DECISION DOCUMENT

Chappaqua Coal/Fuel and Humble Oil Site
Brownfield Cleanup Program
Chappaqua, Westchester County
Site No. C360120
November 2014

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

DECLARATION STATEMENT - DECISION DOCUMENT

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Statement of Purpose and Basis

This document presents the remedy for the Chappaqua Coal/Fuel and Humble Oil Site 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 Chappaqua Coal/Fuel and Humble Oil Site 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. 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. Excavation and off-site disposal of contaminant source areas, including:
• grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);

• soils that create a nuisance condition such as odor, as defined in Commissioner Policy CP-51 Section G.

On-site grossly contaminated soil, including soil containing LNAPL, will be excavated to a depth of ten feet to the extent feasible without disturbing or destabilizing critical infrastructure, as shown on Figure 2. LNAPL observed below this level will be removed to the extent practicable. Based on field conditions, excavations will be benched along the property boundary to protect critical railroad and roadway infrastructure located east, south and west of the Site. A vacuum enhanced fluid recovery program will be implemented to recover LNAPL in the open excavation. These actions will remove the majority of LNAPL in the on-site area. Soils that create a nuisance condition such as odor and/or staining, but do not contain LNAPL, will be removed to the top of the groundwater table to the extent practicable. All underground storage tanks will be removed along with any grossly contaminated soil associated with the tank to the extent practicable.

On-site soil which does not exceed SCOs for restricted residential use and the protection of groundwater may be used to backfill the bottom of the excavation below the cover system described in remedy element 4. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) for the lower of the protection of groundwater or the protection of public health restricted-residential soil cleanup objectives will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 4. Soil derived from the re-grading meeting the requirements of 6 NYCRR Part 375-6.7(d) for restricted residential and protection of groundwater may be used to backfill the excavation.

3. A NAPL recovery system will be installed with the objective of collecting LNAPL in the soil that remains following the soil removal. The type and configuration of the recovery system will be determined following the completion of remedial element 2.

4. A site cover system will be required for the entire site to allow for restricted-residential use. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover. Where the soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. Imposition of an institutional control in the form of an environmental easement for the controlled property that:
•requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
•allows the use and development of the controlled property for restricted residential, commercial and industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning

laws;
•restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and,
•requires compliance with the Department approved Site Management Plan.

6. 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 engineering controls remain in place and effective:
i. Institutional Controls: the environmental easement discussed above;
ii.Engineering Controls: the site cover discussed in element 4.
This plan includes, but may not be limited to:
• an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
• a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provisions 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 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 and the NAPL recovery wells to assess the performance and effectiveness of the remedy;
• a schedule of monitoring and frequency for submittals to the Department;
• monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Declaration

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

11/18/2014
Date

George Heitzman, Director
Remedial Bureau C

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Chappaqua Coal/Fuel and Humble Oil Site
Chappaqua, Westchester County
Site No. C360120
November 2014

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, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

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:

Chappaqua Public Library
195 South Greeley Avenue
Chappaqua, NY 10514
Phone:

NYSDEC Region 3 Headquarters
21 South Putt Corners Rd
New Paltz, NY 12561
Phone: (845) 256-3154

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 site is in the Hamlet of Chappaqua, Town of New Castle, Westchester County. The site is adjacent to exit 32 of the Saw Mill River Parkway.

Site Features: The site is a rectangular lot 60 feet by 250 feet and is vacant. The site is relatively flat with little vegetation and no buildings. The Chappaqua train station is located to the southeast of the site across Quaker Road.

Current Zoning and Land Use: The site is zoned general industrial. However, the Town of New Castle approved a special use permit for this project, which will allow the development of a residential apartment building. A residential area lies approximately 300 feet to the south and west. A commercial area lies approximately 300 feet to the north and east.

Past Use of the Site: The site housed a coal and feed storage facility prior to 1925. Sometime after 1930 the Chappaqua Coal and Feed Company (CCFC) added the sale of kerosene, fuel oil and gasoline to its feed supply business. The Humble Oil and Refining Company purchased the site property from CCFC in 1960 for use as a fuel oil tank farm. The Chappaqua Drama Group owned the property from 1966 to 2005. The last occupied use of the site was a construction yard by a NYSDOT contractor.

Site Geology and Hydrogeology: The surface layer is comprised of fill that consists predominantly of sand and silt and extends to depths ranging from 5 to 8 feet below the ground surface (bgs). An organic silt layer underlies the fill to a depth of 7 to 10 feet. A generally sandy stratum underlies the organic silt. Groundwater was encountered at depths ranging from 6 to 10 feet bgs and flows from west to east.

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 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(s) 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 does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

The Department will seek to identify any parties (other than the Volunteer) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought, or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the Spill Fund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

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

The analytical data collected on this site includes data for:

- groundwater
- soil

- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

1,2,4-TRIMETHYLBENZENE	Petroleum Products
ETHYLBENZENE	CYCLOHEXANE
N-PROPYLBENZENE	HEPTANE
BENZENE	HEXANE

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

- groundwater
- soil

6.2: Interim Remedial Measures

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

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Based upon the investigations conducted to date, the primary contaminant of concern is a light non-aqueous phase liquid (LNAPL) which has a petroleum fingerprint of an unknown fuel oil.

Soil – Soil was visually characterized through the use of borings and test pits from the ground surface to an approximate depth of 25 feet. In addition, the soil was analyzed at discrete depths, generally between one and ten feet below ground surface, for target compounds and target analytes. Polychlorinated biphenyls were not detected. Pesticides were not detected with the exception of dibenzofuran. Dibenzofuran was found as high as 10 ppm, lightly exceeding the unrestricted use soil cleanup objective (SCO) of 7 ppm and below the restricted residential use SCO of 59 ppm. Certain metals, including lead, chromium and zinc occasionally exceeded their corresponding unrestricted use SCO but did not exceed the restricted residential use SCO. Semi-volatile organic compounds did not exceed the unrestricted use SCOs. Ethyl benzene, 1,2,4-trimethylbenzene, and n-propylbenzene exceeded the SCOs for unrestricted use at concentrations up to 2.9 ppm, 37 parts per million (ppm), and 16 ppm, respectively. The exceedances were found in the southeast half of the site. Sampling and chemical analysis of the surface soil was not performed.

Stained soil was found generally in the 4 to 15 foot depth range in the majority of borings (see Figure 2). In addition, petroleum odors were observed during the subsurface investigations; the odors were noticed throughout the majority of the site.

An underground storage tank, which appears to be intact, although its full depth was not investigated, was observed near the center of the site. The tank is approximately ten feet from monitoring well GW-4, which was observed to have LNAPL.

Groundwater – Light non-aqueous phase liquid was detected in monitoring wells in the center of the site, over an area approximately 60 by 120 feet. The LNAPL is a grossly contaminated medium as defined in 6NYCRR Part 375. The LNAPL may extend off-site to the southeast under the active railroad and to the northwest under the Saw Mill Parkway, however the remedial investigation did not evaluate off-site areas. The thickness of the LNAPL ranged up to 5.3 feet in the central portion of the site and was found at a depth of approximately six to ten feet below ground surface. Benzene, 1,2,4-trimethylbenzene, ethylbenzene, n-propylbenzene and 2-methyl naphthalene were found in shallow groundwater at the site exceeding groundwater standards or guidance values. Benzene was found in concentrations up to 23 parts per billion (ppb), 1,2,4-trimethylbenzene at 36 ppb and n-propylbenzene at concentrations up to 23 ppb. Lead was also found in concentrations up to 97 ppb, exceeding the Class GA standard of 25 ppb. Chromium was found in concentrations up to 188 ppb, exceeding the Class GA standard of 50 ppb. The exceedances were generally found in the central area of the site. Semi-volatile organic compounds did not exceed groundwater standards or guidance values except for one sample which contained bis (2-ethylhexyl) phthalate at 26 ppb. Pesticides and polychlorinated biphenyls were not detected in groundwater. Off-site groundwater was not investigated.

Soil vapor samples were collected from 10 on-site locations. Cyclohexane was found in the highest concentration of volatile organic compounds (VOCs), ranging from not detected to 12,000 micrograms per cubic meter (mcg/m3). Hexane, heptane and ethyl benzene were also among the highest VOCs detected. These compounds do not have a guidance value for soil vapor. No indoor nor subslab vapor samples were taken as no buildings exist at the site.

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.*

Access to the site is restricted; however, people who enter the site could contact contaminants in the soil by walking on the soil, digging, or otherwise disturbing the soil. People are not drinking contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. The potential exists for inhalation of site contaminants due to soil vapor intrusion for any future on-site development. At this time, there is insufficient information to evaluate the potential for soil vapor intrusion into structures off-site.

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 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.
- 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 Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the excavation and underground storage tank removal remedy.

The elements of the selected remedy, as shown in Figure 2, 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;
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•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
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• grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
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On-site soil which does not exceed SCOs for restricted residential use and the protection of groundwater may be used to backfill the bottom of the excavation below the cover system described in remedy element 4. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) for the lower of the protection of groundwater or the protection of public health restricted-residential soil cleanup objectives will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

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3. A NAPL recovery system will be installed with the objective of collecting LNAPL in the soil that remains following the soil removal. The type and configuration of the recovery system will be determined following the completion of remedial element 2.

4. A site cover system will be required for the entire site to allow for restricted-residential use. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover. Where the soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. Imposition of an institutional control in the form of an environmental easement for the controlled property that:
•requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
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•restricts 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,
•requires compliance with the Department approved Site Management Plan.

6. 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 engineering controls remain in place and effective:
i. Institutional Controls: the environmental easement discussed above;
ii.Engineering Controls: the site cover discussed in element 4.
This plan includes, but may not be limited to:
• an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
• a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provisions 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 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 and the NAPL recovery wells to assess the performance and effectiveness of the remedy;
• a schedule of monitoring and frequency for submittals to the Department;
• monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

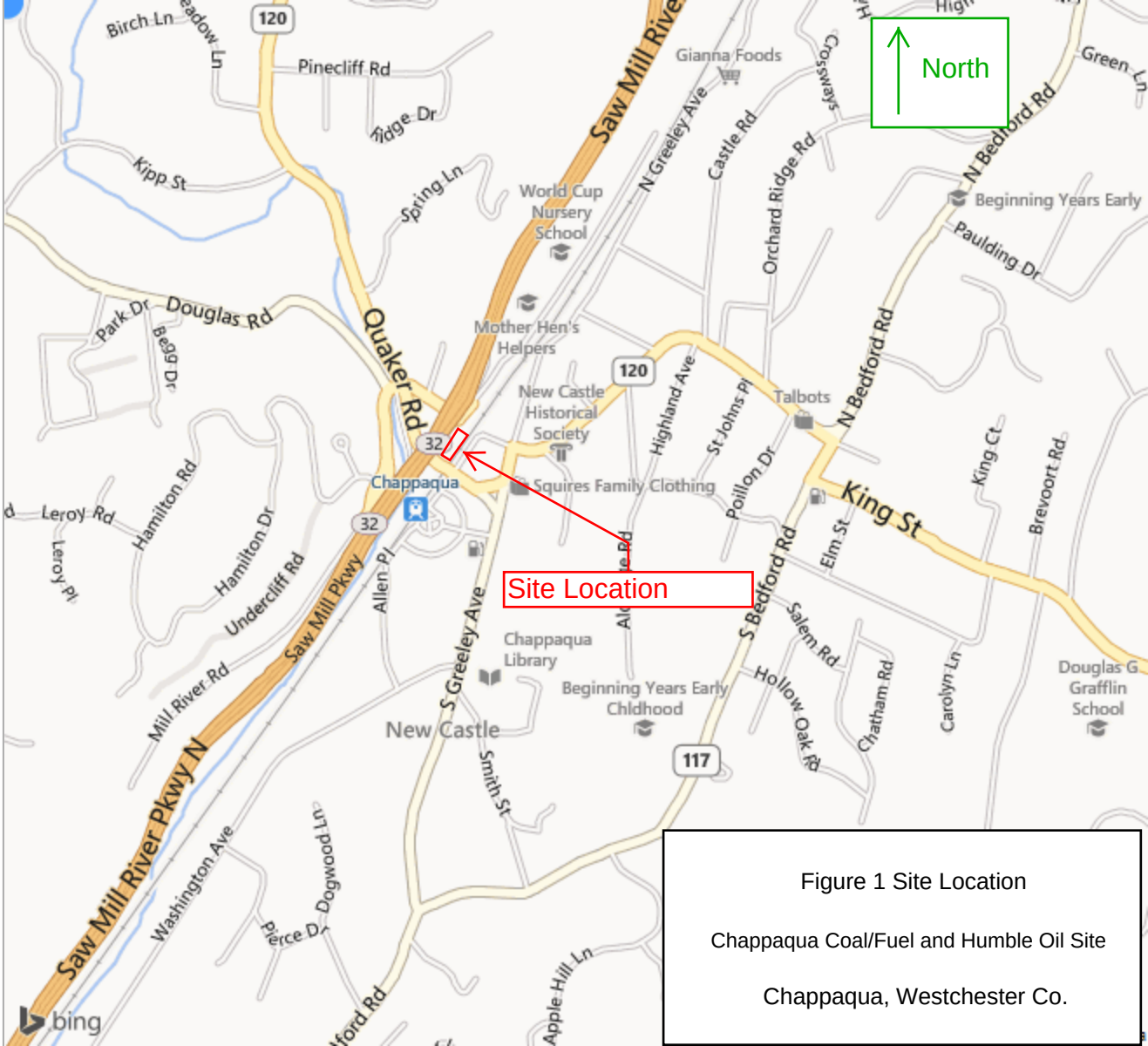

Figure 1 Site Location

Chappaqua Coal/Fuel and Humble Oil Site

Chappaqua, Westchester Co.

NORTH

QUAKER ROAD

ALLEN PLACE

SB7

TP4

SB/GW6
9.5'-10'

SB8
7'-10'

SB/GW5
3'-14.5'

TP3

SB9
6'-14.5'

4'x5' Anomaly identified by geophysical survey (Suspected UST)

SB12
4'-13.5'

TP2

SB/GW4
2'-13.5'

SB/GW2
2'-13'

SB/GW3
0-15'

TP1

SB/GW1

SB10
4'-15'

SB11
3.5'-10'

Site Cover System, entire site

Excavation to 10 feet below existing grade

Excavation to the water table for nuisance soil

UST confirmed pres
in Test Pit

Underground piping

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

Legend

- Soil Boring/Groundwater Probe Location
- LNAPL detected in Monitoring Well
- Soil Boring Location
- Test Pit Location
- Property and Site Boundary
- 7'-10' — Approximate range of visually impacted soil from soil boring observations on March 26 and 27, 2012

NOTE:
Geophysical survey and test pits observations on March 22, 2012.

Approximate Area of LNAPL

PROJECT TITLE

54 HUNTS PLACE

Figure 2

Chappaqua Coal/Fuel and Humble Oil Site

Chappaqua, Westchester Co.