DECISION DOCUMENT

CE - W. 45th St. Gas Works
Operable Unit Number 01: Main Plant Site
Voluntary Cleanup Program
New York, New York County
Site No. V00532
September 2016

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

DECLARATION STATEMENT - DECISION DOCUMENT

CE - W. 45th St. Gas Works
Operable Unit Number: 01
Voluntary Cleanup Program
New York, New York County
Site No. V00532
September 2016

Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 01: Main Plant Site of the CE - W. 45th St. Gas Works site, a voluntary cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and applicable guidance.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit Number: 01 of the CE - W. 45th St. Gas Works site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the remedy are as follows:

1. Cover System

A site cover currently exists and will be maintained to allow for commercial use of the site . Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is constructed during redevelopment, it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

2. Institutional Control

Imposition of an institutional control in the form of a deed restriction for the controlled property (the site boundary for OU-1) which will:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8

(h)(3);
- allows the use and development of the controlled property for commercial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;
- requires compliance with the Department approved Site Management Plan.

3. 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 Deed Restriction discussed in Paragraph 2 above and an agreement with the property owners to implement any necessary future site management plan on the off-site properties .

Engineering Controls: The cover system discussed in Paragraph 1 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 further investigation and remediation should large scale redevelopment occur, or if any of the existing structures are demolished, or if the subsurface is otherwise made accessible for remediation. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment. This includes all of the current buildings on the original MGP footprint between West 45th and 44th streets, the adjacent offsite properties between 11th and 12th Avenue and West 43rd and West 45th streets, and areas currently covered by 12th Avenue and adjacent to the west ;
- descriptions of the provisions of the deed restriction including any land use, and groundwater use restrictions ;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed within the area of site management (Figure 2), if the current use of the on-site building changes, and in existing off-site buildings to the east within in the area of site management (Figure 2), including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;

- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

4. Green remediation principals and techniques will be implemented to the extent feasible in the 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 gas 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.

Declaration

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

September 12, 2016
Date

George Heitzman, Director
Remedial Bureau C

DECISION DOCUMENT

CE - W. 45th St. Gas Works
New York, New York County
Site No. V00532
September 2016

SECTION 1: SUMMARY AND PURPOSE

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

The Voluntary Cleanup Program (VCP) is a voluntary program. The goal of the VCP is to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfields." This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

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

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary 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 West 45th Street Gas Works site is located on the west side of mid-town Manhattan in an urban area. The site occupies most of the blocks between 11th and 12th Avenue and between West 44th and West 46th Streets. The site location is shown on Figures 1 and 2.

Site Features: The main site features include a large self-storage building, a private truck refueling facility and a parking lot.

Current Zoning/Uses: The site is zoned M2 for medium manufacturing and currently used as a storage facility, as a truck parking and refueling facility, and for public parking. The only on-site building, the storage facility, is effectively unoccupied as it is a self-storage facility. The surrounding parcels are a highly urbanized combination of commercial, industrial, and residential uses which includes a restaurant immediately adjacent to the site in the southeast corner of the block. The nearest residence is within 250 feet of the site to the east.

Past Use of the Site: The site was operated as a manufactured gas plant (MGP) by the Consolidated Gas Company from 1877 to 1913. By-products of the gas production are the main sources of contamination and are found to be associated with the historic MGP structures in the subsurface. Since the MGP was demolished, 12th Avenue has been relocated and widened, and the rebuilt roadway now covers many of the original MGP structures.

Operable Units: The site has been divided into two operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. Operable Unit 1 includes the original MGP site with the exception of the northeastern portion of the site, and adjacent off site areas where MGP contamination has spread. Operable Unit 2 consists of the northeastern portion of the original MGP plant, which once held two gas holders and a purifying house. It is currently owned by NYSDOT and used as a parking lot for visitors to the adjacent Intrepid Museum.

Site Geology/Hydrogeology: The entire site and its surroundings lie on fill materials which were placed in the Hudson River to extend the shoreline westward prior to construction of the MGP. Thus, the soils immediately beneath the ground surface consist of varying thicknesses of urban fill, ranging in depth from 3 to 12 feet. Beneath that are layers of peat, sand, silt, and some gravel. Bedrock is encountered between 25 and 35 feet below the ground surface.

Groundwater at the site is found at depths of two feet to ten feet below the ground surface. Groundwater generally flows westward toward the Hudson River beneath the western portion of the site, and eastward on the southeastern side of the site. This pattern is complicated by tidal variations in some areas.

Operable Unit (OU) Number 01 is the subject of this document.

A Decision Document will be issued for OU 02 in the future.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, at a minimum, alternatives that restrict the use of the site to commercial use (which allows for industrial use) as described in DER-10, Technical Guidance for Site Investigation and Remediation were evaluated.

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 Department and Consolidated Edison Company of New York, Inc. (Volunteer) entered into a multi-site Voluntary Cleanup Agreement on August 15, 2002 (Index Number D2-0003-02-08), which included 45 former MGP sites. The Agreement obligates the Volunteer to implement a full remedial program for MGP-related contamination at this site.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

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

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

- Coal Tar
- Total Polycyclic Aromatic Hydrocarbons (PAHs)
- Benzene, Toluene, Ethylbenzene And Xylenes (BTEX)

The contaminant(s) 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 on the operable unit 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: Based on the investigations, the chemicals of concern at the site are the constituents of MGP tar which leaked from gas holders, tar tanks, and subsurface pipes. MGP tar is a black, oily liquid which was produced as a byproduct of the gas manufacturing process. The principal contaminants in the tar are benzene, toluene, ethylbenzene, xylene (collectively referred to as BTEX compounds); and polycyclic aromatic hydrocarbons (PAHs). BTEX and PAHs have been found in the soil and groundwater at the site at levels exceeding applicable standards, criteria, and guidance. The MGP tar is found in close proximity to historic structures in the subsurface, including the original gas holder foundations on OU-1, and the tar storage tanks on OU-2. MGP tar, soil contamination and groundwater contamination have been found as far as 50 feet off-site, to the southeast, under West 44th Street.

Soil: In the soils beneath OU-1, there is limited evidence of tar contamination. It has migrated roughly 50 feet off-site to the southeast, mostly in thin seams, into an apparent depression in the bedrock surface at depths ranging from 12 feet to 25 feet below the ground surface. The amount of tar in the depression is relatively small, with an average thickness of less than 3 feet in an area of less than 5,000 square feet, estimated at less than 500 cubic yards, and is located at least 15 feet below ground.

Total BTEX concentrations range from non-detect to 5,230 parts per million (ppm), and were found at 30 feet below grade. PAHs are primarily co-located with the BTEX contamination, adjacent to the coal tar, with values ranging from non-detect to 2,808 ppm and were found at 20 feet below grade. These levels of both BTEX and PAHs are well in excess of the soil cleanup objectives for these contaminants.

Groundwater: Groundwater contamination is found down gradient of the tar contamination and includes the same contaminants as the soil contamination. Total BTEX concentrations range from 1.3 parts per billion (ppb) to 12,000 ppb. Total PAHs concentrations range from non-detect to 5,128 ppb. These levels of both BTEX and PAHs are well in excess of ambient water quality standards.

Soil Vapor: Soil vapor samples were collected from areas adjacent to the on-site and adjacent buildings. The samples showed a range of contaminants, including benzene, naphthalene, xylene, and ethanol. While some of the contaminants are related to the former MGP plant, many were not. Values in OU-1 ranged from non-detect for naphthalene in several samples to 610 micrograms per cubic meter (ug/m3) for hexane. The maximum concentration for benzene was 47 ug/m3 and for xylene was 138 ug/m3.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. People may contact site related contaminants if 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 contaminated by the site. Volatile organic compounds 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 or buildings, is referred to as soil vapor intrusion. Actions are not needed to address the potential for soil vapor intrusion given the current use of the site for parking and self-storage. However, if the site is redeveloped or the use changes, the potential for soil vapor intrusion will be re-evaluated. Environmental sampling indicates that soil vapor intrusion may be a concern for off-site buildings along the eastern portion of the site; however, nearby property owners have declined sampling offers.

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.
- Prevent the discharge of contaminants to surface water.

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.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

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.

The selected remedy is referred to as the Long-term Site Management and Monitoring remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Cover System

A site cover currently exists and will be maintained to allow for commercial use of the site. Any site redevelopment will maintain a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is constructed during redevelopment, it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

2. Institutional Control

Imposition of an institutional control in the form of a deed restriction for the controlled property (the site boundary for OU-1) which will:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;
- requires compliance with the Department approved Site Management Plan.

3. 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 Deed Restriction discussed in Paragraph 2 above and an agreement with the property owners to implement any necessary future site management plan on the off-site properties .

Engineering Controls: The cover system discussed in Paragraph 1 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 further investigation and remediation should large scale redevelopment occur, or if any of the existing structures are demolished, or if the subsurface is otherwise made accessible for remediation. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment. This includes all of the current buildings on the original MGP footprint between West 45th and 44th streets, the adjacent offsite properties between 11th and 12th Avenue and West 43rd and West 45th streets, and areas currently covered by 12th Avenue and adjacent to the west;
- descriptions of the provisions of the deed restriction including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed within the area of site management (Figure 2), if the current use of the on-site building changes, and in existing off-site buildings to the east within in the area of site management (Figure 2), including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

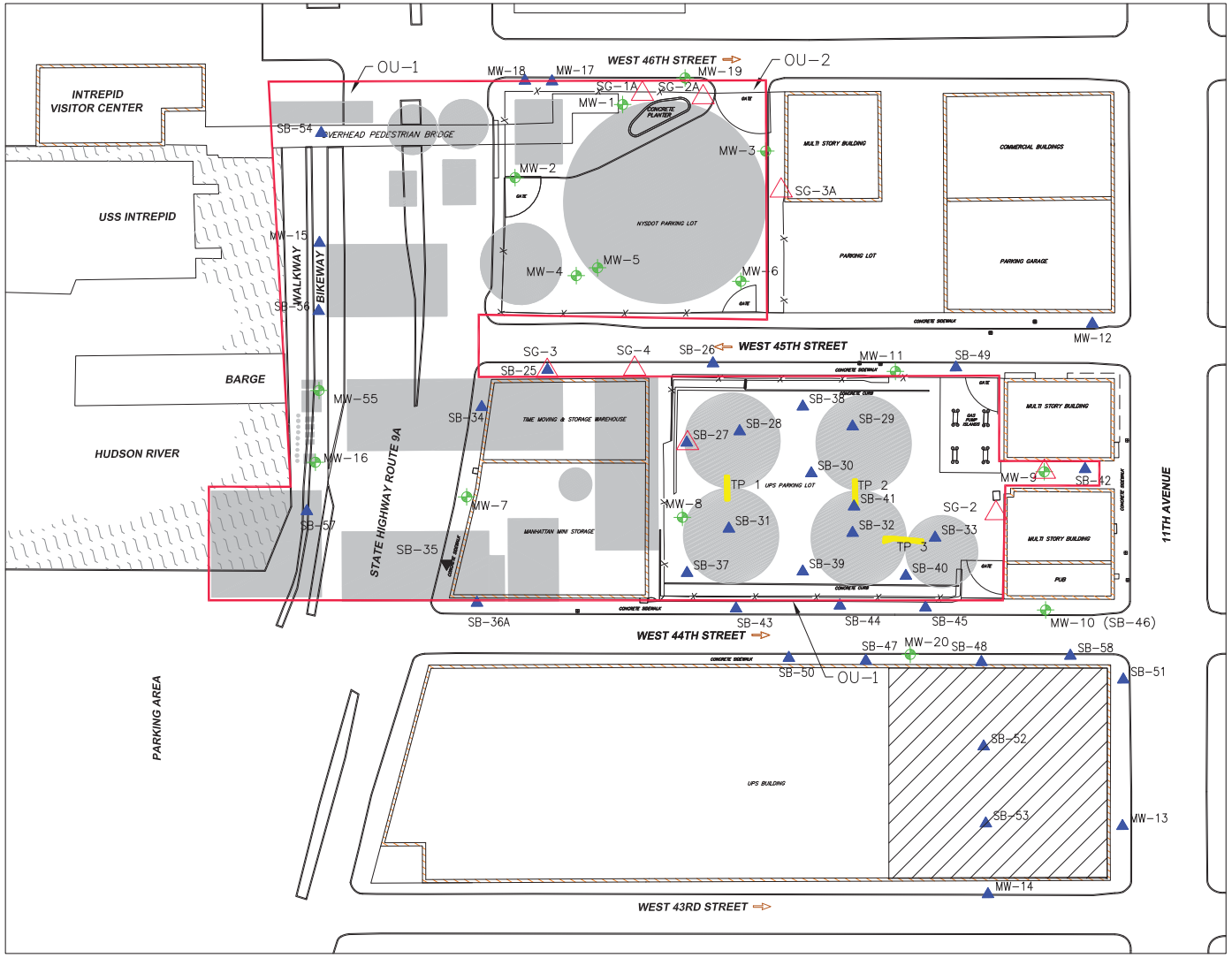
B: a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings as may be required by the Institutional and Engineering Control Plan discussed above.

4. Green remediation principals and techniques will be implemented to the extent feasible in the 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 gas 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.



LEGEND:

- CURRENT FEATURES
- HISTORICAL FEATURES (LOCATIONS ARE APPROXIMATE)
- EXISTING BUILDING
- CHAIN LINK FENCE
- MW-1 MONITORING WELL
- SB-5 SOIL BORING
- SB-35 SOIL BORING WAS NOT ADVANCED DUE TO THE PRESENCE OF A SUBSURFACE OBSTRUCTION.
- SG-1A SOIL GAS
- TEST PIT
- APPROXIMATE EXTENT OF UPS PARKING GARAGE
- SITE BOUNDARY

NOTE:

MONITORING WELLS WERE NOT INSTALLED AT MW-12, MW-13, MW-14, MW-15, MW-17 AND MW-18. GROUNDWATER WAS NOT OBSERVED IN THE BORINGS AT THESE LOCATIONS.

100 50 0 100 200

SCALE: 1"=100'

Figure 1

CONSOLIDATED EDISON OF NEW YORK
WEST 45th STREET
NEW YORK, NEW YORK

Site Location Map

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

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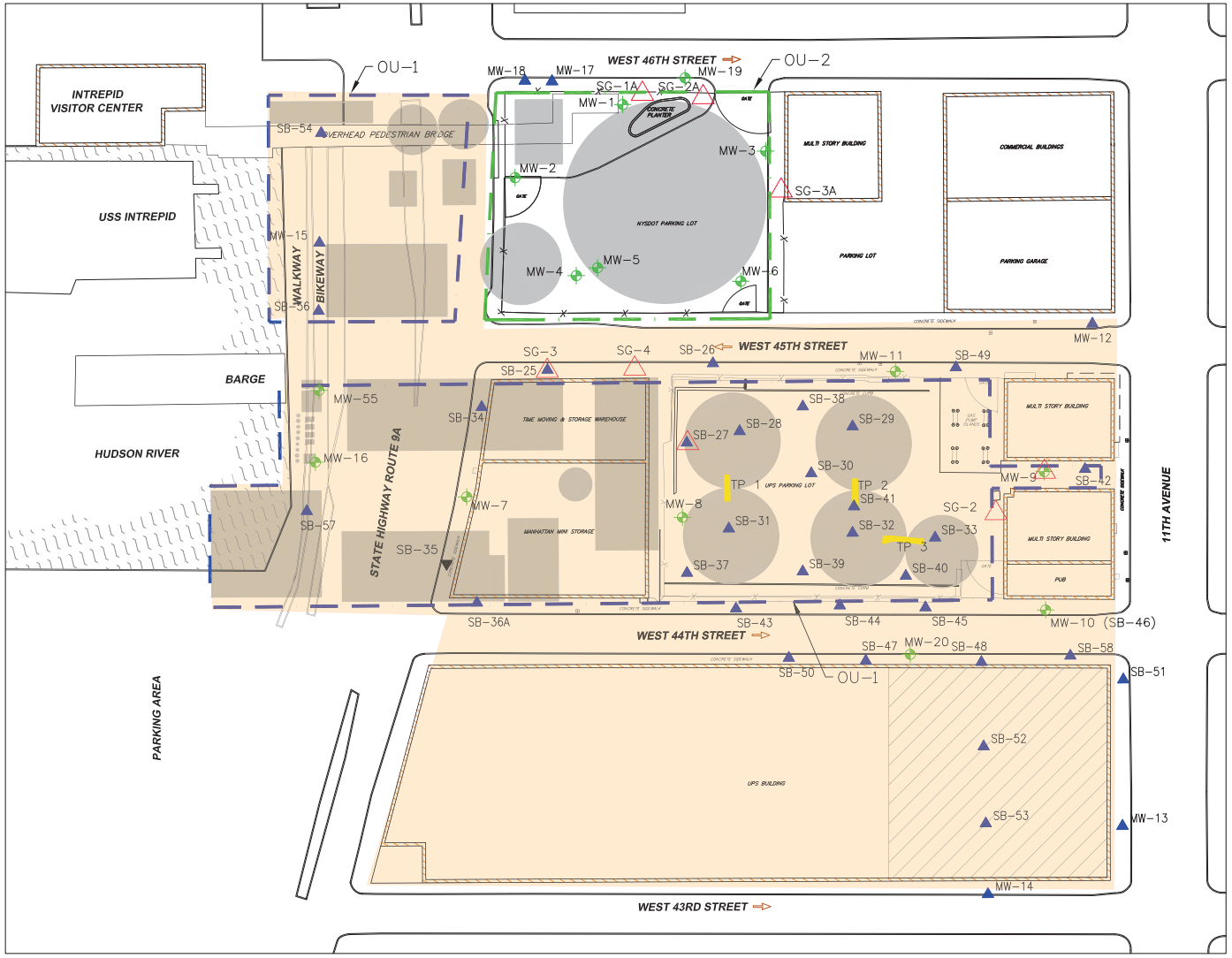

LEGEND:

- CURRENT FEATURES
- HISTORICAL FEATURES (LOCATIONS ARE APPROXIMATE)
- EXISTING BUILDING
- CHAIN LINK FENCE
- MW-1 MONITORING WELL
- SB-5 SOIL BORING
- SB-35 SOIL BORING WAS NOT ADVANCED DUE TO THE PRESENCE OF A SUBSURFACE OBSTRUCTION.
- SG-1A SOIL GAS
- TEST PIT
- Site Boundary of OU-1
- Boundary of OU-2
- APPROXIMATE EXTENT OF UPS PARKING GARAGE
- Area subject to site management

100 50 0 100 200

SCALE: 1"=100'

Figure 2

CONSOLIDATED EDISON OF NEW YORK
WEST 45th STREET
NEW YORK, NEW YORK

Remedy Figure

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

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