DECISION DOCUMENT

CE - Unionport Works
Operable Unit Number 01: MGP site
Voluntary Cleanup Program
Bronx, Bronx County
Site No. V00553
June 2017

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

DECLARATION STATEMENT - DECISION DOCUMENT

CE - Unionport Works
Operable Unit Number: 01
Voluntary Cleanup Program
Bronx, Bronx County
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Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 01: MGP site of the CE - Unionport 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 - Unionport 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. 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.

2. Major Oil Storage Facility Closure

The owner of the property is responsible for the removal of tanks, pipes, structures and associated petroleum contamination associated with the existing abandoned major oil storage facility (MOSF). Petroleum-contaminated soil will be excavated and disposed off-site, including:

- Grossly contaminated soil, as defined n 6NYCRR Part 375-1.2(u);
- Non-aqueous phase liquids;
- Soil containing visible petroleum or non-aqueous phase liquid;
- Soil that creates a nuisance condition, as defined in Commissioner Policy CP-51, Section G.

3. Coal Tar Excavation

Upon completion of the MOSF closure, the underlying coal tar contaminated soils will be excavated to an approximate depth of 11 feet and transported off-site for treatment and disposal. Excavated soils will include:

- Grossly contaminated soil, as defined n 6NYCRR Part 375-1.2(u);
- Non-aqueous phase liquids;
- Soil containing visible petroleum or non-aqueous phase liquid;
- Soil containing SVOCs exceeding 500 ppm;
- Soil that creates a nuisance condition, as defined in Commissioner Policy CP-51, Section G.

The area of excavation will extend from Zerega Avenue on the west, to the dock adjacent to the Westchester Creek on the east and from Watson Ave. on the north to Blackrock Avenue on the south. The approximate dimensions of the excavation area will be 270 ft x 200 ft with an excavated volume of approximately 22,000 cubic yards.

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

4. In-situ Solidification:

In those areas where potentially mobile coal tar is present in soil below the bottom of the excavation (approximately 11 ft. below ground surface), in-situ solidification (ISS) will be implemented in conjunction with excavation to immobilize contamination that remains below excavated areas.

Excavation support will be required to allow the above excavations to proceed. The excavation support will consist of an ISS barrier wall surrounding the excavation, which is designed to be left in place as a coal tar migration barrier to prevent mobile NAPL (i.e., that which has migrated beyond the excavation area) from re-contaminating the remediated areas.

ISS is a process that binds soil particles in place, creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents (typically Portland cement) or other binding agents using an excavator or augers. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination. The solidified mass will then be covered with a cover system as described in Paragraph 6 below to prevent direct exposure and to protect the solidified material from weathering due to freeze/thaw cycles.

5. Coal Tar Recovery:

A series of coal tar recovery wells will be constructed on the eastern portion of the site, near the shoreline of Westchester Creek, to prevent the migration of coal tar to the creek. The number, depth and spacing of the recovery wells will be determined during the design phase of the remedy. Coal tar will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of coal tar over extended time periods, they may be converted to automatic collection.

6. Cover System:

A site cover will be required to allow for commercial/industrial use of the site. The cover will 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 soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is required 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).

Where the soil cover is required over the ISS treatment area, it will consist of a minimum of four feet of soil meeting the SCOs for commercial use. For areas where solidified material underlies the cover, the solidified material itself will serve as the demarcation layer due to the nature of the material.

7. Institutional Controls:

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

- require 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);
- allow the use and development of the site for commercial and industrial uses 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 DOH;
- require compliance with the Department approved Site Management Plan

8. Site Management Plan

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

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

Institutional Controls:
The Environmental Easement discussed in Paragraph 7 above.

Engineering Controls:
- The cover system discussed in Paragraph 6 above;
- The solidified soils discussed in Paragraph 4 above; and
- The coal tar recovery system discussed in Paragraph 5 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 that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion if current buildings become occupied or if new buildings are developed on the site in the future, 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 on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Declaration

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

June 30, 2017

Date

George Heitzman, Director
Remedial Bureau C

DECISION DOCUMENT

CE - Unionport Works
Bronx, Bronx County
Site No. V00553
June 2017

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 repositories:

New York Public Library
Attn: Castle Hill Branch
947 Castle Hill Avenue
Bronx, NY 10473
Phone:

Bronx Community Board 9
Attn: William Rivera, District Manager
1967 Turnbull Avenue, Room 7
Bronx, NY 10473
Phone:

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:
This site is located in the Unionport section of Bronx County. It is approximately 1 acre in size, located next to Westchester Creek, a tidal waterway, and is approximately one block north of the Bruckner Expressway. The site is bounded by Westchester Creek to the east, Zerega Avenue to the west, Watson Avenue to the north, and Blackrock Avenue to the south.

Site Features:
The site is currently occupied by an inactive Major Oil Storage Facility. Above-grade structures at the site include a large cinder block building, three small buildings and decommissioned fuel loading racks. The former MOSF buildings are in active commercial use, housing a cut stone dealer and a metal fabrication business.

Current Zoning and Land Use:
The site is zoned M3-1, for industrial and manufacturing uses. Adjacent properties are occupied by commercial businesses, industrial businesses and parking lots. The nearest residential building is an apartment building located one block to the west.

Past Use of the site:
Site contamination results from two separate periods of site activity. First, the site was operated by Con Edison's corporate predecessors as a manufactured gas plant (MGP) from the early 1900s until 1929 using a carbureted water gas process. Between 1945 and 2002, the site was utilized by a series of petroleum bulk storage and distribution facilities. Numerous historic petroleum releases have been documented at the site, in addition to the coal tar contamination from the MGP operation.

Operable Units:
The site was divided into three 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. Three operable units have been created at this site:

Operable Unit 1 (OU1) is the on-site source area, located on the original MGP footprint.
Operable Unit 2 (OU2) includes the off-site properties to the north of OU1.

Operable Unit 3 (OU3) consists of the portion of Westchester Creek immediately east of the site.

Site Geology and Hydrogeology:
Bedrock underlies the site at depths ranging from 25 to 48 feet below ground surface (bgs). The top of bedrock surface slopes steeply downward from the west to the east. A thin, discontinuous glacial till layer lies above the bedrock and is in turn overlain by a silty clay layer approximately 10 feet in thickness. A silty sand fill unit, approximately 15 feet thick, overlies the clay and is the uppermost stratigraphic layer.

Groundwater is encountered approximately 10 feet bgs. Groundwater flow is toward the east, discharging into Westchester Creek.

Operable Unit (OU) Number 01 is the subject of this document. All references to "site" in this document refer to OU 01.

A Decision Document will be issued for OU 02 and 03 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 (or an alternative) that restrict(s) 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/was 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

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 site is subject to two enforcement actions, one related to the MOSF and the second related to the MGP:

MOSF and NYSDEC Spill Number 1112925:
The owner of the inactive MOSF at the site, Zerega Six Star LLC, entered into Consent Order R2-20100312-91 on April 9, 2011 requiring compliance with the Navigation Law and the MOSF license. The owner also entered into Consent Order R2-20160523-192 on August 25, 2016 requiring the remediation of contamination related to the MOSF including the removal and demolition of all structures and the MOSF tanks.

MGP:
The only PRP for the MGP component of the site contamination documented to date is Con Edison. The Department and Con Edison entered into a Voluntary Cleanup Agreement on August 15, 2002. The Agreement obligates the responsible party to implement a full remedial program for this and 11 other former MGP sites. On-site and off-site contamination unrelated to the former MGP activities identified during the environmental investigations are being addressed separately under the terms of the MOSF consent orders noted above.

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
- sediment

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	benzene, toluene, ethylbenzene and xylenes (BTEX)
polycyclic aromatic hydrocarbons (PAHS), total	

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 at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

For OU1, the on-site area, the Remedial Investigation (RI) was conducted between 2008 and 2013. Soil and groundwater samples were submitted for laboratory analysis for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and inorganics, including total cyanide. The results of the RI showed gross coal tar contamination in both subsurface soil and groundwater at depths ranging from 10 to 40 feet beneath the site. Closer to the surface, significant petroleum contamination was found, associated with the more recent use of the site as an oil storage facility.

Subsurface Soil: Extensive zones of coal tar saturation were observed in subsurface soils. The majority of coal tar saturated soil was found in the fill unit above the underlying clay layer, although limited areas of tar saturation were observed within the glacial till which lies between the clay layer and bedrock. No coal tar impacts were observed in the bedrock. Subsurface soil contamination has migrated off-site as discussed under OU2 below.

Concentrations of benzene, toluene, ethylbenzene and xylenes, collectively known as BTEX, are present in subsurface soils at levels as high as 1,000 parts per million (ppm), along with polycyclic aromatic hydrocarbon (PAH) concentrations as high as 26,000 ppm, greatly exceeding the commercial use Soil Cleanup Objectives (SCOs).

Groundwater: The groundwater beneath the site is highly impacted by both BTEX, with detected concentrations ranging from no detect (ND) to 3,250 parts per billion (ppb), and PAHs, which range from ND to 11,400 ppb, greatly exceeding groundwater quality standards. These compounds are found both in coal tar and in petroleum products, and it is likely that both the tar and petroleum have contributed to groundwater contamination. The relative contribution of the two types of source materials has not been determined. Groundwater contamination has migrated off-site as discussed under OU2 below.

For OU2, a Remedial Investigation was conducted in 2014. The results of the RI showed coal tar and petroleum contamination in subsurface soil and groundwater. In subsurface soil BTEX and PAH compounds were detected at concentrations exceeding protection of groundwater SCOs. In Groundwater, BTEX and PAH compounds were detected at concentrations exceeding groundwater quality standards.

Soil Vapor: Since none of the structures at the site were occupied at the time of the Remedial Investigation, no soil vapor investigation was conducted.

Sediments: A Remedial Investigation of the sediments in Westchester Creek was conducted in 2011. The results of the RI showed no impacts from the site to Westchester Creek. The concentrations of constituents in sediments adjacent to the site were similar to or lower than those concentrations detected in sediment samples collected in background locations.

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.*

People may contact contaminants in the soil by walking on the soil, digging, or otherwise disturbing the soil. People are not drinking contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. There is the potential for direct contact, incidental inhalation, or ingestion of dust containing site-related contaminants by digging or otherwise disturbing the soil both on and off-site. Volatile organic compounds in the groundwater 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. Because there are no occupied on-site buildings, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. However, the potential exists for the inhalation of site contaminants due to soil vapor

intrusion for any future on-site development. Additional information is needed to determine whether actions are needed off-site to address soil vapor intrusion.

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

- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation.

The selected remedy is referred to as the Excavation, In-Situ Soldification and Coal Tar Recovery remedy.

The elements of the selected remedy, as shown in Figure 2, 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.

2. Major Oil Storage Facility Closure

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- Grossly contaminated soil, as defined n 6NYCRR Part 375-1.2(u);
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- Soil containing SVOCs exceeding 500 ppm;

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The area of excavation will extend from Zerega Avenue on the west, to the dock adjacent to the Westchester Creek on the east and from Watson Ave. on the north to Blackrock Avenue on the south. The approximate dimensions of the excavation area will be 270 ft x 200 ft with an excavated volume of approximately 22,000 cubic yards.

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

4. In-situ Solidification:

In those areas where potentially mobile coal tar is present in soil below the bottom of the excavation (approximately 11 ft. below ground surface), in-situ solidification (ISS) will be implemented in conjunction with excavation to immobilize contamination that remains below excavated areas.

Excavation support will be required to allow the above excavations to proceed. The excavation support will consist of an ISS barrier wall surrounding the excavation, which is designed to be left in place as a coal tar migration barrier to prevent mobile NAPL (i.e., that which has migrated beyond the excavation area) from re-contaminating the remediated areas.

ISS is a process that binds soil particles in place, creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying agents (typically Portland cement) or other binding agents using an excavator or augers. The soil and binding agents are mixed to produce a solidified mass resulting in a low permeability monolith. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination. The solidified mass will then be covered with a cover system as described in Paragraph 6 below to prevent direct exposure and to protect the solidified material from weathering due to freeze/thaw cycles.

5. Coal Tar Recovery:

A series of coal tar recovery wells will be constructed on the eastern portion of the site, near the shoreline of Westchester Creek, to prevent the migration of coal tar to the creek. The number, depth and spacing of the recovery wells will be determined during the design phase of the remedy. Coal tar will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of coal tar over extended time periods, they may be converted to automatic collection.

6. Cover System:

A site cover will be required to allow for commercial/industrial use of the site. The cover will 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 soil will exceed the

applicable soil cleanup objectives (SCOs). Where a soil cover is required 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).

Where the soil cover is required over the ISS treatment area, it will consist of a minimum of four feet of soil meeting the SCOs for commercial use. For areas where solidified material underlies the cover, the solidified material itself will serve as the demarcation layer due to the nature of the material.

7. Institutional Controls:

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

- require 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);
- allow the use and development of the site for commercial and industrial uses 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 DOH;
- require compliance with the Department approved Site Management Plan

8. Site Management Plan

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

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

Institutional Controls:
The Environmental Easement discussed in Paragraph 7 above.

Engineering Controls:
- The cover system discussed in Paragraph 6 above;
- The solidified soils discussed in Paragraph 4 above; and
- The coal tar recovery system discussed in Paragraph 5 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 that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion if current buildings become occupied or if new buildings are developed on the site in the future, 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 on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., FLUSHING, N.Y., 1966, PHOTOREVISED 1979.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

SITE LOCATION MAP

ARCADIS

FIGURE 1

CITY: SYRACUSE, NY GROUP: ENV/REM-WIM-DV DB: K. SARTORI, P. LISTER, R. ALLEN PM/TM: M. JONES TR: A. EVANS LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0043515\0010\00001\DWG\RD-WP43515N01.dwg LAYOUT: 1 SAVED: 6/11/2015 8:44 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/11/2015 8:46 AM BY: ALLEN, ROYCE
XREFS: IMAGES: 43015X01.tif PROJECTNAME: ----

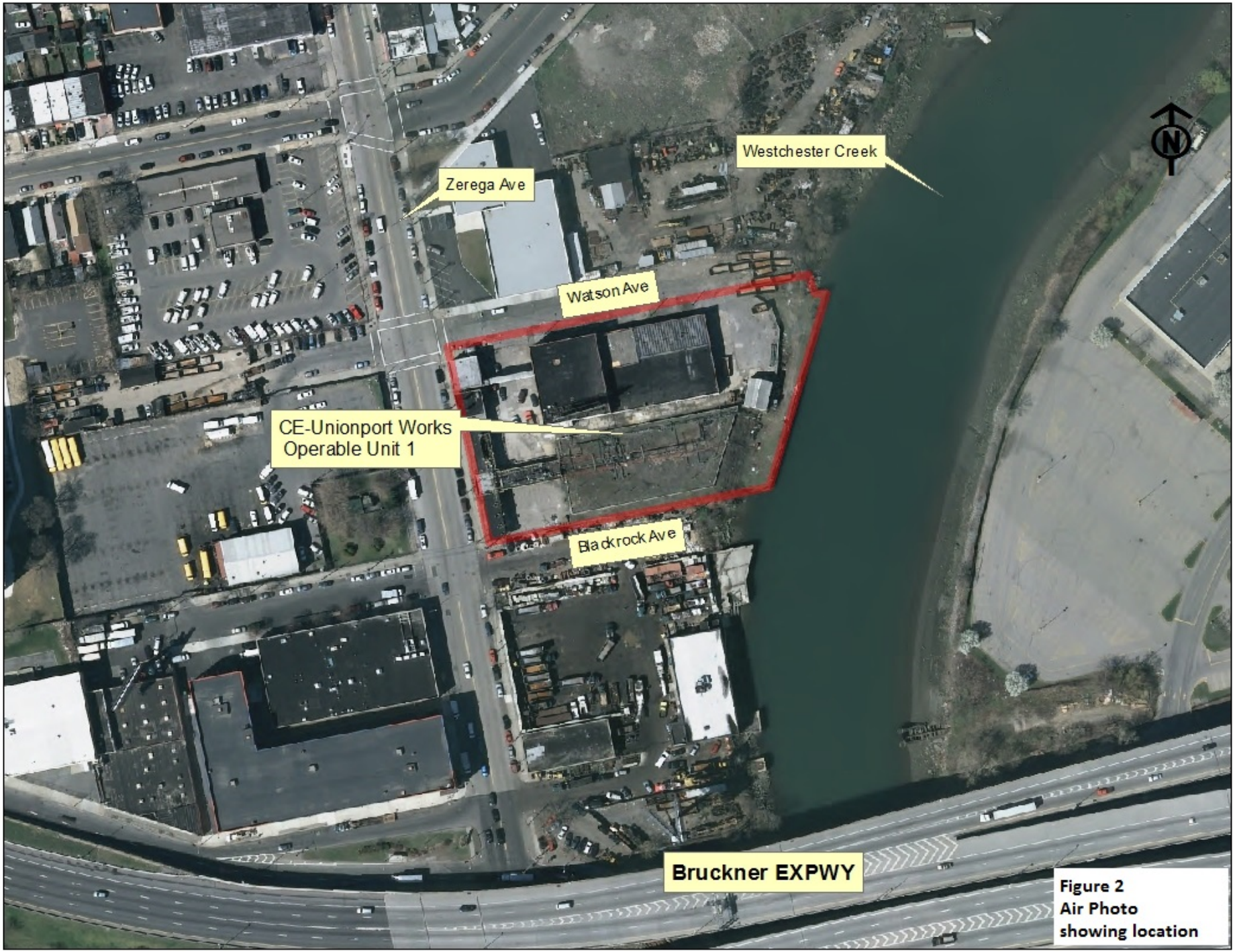
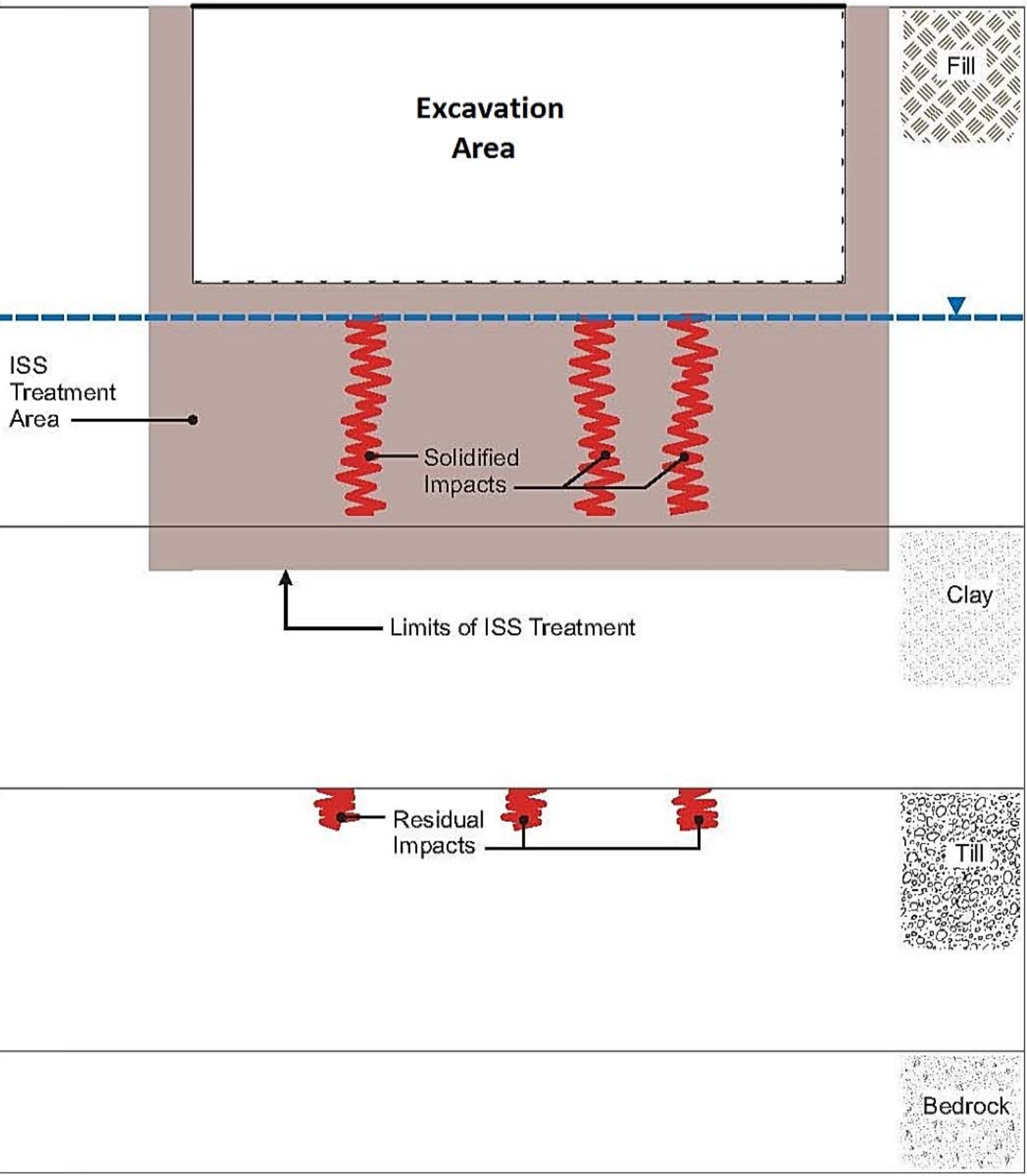


Figure 2
Air Photo
showing location

Figure 3
Remedial Areas



NOT TO SCALE

Figure 4
Excavation and ISS Areas