. Beneath that, to a depth of approximately 12 ft bg, the borings identified wet organic silt with plant fibers. Groundwater occurs at approximately 3-5 ft bg and flows west towards the East River.

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 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 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

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

MTA/Long Island Railroad

NYSDEC and MTA/Long Island Railroad entered into a Consent Order on July 13, 2018. The Order obligates MTA/Long Island Railroad to implement a full remedial program for site-related contamination both on and off the site. Prior to entering into the Consent Order, NYSDEC and MTA/Long Island Railroad signed a Voluntary Cleanup Agreement in May 2013. The Voluntary Cleanup Program ended in 2018.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

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. 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 hazardous waste 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 in Exhibit A. 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)
benzo(a)pyrene
cis-1,2-dichloroethene
vinyl chloride

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.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary.

Nature and Extent of Contamination:

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

Soil - Soil data were compared to Industrial Use Soil Cleanup Objectives (IUSCOs) and Protection of Groundwater Soil Cleanup Objectives (PGWSCOs). For VOCs, the maximum concentrations include tetrachloroethene (PCE) at 1,160 parts per million (ppm) compared to the IUSCO of 300 ppm and the PGWSCO of 1.3 ppm, cis-1,2-dichloroethene at 3.4 ppm (PGWSCO of 0.25 ppm), trichloroethene (TCE) at 2.6 ppm (PGWSCO of 0.47 ppm), and vinyl chloride at 2.2 ppm (PGWSCO of 0.02 ppm). The soil samples that exceeded PGWSCOs were collected from below groundwater table.

SVOCs were not detected at concentrations exceeding the IUSCOs, with the exception of benzo(a)pyrene at 2.9 ppm (IUSCO of 1.1 ppm).

No metals, PCBs or pesticides were detected above the IUSCOs.

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

Groundwater - Groundwater sample results were compared against the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs). Maximum concentrations of VOCs include PCE at 17,600 parts per billion (ppb) compared to AWQSGV of 5 ppb, cis-1,2-DCE at 6,900 ppb (AWQSGV of 5 ppb), TCE at 1,400 ppb (AWQSGV of 5 ppb), and vinyl chloride at 5,300 ppb (AWQSGV of 2 ppb). The naturally occurring metals iron, manganese, and sodium were detected at concentrations exceeding the AWQSGVs. These metals are not considered to be site-specific contaminants of concern. There were no exceedances of AWQSGVs for SVOCs, PCBs, or pesticides in groundwater samples.

The maximum concentration of Perfluorooctanoic acid (PFOA) detected was 170 ppt, compared to the guidance value of 6.7 parts per trillion (ppt). The maximum concentration of perfluorooctanesulfonic acid (PFOS) detected was 90 ppt compared to the guidance value of 2.7 ppt.

1,4-Dioxane was not detected in any of the groundwater samples collected.

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

Soil Vapor - PCE was detected in soil vapor at a maximum concentration of 881 micrograms per cubic meter (ug/m3), TCE at a maximum concentration of 859 ug/m3, vinyl chloride at a maximum concentration 562 ug/m3, and cis-1,2-DCE at a maximum concentration 2,894 ug/m3.

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

6.4: Summary of Human Exposure Pathways

Since the site is fenced and covered by asphalt, concrete, and railroad tracks people will not come into contact with site-related soil and groundwater contamination unless they dig below the surface. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The potential exists for people to inhale site contaminants in indoor air due to soil vapor intrusion in any future on-site building development and occupancy. In addition, sampling indicates soil vapor intrusion is not a concern for the current on-site buildings and 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.

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: SUMMARY 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.

The selected remedy is referred to as the Groundwater Treatment, Monitoring and Cover System remedy.

The elements of the selected remedy, as shown in Figures 3 and 4, are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the

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

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

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. In-Situ Chemical Reduction

In-situ chemical reduction (ISCR) will be implemented to treat chlorinated VOCs in soil and groundwater in the northeastern portion of the site, as depicted in Figure 3. Zero valent iron (or similar) will be injected into the subsurface to promote abiotic destruction of contaminants. A Pre-design Investigation (PDI) to refine horizontal and vertical extents of treatment, and a laboratory-scale treatability study of In-Situ Chemical Reduction (ISCR), will be conducted prior to the full implementation of this technology. Based on the results of the PDI and treatability study, Remedial

Design documents would be prepared, and USEPA UIC Program permitting would be acquired.

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In-situ enhanced biodegradation will be employed to treat chlorinated VOCs in soil and groundwater in the northeastern portion of the site, as depicted in Figure 3. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injection of controlled-release carbon source (e.g., guar, emulsified vegetable oil, etc.) and bioaugmentation cultures (i.e., Dehalococcoides spp.) to promote biological reduction of chlorinated ethenes. A Pre-design Investigation (PDI) to refine horizontal and vertical extents of treatment, and a laboratory-scale treatability study of Enhanced Bioremediation will be conducted prior to the full implementation of this technology. Based on the results of the PDI and treatability study, Remedial Design documents would be prepared.

Monitoring will be required up-gradient, down-gradient and within the treatment zone. Monitoring will be conducted for chlorinated VOCs, field parameters and any other parameters recommended by the manufacturer to determine the effectiveness of the groundwater treatment remedies.

4. Cover System

A site cover currently exists and will be maintained to allow for industrial use of the site. The existing site cover consists of a minimum of 1 foot of bluestone, as required in an active railyard. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, sidewalks or soil where the upper one foot of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for industrial use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

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

6. Site Management Plan

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

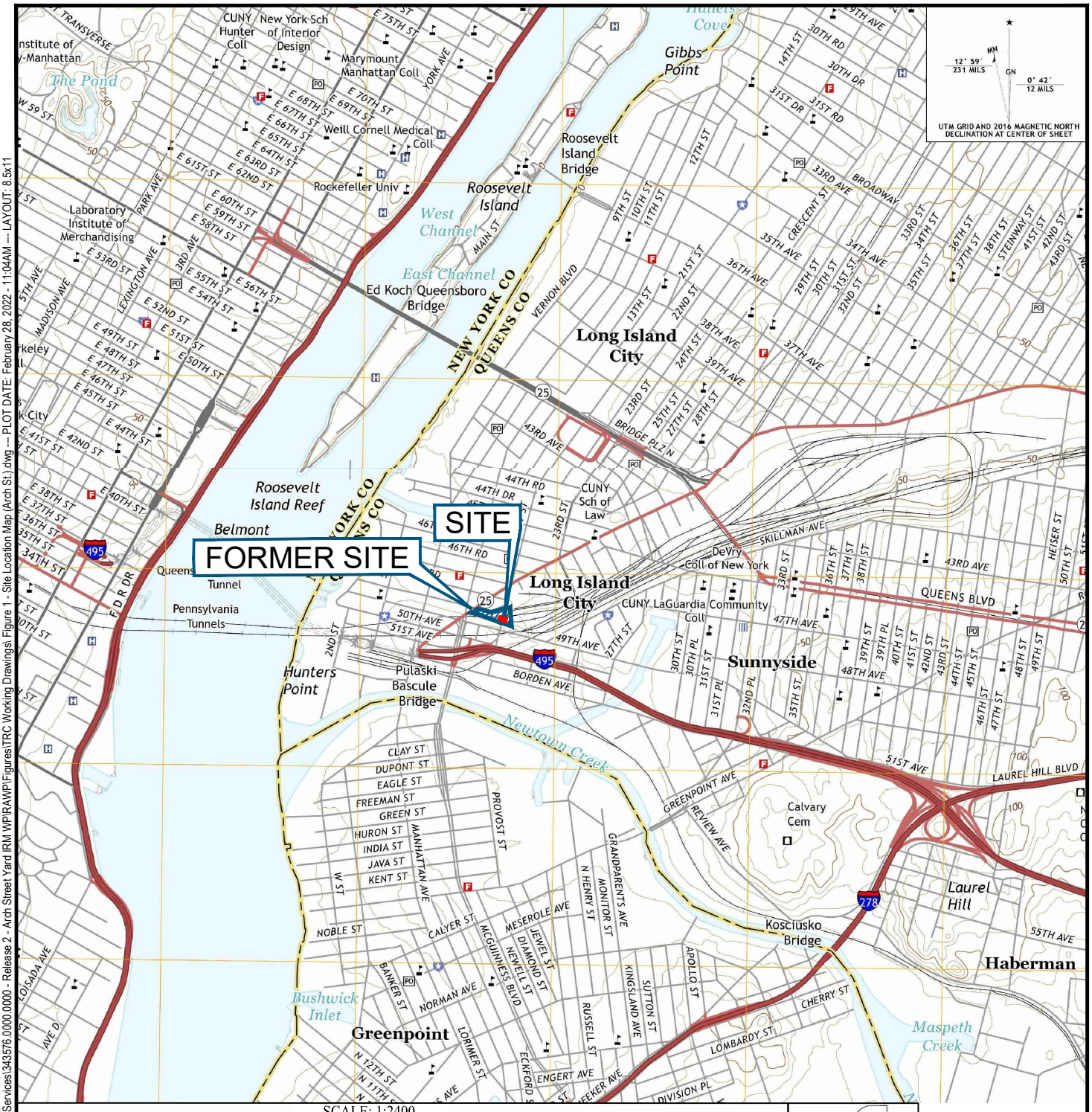
a. an Institutional Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional controls remain in place and effective:
   - Institutional Controls: The Environmental Easement discussed in Remedy Element 5.
   - Engineering Control: The groundwater monitoring well network required for Remedy Element 2 and Remedy Element 3, and the Cover System discussed in Remedy Element 4 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- 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;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- maintaining site access controls and NYSDEC notification; and
- the steps necessary for the periodic reviews and certification of the institutional 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 to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to 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.



SCALE: 1:2400

1 0.5 0 KILOMETERS 1 2

1000 500 0 METERS 1000 2000

1 0.5 0 MILES 1

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FEET

MAP INCLUDES INFORMATION FROM THE FOLLOWING MAP SHEET(S):
TP, BROOKLYN, NY, 7.5 MINUTE DATED 2016,
N, CENTRAL PARK, NY, 7.5 MINUTE DATED 2016.

MAP OBTAINED THROUGH USE OF TOPOVIEW WITH THE INTERFACE CREATED BY THE NATIONAL GEOLOGIC MAP DATABASE PROJECT (NGMDB), IN SUPPORT OF THE TOPOGRAPHIC MAPPING PROGRAM, MANAGED BY THE USGS NATIONAL GEOSPATIAL PROGRAM (NGP).

TRC
1430 Broadway, 10th Floor
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

PROJECT:
METROPOLITAN TRANSPORTATION AUTHORITY LONG ISLAND RAIL ROAD
REMEDIAL ACTION WORK PLAN
ARCH STREET YARD
LONG ISLAND CITY, NEW YORK

TITLE:
SITE LOCATION MAP

DRAWN BY:	B. SCHLAFF
CHECKED BY:	E. EBERT
APPROVED BY:	K. MYERS
DATE:	MARCH 2022
PROJ. NO.:	343576
FILE:	Figure 1 - Site Location Map (Arch St.).dwg

FIGURE 1

8.5x11 -- ATTACHED XREFS: -- ATTACHED IMAGES: NY_Brooklyn_20160824_TM, NY_Central_Park_20160824_TM;
DRAWING NAME: \\nyc-fp1\shared\Projects\LIRR On-Call Environmental Services\343576.0000.0000 - Release 2 - Arch Street Yard IRM WP\RAWP\Figures\TRC Working Drawings\ Figure 1 - Site Location Map (Arch St.).dwg -- PLOT DATE: February 28, 2022 - 11:04AM -- LAYOUT: 8.5x11

LEGEND

- FORMER BOUNDARY OF SITE
- OUTLINE OF ENCLOSED BUILDINGS
- BOUNDARY OF SITE
- BOUNDARY OF PREVIOUSLY IDENTIFIED PCB CONTAMINATION

47th ROAD

COMMERCIAL/ RESIDENTIAL BUILDINGS

JACKSON AVENUE (100' WIDTH R.O.W. PER SECTION MAP)

OFFICE BUILDING

LOT 11 BLOCK 61

21ST STREET (80' WIDTH R.O.W. PER SECTION MAP)

LIRR LONG ISLAND CITY FREIGHT YARD

WAREHOUSE

SECURITY BOOTH

MAINTENANCE OF EQUIPMENT LIRR EIC BLDG.

FORMER MAINTENANCE FACILITY

LIRR ARCH STREET YARD

PART OF LOT 1 BLOCK 72

APPROXIMATE AREA OF PREVIOUSLY IDENTIFIED PCB CONTAMINATION (SEE FIGURE 4)

FORMER LIMIT OF SITE AND RI (APPROX. 2.7 ACRES)

LOT 6 BLOCK 61

LOT 5 BLOCK 61

N75°45'25"W 284.13'

LEASED TRUCK PARKING AREA

NYCT SIGNALS TOWER

OPEN STORAGE SHED

LIRR ENGINEERING SUPPORT BLDG. (TRACK, STRUCTURES, POWER, SIGNAL)

STREET

LOT 80 BLOCK 61

RESIDENTIAL BUILDING

PARKING LOT

LOT 55 BLOCK 61

PARKING LOT ATTENDANT BOOTH

DEFINED LIMIT OF SITE SUBJECT TO ORDER ON CONSENT AND ADMINISTRATIVE SETTLEMENT (NYSDEC NO. 241222) AND SRI (APPROX. 0.3 ACRES)

LOT 50 BLOCK 61

RESTAURANT

49TH AVENUE

NOTE:

1. DRAWING SOURCE FROM INTERIM REMEDIAL MEASURES WORK PLAN REPORT FIGURE A-2 "SITE PLAN SHOWING DEFINED BOUNDARIES OF PROJECT SITE" PROVIDED BY D & B ENGINEERS AND ARCHITECTS, P.C. DATED DECEMBER 2018.

0 60' 120'

SCALE: 1" = 60'
SHEET SIZE: 11" BY 17"

PROJECT:
METROPOLITAN TRANSPORTATION AUTHORITY LONG ISLAND RAIL ROAD
REMEDIAL ACTION WORK PLAN
ARCH STREET YARD
LONG ISLAND CITY, NEW YORK

TITLE:
SITE MAP BOUNDARY MAP

DRAWN BY:	H. DELGADO	PROJ NO.:	343576
CHECKED BY:	E. EBERT		
APPROVED BY:	K. MYERS		**FIGURE 2**
DATE:	MARCH 2022		

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FILE NO.: Figure 2 - Site Map Bndy. Map.dwg

OFFICE BUILDING

FORMER DEFINED LIMIT OF SITE AND RI (APPROX. 2.7 ACRES)

LIRR ARCH STRET YARD

FORMER MAINTENANCE FACILITY

OPEN STORAGE SHED

GW-01

GW-04 S/D

APPROXIMATE SUSPECTED SOURCE AREA

MW-1

MW-2

MW-3

MW-4 (Not Found)

DP-01 DP-02 DP-03 DP-04 DP-05 DP-06 DP-07 DP-08 DP-09 DP-10 DP-11 DP-12 DP-13 DP-14 DP-15

GW-02 S/D

GW-03

LIRR ENGINEERING SUPPORT BUILDING (TRACK, STRUCTURES, POWER, SIGNAL)

PARKING LOT ATTENDANT BOOTH

REPORTED REGIONAL GROUND WATER FLOW

DEFINED LIMIT OF SITE SUBJECT TO ORDER ON CONSENT AND ADMINISTRATIVE SETTLEMENT (NYSDEC NO. 241222) AND SRI (APPROX. 0.3 ACRES)

RESTAURANT (CLOSED)

"LIRR LIGHTNING 80K"

"LIRR 480V"

"LIRR POWER NI"

"LIRR COMM. C2"

O.H. WIRES

LEGEND

MW-X	EXISTING MONITORING WELL LOCATION (INSTALLED IN 2005)
GW-01	COMPLETED RI GROUNDWATER MONITORING WELL LOCATION
	FORMER BOUNDARY OF SITE
	BOUNDARY OF SITE
	OUTLINE OF ENCLOSED BUILDINGS
DP-01	PROPOSED DIRECT PUSH LOCATION AND IDENTIFICATION

NOTE:

1. DRAWING SOURCE FROM INTERIM REMEDIAL MEASURES WORK PLAN REPORT FIGURE A-3 "SAMPLE LOCATION MAP" PROVIDED BY D & B ENGINEERS AND ARCHITECTS, P.C. DATED DECEMBER 2018.

0 30' 60'

SCALE: 1" = 30'
SHEET SIZE: 11" BY 17"

PROJECT:
METROPOLITAN TRANSPORTATION AUTHORITY LONG ISLAND RAIL ROAD
REMEDIAL ACTION WORK PLAN
ARCH STREET YARD
LONG ISLAND CITY, NEW YORK

TITLE:
CONCEPTUAL LAYOUT OF DIRECT PUSH LOCATIONS

DRAWN BY:	H. DELGADO	PROJ NO.:	343576
CHECKED BY:	E. EBERT		
APPROVED BY:	K. MYERS		**FIGURE 3**
DATE:	MARCH 2022		

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FILE NO.: Figure 10 - Concept.Layout of DP Injection Loc R1.dwg

OFFICE BUILDING

FORMER DEFINED LIMIT OF SITE AND RI (APPROX. 2.7 ACRES)

LIRR ARCH STREET YARD

FORMER MAINTENANCE FACILITY

GAS VALVES ON CONC. PAD

"LIRR LIGHTNING 20K"

"R.R. X-ING"

OPEN STORAGE SHED

"LIRR 480V"

"LIRR POWER NI"

"LIRR COMM. C2"

GW-04 S/D

GW-01

APPROXIMATE SUSPECTED SOURCE AREA

MW-1

MW-2

MW-3

GW-02 S/D

MW-4 (Not Found)

GW-03

BRIDGE FOOTING (TYP.)

LIRR ENGINEERING SUPPORT BUILDING (TRACK, STRUCTURES, POWER, SIGNAL)

PARKING LOT ATTENDANT BOOTH

REPORTED REGIONAL GROUND WATER FLOW

DEFINED LIMIT OF SITE SUBJECT TO VCA (NYSDEC NO.V00733) AND RI (APPROX. 0.3 ACRES)

RESTAURANT (CLOSED)

O.H. WIRES

LEGEND:

- MW-1 — EXISTING MONITORING WELL LOCATION (INSTALLED IN 2005)
- GW-01 — COMPLETED RI GROUNDWATER MONITORING WELL LOCATION
- FORMER BOUNDARY OF SITE
- BOUNDARY OF SITE
- OUTLINE OF ENCLOSED BUILDINGS
- BLUE STONE COVER

NOTE:

1. DRAWING SOURCE FROM INTERIM REMEDIAL MEASURES WORK PLAN REPORT FIGURE A-3 "SAMPLE LOCATION MAP" PROVIDED BY D & B ENGINEERS AND ARCHITECTS, P.C. DATED DECEMBER 2018.

0 30' 60'

SCALE: 1" = 30'
SHEET SIZE: 11" BY 17"

PROJECT:
METROPOLITAN TRANSPORTATION AUTHORITY LONG ISLAND RAIL ROAD
REMEDIAL ACTION WORK PLAN
ARCH STREET YARD
LONG ISLAND CITY, NEW YORK

TITLE:
EXISTING SITE COVER

DRAWN BY:	H. DELGADO	PROJ NO.:	414444
CHECKED BY:	E. EBERT		
APPROVED BY:	K. MYERS		**FIGURE 4**
DATE:	AUGUST 2022		

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FILE NO.: Fig 12 - Exist. Site Cover (Arch St.).dwg