RECORD OF DECISION

7-11 Johnes Street
Environmental Restoration Project
Newburgh (C), Orange County
Site No. B00188
March 2017

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

DECLARATION STATEMENT - RECORD OF DECISION

7-11 Johnes Street
Environmental Restoration Project
Newburgh (C), Orange County
Site No. B00188
March 2017

Statement of Purpose and Basis

This document presents the remedy for the 7-11 Johnes Street site, an environmental restoration site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 7-11 Johnes Street site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1) 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) A site cover will be required to allow for restricted-residential use of the site in areas where the upper two feet of exposed surface soil will exceed applicable soil cleanup objectives (SCOs).

The site cover may consist of paved surface parking areas, sidewalks, or a soil cover. Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). Where the soil cover is installed, on-site soils in the upper two foot which exceed restricted-residential SCOs as defined by 6 NYCRR Part 375-6.8 will be excavated and transported off-site for disposal to allow for placement of the soil cover. Approximately 250 cubic yards of contaminated soil will be removed from the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

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

- require the remedial party or site owner to complete and submit to the 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 controlled property for restricted-residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or Orange County DOH; and
- require compliance with the Department approved Site Management Plan.

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

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

Institutional Controls: The Environmental Easement discussed in remedy element 3 above.

Engineering Controls: The site cover discussed in remedy element 2 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;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and 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; and
- monitoring for vapor intrusion for any future buildings developed 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.

March 22, 2017

Date

Robert W. Schick, P.E., Director
Division of Environmental Remediation

RECORD OF DECISION

7-11 Johnes Street
Newburgh (C), Orange County
Site No. B00188
March 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 remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled, or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated, the property can then be reused.

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

SECTION 2: CITIZEN PARTICIPATION

The 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:

Newburgh Free Library
124 Grand Street
Newburgh, NY 12550
Phone: (845) 563-3601

NYSDEC Region 3 Office
Attn: Sarah Sheppard
21 S Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256-3154

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the alternatives analyses (AA) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

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 7-11 Johnes Street site is located in an urban portion of the City of Newburgh, Orange County. The site is located approximately 0.2 miles south of Washington Headquarters Park.

Site Features: The site is approximately 0.18 acres in size and is presently vacant. A dilapidated building sat on the northern two thirds of the site before it was demolished in late 2012, and the southern third of the site is a grass lawn. There are no ecological resources or surface water bodies at or near the site.

Current Zoning/Use: The site is currently inactive. The site is zoned downtown neighborhood which allows for commercial or residential use. The surrounding parcels currently have a combination of commercial, light industrial, and residential uses.

Past Uses of the Site: The site was a former dry cleaning business at which petroleum was stored

underground. The business operated for approximately 40 years (from 1954) until the City of Newburgh took the property for back taxes. Three underground storage tanks (USTs) were removed, and 362 tons of impacted soil was excavated and disposed of off-site in August 2000. The tanks were reportedly deteriorated and had leaked their contents into the soil and groundwater. A spill was reported to the Department due to the poor condition of the tanks. Initial screening showed petroleum related volatile organic compounds (VOCs) in exceedance of soil cleanup objectives (SCOs).

Site Geology and Hydrogeology: Overburden soils consist of urban fill with some debris underlain by sand, silt, and gravel to depths of between 15 and 20 feet below grade. Bedrock was not encountered or investigated during the remedial investigation. Shallow groundwater was observed at depths ranging from 3 to 15 feet below grade. Shallow groundwater flows southeast across the site towards Johnes Street. In the southeast corner of the site groundwater is not present in overburden soils. Storm water from the site flows onto Johnes Street and into the City storm sewer system.

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, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/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 included in the Tables for the media being evaluated in Exhibit A.

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.

No PRPs have been documented to date.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. City of Newburgh will assist the state in its efforts by providing all information to the state which identifies PRPs. City of Newburgh will also not enter into any agreement regarding response costs without the approval of the Department.

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

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. The tables found in Exhibit A list the applicable SCGs in the footnotes. 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

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:

	dibenz[a,h]anthracene
1,2,4-trimethylbenzene	lead
benzene	mercury
isopropylbenzene	n-propylbenzene
benzo(a)anthracene	sec-butylbenzene
benzo(b)fluoranthene	benzo(a)pyrene
chrysene	

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- soil
- groundwater

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 Record of Decision.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

Building Demolition

To help facilitate the remedial investigation and potential remedial actions, the on-site two story masonry building was demolished as part of an IRM in December 2012. The demolition was conducted as a controlled demolition with asbestos in place. All debris generated by the demolition work was disposed of as Regulated Asbestos Containing Material (RACM) except for structural members, steel components, and similar uncontaminated items. Upon completion of demolition and disposal activities, the site grade was restored with quarry process stone meeting the soil cleanup objectives for unrestricted use to pre-existing grades. At least a one-foot layer of stone was placed over the demolition area, which accounts for a majority of the site area. The IRM is documented in a September 18, 2013 Construction Completion Report.

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.

Following the IRM, a remedial investigation (RI) was completed. Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based upon the investigations conducted, the primary contaminants of concern include SVOCs, lead and mercury in shallow soil, VOCs in subsurface soil, and VOCs in groundwater.

Soil – VOCs are found in subsurface soil at levels that exceeded the soil cleanup objectives (SCOs) for the protection of groundwater. These VOCs include 1,2,4 trimethylbenzene at concentrations up to 470 parts per million (ppm), benzene at 0.22 ppm, and isopropylbenzene at concentrations up to 12 ppm. The presence of these VOCs in subsurface soil is indicative of residual weathered petroleum which remained following the removal of underground storage tanks. SVOCs and metals are found in shallow and subsurface soil in exceedance of SCOs. Polycyclic aromatic hydrocarbons (PAHs), a subset of SVOCs are present at levels that only slightly exceed restricted-residential SCOs. Lead was observed at a maximum concentration of 710 ppm in soil, and mercury was observed at a maximum concentration of 5.1 ppm in soil. Soil contamination attributable to site sources does not extend off-site.

Groundwater – VOCs are found in groundwater in exceedance of groundwater standards. These VOCs include 1,2,4 trimethylbenzene at concentrations up to 550 part per billion (ppb), isopropylbenzene at concentrations up to 29 ppb, n-propylbenzene at concentrations up to 61 ppb, and sec-butylbenzene at concentrations up to 45 ppb. The presence of these VOCs in groundwater is indicative of impacts from soil containing weathered petroleum compounds. On-site monitoring wells located down-gradient of subsurface soil and groundwater VOC contamination are not contaminated with VOCs, indicating that VOC contamination has not migrated off-site. SVOCs and metals were also found to exceed groundwater standards. SVOC and metals concentrations are highest at the most up-gradient well on the site, and therefore are likely attributable to an up-gradient and off-site source.

Soil Vapor – No soil vapor sampling was conducted as there are presently no on-site structures.

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*.

The majority of the site is covered with one foot of clean stone, however, people who enter the site could contact contaminants in the soil by walking on the uncovered portions of the site or if digging below the stone cover. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in the soil or groundwater may move into the soil vapor (air spaces with 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 is no on-site building, 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 development. In addition, sampling indicates soil vapor intrusion is not a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the alternatives analysis (AA) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Site Cover, Institutional Controls and Site Management remedy.

The estimated present worth cost to implement the remedy is $125,000. The cost to construct the remedy is estimated to be $75,000 and the estimated average annual cost is $2,200.

The elements of the selected remedy are as follows:

1) 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) A site cover will be required to allow for restricted-residential use of the site in areas where the upper two feet of exposed surface soil will exceed applicable soil cleanup objectives (SCOs). The site cover may consist of paved surface parking areas, sidewalks, or a soil cover. Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). Where the soil cover is installed, on-site soils in the upper two foot which exceed restricted-residential SCOs as defined by 6 NYCRR Part 375-6.8 will be excavated

and transported off-site for disposal to allow for placement of the soil cover. Approximately 250 cubic yards of contaminated soil will be removed from the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

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

- require the remedial party or site owner to complete and submit to the 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 controlled property for restricted-residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or Orange County DOH; and
- require compliance with the Department approved Site Management Plan.

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

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

Institutional Controls: The Environmental Easement discussed in remedy element 3 above.

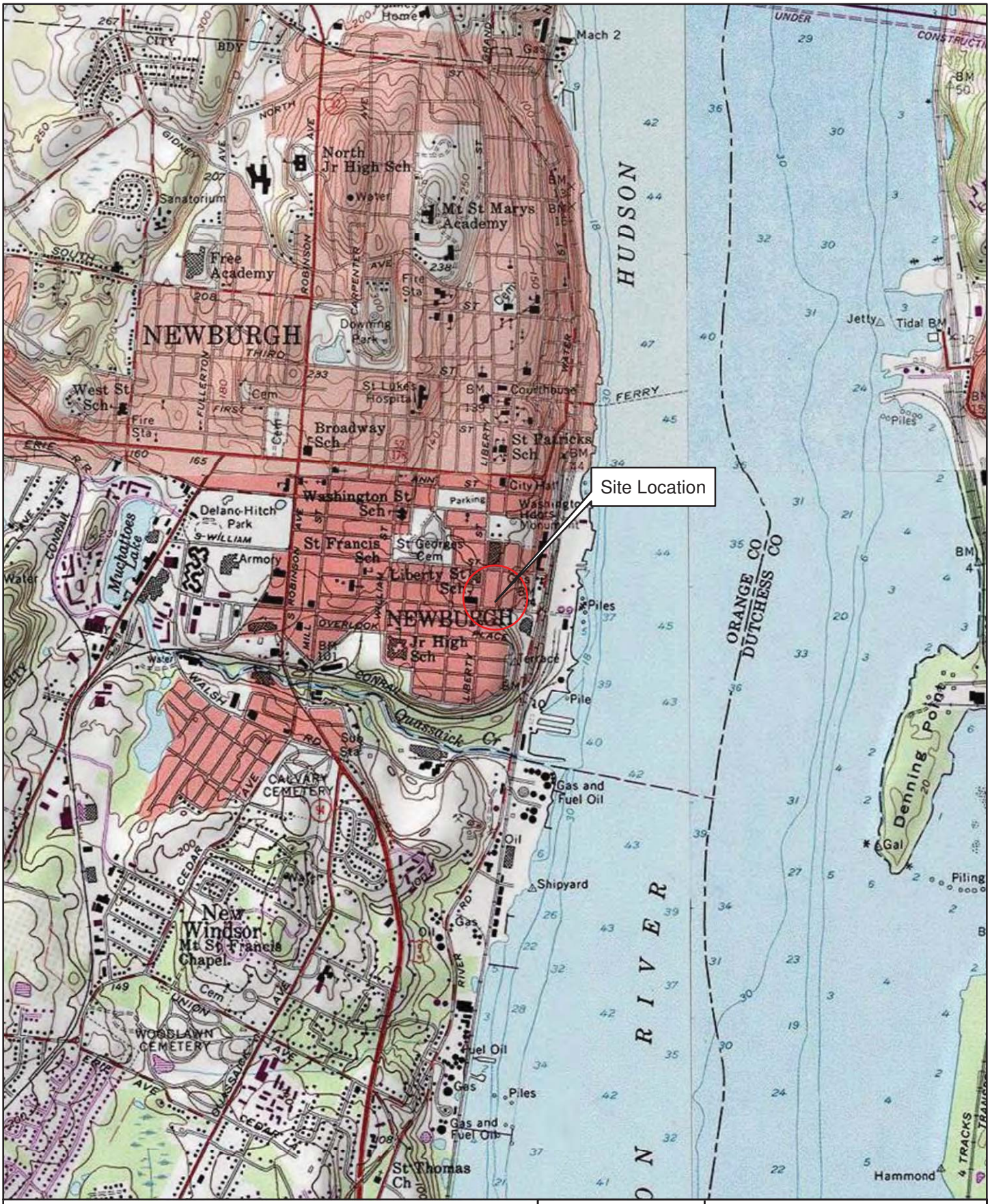
Engineering Controls: The site cover discussed in remedy element 2 above.

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;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and 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; and
- monitoring for vapor intrusion for any future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.



N
W E
S

1 inch = 2,000 feet

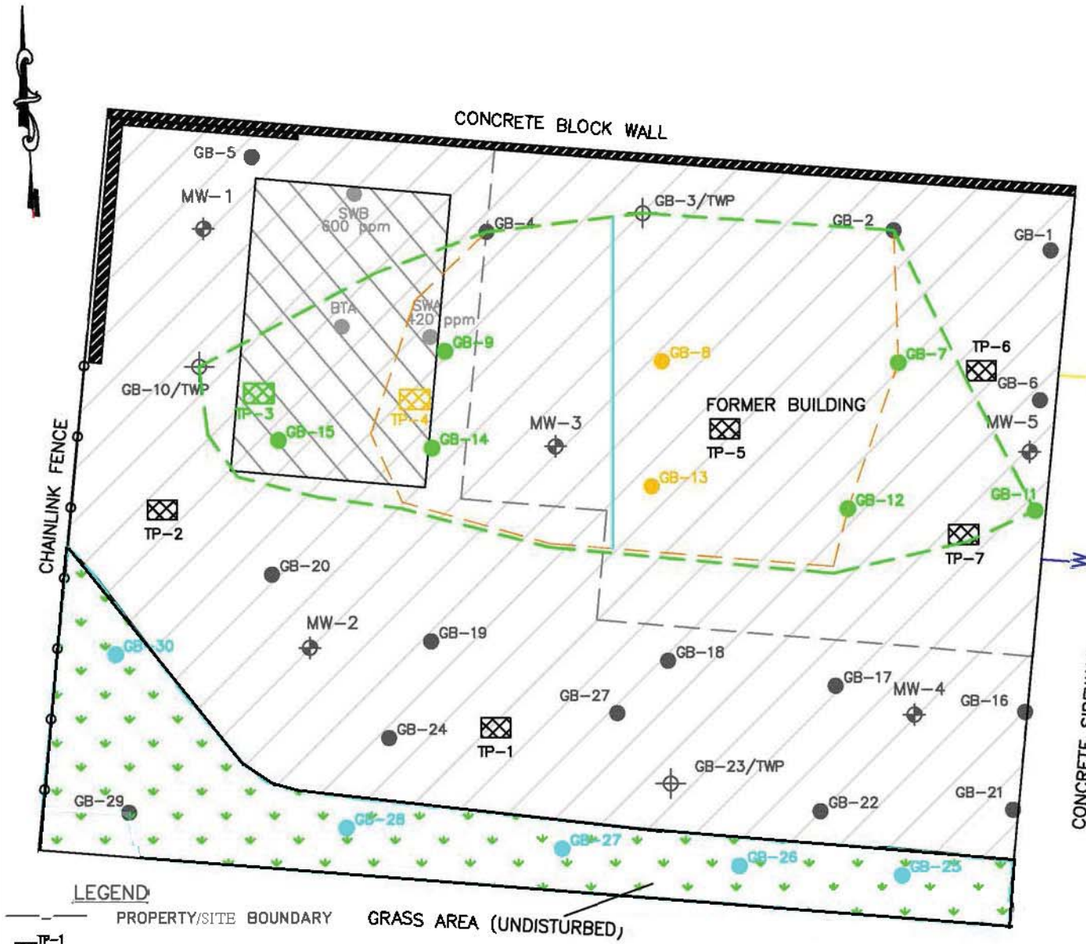
Location: New Jersey State Plane (NAD 83 feet) N 969808.6 E 626257.9
United States Geological Survey, Cornwall-On-Hudson NY 7.5 minute Topographic Quadrangle

FIRST ENVIRONMENT

91 Fulton Street
Boonton, New Jersey 07005

JOHNES STREET PROJECT
7-11 JOHNES STREET
NEWBURGH, NEW YORK
FIGURE 1
SITE LOCATION MAP

Revised	Drawn	Checked	Approved	Date
	CJM	DDL	TCB	04/25/12



LEGEND

- PROPERTY/SITE BOUNDARY
- TP-1 TEST PIT LOCATION
- GB-1 SOIL BORING LOCATION
- GB/TWP TEMPORARY WELL POINT LOCATION
- SWA POST-EXCAVATION SIDEWALL SAMPLES JUNE 1999
- BTA POST-EXCAVATION BASE SAMPLE SAMPLE JUNE 1999
- FORMER UST EXCAVATION, JUNE 1999
- 600 ppm TOTAL PETROLEUM HYDROCARBON RESULTS (EXPRESSED AS PARTS PER MILLION)
- FORMER BUILDING FOOTPRINT
- G GAS UTILITY
- W WATER UTILITY

REMAINING AREA COVERED BY >1 FEET QUARRY STONE (DISTURBED)

PROPOSED EXCAVATION AREA FOR CONTAMINANTS EXCEEDING PROTECTION OF GROUNDWATER SCO

PROPOSED EXCAVATION AREA FOR CONTAMINANTS EXCEEDING UNRESTRICTED USE SCO – INCLUDES PROPOSED EXCAVATION AREA FOR CONTAMINANT EXCEEDING COMMERCIAL SCO

POG Soil Removal Volume

GB-8: 1,050 SF * 15 FT deep = 15,750 CF
15,750 CF / 27 = 584 CY
584 * 1.6 (weight of soil) = 935 tons

TP-4: 500 SF * 10 FT deep = 5,000 CF
5,000 CF / 27 = 185 CY
185 * 1.6 (weight of soil) = 296 tons

Total = 1,230 Tons

Unrestricted Use Soil Removal Volume

2,285 SF * 15 FT deep = 34,275 CF
34,275 CF / 27 = 1,270 CY
1,270 * 1.6 (weight of soil) = 2,032 tons

Client ID	TP-3 (11.5-12')		TP-4 (7-7.5')		GB-7 (0.5-1')		GB-7 (13.5-14')		GB-8 (0.5-1')		GB-8 (10-10.5')		DUP (10-10.5')	
Lab Sample ID	460-00048810-		460-00048810-		460-49632-1		460-49632-2		460-49632-3		460-49632-4		460-49632-5	
Sampling Date	12/20/2012		12/20/2012		01/17/2013		01/17/2013		01/17/2013		01/17/2013		01/17/2013	
Unit	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--	470 E	NA	--	--	100 E	NA
Benzene	0.00033J	0.0015	0.22	0.014	ND	0.00045	ND	0.00023	ND	0.056	ND	0.00034	ND	0.00034
Isopropylbenzene	0.0061	0.0015	0.048J	0.013	ND	0.00033	ND	0.00017	12	0.052	ND	0.00025	2.5	0.00025
SVOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Benzo[a]anthracene	1.7	0.0026	ND	0.0026	0.023J	0.0027	ND	0.0027	ND	0.0027	ND	0.005	ND	0.005
Benzo[a]pyrene	1.5	0.0027	ND	0.0027	0.018J	0.0027	ND	0.0027	ND	0.0028	ND	0.0051	ND	0.0051
Benzo[b]fluoranthene	2.0	0.0024	ND	0.0024	0.025J	0.0024	ND	0.0024	ND	0.0025	ND	0.0046	ND	0.0046
Chrysene	1.9	0.044	ND	0.044	ND	0.044	ND	0.045	ND	0.046	ND	0.084	ND	0.084
Dibenz(a,h)anthracene	0.20	0.0048	ND	0.0048	ND	0.0048	ND	0.0049	ND	0.0049	ND	0.0091	ND	0.0091
Metals	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Lead	283	0.98	710	1.1	603	0.92	19.9	1	49	1	68.8	0.92	69.6	0.93
Manganese	294	1	458	3.4	642	0.94	574	1	416	1	315	0.94	1,470	0.95
Mercury	1.4	0.025	0.049	0.037	0.13	0.023	0.14	0.025	2.3	0.049	0.12	0.021	0.31	0.023

Client ID	GB-9 (0.5-1')		GB-9 (14.5-15')		GB-11 (16.5-17')		GB-12 (0.5-1')		GB-12 (15.5-16')	
Lab Sample ID	460-49632-6		460-49632-7		460-49582-5		460-49582-11		460-49582-12	
Sampling Date	01/17/2013		01/17/2013		01/16/2013		01/16/2013		01/16/2013	
Unit	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
1,2,4-Trimethylbenzene	--	--			--	--	--	--	--	--
Benzene	ND	0.00022	ND	0.016	ND	0.015	ND	0.00042	ND	0.010
Isopropylbenzene	0.0032	0.00016	0.18J	0.015	0.16J	0.014	0.00067J	0.00031	1.3	0.0093
SVOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Benzo[a]anthracene	1.3	0.0025	0.52	0.0027	ND	0.0027	0.024J	0.0027	ND	0.0029
Benzo[a]pyrene	1.5	0.0025	0.53	0.0028	ND	0.0027	0.013J	0.0028	ND	0.003
Benzo[b]fluoranthene	1.8	0.0023	0.6	0.0025	ND	0.0024	0.026J	0.0025	ND	0.0026
Chrysene	1.5	0.042	0.51	0.045	ND	0.045	ND	0.046	ND	0.049
Dibenz(a,h)anthracene	0.16	0.0045	0.05	0.0049	ND	0.0048	ND	0.0049	ND	0.0053
Metals	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Lead	37.5	0.93	53.1	0.92	16.7	0.91	75.9	0.99	18	1.1
Manganese	549	0.95	349	0.94	329	0.93	472	1	248	1.1
Mercury	0.084	0.023	0.15	0.023	1.6	0.025	0.094	0.025	5.1	0.11

Client ID	GB-13 (0.5-1')		GB-13 (12.5-13')		GB-14 (0.5-1')		GB-14 (14.5-15')		GB-15 (3.5-4')	
Lab Sample ID	460-49582-8		460-49582-7		460-49582-9		460-49582-10		460-49582-4	
Sampling Date	01/16/2013		01/16/2013		01/16/2013		01/16/2013		01/16/2013	
Unit	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
1,2,4-Trimethylbenzene	--	--	120 E	NA	--	--	--	--	--	--
Benzene	ND	0.00049	ND	0.010	ND	0.00027	ND	0.0093	ND	0.00023
Isopropylbenzene	ND	0.00036	6.5	0.0097	ND	0.00020	ND	0.0086	ND	0.00017
SVOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Benzo[a]anthracene	0.23	0.0029	0.87	0.0028	4.4	0.0027	0.065	0.0027	2.4	0.0027
Benzo[a]pyrene	0.26	0.0029	0.66	0.0028	5.6	0.0027	0.072	0.0027	2.8	0.0027
Benzo[b]fluoranthene	0.32	0.0026	0.87	0.0025	5.9	0.0024	0.1	0.0024	3.3	0.0024
Chrysene	0.3J	0.048	1	0.046	4.5	0.044	0.084J	0.044	2.9	0.045
Dibenz(a,h)anthracene	0.03J	0.0052	0.071	0.005	0.54	0.0048	ND	0.0048	0.4	0.0048
Metals	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Lead	47.5	1	39.3	1	51.7	0.87	24.1	0.93	143	0.89
Manganese	109	1.1	682	1	558	0.89	266	0.96	738	0.91
Mercury	0.058	0.028	0.45	0.025	0.11	0.025	0.17	0.025	0.6	0.025

Client ID	GB-25 (0.5-1)		GB-26 (0.5-1)		GB-27 (0.5-1)		GB-28 (0.5-1)		GB-30 (0.5-1)	
Lab Sample ID	460-93594-2		460-93594-3		460-93594-4		460-93594-5		460-93594-7	
Sampling Date	04/20/2015		04/20/2015		04/20/2015		04/20/2015		04/20/2015	
Unit	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Benzene	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	-	-	-	-	-	-	-	-	-
SVOCs	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Benzo[a]anthracene	1.0	0.031	1.3	0.032	3.5	0.034	4.3	0.18	1.2	0.032
Benzo[a]pyrene	1.1*	0.011	1.3*	0.012	3.4*	0.012	4.3*	0.066	1.3*	0.012
Benzo[b]fluoranthene	1.4	0.014	1.9*	0.015	4.9	0.016	6.0*	0.085	1.6*	0.015
Chrysene	1.2	0.010	1.5	0.011	3.9	0.011	4.8	0.059	1.3	0.010
Dibenz(a,h)anthracene	0.19	0.019	0.13	0.020	0.39	0.021	0.77	0.11	0.21	0.020
Metals	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Lead	113	0.82	351	0.85	647	0.90	546	0.92	178	0.95
Manganese	534	0.86	707	0.89	604	0.95	437	0.96	635	1.0
Mercury	0.26	0.012	3.5	0.13	1.3	0.028	1.4	0.029	1.1	0.026

	NY 375-6.8(b) & CP-51 T-1 Rest-Residential Soil Cleanup Criteria ppm	NY 375-6.8(b) & CP-51 T-1 Groundwater Soil Cleanup Criteria ppm
Benzene	4.8	0.06
Isopropylbenzene	NA	2.3
1,24-Trimethylbenzene	52	3.6
Benzo[a]anthracene	1	1
Benzo[a]pyrene	1	22
Benzo[b]fluoranthene	1	1.7
Chrysene	3.9	1
Dibenz(a,h)anthracene	0.33	1,000
Lead	400	450
Manganese	2,000	2,000
Mercury	0.81	0.73

SCALE

0 15

7.5 30

(FEET)

JOHNES STREET PROJECT
7-11 JOHNES STREET
NEWBURGH, NEW YORK

SOIL SAMPLE LOCATIONS
AND PROPOSED EXCAVATION AREAS

FIGURE: 2

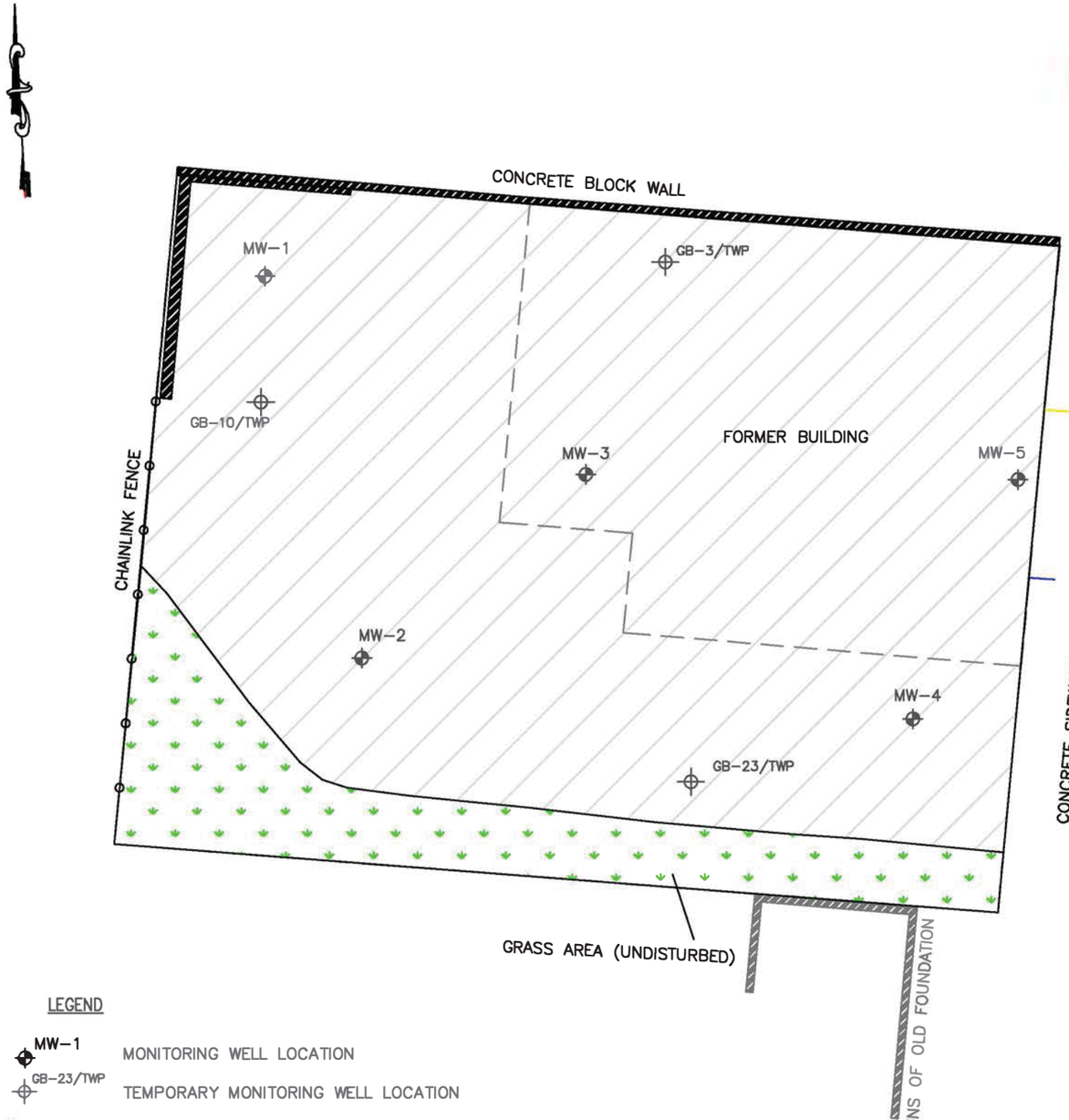
REVISED	C/M	DRAWN	TSC	CHKD.	ODL
		SCALE	AS SHOWN		
DATE	5/10/16	DATE	2/29/12	DATE	5/10/16

FIRST ENVIRONMENT
BOONTON, NEW JERSEY

Client ID	NYSDEC AWQS (ppb)	GB-3/TWP		GB-10/TWP		MW-1		MW-2		MW-3		MW-3		MW-5	
Lab Sample ID		460-49632-14		460-49632-13		460-59255-1		460-92674-1		460-59255-2		460-93594-1		460-59255-3	
Sampling Date		01/17/2013		01/17/2013		7/10/2013		3/31/2015		7/10/2013		4/20/2015		7/10/2013	
Matrix		Water (ppb)		Water (ppb)		Water (ppb)		Water (ppb)		Water (ppb)		Water (ppb)		Water (ppb)	
Dilution Factor		1		1		1		1		1		1		1	
Volatile Organic Compounds		**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
1,2,4-Trimethylbenzene	5	NR	--	72	--	NR	--	NR	--	190	--	550	--	--	--
Isopropylbenzene	5	ND	0.08	24	0.08	ND	0.080	ND	0.32	8.0	0.080	29	0.32	ND	0.080
n-Propylbenzene	5	NR	--	61	--	NR	--	NR	--	NR	--	57	--	NR	--
sec-Butylbenzene	5	NR	--	45	--	NR	--	NR	--	NR	--	NR	--	NR	--
Total Estimated Conc. (TICs)	NA	0.0*T	--	738	--	8.7	--	0.0*T	--	596.0	--	1,410	--	0.0*T	--
Semi-Volatile Organic Compounds		**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Benzo[a]anthracene	0.002	0.53J	0.28	0.94J	0.29	ND	0.18	ND	0.19	ND	0.18	~	~	ND	0.18
Benzo[a]pyrene	0.002	0.28J	0.15	0.47J	0.15	ND	0.14	ND	0.15	ND	0.14	~	~	ND	0.14
Benzo[b]fluoranthene	0.002	0.34J	0.27	0.57J	0.28	ND	0.21	ND	0.22	ND	0.21	~	~	ND	0.21
Total Concentration	NA	1.15	--	7.68	--	ND	0.93	ND	0.97	ND	0.93	~	~	ND	0.93
Total Estimated Conc. (TICs)	NA	115	--	2,367	--	1,951	--	0.0*T	--	90.6	--	~	--	0.0*T	--
Metals		**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**	**Result**	**MDL**
Aluminum	100	Not Analyzed				24,900	68.3	264	70.3	ND	68.3	~	~	11,900	68.3
Cobalt	5					22.7J	4.8	ND	4.4	ND	4.8	~	~	10.3J	4.8
Iron	300					60,600	80.9	396	77.9	207	80.9	~	~	23,900	80.9
Lead	50					386	2.5	ND	4.8	ND	2.5	~	~	50.3	2.5
Manganese	300					2,920	4.7	10.8J	4.3	366	4.7	~	~	1,550	4.7
Mercury	0.7					1.9	0.16	ND	0.18	ND	0.16	~	~	ND	0.16

Notes:

- AWQS: Ambient Water Quality Standards
- NA: Not Applicable
- NR: Not Reported
- J: Concentration is estimated
- *T There are no TICs reported for the sample
- ppb: parts per billion



LEGEND

- MW-1 — MONITORING WELL LOCATION
- GB-23/TWP — TEMPORARY MONITORING WELL LOCATION
- PROPERTY/SITE BOUNDARY
- G — GAS UTILITY
- W — WATER UTILITY
- REMAINING AREA COVERED BY >1 FEET QUARRY STONE (DISTURBED)

SCALE

0 — 7.5 — 15 — 30 (FEET)

JOHNES STREET PROJECT
7-11 JOHNES STREET
NEWBURGH, NEW YORK

MONITORING WELL LOCATIONS
and
GROUNDWATER ANALYTICAL RESULTS

FIGURE: 3

REVISED DDL | DRAWN TSC | CHKD. TCB | SCALE AS SHOWN | DATE 2/5/2016 2/11/12 2/8/2016

FIRST ENVIRONMENT
BOONTON, NEW JERSEY

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into three categories volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Groundwater

Groundwater samples were collected from two temporary overburden monitoring wells in January 2013 and four permanent monitoring wells in July 2013, March 2015, and April 2015. The samples were collected to assess groundwater conditions on-site and determine if groundwater contamination may be migrating off-site. The results of groundwater sampling are summarized in Table 1 and Figure 3. The results indicate that contamination in groundwater at the site exceeds SCGs for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. Groundwater flow was observed to be in a southeasterly direction.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
1,2,4-Trimethylbenzene	ND - 550	5	3 of 7
Isopropylbenzene	ND – 29	5	3 of 7
n-Propylbenzene	ND – 61	5	2 of 7
Sec-Butylbenzene	ND - 45	5	2 of 7
SVOCs			
Benzo(a)anthracene	ND – 0.94	0.002	2 of 6
Benzo(a)pyrene	ND – 0.47	0.002	2 of 6
Benzo(b)fluoranthene	ND – 0.57	0.002	2 of 6
Inorganics			
Aluminum	ND – 24,900	100	3 of 4
Cobalt	ND – 22.7	5	2 of 4
Iron	207 – 60,600	300	3 of 4

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Lead	ND – 386	50	2 of 4
Manganese	10.8 – 2,920	300	3 of 4
Mercury	ND – 1.9	0.7	2 of 4

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary groundwater contaminants of concern are VOCs including 1,2,4-trimethylbenzene, isopropylbenzene, n-propylbenzene, and sec-butylbenzene. VOC groundwater contamination is associated with historic petroleum storage in the former underground storage tanks in the northwestern portion of the site and the compounds detected are consistent with residual weathered petroleum. No chlorinated VOCs were detected in groundwater. Groundwater flow was observed to be in a southeasterly direction and down gradient wells did not contain groundwater exceeding SCGs for contaminants of concern (VOCs), indicating groundwater contamination is not migrating off-site.

The SVOCs and inorganic compounds found in shallow groundwater were also found in up gradient monitoring wells at similar or higher concentrations and are considered to represent site background conditions. Therefore, the SVOCs and metal compounds found in groundwater are not considered site specific contaminants of concern.

Based on the findings of the RI, the historic use of the site for underground petroleum storage has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: VOCs.

Soil

Shallow and subsurface soil samples were collected at the site during the RI. Shallow soil samples were collected to assess the outside of the building demolition area that was backfilled with clean stone at least one foot in depth during the IRM. Subsurface soil samples were taken from depths of up to 17 feet to assess the potential for soil contamination to impact groundwater. The sampling results exceed unrestricted SCOs for VOCs, SVOCs, and metals.

Table 2a compares SVOCs and metals concentrations to unrestricted SCOs as well as to applicable restricted-residential use SCOs for shallow soil samples. Table 2b compares VOC, SVOC, and metals concentrations to unrestricted SCOs as well as applicable protection of groundwater SCOs. Figure 2 shows the concentration of contaminants that exceed applicable restricted-residential and protection of groundwater SCOs in site soils. Restricted-residential SCOs are exceeded for three SVOCs, lead and mercury in the top two feet of site soils. Protection of groundwater SCOs are exceeded in subsurface soil for three VOCs, three SVOCs, mercury, and lead.

Table 2 – Shallow Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
SVOCs					
Benzo(a)pyrene	0.85 – 4.3	1	5 of 6	1	5 of 6
Benzo(b)fluoranthene	1.1 – 6.0	1	6 of 6	1	6 of 6
Dibenzo(a,h)anthracene	0.13 – 0.77	0.33	2 of 6	0.33	2 of 6
Inorganics					
Lead	54.6 - 647	63	5 of 6	400	2 of 6
Mercury	0.24 – 3.5	0.18	6 of 6	0.81	4 of 6

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Restricted-Residential Use, unless otherwise noted.

Table 2b - Subsurface Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
1,2,4 Trimethylbenzene	ND - 470	3.6	3 of 37	3.6	3 of 37
Benzene	ND – 0.22	0.06	1 of 37	0.06	1 of 37
Isopropylbenzene	ND - 12	2.3	3 of 37	2.3	3 of 37
SVOCs					
Benzo(a)anthracene	ND – 4.4	1	3 of 37	1	3 of 37
Benzo(b)fluoranthene	ND – 5.9	1	3 of 37	1.7	3 of 37
Chrysene	ND – 4.5	1	4 of 37	1	4 of 37
Inorganics					
Lead	12.2 - 710	63	12 of 37	450	2 of 37
Mercury	ND - 5.1	0.18	16 of 37	0.73	4 of 37

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

The primary contaminants in subsurface soil are VOCs. Subsurface soil VOC contamination is associated with historic petroleum releases from the former underground storage tanks in the northwestern portion of the site, and the compounds detected are consistent with residual weathered petroleum. Exceedance of protection of groundwater SCOs for VOCs in subsurface soil has resulted in groundwater contamination from site-specific discharge.

The concentrations of SVOCs and metals in subsurface soil in exceedance of protection of groundwater SCOs are not consistent with concentration of SVOCs and metals in groundwater.

Based on the findings of the Remedial Investigation, historic use of the site for underground petroleum storage has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are SVOCs and metals in surface soil.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 6.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: Site Cover, Institutional Controls and Site Management

This alternative would include a site cover with excavation of the top two feet of soil as necessary to accommodate the cover. An institutional control in the form of an environmental easement would limit development of the site to restricted-residential use, restrict the use of groundwater from beneath the site as a potable source of water without NYSDOH or Orange County DOH approval, and require evaluation of soil vapor intrusion prior to development of the property with implementation of appropriate actions if deemed necessary. Long term groundwater monitoring would be performed pursuant to a Site Management Plan to ensure that groundwater contamination does not migrate off-site and periodic certification of the engineering and institutional controls would be required.

Present Worth: *$125,000*
Capital Cost: *$75,000*
Annual Costs (years 1-15): *$2,550*
Annual Costs (years 7-30): *$1,840*

Alternative 3: Site Cover, In-Situ Chemical Oxidation, Institutional Controls and Site Management

This alternative would include all the elements of Alternative 2 (cover system, institutional controls, site management) with the addition of in-situ chemical oxidation of groundwater. Alternative 3 differs from Alternative 2 in that in-situ chemical oxidation would be used to expedite the degradation of residual VOC contamination in subsurface soils and groundwater. Due to the presence of non-VOC contaminants in site soils, an environmental easement and Site Management Plan would be required, as described in Alternative 2. However, it is anticipated that the time period of long-term groundwater monitoring would be reduced by Alternative 3, as in-situ treatment would reduce subsurface soil and groundwater VOC concentrations more quickly than Alternative 2.

Present Worth: *$181,000*
Capital Cost: *$136,000*
Annual Costs (years 1-6): *$2,550*
Annual Costs (years 7-30): *$1,840*

Alternative 4: Site Cover, Subsurface Soil Excavation, Institutional Controls and Site Management

This alternative would include all the elements of Alternative 2 (cover system, institutional controls, site management) with the additional of excavation of all subsurface soils in exceedance of protection of groundwater SCOs for VOCs. Under Alternative 4, source removal and backfill with certified clean fill would be used to eliminate the site-related source of VOC contamination to groundwater and expedite the degradation of residual VOC contamination in groundwater. It is anticipated that the same long-term costs for monitoring would apply to Alternatives 3 and 4.

Present Worth: *$258,000*
Capital Cost: *$220,000*
Annual Costs (years 1-6): *$2,550*
Annual Costs (years 7-30): *$1,840*

Alternative 5: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include the excavation and off-site disposal of all soil contamination above the unrestricted SCOs. The site would then be backfilled with soil meeting unrestricted SCOs. The excavation of all soils in exceedance of unrestricted SCOs would eliminate any on-site source of groundwater contamination. The remedy would include confirmation groundwater sampling to confirm groundwater SCGs were met. The remedy would not rely on institutional or engineering controls to prevent future exposure. The remedy would include no Site Management, no restrictions, and no periodic review. This remedy will have no annual cost, only the capital cost.

Present Worth: *$311,000*
Capital Cost: ..... *$ 298,000*
Annual Costs (years 1-6): *$2,550*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1:No Further Action	0	0	0
Alternative 2: Site Cover, Institutional Controls and Site Management	$ 75,000	$ 2,550 (1-15 yrs) $ 1,840 (16-30 yrs)	$ 125,000
Alternative 3: Site Cover, In-situ Chemical Oxidation, Institutional Controls and Site Management	$ 136,000	$ 2,550 (1-6 yrs) $ 1,840 (7-30 yrs)	$ 181,000
Alternative 4: Site Cover, Subsurface soil excavation, Institutional Controls and Site Management	$ 220,000	$ 2,550 (1-6 yrs) $ 1,840 (7-30 yrs)	$ 265,000
Alternative 5: Soil Excavation to Unrestricted SCOs	$ 298,000	$ 2,550 (1-6 yrs)	$ 311,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is selecting Alternative 2: Site Cover, Institutional Controls and Site Management as the remedy for this site. Alternative 2 will achieve the remediation goals for the anticipated use of the site (restricted-residential). The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 2.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the AA report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Public Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The selected remedy Alternative 2 would satisfy this criterion by eliminating exposure to contaminants of concern in near surface soil by removal and placement of a cover and in groundwater and soil vapor through institutional controls (environmental easement and Site Management Plan), which will restrict the use of groundwater and require a vapor intrusion evaluation prior to the construction of any buildings. Alternative 1 (No Further Action) does not provide sufficient protection to public health and the environment and will not be evaluated further. Alternative 3 and 4 would satisfy this criterion in the same manner as Alternative 2, but would also include in-situ chemical oxidation (Alternative 3) or subsurface soil removal (Alternative 4) to enhance the degradation of remaining groundwater contamination. Alternative 5 satisfies this criterion by the complete elimination of site contamination.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternatives 2 through 5 each comply with this criteria. Alternative 2, 3, and 4 comply with SCGs in surficial soils and in subsurface soils to the extent practicable. Soils exceeding restricted-residential SCOs in the top two feet will either be excavated or covered. Groundwater contamination is expected to attenuate to below SCGs regardless of whether in-situ chemical oxidation (Alternative 3) or subsurface soil removal (Alternative 4) are utilized or not. Soil vapor SCGs are achieved through an institutional control requiring implementation of appropriate measures if deemed necessary. Alternative 5 removes all contamination from the site exceeding any SCOs, and thus satisfies this requirement.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial

alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Long-term effectiveness is accomplished by Alternatives 2, 3, 4, and 5. Alternatives 2, 3, and 4 each include excavation or site cover of surface soils and institutional controls which will eliminate risk and provide long-term protection to public health if maintained properly. Alternatives 3 and 4 have slightly greater long-term effectiveness than Alternative 2 because each of these alternatives expedites the reduction of subsurface contamination.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 2, 3, and 4 each reduce mobility because the cover system prevents water and wind erosion of contaminated soil. Alternatives 3, 4 and 5 have marginally better reduction in toxicity, mobility, and volume than Alternative 2 through the treatment or removal of contaminated subsurface soil. However, subsurface soil and groundwater contamination is present at low levels, contained within the site boundary, and manageable through institutional controls and monitoring.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative 2 has the least short-term impacts as there would be no intrusive remediation in the subsurface. Alternative 3 would have more short term impacts than Alternative 2 associated with in-situ chemical oxidation. In-situ chemical oxidation is an often used remedial technology and short term impacts can be effectively managed. Alternatives 4 and 5 would have a greater short term impact because each involve the excavation and off-site disposal of subsurface soil. Best management practices would be necessary under these alternatives to protect the surrounding community during excavation and off-site disposal.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternative 2 is most implementable. Alternative 2 includes a simple excavation or cover system with groundwater monitoring and institutional controls, which are all easily implementable. Alternative 3 is also implementable, but it is not known if in-situ chemical oxidation will be effective on all contaminants due to the nature of fill-related contamination at the site, and the difficulty in delivering oxidant to the unsaturated soil. Alternatives 4 and 5 present implementation challenges with the excavation of a large amount of contaminated soil from a site with limited area and accessibility to work in.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

Alternative 2 is the least costly, is protective of public health and the environment, and achieves the remedial goals for the site. Alternative 3 and 4 are progressively more expensive because they utilize active subsurface remedial techniques (in-situ chemical oxidation and subsurface soil excavation respectively) to reach remedial goal for groundwater more quickly. Given the low levels of groundwater contamination currently observed at the site, it is unlikely that the additional cost of in-situ chemical oxidation under Alternative 3 or subsurface soil removal under Alternative 4 would be more effective in achieving groundwater SCGs than Alternative 2 over the long-term. Alternative 5 is significantly more costly than Alternative 2, 3 and 4. The additional cost brings little added benefit.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The anticipated use of the site is restricted-residential. Alternatives 2, 3, and 4 all allow for future restricted-residential use of the site by excavation or capping soils in the top two feet which exceed restricted-residential SCOs. Alternative 5 allows for unrestricted use of the site, however this level of cleanup is not necessary given the urban setting of the site and potential uses of the site in the future.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary was prepared that describes public comments received and the manner in which the Department will address the concerns raised.

Alternative 2 is being selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

7-11 Johnes Street Site
Environmental Restoration Project
City of Newburgh, Orange County, New York
Site No. B00188

The Proposed Remedial Action Plan (PRAP) for the 7-11 Johnes Street site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on December 12, 2016. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the 7-11 Johnes Street site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on January 4, 2017, which included a presentation of the remedial investigation/ alternative analysis (RI/AA) for the 7-11 Johnes Street site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on January 27, 2017.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: What is the time line for finalizing the Record of Decision (ROD)?

RESPONSE 1: The Record of Decision will be finalized following the 45-day comment period which ends January 27, 2017. We anticipate the ROD will be finalized by the end of February 2017.

COMMENT 2: What is the proposed land use of the property?

RESPONSE 2: The remedy proposed for the site allows for restricted-residential land use as defined in 6 NYCRR Part 375-1.8 (e.g., apartments or condominiums). This also allows for commercial, and/or industrial use of the site. However, land use is ultimately subject to local zoning laws. The site is presently zoned downtown neighborhood by the City of Newburgh.

COMMENT 3: What is the land use of properties adjacent to the site?

RESPONSE 3: It is our understanding that the surrounding parcels are currently zoned for a combination of commercial, light industrial, and residential uses.

COMMENT 4: Who owns the property?

RESPONSE 4: The site property is currently owned by the City of Newburgh.

COMMENT 5: What are the plans for the property following the release of the ROD?

RESPONSE 5: An environmental easement was placed on the site in November 2016 which restricts the use of the site to restricted residential and requires compliance with the Site Management Plan to be developed in accordance with this ROD. The remedy specified in the ROD could be conducted by a private party under the Department's Brownfield Cleanup Program (BCP), or by the City of Newburgh.

COMMENT 6: What does the City of Newburgh plan to do with the property?

RESPONSE 6: The Department is not aware of the City of Newburgh's plans for the site.

APPENDIX B

Administrative Record

Administrative Record

7-11 Johnes Street
Environmental Restoration Project
City of Newburgh, Orange County, New York
Site No. B00188

1. Proposed Remedial Action Plan for the 7-11 Johnes Street site, dated December 2016, prepared by the Department.

2. The Department and the City of Newburgh entered into a State Assistance Contract, Contract No. C303485, dated September 14, 2007.

3. "Final Remedial Investigation Work Plan, 7-11 Johnes Street Site," September 2012, First Environment.

4. Fact Sheet for Investigation and Interim Remedial Measure, December 2012, prepared by the Department.

5. "Request for Bid for Controlled Demolition with Asbestos in Place at the 7-11 Johnes Street Site," July 26, 2012, First Environment.

6. "Construction Completion Report: Interim Remedial Measures – Building Demolition, 7-11 Johnes Street Site," September 18, 2013, First Environment.

7. Fact Sheet for the Proposed Remedial Action Plan and Public Meeting, December 2016, prepared by the Department.

8. "Remedial Investigation Report, 7-11 Johnes Street Site," April 11, 2016, First Environment.

9. "Alternatives Analysis Report, 7-11 Johnes Street Site," May 12, 2016, First Environment.