DECISION DOCUMENT

Standard Gage & Coal Storage Site
Brownfield Cleanup Program
Poughkeepsie, Dutchess County
Site No. C314131
March 2022

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

DECLARATION STATEMENT - DECISION DOCUMENT

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Poughkeepsie, Dutchess County
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Statement of Purpose and Basis

This document presents the remedy for the Standard Gage & Coal Storage site a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Standard Gage & Coal Storage site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

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

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

2. Site Cover

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

3. Excavation

Excavation and off-site disposal of contaminant source area soil at the 58 Parker Avenue parcel, including grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); and soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs) as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards. This includes approximately 445 cubic yards (CY) of soil from a 5-foot deep, 2,400-square foot area containing leachable per- and polyfluoroalkyl substances (PFAS) in the planned location of the storm water infiltration gallery; and approximately 225 CY of VOC-containing source soil from a 500-square foot area down to bedrock around the dry wells in and around Building D to address VOC concentrations in groundwater and soil vapor in this area. A monitoring well will be installed in the dry well area subsequent to soil removal. The site will be re-graded to accommodate a cover system as described in remedy element 2.

Underground storage tanks (USTs) identified at 164 Garden Street will be removed per DER-10 Section 5.5. The depth and extent of excavation will be sufficient to meet commercial SCOs or PGWSCOs for those constituents found in soil and groundwater, as appropriate. Confirmation sampling will be performed to ensure SCOs are achieved. Excavated contaminated soil, USTs and underground piping will be transported off-site for disposal/recycling. The volume of contaminated soil related to the UST removal is not anticipated to be significant. The site will be re-graded to accommodate the site cover as described in remedy element 2.

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 2 to backfill the excavations and establish the designed grades at the site.

4. Soil Vapor Extraction

Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground surface but above

the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

A soil vapor extraction (SVE) system is needed to prevent off-site migration of vapors along the south-southeast border of the site. A horizontal SVE well will be installed in the vadose zone at 4 feet below the ground surface. The horizontal well will be screened parallel to the property boundary to ensure no vapors migrate off-site (Figure 8). If SVE effluent concentrations exceed DAR-1 guidance values, the air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

5. Sub-Slab Depressurization System

Any on-site buildings at the 58 Parker Avenue parcel are required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater. No soil vapor intrusion (SVI) concerns were identified at the 164 Garden Street Parcel.

6. Monitored Natural Attenuation

Groundwater contamination will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination and for MNA indicators which will provide an understanding of the biological activity breaking down the contamination. It is anticipated that soil removal and MNA will decrease contamination below applicable standards in a reasonable period of time. Should soil removal not result in satisfactory attenuation of groundwater contamination, a groundwater contingency remedy will be implemented. Periodic reports of the attenuation will be provided, and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected, but it is currently anticipated that in-situ chemical reduction (ISCR) would be the contingency remedial action. Specific criteria for triggering the contingency will be included in the Site Management Plan (SMP).

7. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a site management plan, as described below, will be required. The remedy will achieve a Track 4 combination restricted residential (approximately 0.6 acres) and commercial (approximately 1.9 acres) cleanup.

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 and

commercial 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 County DOH; and
- 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 soil cover discussed in Paragraph 2 the SVE system discussed in Paragraph 4 above; and the SSDS discussed in Paragraph 5.

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 should redevelopment occur to ensure no soil exceeding protection of groundwater concentrations will remain below storm water retention basin or infiltration structures;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 2 above will be placed in any areas where the upper one foot (commercial use area) or two feet (restricted residential use area) of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- 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;

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

Declaration

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

3/31/2022	Janet E Brown
Date	Janet Brown, Director Remedial Bureau C

DECISION DOCUMENT

Standard Gage & Coal Storage Site
Poughkeepsie, Dutchess County
Site No. C314131
March 2022

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 New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance based on the reasonably anticipated use of the property.

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 repository:

DECInfo Locator - Web Application
https://www.dec.ny.gov/data/DecDocs/C314131/

Poughkeepsie Public Library - Adriance Memorial Library
Attn: Tom Lawrence
93 Market Street
Poughkeepsie, NY 12601
Phone: (845) 485-3789

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 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

Site Location: The site is comprised of two parcels, 58 Parker Avenue (Lot 148369) and 164 Garden Street (Lot 177385) in Poughkeepsie, New York. The site is located in a mixed commercial, industrial, residential and recreational use neighborhood.

Site Features: The approximately 2.5-acre site consists of two parcels separated by a formerly used rail spur. The rail spur, historically owned and operated by Penn Central Railroad, is owned by Dutchess County. The Parker Avenue parcel is developed with a former manufacturing facility, previously owned and operated by the Standard Gage Company. Nine vacant buildings remain on the Parker Avenue parcel. The vacant buildings are temporarily named letters A - I. Buildings A, B, C, D and E are physically attached. Buildings F, G, H, and I are detached from the manufacturing buildings. Buildings F - I are being considered for demolition during development. The Garden Street parcel is developed with a single-story 6,000 square foot commercial warehouse which is vacant.

Current Zoning and Land Use: The site is split between two zoning districts. The Parker Avenue parcel is zoned in the G-CM (Gateway Commercial Mixed-Use) district and, the Garden Street parcel is zoned in the G-OM (Gateway Office Manufacturing) district. Both districts are consistent with the proposed use, since each district permits office space, community squares, greenways, and recreational uses.

Past Use of the Site: In 1913, the Anchor Bolt and Nut Company, a manufacturer of farming tools, bolts and nuts operated on the Parker Avenue parcel. A 2-story structure labeled R.B. Kelley and Son Coal Elevator is depicted on the 1913 Sanborn Map on the Garden Street parcel.

By 1950, Standard Gage Co. Inc. was operating at 58 Parker Avenue (which historically was known as 70 Parker Avenue), was developed with multiple 1- and 2-story structures. Standard Gage manufactured gauges for various types of machinery for over 50 years, until approximately 2001. They were a Resource Conservation and Recovery Act (RCRA) generator of ignitable waste, corrosive waste, halogenated solvents, wastewater treatment sludge from electroplating operations, spent cyanide, plating bath residues, spent stripping and cleaning bath solutions, quenching bath residues, quenching wastewater treatment sludges and soluble cyanide salts. Buildings now known as A, B and D, located in the center of the Parker Avenue parcel, were used for factory operations. Reportedly spent solvents were discharged into a former dry well in the southeastern corner of a storage room in Building D. Building E, which is physically attached on

the east side of the factory buildings, was used for heat treatment and plating operations. Building C is attached to the factory building on the west side was used for carpentry and shipping. Buildings F, G, H and I are detached from the factory buildings on the east side of the parcel and were used for carpentry, shipping, and storage.

By 1950, the Garden Street parcel was still operating as a coal storage facility, which included four structures. TEK Bearing Co, Inc., appears to have been the operator on the Garden Street parcel from 1970 to 1980. From approximately 1980 through 2014, Harmon and Castella Printing was operating in the Bearing Warehouse structure. In 2010, this property was shared between two companies, Harmon and Castella Printing and Castle HRS Drawn Carriage SVC.

The Garden Street parcel has a spill history. NYSDEC Spill #0804049 was opened in 2008 when a 550-gallon underground storage tank (UST) was discovered to be leaking and a penetration was observed in a 1,000-gallon UST. A total of 16.09 tons of petroleum-impacted soil was excavated from the tank grave and properly disposed off-site. The Garden Street parcel currently has one 1,000-gallon tank and two 500-gallon tanks present. The tanks were properly registered in 2021.

Site Geology and Hydrogeology: The topography slopes downward to the south southwest toward the Fall Kill Creek. The Fall Kill Creek is located immediately south of Brookside Avenue and flows from east to west toward the Hudson River. Overburden soils are poorly sorted sand, silt, clay, and gravel with a layer of fill in the upper one to six feet. Bedrock is relatively shallow at depths of two to twelve feet below ground surface. Groundwater is found primarily within bedrock and measured between ten and fourteen feet below ground surface. Groundwater flows south toward the Fall Kill Creek.

A site location map is attached as Figure 1. Figure 2 shows the tax parcels and BCP property boundaries. Figure 3 identifies the location of each building on the 58 Parker Avenue parcel.

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, an alternative that restricts a portion of the site to restricted-residential use and the remainder of the site to commercial use as described in Part 375-1.8(g) was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does not have an obligation to address off-site contamination. However, the Department has determined that this site poses a significant threat to public health or the environment and will address the off-site contamination pursuant to Title 13 of the Environmental Conservation Law.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

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

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. 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 at this site is/are:

chromium	cis-1,2-dichloroethene
arsenic	tetrachloroethene (PCE)
mercury	benzo(a)anthracene
perfluorooctanoic acid (PFOA)	perfluorooctane sulfonic acid (PFOS)
trichloroethene (TCE)	1,1,1 trichloroethane
methylene chloride	

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

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.

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), per- and polyfluoroalkyl substances (PFAS), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern include arsenic, mercury, chromium and PFAS in soil and trichloroethylene (TCE) and cis-1,2-dichloroethylene and PFAS in groundwater and TCE and tetrachloroethylene (PCE) and cis-1,2-dichloroethene in sub-slab soil vapor and TCE in soil vapor.

Soil – Across the 58 Parker Avenue parcel, arsenic was found in four locations in surface soil (0-2 inches) below ground surface (bgs) and six locations in shallow soil (0-2 feet) bgs, with the

maximum concentration of 16.8 parts per million (ppm), slightly exceeding the restricted-residential soil cleanup objective (RRSCO) 16 ppm. Chromium was found in subsurface soil (2-15 feet bgs) around Buildings A and E. The maximum concentration of chromium (600 ppm) exceeds the soil cleanup objective (SCO) for restricted residential use (180 ppm). Mercury was identified in five locations in subsurface soil up to 15 feet bgs, with a maximum concentration of 5 ppm, exceeding the RRSCO of 0.81 ppm. Perfluorooctanoic acid (PFOS) was identified in surface soil north and east of Building E. PFOS was detected in surface soil at concentrations ranging from 1.2 parts per billion (ppb) to 1.95 ppb which is below the guidance value for protection of groundwater (3.7 ppb); however, synthetic precipitation leaching procedure (SPLP) testing of shallow soils north of Building E identified the area as a source of leachable PFAS in a location where PFAS is detected in groundwater above background concentrations. Benzo(a)anthracene was found in surface soil samples at a maximum concentration of 7.2 ppm, exceeding the RRSCO of 1 ppm. While VOCs were not identified in soil samples near dry wells in Building D, as noted below, soil vapor concentrations point to a possible VOC source within this area. PCBs were detected in two samples below restricted residential SCOs. Pesticides were detected in three samples below restricted residential SCOs. Acetone was detected in three samples below restricted residential SCOs and is a common laboratory contaminant.

On the 164 Garden Street parcel arsenic was found in four locations in surface soils and at two locations in shallow soils. The maximum concentration of arsenic was 38 ppm compared to the commercial use SCO of 16 ppm. Mercury was found in two locations in shallow soils at a maximum concentration of 1.4 ppm compared to the commercial use SCO of 2.8 ppm. Pesticides, PCBs and VOCs did not exceed commercial SCOs in soil on the 164 Garden Street parcel.

Migration of surface soil from the site has not been identified as a concern on either parcel due to the topography, existing surfaces and/or bounding by streets/sidewalks.

Groundwater – On the 58 Parker Avenue parcel groundwater is located within the bedrock or slightly above the top of bedrock across the entire parcel. The primary contaminants of concern in groundwater are trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE). TCE is present in bedrock groundwater at a maximum concentration of 22.4 parts per billion (ppb), exceeding the groundwater standard of 5 ppb. Cis-1,2-DCE is present up to 132 ppb in bedrock groundwater exceeding the groundwater standard of 5 ppb. Groundwater containing TCE has migrated downgradient to the site boundary and off-site at concentrations ranging from 6 to 9 ppb. Two existing off-site groundwater wells enable monitoring of off-site impacts beyond the southern site boundary. While not detected on-site, 1,1,1 trichloroethane (1,1,1-TCA) and 1,1 dichloroethylene (1,1-DCE) were identified in off-site groundwater wells at maximum concentrations of 6.3 and 7.5 ppb respectively compared to the groundwater standard of 5 ppb. Concentrations of VOCs in shallow bedrock groundwater are not indicative of the presence of dense non-aqueous-phase liquid (DNAPL). Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) were reported at concentrations of up to 17.7 and 17.1 parts per trillion (ppt), respectively, exceeding the Maximum Contaminant Level (MCL) drinking water standard of 10 ppt in groundwater. 1,4-Dioxane was detected on-site at a maximum concentration of 0.57 ppm, below the 1 ppm MCL.

No contaminants of concern were identified in groundwater at 164 Garden Street.

Soil Vapor - On the 58 Parker Avenue parcel, elevated concentrations of TCE were detected in sub-slab soil vapor under buildings B, D and E at maximum a concentration of 2,100 micrograms per cubic meter (ug/m3). Indoor air samples were not collected as the buildings were vacant. Even though indoor air samples were not collected, based on the concentrations of TCE in sub-slab vapor samples, mitigation is indicated for buildings B, D and E when compared to the NYSDOH Soil Vapor Intrusion Decision Matrix 1 for TCE. Cis-1,2-Dichloroethene was detected at a maximum concentration of 1,700 ug/m3 in sub-slab soil vapor in the southern portion of the site under building D. PCE was detected in sub-slab soil vapor at a maximum concentration of 4,300 ug/m3 under Building D. TCE was also detected in soil vapor along the southeastern property boundary at elevated concentrations up to 3,700 ug/m3. Elevated concentrations of TCE in soil vapor at the property boundary likely migrate off-site in this area and have the potential to affect indoor air in off-site buildings to the southeast and south of the site.

PCE, TCE, 1,1,1-TCA, methylene chloride and carbon tetrachloride were detected in soil vapor along the western property boundary of the 58 Parker Avenue parcel, but at much lower concentrations. In this area, PCE and TCE were detected in one sample at 0.91 and 0.22 ug/m3 respectively. Methylene chloride was detected in all three samples at a maximum concentration of 62 ug/m3. TCA was detected in one sample at 14 ug/m3 and carbon tetrachloride was detected in one sample at 0.34 ug/m3. Residential properties are located adjacent to the western property boundary of the site. The potential for TCA and methylene chloride to migrate from the western portion of the site toward off-site buildings to the west will be evaluated as part of the off-site investigation.

No soil vapor intrusion concerns were identified at the 164 Garden Street parcel.

Special Resources Impacted/Threatened: A Fish and Wildlife Impact Analysis (FWIA) was performed in 2021 and concluded that appropriate remediation measures would be necessary to prevent potential off-site contamination. Fall Kill Creek is located approximately 50 feet from the downgradient property boundary of the 58 Parker Avenue parcel. The Phase II Environmental Site Assessment documented VOCs in groundwater proximate to the creek at concentrations slightly exceeding groundwater standards (TCE 9.62 ppb, cis 1,2-DCE 9.39 ppb and vinyl chloride 2.05 ppb.

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 are not drinking contaminated groundwater associated with the site because the area is served by a public water supply that is not affected by site-related contamination. People may contact contaminated soils if they dig below the onsite building foundation and ground surface/site cover. 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. The site is vacant so inhalation of site

contaminants in indoor air via soil vapor intrusion is not a current concern but is a concern for any site buildings on the site when the site is redeveloped for re-use and occupancy. Soil vapor intrusion is a potential concern for some nearby off-site buildings and needs further evaluation.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of groundwater 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.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a combination Track 4 commercial and restricted residential use remedy.

The selected remedy is referred to as the Excavation and Off-Site Disposal of Contaminated Soils, Site-Wide Cover System and Soil Vapor Extraction/Vapor Mitigation and Monitoring remedy.

The elements of the selected remedy, as shown in Figure 4-8, are as follows:
Figure 4: Site Wide Cover System
Figure 5: PFAS Proposed Excavation Area
Figure 6: Dry well Excavations Areas
Figure 7: Underground Storage Tank Locations Excavation Areas
Figure 8: Sub-Slab Depressurization System and Soil Vapor Extraction System

1. Remedial Design

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2.Site Cover

A site cover will be required to allow for restricted residential and commercial use of the site in areas where the upper two feet/one foot, respectively, of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used, it will be a minimum of one foot of soil for commercial use or two feet of soil for restricted residential use placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a

component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

3. Excavation

Excavation and off-site disposal of contaminant source area soil at the 58 Parker Avenue parcel, including grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); and soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs) as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards. This includes approximately 445 cubic yards (CY) of soil from a 5-foot deep, 2,400-square foot area containing leachable per- and polyfluoroalkyl substances (PFAS) in the planned location of the storm water infiltration gallery; and approximately 225 CY of VOC-containing source soil from a 500-square foot area down to bedrock around the dry wells in and around Building D to address VOC concentrations in groundwater and soil vapor in this area. A monitoring well will be installed in the dry well area subsequent to soil removal. The site will be re-graded to accommodate a cover system as described in remedy element 2.

Underground storage tanks (USTs) identified at 164 Garden Street will be removed per DER-10 Section 5.5. The depth and extent of excavation will be sufficient to meet commercial SCOs or PGWSCOs for those constituents found in soil and groundwater, as appropriate. Confirmation sampling will be performed to ensure SCOs are achieved. Excavated contaminated soil, USTs and underground piping will be transported off-site for disposal/recycling. The volume of contaminated soil related to the UST removal is not anticipated to be significant. The site will be re-graded to accommodate the site cover as described in remedy element 2.

On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 2 to backfill the excavations and establish the designed grades at the site.

4.Soil Vapor Extraction

Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground surface but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

A soil vapor extraction (SVE) system is needed to prevent off-site migration of vapors along the south-southeast border of the site. A horizontal SVE well will be installed in the vadose zone at 4 feet below the ground surface. The horizontal well will be screened parallel to the property boundary to ensure no vapors migrate off-site (Figure 8). If SVE effluent concentrations exceed DAR-1 guidance values, the air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

5.Sub-Slab Depressurization System

Any on-site buildings at the 58 Parker Avenue parcel are required to have a sub-slab depressurization system or other acceptable measures to mitigate the migration of vapors into the building from soil and/or groundwater. No SVI concerns were identified at the 164 Garden Street Parcel.

6. Monitored Natural Attenuation

Groundwater contamination will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination and for MNA indicators which will provide an understanding of the biological activity breaking down the contamination. It is anticipated that soil removal and MNA will decrease contamination below applicable standards in a reasonable period of time. Should soil removal not result in satisfactory attenuation of groundwater contamination, a groundwater contingency remedy will be implemented. Periodic reports of the attenuation will be provided, and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected, but it is currently anticipated that in-situ chemical reduction (ISCR) would be the contingency remedial action. Specific criteria for triggering the contingency will be included in the Site Management Plan (SMP).

7.Insituational Controls

Imposition of an institutional control in the form of an environmental easement and a site management plan, as described below, will be required. The remedy will achieve a Track 4 combination restricted residential (approximately 0.6 acres) and commercial (approximately 1.9 acres) cleanup.

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 and commercial 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 County DOH; and require compliance with the Department approved Site Management Plan.

8.Site Management Plan

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

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 soil cover discussed in Paragraph 2 the SVE system discussed in Paragraph 4 above; and the SSDS discussed in Paragraph 5.

This plan includes, but may not be limited to:

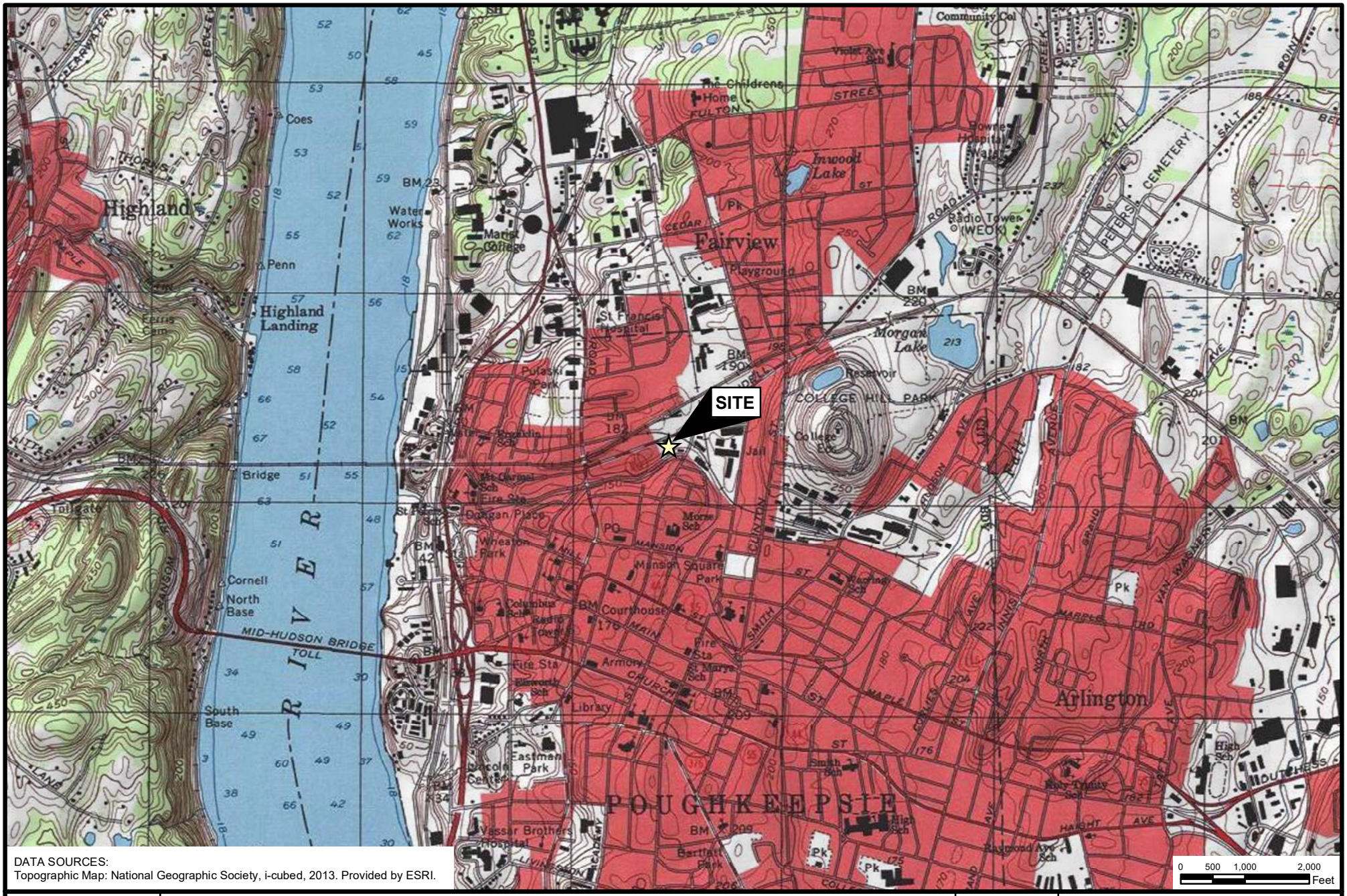
- an excavation plan which details the provisions for management of future excavations in areas of remaining contamination;
- a provision should redevelopment occur to ensure no soil exceeding protection of groundwater concentrations will remain below storm water retention basin or infiltration structures;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 2 above will be placed in any areas where the upper one foot (commercial use area) or two feet (restricted residential use area) of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. 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;

3. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.



DATA SOURCES:
Topographic Map: National Geographic Society, i-cubed, 2013. Provided by ESRI.

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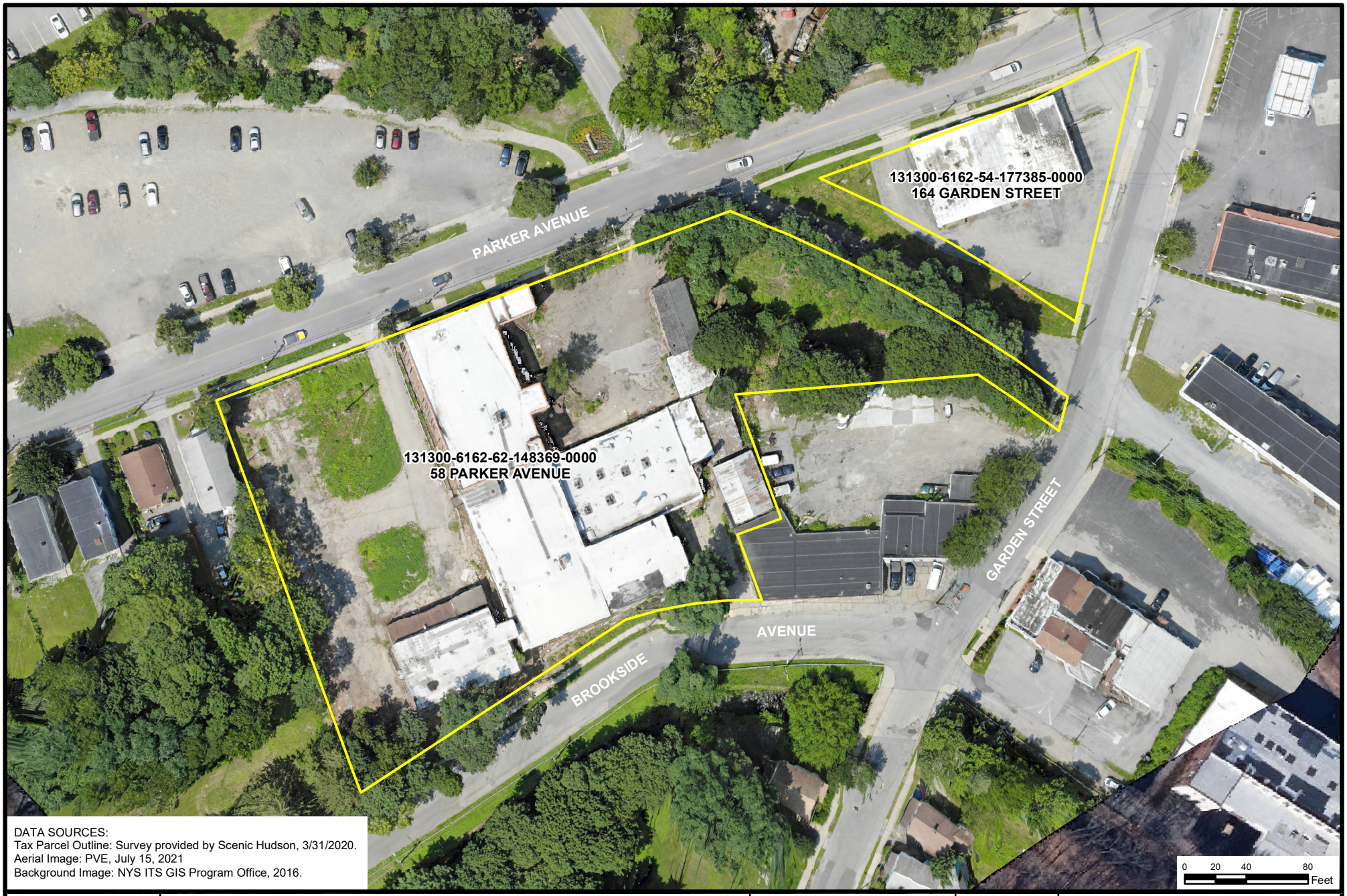
SITE LOCATION MAP

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

PROJECT NO. 560532	**FIGURE 1**
	DATE: 1/27/2020
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE



DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: PVE, July 15, 2021
Background Image: NYS ITS GIS Program Office, 2016.

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SELECTED SITE FEATURES

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

TAX PARCEL / BCP PROPERTY OUTLINE

PROJECT NO. 560532	**FIGURE 2**
	DATE: 07/16/2021
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: PVE, July 15, 2021

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58 PARKER AVENUE BUILDING IDENTIFICATIONS

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND
TAX PARCEL / BCP PROPERTY OUTLINE

PROJECT NO. 560532

FIGURE 3

DATE: 01/21/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: PVE, July 15, 2021.
Background Image: NYS ITS GIS Program Office, 2016.

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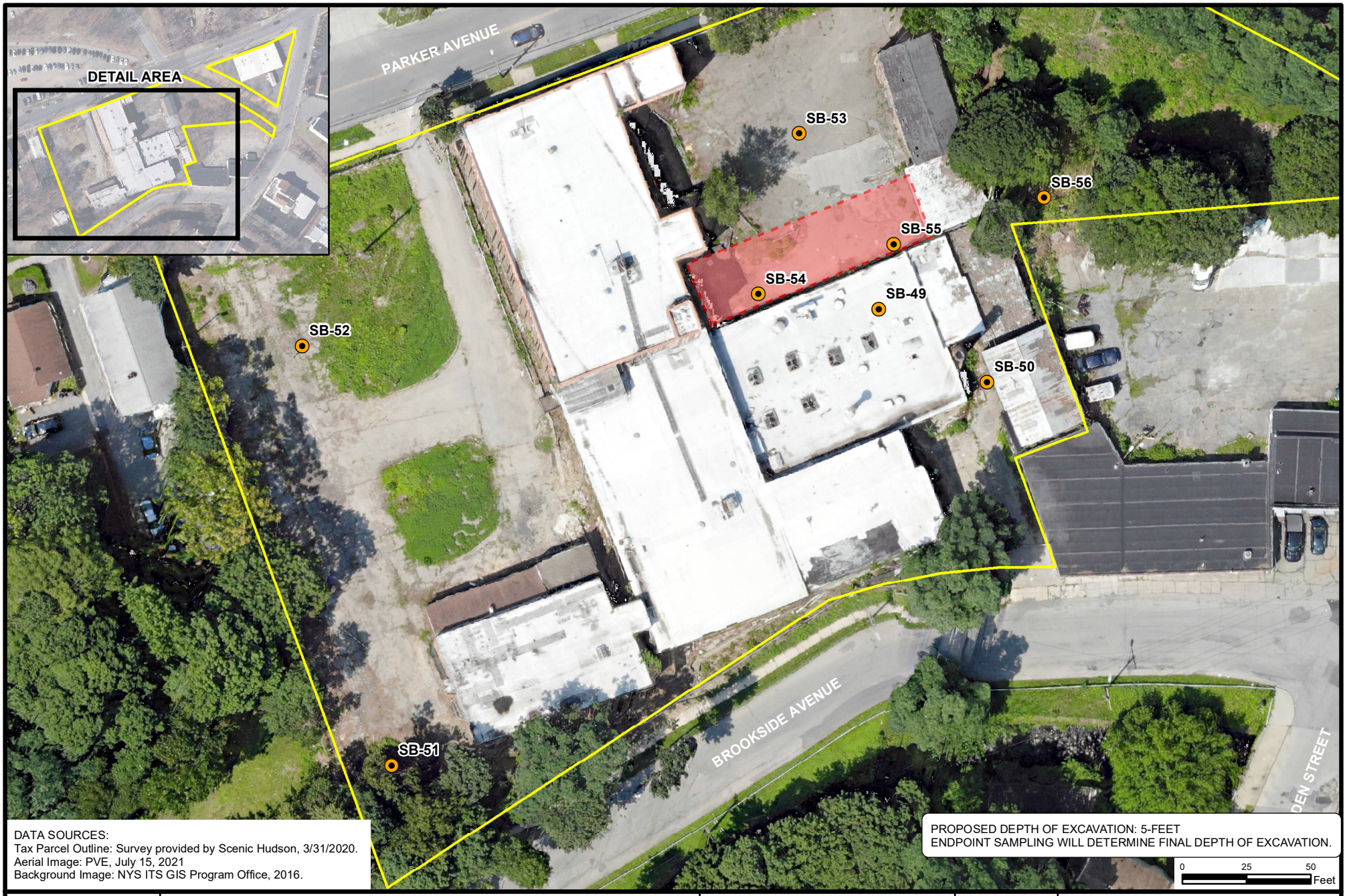
ALTERNATIVE 1 SITE WIDE COVER SYSTEM TYPES & LOCATIONS

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
BCP PROPERTY

PROJECT NO. 560532	FIGURE 4
DATE: 07/16/2021	
SCALE: AS INDICATED	DATUM: NAD83
PROJECTION: STATE PLANE NY EAST (FT)	
ALL LOCATIONS APPROXIMATE	



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PFAS
PROPOSED EXCAVATION AREA

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- PFAS SOIL BORINGS
- AREA OR PROPOSED EXCAVATION AND IMPORTED BACKFILL FOR STORMWATER INFILTRATION
- TAX PARCEL / BCP PROPERTY OUTLINE

PROJECT NO. 560532

FIGURE 5

DATE: 07/16/2021

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Property Boundary,Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image (on property): PVE, 7/15/2021
Aerial Image (off property, inset): NYS ITS GIS Program Office, 2016

PROPOSED DEPTH OF EXCAVATION = BEDROCK ESTIMATED AT 10-FEET
ENDPOINT SAMPLING OR BEDROCK WILL DETERMINE THE FINAL DEPTH OF EXCAVATION.

0 5 10 20 Feet

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DRYWELL EXCAVATION AREAS

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

LEGEND
- SOIL BORING
- DRYWELL
- EXCAVATION AREA
- PROPERTY BOUNDARY

PROJECT NO. 560532

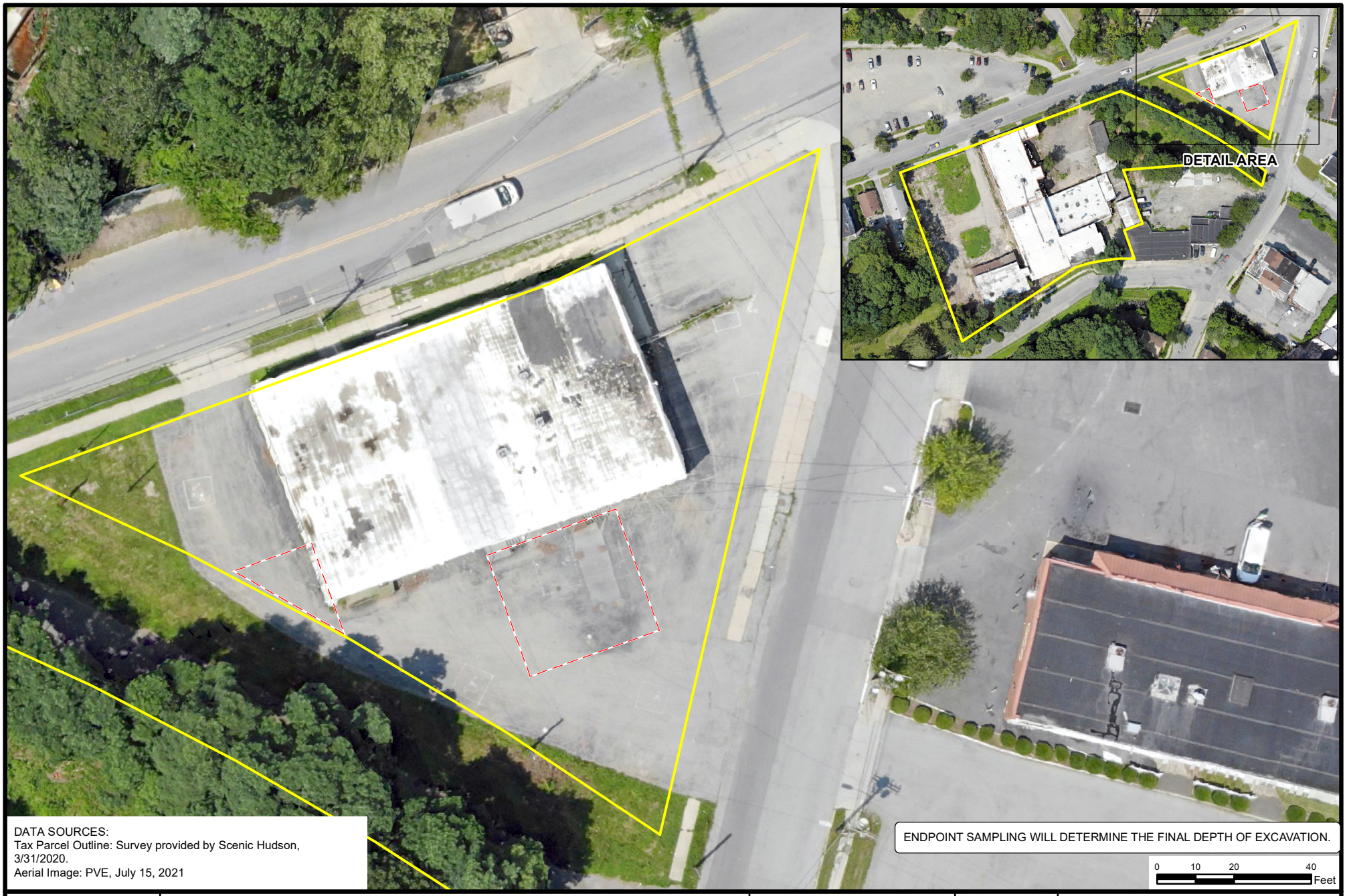
FIGURE 6

DATE: 10/26/2021

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE



DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: PVE, July 15, 2021

ENDPOINT SAMPLING WILL DETERMINE THE FINAL DEPTH OF EXCAVATION.

0 10 20 40 Feet

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UNDERGROUND STORAGE TANK LOCATIONS

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND
UST EXCAVATION AREA
TAX PARCEL OUTLINE

PROJECT NO. 560532

FIGURE 7

DATE: 01/21/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: PVE, July 15, 2021
Background Image: NYS ITS GIS Program Office, 2016.

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VAPOR MITIGATION SYSTEMS

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

PROJECT NO. 560532	**FIGURE 8**
	DATE: 03/23/2022
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE