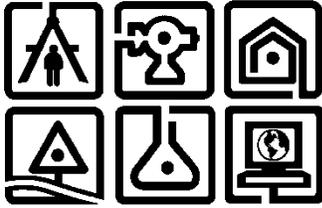


April 4, 2017  
(Final Revision October 5, 2017)



# NYS Brownfield Cleanup Program

## Remedial Action Work Plan

Cottage Place Gardens

Phase 3A Parcel

8 Cottage Place

City of Yonkers

Westchester County, New York

BCP Site No. C360150

*Prepared for:*

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**CERTIFICATIONS**  
**Cottage Place Gardens**  
**Phase 3A Parcel (BCP Site No. C360150)**  
**8 Cottage Place, City of Yonkers**

I, Jeffrey A. Marx, P.E., certify that I am a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) dated May 3, 2010.

082100  
NYS Professional Engineer #

10/4/2017  
Date

  
Signature

**BROWNFIELD CLEANUP PROGRAM  
REMEDIAL ACTION WORK PLAN  
COTTAGE PLACE GARDENS PHASE 3A PARCEL  
CITY OF YONKERS, WESTCHESTER COUNTY, NEW YORK**

**TABLE OF CONTENTS**

	<b><u>Page</u></b>
1.0 INTRODUCTION & PURPOSE.....	1
1.1 Introduction.....	1
1.2 Purpose and Goal.....	1
1.3 Nature and Extent of Contamination.....	2
1.4 Remedial Action Approach.....	3
1.4.1 Tank Discovery Contingency.....	5
1.5 Remedial Treatment Units.....	6
1.6 Applicable NYS Standards, Criteria and Guidance (SCGs).....	7
1.7 Remedial Action Schedule.....	7
1.8 Miscellaneous General Requirements.....	9
1.9 Citizen Participation.....	10
2.0 TEMPORARY CONSTRUCTION FACILITIES.....	11
2.1 Site Security.....	11
2.2 Trailers/Office Space.....	11
2.3 Equipment Decontamination.....	11
2.4 Groundwater Dewatering System During Construction.....	12
2.5 Impacted Soil Handling.....	13
2.6 Utility Disconnects.....	14
2.7 Construction Entrance.....	15
2.8 Excavation Shoring/Sheeting.....	15
2.9 Monitoring Well Abandonment.....	15
3.0 SITE CONTROLS DURING REMEDIAL ACTION.....	16
3.1 Stormwater Management.....	16
3.2 Air Monitoring.....	17
3.2.1 Particulate Air Monitoring.....	17
3.2.2 Volatile Organic Compound Air Monitoring.....	18
3.3 Noise and Vibration.....	20
3.4 Dust Control.....	20

3.5	Construction Observation and Certification.....	21
3.6	Odor Control.....	21
4.0	HEALTH AND SAFETY PLAN (HASP).....	23
5.0	CONFIRMATION AND DOCUMENTATION SAMPLING .....	24
5.1	Post-Remediation Confirmation Sampling .....	24
5.2	Groundwater Treatment Documentation Sampling.....	25
5.3	Imported Fill Testing .....	25
6.0	APPLICABLE PERMITS AND RELATED .....	27
6.1	ACM Abatement/Building Demolition Work .....	27
6.2	Groundwater Discharge.....	27
7.0	SITE RESTORATION .....	29
7.1	General.....	29
8.0	REPORTING AND CERTIFICATE OF COMPLETION.....	30
8.1	Weekly Progress Updates.....	30
8.2	Monthly Progress Reports .....	30
8.3	Final Engineering Report.....	31
8.4	Certificate of Completion.....	32

## **APPENDICES**

### **Appendix A: Figures**

- Figure 1: Site Location Map
- Figure 2: Analytes in Fill/Soil Exceeding SCGs
- Figure 3: Remedial Action Implementation Plan and Details

### **Appendix B: Tables**

- Table 1: Soil Sampling Analytical Summary (Remedial Investigation)
- Table 2: Fill/Soil Sampling Analytical Summary (2015 Phase II ESA)
- Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives
- Table 3756.8(b): Restricted Use Soil Cleanup Objectives

### **Appendix C: CAMP and Special Requirements CAMP**

## **1.0 INTRODUCTION & PURPOSE**

### **1.1 Introduction**

On behalf of CPG Phase III Limited Partnership, C.T. Male Associates Engineering, Surveying, Architecture & Landscape Architecture, D.P.C. (C.T. Male) has prepared this Remedial Action Work Plan (RAWP) pursuant to the New York State Department of Environmental Conservation (DEC) Brownfield Cleanup Program (BCP) in relationship to the property known as the Cottage Place Gardens Phase 3A Parcel located at 8 Cottage Place in the City of Yonkers, Westchester County, New York (herein the "Site"). A Site Location Map is presented as Figure 1.

CPG Phase III Limited Partnership entered into a Brownfield Cleanup Agreement (BCA) with the DEC in December 2015 (BCA Index No.: C360150-10-15), to remediate an approximate 1.006 acre property to Unrestricted Use as defined in 6 NYCRR Part 375. CPG Phase III Limited Partnership is a Volunteer in the BCP. When construction is completed, the Site will contain multi-family residential housing with associated parking and green spaces. Refer to the BCP application prepared by C.T. Male (under separate cover) for additional details.

### **1.2 Purpose and Goal**

The purpose of the RAWP is to provide a conceptual plan for the selected remedy of the Site. With concurrence from DEC, the preparation of a formal remedial design work plan is not planned considering that the remedial action (generally excavate and properly dispose) is a presumptive/proven (presumptive) remedial technology consistent with DEC DER-15: Presumptive/Proven Remedial Technologies, which is applicable to New York State's Remedial Programs including the BCP.

The goal of this RAWP is to provide guidance to CPG Phase III Limited Partnership's design and construction team to supplement the project's technical specifications, and bidding and construction documents. This guidance is required to incorporate the remedial action requirements into the overall Site development project to be in compliance with the BCP.

### **1.3 Nature and Extent of Contamination**

The nature and extent of Site contaminants were identified through the completion of a DEC-approved Remedial Investigation (RI) of the Site in January 2017. Contaminants in media characterized by the RI were supplemented with analytical data of soil and groundwater sampled in a 2015 Phase II Environmental Site Assessment (ESA) of the Site completed by C.T. Male. The tasks completed as part of the RI and Phase II ESA included the following.

#### Remedial Investigation

Four (4) test borings were advanced to facilitate the collection of subsurface native soil samples for subjective and laboratory analysis. At each boring, one (1) sample each was collected of native soil underlying fill/soil material, the top of glacial till, and five (5) feet into the glacial till. The samples were analyzed for the Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and PCBs, and the Target Analyte List (TAL) metals, including cyanide (TCL/TAL parameters). Groundwater samples were not collected for laboratory analysis during the RI.

#### 2015 Phase II ESA

Six (6) test borings were advanced to facilitate the collection of fill/soil samples for subjective and laboratory analysis and for installation of monitoring wells to aid in the collection of groundwater samples for laboratory analysis. The fill/soil samples were analyzed for the TCL/TAL parameters. Groundwater samples were not collected due to the absence of groundwater in the monitoring wells.

Tables 1 and 2 in Appendix B provide a summary of the analytical results for the native soil and fill/soil samples collected during the RI and 2015 Phase II ESA of the Site in comparison to the Unrestricted Use soil cleanup objectives (SCOs). Figure 2 in Appendix A depicts the overall sampling locations and depicts those sampling locations where analytes were detected at concentrations exceeding Unrestricted Use SCOs. Figure 3 identifies the estimated horizontal and vertical extent of fill/soil and native soil that will require removal and proper disposal as the remedial action. The general groundwater flow direction is inferred to be from the east to the west, similar to the ground surface topography.

Based on the findings and results of the RI, remedial action objectives (RAOs) have been identified for the Site as presented in the following table.

Affected Media	Remedial Action Objectives
<b>Fill/Soil and Native Soil</b>	<u>RAOs for Public Health Protection</u> <ul style="list-style-type: none"> <li>• Prevent ingestion/ direct contact with contaminated fill/soil and impacted native soil.</li> <li>• Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.</li> </ul> <u>RAOs for Environmental Protection</u> <ul style="list-style-type: none"> <li>• Prevent migration of contaminants that would result in groundwater contamination</li> </ul>
<b>Groundwater<sup>(1)</sup></b>	<u>RAOs for Public Health Protection</u> <ul style="list-style-type: none"> <li>• Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.</li> <li>• Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.</li> </ul> <u>RAOs for Environmental Protection</u> <ul style="list-style-type: none"> <li>• Restore groundwater aquifer, to the extent practicable, to pre-disposal/pre-release conditions.</li> <li>• Remove the source of groundwater contamination.</li> </ul>
<b>Surface Water</b>	<u>Not Applicable</u>
<b>Sediment</b>	<u>Not Applicable</u>
<b>Soil Vapor</b>	Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

(1) Groundwater samples were not collected for laboratory analysis during the RI and 2015 Phase II ESA. Groundwater samples collected from monitoring wells adjacent south to the Site identified VOCs, SVOCs and metals in groundwater at concentrations exceeding NYS regulatory standards and guidance values. Based on this information, groundwater beneath the Site may be impacted.

#### 1.4 Remedial Action Approach

The remedial action for the Site is generalized as “fill/soil excavation and off-site disposal”. The remedial action may also include temporary groundwater evacuation

and treatment if the remedial excavation extends into groundwater. The depth to groundwater beneath the Site is currently unknown. Monitoring wells were installed to depths ranging from nine (9) to 16 feet bgs as part of the 2015 Phase II ESA of the Site. These wells did not produce groundwater. Water levels were obtained in January 2015 and December 2016 from monitoring wells installed within portions of the Cottage Place Gardens complex adjacent south of the Site. Water levels within these adjacent wells ranged from eight (8) to 10 feet bgs.

The specific elements of the selected remedy are as follows:

- Excavation and off-site disposal of fill/soil mixtures mantling the Site from the ground surface generally to the top of native soils, with select excavations extending beyond the bottom of the fill/soil mixtures to include native soils containing contaminants at concentrations exceeding SCOs. The remedial excavation may also include the additional excavation of native soils that do not meet Unrestricted Use SCOs based on analytical results of confirmatory post-excavation sampling and analysis. The remedial action will also include the off-site disposal of stockpiled fill/soil located between Buildings 6 and 7. This material was generated during utility line work within Phase 3A prior to acceptance into the BCP. The remedial excavation will extend horizontally to the Site boundaries. The proposed horizontal and vertical limits of the remedial excavation are depicted on Figure 3 in Appendix A.

Grossly impacted fill/soil (as defined at DER-10, Section 1.3, Item 23) encountered in the excavation floor at the depth limits of the proposed excavations will be further excavated and staged on-site pending waste characterization and subsequent off-site disposal. The extent of the grossly impacted fill/soil will be subjectively assessed using PID headspace analysis and organoleptic (sight and smell) perception. Confirmatory post-excavation end-point fill/soil or native soil samples will be collected for laboratory analysis to confirm removal of the material to the prescribed SCGs.

- Groundwater samples collected from monitoring wells installed adjacent south of the site identified VOCs, SVOCs and metals at concentrations exceeding regulatory standards and guidance values. Based on the proximity of the monitoring wells to the site boundaries, groundwater beneath the Site may be impacted by these same constituents. Groundwater entering the excavations

during soil remediation will be evacuated and transferred into a temporary holding tank. The groundwater will be treated via carbon filtration (if impacted above applicable discharge limits) and discharged to the closest connection to the municipality's sanitary collection system (i.e. sanitary line along Willow Place). If this is implemented, pre- and post-treatment sampling will be performed of the water treatment system to confirm that the discharge meets the limits established by the Westchester County Department of Environmental Facilities (DEF). The sampling will be conducted prior to system startup and during ongoing system discharges at sampling frequencies required by the Westchester County DEF.

Municipal water is available to the public in and around the site eliminating the potential for the public to ingest contaminated groundwater. The approach to remediate groundwater that may enter the soil remediation excavations will enhance protection of public health by reducing the volume of presumably impacted groundwater beneath the site.

#### **1.4.1 Tank Discovery Contingency**

This contingency applies to the procedures to be employed in the event that underground storage tanks (USTs) need to be removed from the Site, if encountered. General procedures for the removal of any USTs that may be encountered within the Site will include the following.

- Closure of the USTs and associated appurtenances (product, fill and vent piping, underground electric, concrete pump island, etc.) shall conform to applicable sections of DER-10 and the NYSDEC Petroleum Bulk Storage regulations 6 NYCRR Part 613-2.6, Out-of-service UST Systems and Closure.
- Any soils, fill, concrete and/or asphalt overlying and/or surrounding the tank will be removed to allow access to the tank. The contents of the USTs shall be removed by employing a vacuum truck and transported to a disposal facility permitted to accept this waste. If in small quantities, the liquids may be temporarily stored in labeled DOT approved 55-gallon drums for disposal at an approved treatment, storage and/or disposal facility (TSDF). Any oil soaked personal protective equipment, clothing and polyethylene (i.e., PPE) shall also be placed in a labeled DOT approved 55-gallon drum for off-site disposal.

- The UST shall be accessed either through tank manholes (if present) or a hole shall be cut in the tank to allow access for removal of the tank contents and cleaning while the UST remains in-place. Polyethylene shall be placed on the ground adjacent to the tank openings to mitigate contamination of the ground surface when cleaning the tank's interior. Prior to entering the tanks for cleaning, the atmosphere inside the tanks shall be assessed by the Contractor completing the work and deemed safe to enter. Confined space entry procedures shall be performed in accordance with per 29 CFR Part 1910.146 for tank cleaning.
- The USTs will be cleaned and purged of any vapors in accordance with applicable regulations. The USTs shall be rendered unusable on-site by cutting a hole in them after removed from the ground. The tank, distribution and vent piping, and associated equipment shall be properly disposed of off-site at a steel recycling facility. Records of disposal/recycling shall be provided to the Remediation Engineer in a timely manner.
- The waste contents of the tanks and associated piping and equipment, and cleaning wastes shall be properly managed and disposed of off-site at an approved TSDF. The wastes shall be transported by a 6 NYCRR Part 364 transporter permitted to transport these wastes, and disposed of at a facility permitted to accept the waste being disposed of. The disposal facility and general type of waste shall be specifically listed on the transporter's permit.
- Registration of the tanks as "closed-removed" in accordance with NYSDEC Petroleum Bulk Storage regulations.

### **1.5 Remedial Treatment Units**

The entire Site, the limits of which are shown on Figure 3, is to be considered as one (1) remedial treatment unit or area of concern.

The sampling locations, sampling depths and concentrations of contaminants exceeding SCGs are summarized in Figure 2 in Appendix A and Tables 1 and 2 in Appendix B.

**1.6 Applicable NYS Standards, Criteria and Guidance (SCGs)**

The applicable SCGs for each media type to be remediated during the remedial action are summarized as follows:

<b>Media</b>	<b>Regulation</b>	<b>SCGs</b>
Fill/Soil and Native Soil	6 NYCRR Part 375 (December 14, 2007)	Table 375-6.8(a) Unrestricted Use Soil Cleanup Objectives
Groundwater	NYSDEC Division of Water TOGS 1.1.1	Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 1998)

A copy of the December 14, 2007 6 NYCRR Part 375 Table 375-6.8(a) is included in Appendix B for reference. The NYSDEC Division of Water TOGS 1.1.1 document is not included, but the standards or guidance values for the remedial action will be the ambient groundwater (GA class) values.

In the event that the proposed Track 1 Unrestricted Use cleanup cannot be achieved, movement to a Track 4 Restricted Residential Use cleanup may be necessary. Soil SCGs for Unrestricted use and Restricted Residential use of the Site are included in Table 375-6.8(a) and Table 375-6.8(b), respectively, in Appendix B.

**1.7 Remedial Action Schedule**

It is expected that the remedial action will be completed in two (2) phases as follows:

Phase I: Asbestos Abatement and Building Demolition

Phase I is anticipated to be completed during the Fall of 2017 and Winter of 2018, and will include the following tasks.

-Asbestos abatement and demolition of Buildings 3, 6 and 7. Abatement of asbestos containing materials (ACM) will be in accordance with the New York State Department of Labor (NYS DOL) Industrial Code Rule (ICR) 56. The ACM abatement work activities

will be managed under the requirements of the NYSDOL rather than the DEC Division of Environmental Remediation.

-Building foundation concrete (footers, walls and slabs) in contact with Site soils will either be addressed as part of the building demolition or will be left in place and addressed as part of the remedial excavation. If removed as part of the building demolition, methods will be employed to remove any soils adhering to the concrete prior to the concrete leaving the Site for off-site disposal.

Phase II: Remedial Action

Phase II is anticipated to be completed during the Fall of 2017 and Winter of 2018, and will include the following tasks.

-Excavation and off-site disposal of all fill/soil mixtures and select native soils mantling the Site (see Figure 3 for proposed excavation depths), and the possible additional excavation of native soils that do not meet Unrestricted Use SCOs based on analytical results of confirmatory post-excavation sampling. The remedial action will also include the excavation and off-site disposal of stockpiled fill/soil located between Buildings 6 and 7, which originated from the Phase 3A parcel. The remedial excavation will extend to the boundaries of the Phase 3A parcel.

-If building foundation concrete is encountered during the remedial action, the concrete will be broken up and disposed of with the excavated contaminated fill/soil or the concrete will be disposed of as a separate waste stream provided that any soils adhering to the concrete are removed prior to the concrete leaving the Site for off-site disposal. The disposal location will be required to be submitted to the certifying remedial engineer prior to removal from the site.

-Other appurtenances that may be in contact with contaminated Site soils include, but are not limited to, asphalt access-ways and parking lots; concrete walkways, stairways, retaining walls, bollards and curbing; subsurface portions of handrails, light posts and signage, and underground utilities. These appurtenances, and any other appurtenances encountered within the remedial excavation, will be broken up and disposed of with the excavated contaminated fill/soil or disposed of as a separate waste stream provided that any soils adhering to the appurtenances are removed prior to the appurtenances

leaving the Site for off-site disposal. The disposal location will be required to be submitted to the certifying remedial engineer prior to removal from the site.

-Provide groundwater evacuation, characterization, treatment and off-site disposal as necessary during the remedial excavation.

-Prior to beginning the remedial excavation, monitoring wells within the Site containing groundwater will be abandoned in accordance with DEC Policy CP-43: Groundwater Monitoring Well Decommissioning Policy, dated November 3, 2009. Monitoring wells to be abandoned will be tremi-grouted from the bottom of the monitoring well to the anticipated bottom of the remedial excavation. Monitoring wells that do not contain groundwater will be removed and disposed of with the fill/soil from the remedial excavation. The monitoring wells that are within the boundaries of the Phase 3A parcel are depicted on Figure 2 as MW-C, MW-D, MW-E, MW-F, MW-G and MW-O.

-Characterization and off-site disposal of drummed investigation derived wastes generated during the RI of the Site. These include two (2) 55-gallon drums containing drill cuttings from the test borings and one (1) 55-gallon drum containing decontamination water and plastic used for the decontamination pad.

-Preparation and submission of the Final Engineering Report (FER), which is anticipated to be completed during the Spring of 2018. The time lapse for submission of the FER takes into account the time required for receipt of analytical results of remedial excavation end-point sampling, data validation of the analytical results, and review by the Volunteer. A more detailed remedial action schedule will be provided to the Department after completion of field work associated with the remedial activities.

## **1.8 Miscellaneous General Requirements**

Prior to commencement of the remedial action, a project sign stating that the work is being completed under the Brownfield Cleanup Program will be erected and conspicuously displayed. The sign will conform to Department specifications for construction (i.e., size and content).

Prior to beginning construction of the remedial action (excluding the asbestos abatement and building demolition phase), a pre-construction meeting will be held with the Department, the Volunteer, the remedial engineer (C.T. Male), the construction

manager and the contractor/subcontractors designated to complete the remedial action related work.

The hours of operation of the remedial construction work will conform to the City of Yonkers construction codes. The Department will be notified by the Volunteer of any variances issued by the City of Yonkers.

### **1.9 Citizen Participation**

Citizen participation will continue on this project as follows:

- Placement of the draft RAWP in the document repositories prior to the public comment period. A cursory review of the draft RAWP will be conducted by DEC for general acceptance before being submitted to the repositories, and then reviewed in more detail by DEC during the comment period.
- Issue a notice for the start of a 45 day public comment period for the draft RAWP.
- Comments issued by DEC at the end of the 45 day public comment period will be addressed as necessary to finalize the RAWP.
- Once the RAWP has been finalized, a public notice fact sheet will be released by the Department before the start of the remedial construction work.

DEC approval of the RAWP will follow the public comment period unless a public meeting is requested and deemed necessary by DEC. If necessary, a public meeting can be held towards the end of the 45 day comment period to explain the project in further detail, and address public questions and comments.

## **2.0 TEMPORARY CONSTRUCTION FACILITIES**

### **2.1 Site Security**

The Site is an approximate 1.006 acre single lot that makes up the northern portion of the Cottage Place Gardens public housing complex. The Site consists of three (3) multi-story residential apartment buildings with associated asphalt paved access-ways and parking areas, concrete sidewalks, and landscaped areas. Currently, the Site is easily accessible to residents of surrounding apartment buildings within the Cottage Place Gardens complex. The northern portion of the Site fronts Willow Place, which is a public street.

Because the Site is easily accessible to the public, construction fencing with a lockable gate(s) will be installed and maintained around the entire perimeter of the Site prior to the start of the building asbestos abatement and demolition activities, and remain in-place throughout the remedial action and subsequent new construction phases of the project.

### **2.2 Trailers/Office Space**

A construction office trailer(s) or office space will be provided by the contractor for use by the environmental consultant and DEC personnel. The space shall include a desk or table to work on and power to daily charge field monitoring equipment. A minimum area, generally 6 feet by 6 feet, should be sufficient.

### **2.3 Equipment Decontamination**

Construction equipment that comes into contact with the Site's contaminated fill and soil, and potentially impacted groundwater, will be considered contaminated. Prior to the equipment being demobilized from the Site, the equipment will be decontaminated in a manner that removes adhered soils and residues, and washes/rinses the equipment in a controlled manner thereby capturing the soils and wash/rinse water for proper off-site disposal. The waste soils and wash/rinse water will be captured using a stationary or movable decontamination pad. The accumulated soils from the decontamination effort will be staged with the remediated contaminated soils and ultimately disposed of

off-site. The decontamination water will be transferred into 55 gallon drums or directly to the on-site groundwater treatment system (if used) on an as needed basis.

If drums are used to containerize the decontamination water, the contents of the drums will be characterized through generator knowledge, analytical testing from the RI and/or additional lab testing of the actual waste in accordance with the target disposal facility's permit requirements. Waste profile paperwork will be reviewed by C.T. Male and signed by an authorized representative of the Volunteer. Waste manifests will also be reviewed and signed by an authorized representative of the Volunteer.

Trucks entering and exiting the Site will be subject to the requirements of the Site specific erosion and sediment control measures outlined in this RAWP and site specific Stormwater Pollution Prevention Plan (SWPPP), which shall include the requirements of a stabilized construction entrance to mitigate fill/soil from being tracked off-site and onto roadways (see Section 2.7). Trucks, while being loaded with contaminated fill/soil for transport to the disposal facility, will be situated in a manner that limits the potential for transporting the Site's surface fill/soil off-site (i.e., the trucks will be staged atop the construction entrance and/or on plastic). If necessary, truck tires and exterior surfaces subject to being soiled by falling impacted fill/soil during loading, will be broom swept prior to leaving the Site to reduce tracking of fill/soil onto surrounding public roadways. The public roadway where trucks exit the Site will be monitored by the remediation engineer field representative. If fill/soil tracking is apparent, improvements to the erosion and sediment controls and fill/soil loading procedures will be required and implemented. Trucks entering and exiting the Site will also conform to the Site's State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity.

#### **2.4 Groundwater Dewatering System During Construction**

The remedial action and subsequent new construction may require groundwater dewatering and treatment. If requested, DEC will be provided the opportunity to review the dewatering and treatment system design prior to its implementation.

It is the Volunteer's intention to treat groundwater and discharge it to the closest connection to the municipality's sanitary collection system (i.e. sanitary line along Willow Place). If this is implemented, pre- and post-treatment sampling will be

performed of the water treatment system to confirm that the discharge meets the limits established by the Westchester County Department of Environmental Facilities (DEF). The sampling will be conducted prior to system startup and during on-going system discharges at sampling frequencies required by the Westchester County DEF.

For the purpose of tracking the volume of treated groundwater that is discharged to the sanitary collection system, a water meter will be installed in line with the groundwater treatment system. The groundwater treatment system will be equipped with equipment to reduce suspended sediment, pre-and post-treatment sampling ports, and treatment media such as granular activated carbon.

## **2.5 Impacted Soil Handling**

All fill/soil within the Site boundaries commencing at the ground surface and extending vertically downwards to the upper horizons of native soil, and select deeper native soil excavations, will be considered as contaminated and will require special handling. These also include the stockpiled fill/soil between Buildings 6 and 7. The remedial excavation will extend to an average depth of five (5) feet below existing Site grades with the exception of select areas within native soil where contaminants extend beyond the five (5) foot depth limit. In areas where the Site buildings have been demolished and the elevation of the former buildings' footprint is at a lower elevation than surrounding grades, the excavation will still extend to a depth of five (5) feet below the original surface grades that surrounded the building (i.e., if, after demolition, the building footprint elevation is three feet (3) below surrounding grades, the building footprint area will be excavated to a vertical depth of two (2) feet below the bottom of the building footprint).

Approximately 8,530 cubic yards (or 14,500 tons) of contaminated fill/soil is anticipated to be removed and disposed of off-site. The overall excavation depths may be adjusted based on organic vapor screening with a photo-ionization detector and visual observations. Confirmatory end-point soil samples will be collected and analyzed to confirm the fill/soil that remains in-place meets applicable SCOs.

Upon completion of the remedial action, excavation of additional native soil may be necessary to facilitate construction of deeper building foundations. If the confirmatory endpoint floor samples from the remedial excavation indicate that the native soils are

not impacted above Unrestricted Use SCOs, then these soils will be considered as clean soil and the reuse and/or disposition of these soils will no longer be regulated.

The handling of the contaminated fill/soil will involve direct loading into dump trucks or trailers, and if not directly loaded, stockpiled on-Site. For soil stockpiling, the fill/soil will be staged on a minimum of 12-mil plastic and covered with the same to mitigate washout by rainwater. For directly loaded fill/soil, the trailers will be covered during transport with solid covers (not mesh), and if high in moisture content where free-standing water will be released, the truck gates will be sealed and/or lined with plastic. Mesh tarps or covers will not be allowed for trucks hauling impacted fill/soil from the site.

In order to dispose of the contaminated fill/soil at an off-site disposal facility (and to be able to directly load the material into dump trucks and/or trailers), waste characterization samples will be collected before the remedial action begins. This will be accomplished by advancing exploratory test pits for collection of representative fill/soil samples for laboratory analysis. The number of samples and analytical requirements shall be in accordance with the target disposal facility's disposal permit requirements, and if unspecified, shall be at a minimum for the full Toxicity Characteristic Leaching Procedure (TCLP) parameters and RCRA characteristics.

## **2.6 Utility Disconnects**

The Site is serviced with electricity and natural gas from Con Edison. Potable water is provided by the City of Yonkers Water Bureau. The Westchester County DEF is responsible for sanitary sewer service to the Site. Additionally, several private utilities installed as part of the construction of the Cottage Place Gardens complex are present beneath the Site. These include steam lines, drainage and storm water piping, and fiber optic and cable lines. All of the active utilities shall be located and temporarily disconnected per City, County and Cottage Place Gardens requirements, and properly rerouted or protected during excavation in cooperation with applicable utility companies.

## **2.7 Construction Entrance**

A stabilized construction entrance will be installed to mitigate the tracking of potentially contaminated fill/soil onto public rights-of-way from vehicle traffic exiting the Site. The construction entrance will be constructed of No. 2-inch stone, not less than six (6) inches in depth, placed over filter fabric. The construction entrance shall be a minimum 50 feet in length by 20 feet in width. The construction entrance will be amended with new stone on an as needed basis as determined by the Remediation Engineer or field representative. Details for a construction entrance are presented on Figure 3 in Appendix A.

## **2.8 Excavation Shoring/Sheeting**

Due to the anticipated horizontal and vertical remedial excavation depths and the estimated vertical depths for foundation construction after completion of the remedial action, shoring and/or sheeting may be required to effectuate stable and safe excavation conditions. The need for and design of the shoring/sheeting systems will be the responsibility of the earthwork contractor, and shall be designed by a licensed professional engineer. Prior to commencement of the remedial action, excavation shoring/sheeting plans will be submitted to DEC for their information. Excavation shoring/sheeting plans for non-remedial needs are not required to be submitted to DEC.

## **2.9 Monitoring Well Abandonment**

Prior to beginning the remedial excavation, monitoring wells within the Site containing groundwater will be abandoned in accordance with DEC Policy CP-43: Groundwater Monitoring Well Decommissioning Policy, dated November 3, 2009. Monitoring wells to be abandoned will be tremi-grouted from the bottom of the monitoring well to the anticipated bottom of the remedial excavation. Monitoring wells that do not contain groundwater will be removed and disposed of with the fill/soil from the remedial excavation. The monitoring wells that are within the boundaries of the Phase 3A parcel are depicted on Figure 2 as MW-C, MW-D, MW-E, MW-F, MW-G and MW-O.

### **3.0 SITE CONTROLS DURING REMEDIAL ACTION**

#### **3.1 Stormwater Management**

The cumulative area of fill/soil disturbance for this project is greater than one (1) acre requiring CPG Phase III Limited Partnership to obtain coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity before commencing construction activity.

In accordance with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Stormwater Management Design Manual, erosion and sediment control measures, pollution prevention measures, and if applicable, post-construction water quality treatment, shall be designed by CPG Phase III Limited Partnership and presented in the form of a Stormwater Pollution Prevention Plan (SWPPP).

The following forms are needed to be completed and submitted to comply with the requirements of the General Permit for Stormwater Discharges from Construction Activity - GP-0-15-002:

- Notice of Intent (NOI) to DEC, which is a request for coverage under the General Construction Stormwater Permit;
- SWPPP Acceptance Form, which is required along with the NOI because the Site is located within the boundaries of an MS4. The SWPPP must be reviewed and accepted by the MS4 prior to submitting the NOI to the DEC; and
- Notice of Termination (NOT) to DEC, which is a notification that the construction project is complete and has met the requirements of the construction permit.

A copy of the blank Notice of Intent, Notice of Termination and SWPPP Acceptance forms are available through DEC's website. The SWPPP, NOI and SWPPP Acceptance forms will be provided to DEC under separate cover after approval from the City of Yonkers Engineering Department, but prior to start of construction. The NOT will be provided to DEC upon completion of the Site disturbance portion of the project.

### **3.2 Air Monitoring**

A Community Air Monitoring Plan (CAMP) will be followed during ground intrusive remedial activities (i.e., excavation, disturbance and handling of site fill/soil). The intent of the CAMP is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of remedial work activities. The CAMP is not intended for use in establishing action levels for worker respiratory protection. The CAMP will monitor the air for dust (particulate air monitoring, see Section 3.2.1) and volatile organic compound vapors (VOC air monitoring, see Section 3.2.2) at the downwind perimeter of the work area. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown.

Remedial actions will not take place within occupied site buildings. In areas where remedial actions will take place within 20 feet of occupied buildings, VOC and particulate monitoring will be conducted in accordance with the Special Requirements CAMP. The CAMP and Special Requirements CAMP are included in Appendix C.

#### **3.2.1 Particulate Air Monitoring**

Three (3) real-time particulate monitors capable of continuously measuring concentrations of particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) will be utilized. The instruments will be placed inside environmental enclosures at temporary monitoring stations based on the prevailing wind direction each work day, one upwind and two downwind of the designated work areas. If the remedial action is taking place within 20 feet of occupied structures, monitoring will be conducted opposite the walls of the occupied structures or next to the structures' air intake vents.

Each particulate monitor will be equipped with a telemetry unit capable of transmitting real-time particulate data to the Remediation Engineer and/or field representative. The particulate monitoring instruments will be capable of displaying and transmitting the short term exposure limit (STEL) or 15 minute averaging period, which will be compared to the NYSDOH Generic and Special Requirements Community Air Monitoring Plan action levels for particulates, as listed below. The instruments are

programmed to alarm at preset action levels. At the end of each day, the readings for each instrument will be downloaded to a PC and retained for future reference and reporting.

- If the downwind and/or occupied structures PM-10 particulate level is 100 micrograms per cubic meter ( $\text{mcg}/\text{m}^3$ ) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that the downwind and/or occupied structures PM-10 particulate levels do not exceed  $150 \text{ mcg}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, the downwind and/or occupied structures PM-10 particulate levels are greater than  $150 \text{ mcg}/\text{m}^3$  above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind and/or occupied structures PM-10 particulate concentration to within  $150 \text{ mcg}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

In the event of poor weather such as heavy rain, particulate monitoring will not be performed for protection of instrumentation. These weather conditions would limit the effectiveness of the sensitive monitoring equipment and likely suppress particulate generation. Work activities will be halted if fugitive dust migration is visually observed for a sustained period of time during poor weather conditions.

### **3.2.2 Volatile Organic Compound Air Monitoring**

C.T. Male will continuously monitor for volatile organic compounds (VOCs) at the downwind perimeter of the immediate work areas and/or occupied structures with a MiniRAE 3000 VOC monitor or equal. The VOC monitor will be placed in the downwind and/or occupied structures environmental enclosures containing a particulate monitor. The downwind VOC monitor will be equipped with a telemetry unit capable of transmitting real-time VOC data to the Remediation Engineer and/or field representative. The VOC monitoring instrument will be capable of displaying and transmitting the short term exposure limit (STEL) or 15 minute averaging period, which

will be compared to the NYSDOH Generic and Special Requirements Community Air Monitoring Plan action levels for VOCs, as listed below. The downwind and/or occupied structures VOC STEL readings will be downloaded to a PC and retained for future reference and reporting.

Upwind VOC STEL concentrations will be measured at the start of the work day and periodically thereafter employing a handheld MiniRae 3000 VOC monitor to evaluate the Site's background conditions. Background VOC readings will be obtained in the occupied structures prior to commencement of the planned work. Any unusual background readings will be discussed with NYSDOH prior to commencement of the work. The upwind VOC STEL readings will be manually recorded for future reference and reporting.

- If the ambient air concentration of total organic vapors opposite the walls of occupied structures exceeds 1 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring will be conducted within the occupied structure.
- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone (not including the occupied structures) exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone (not including the occupied structures) persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. Work activities will then be evaluated to determine the source of the organic vapors and the engineering controls required to reduce/eliminate the organic vapors.

### **3.3 Noise and Vibration**

There is potential for noise and vibration to be an issue depending on the means and methods selected by the construction contractor to excavate and load the Site fill/soil during the remedial action. If sheet piling is used to facilitate the excavation of Site fill/soil during the remedial excavation, the project plans and specifications will require the contractor to plan for and provide, as necessary, controls to mitigate noise and vibration from adversely affecting the community.

### **3.4 Dust Control**

Dust suppression techniques will be required, as necessary, to control fugitive dust to the extent practical during the remedial action. Such techniques must be employed, at a minimum, if the community air monitoring results indicate that particulate levels are above action levels. All reasonable attempts will be made to inhibit visible and/or fugitive dusts. Techniques to be utilized by the contractor may include one or more of the following:

- Applying water to haul roads.
- Wetting equipment and excavation faces.
- Spraying water on buckets during excavation and dumping.
- Hauling materials in containers or vehicles with solid tarp covers.
- Restricting vehicle speeds on-site.
- Covering excavated areas and materials after excavation immediately after activity ceases.

The contractor will be required to perform dust control measure in a manner consistent with the applicable portions of the "New York Guidelines for Urban Erosion and Sediment Control" and the "New York State Stormwater Management Design Manual".

### **3.5 Construction Observation and Certification**

Phase I (site preparation) work includes asbestos abatement followed by demolition of the Site buildings. C.T. Male Associates will provide observation by an asbestos project monitor during the ACM abatement work, as required by ICR-56. The asbestos project monitor will be responsible for collecting daily air samples in accordance with ICR-56. As air monitoring will be conducted per DOL requirements during the ACM abatement work, CAMP related air monitoring will not be performed during this portion of the work. Once the ACM has been abated, C.T. Male will provide a full-time construction observer to monitor the building demolition aspect of the project and conduct CAMP monitoring.

Phase II (remedial action) work includes excavation (disturbance) of existing fill/soil and native soil; possible groundwater evacuation, characterization, treatment and disposal; possible abandonment of monitoring wells; and possible installation of sheeting and shoring within the remedial excavation. C.T. Male will provide full-time observation during the remedial action. At the point in construction when the environmental related issues have been fully addressed (i.e., impacted fill/soil and native soil removed and off-site, groundwater treatment is stabilized or completed and CAMP monitoring is no longer required, etc.), C.T. Male will no longer provide construction observation.

Periodic observation of the remedial action will be made by a C.T. Male registered professional engineer in order to provide the required certification of the FER. The engineer will supervise the construction observer during the remedial action to document that the project is implemented in accordance with the DEC approved RAWP. The Project Engineer will provide engineering review of remedial related contractor submittals and field changes for the remedial related work.

### **3.6 Odor Control**

If nuisance odors are identified to extend beyond the perimeter of the work area during the fill/soil remedial excavation, measures that may be implemented include limiting the area of open excavations, limiting the size of soil stockpiles, shrouding open excavations with tarps and other covers, using foams to cover exposed odorous soils,

direct load-out of soils to trucks for off-site disposal, use of chemical odorants via spray or misting systems, and use of staff to monitor odors in surrounding neighborhoods.

#### **4.0 HEALTH AND SAFETY PLAN (HASP)**

Health and safety procedures to be followed by C.T. Male will be conducted in accordance with a site-specific Health and Safety Plan (HASP). The HASP will be developed prior to the commencement of the remedial action and will be available at the Site during the remedial action.

The contractor completing the remedial work will be required to provide a site specific HASP that is certified by a Certified Industrial Hygienist or equivalent safety professional. The contractor's employees will be required to have read and understood their company's site specific HASP prior to completing the work.

## **5.0 CONFIRMATION AND DOCUMENTATION SAMPLING**

### **5.1 Post-Remediation Confirmation Sampling**

Post-remediation verification soil samples will be collected for laboratory analysis after removal of impacted fill/soil and native soil to document that Unrestricted SCOs have been met. The samples will be analyzed for the Target Compound List (TCL) of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) and the Target Analyte List (TAL) of metals. The samples will not be analyzed for the TCL pesticides and PCBs because they were not encountered above SCGs during the RI sampling efforts. The analytical parameters selected for the post-remediation verification samples are based on the analytes detected above applicable SCGs during the RI.

Post-remediation verification soil samples will be collected at a frequency of one (1) grab sample per each 900 square feet of excavation floor and one (1) sample from the bottom of each sidewall for every 30 linear feet of sidewall, pursuant to DEC DER-10. The excavation is anticipated to extend to the Site's property boundaries, verification samples from the remedial excavation sidewalls is necessary to document the level of Site contamination, if any, at the property boundaries. Additionally, one (1) grab sample of native soils will be collected from the bottom, and one (1) grab sample will be collected from the bottom of each sidewall for every 30 linear feet of sidewall, from each excavation that is proposed to extend deeper into native soils (see Figure 3). Each of these excavations is approximately 900 square feet. The bottom and sidewall samples will be collected to verify the successful remediation of contaminants within these deeper excavations.

The laboratory will provide the analytical results in DEC ASP Category B Data Deliverable format for subsequent third party data validation. Data validation will be performed in accordance with the USEPA National and Regional Validation Guidelines/Procedures to determine the applicable qualifications of the data. The validator will then prepare a Data Usability Summary Report (DUSR) in accordance with DEC guidance.

## **5.2 Groundwater Treatment Documentation Sampling**

Groundwater treatment may be necessary during the remedial action and subsequent new subgrade construction. The documentation and sampling necessary for the groundwater treatment system will be dependent on the requirement of the applicable City and/or County permit for such treatment system. Documentation will likely include influent (prior to treatment) and effluent (post treatment) sampling which will be used to gauge groundwater contaminant levels, document conformance to applicable permit discharge limits, and set forth the frequency of change-out of groundwater treatment media (i.e., granular activated carbon). The proposed sampling frequency and analysis will be presented to DEC for concurrence prior to implementing.

## **5.3 Imported Fill Testing**

The source of the fill and the analytical data will be provided to the DEC for review and approval prior to importing the fill to the Site. The sampling and analysis requirements for fill imported to the Site are set forth in 5.4(e)10 of DEC DER-10, Technical Guidance for Site Investigation and Remediation (DER-10). The following requirements must also be met:

- All materials proposed for import onto the Site will be approved by the certifying remedial engineer, and the DEC, and will be in compliance with provisions in 6 NYCRR Part 375 and DER-10 prior to delivery to the Site.
- Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.
- All imported soils will meet the backfill quality standards established in 6 NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 375-6.8(a) in Appendix B. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill objectives for this Site, will not be imported onto the Site without prior approval by DEC. Solid waste will not be imported onto the Site.

- Trucks entering the Site with imported soils will be securely covered with tight fitting solid covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

## **6.0 APPLICABLE PERMITS AND RELATED**

### **6.1 ACM Abatement/Building Demolition Work**

Prior to starting asbestos abatement, there are two (2) required notifications, one on the State level and one on the Federal level (USEPA). There is a minimum 10 calendar day notification of the ACM abatement activity from the NYSDOL (State), which will be sought by the asbestos abatement contractor. There is a 19 working day notification of demolition and renovation from USEPA, which will be solicited by the asbestos abatement contractor. Each building shall be considered a separate project for the NYSDOL notification requirements.

A Building Permit will be sought from the City of Yonkers by the Owner (or the contractor, as applicable) prior to the initiation of the demolition activities and construction activities.

A Demolition Permit shall be applied for by the General Contractor and obtained from the City of Yonkers. As part of the application, the applicant is required to engage a licensed firm to inspect the structure for the presence of asbestos, which has been completed by C.T. Male. A copy of C.T. Male's Asbestos Survey will be made available to the General Contractor. The applicant shall file a certificate of finding with Department of Housing and Buildings (DHB) prior to the issuance of a Demolition permit. It shall be unlawful to engage in an asbestos removal project unless and until satisfactory proof of compliance with Article 30 of Labor Law of the State of New York is filed with the DHB and a permit has been obtained from DHB for any asbestos removal.

Copies of, or evidence of the DOL notification, the approved building permit, and the approved demolition permit will be made part of the Final Engineering Report.

### **6.2 Groundwater Discharge**

A dewatering system may be necessary during the remedial action and subsequent new subgrade construction to mitigate groundwater infiltration. Groundwater extracted from the subsurface may require treatment prior to discharge to the closest MS4 combined sewer manhole, which will require a sewer discharge permit. The

requirements of a sewer discharge permit will be sought from the Westchester County DEF; the entity that operates the local sewage treatment plant. DEC will be provided a copy of the approval to discharge to the sewer, when applied for and received from DEF. If the volume of groundwater requiring treatment is anticipated to be low, the impacted groundwater may be pumped to temporary tank(s) and periodically removed from the Site in tanker trucks. The tank liquids will be properly managed and disposed of off-site at an approved treatment, storage and disposal facility (TSDF). The wastes will be transported by a 6 NYCRR Part 364 transporter permitted to transport these types of wastes, and disposed of at a facility permitted to accept the waste being disposed of.

## **7.0 SITE RESTORATION**

### **7.1 General**

The Site will be restored upon completion of work in accordance with the plans and specifications for new construction. Imported backfill will be tested in accordance with Section 5.3. Once the Site is backfilled to final grade or at some point prior to when existing Site soils are no longer being disturbed, CAMP monitoring will be discontinued with pre-approval from DEC.

## **8.0 REPORTING AND CERTIFICATE OF COMPLETION**

### **8.1 Weekly Progress Updates**

Progress meeting minutes will be submitted to the DEC Project Manager via email during the remedial action (Phase II only). The progress report will briefly summarize the remedial activities completed at the Site for the previous week. The progress report will be submitted at the beginning of the following week. The format will be in a bulleted style generally highlighting the major items accomplished during the previous week.

### **8.2 Monthly Progress Reports**

Monthly progress reports will report on the progress of the remedial actions accomplished during the reporting period. The reports will be submitted to DEC, with a copy to the NYS Department of Health project manager and pertinent personnel representing the Volunteer. The progress reports will be submitted on or about the 10<sup>th</sup> day of each month. The progress reports will generally include the following information, where applicable

- Any request for modifications to the approved RAWP, and the status of previously requested modifications.
- A discussion of project progress and significant activities during the reporting period, including the status of any requisite permits.
- A discussion of pending/planned significant project activities during the next two months, unless another time frame is authorized by the Department.
- The approved remedial action schedule and proposed modifications to the remedial action schedule, resulting from new information and/or unforeseen conditions.
- A discussion of any problems or delays in the implementation of the remedial action relative to the work and/or remedial action schedule.

- Proposed actions to correct any identified problems, including how to mitigate any adverse schedule impacts.
- Any additional, pertinent documentation that is available (e.g., photographs) that helps communicate progress/issues facing the project.
- A tabulation of sample results received during the reporting period and submission of a report summarizing the data and presenting conclusions.
- A tabulation of waste classification and/or characterization samples collected including the physical state of the material (solid, liquid, sludge), the volume of material, number of samples collected, analyses performed and results.
- A listing of the types and quantities of contamination generated by the remedial action during the reporting period and to date, as well as the name of the disposal facilities, transporters' dates of disposal and, if appropriate, the manifest numbers of each waste load.

### **8.3 Final Engineering Report**

Upon completion of the remedial action, a Final Engineering Report (FER) will be prepared that summarizes the work completed and results of the confirmation and documentation sampling. Any deviations from the RAWP will also be discussed in the FER. The FER will be prepared in general accordance with the FER requirements promulgated in Section 5.8 of DER-10, as summarized below.

- The final FER submitted to DEC for approval will be prepared, stamped, certified and signed by an individual licensed or otherwise authorized in accordance with article 145 of the Education Law to practice the profession of engineering using the appropriate certification provided in Table 1.5 of DER-10.
- A description of the remedy, as constructed, pursuant to the DEC-approved RAWP.
- A summary of the remedial actions completed, including description of problems encountered and resolved, summary of changes to the RAWP, listing

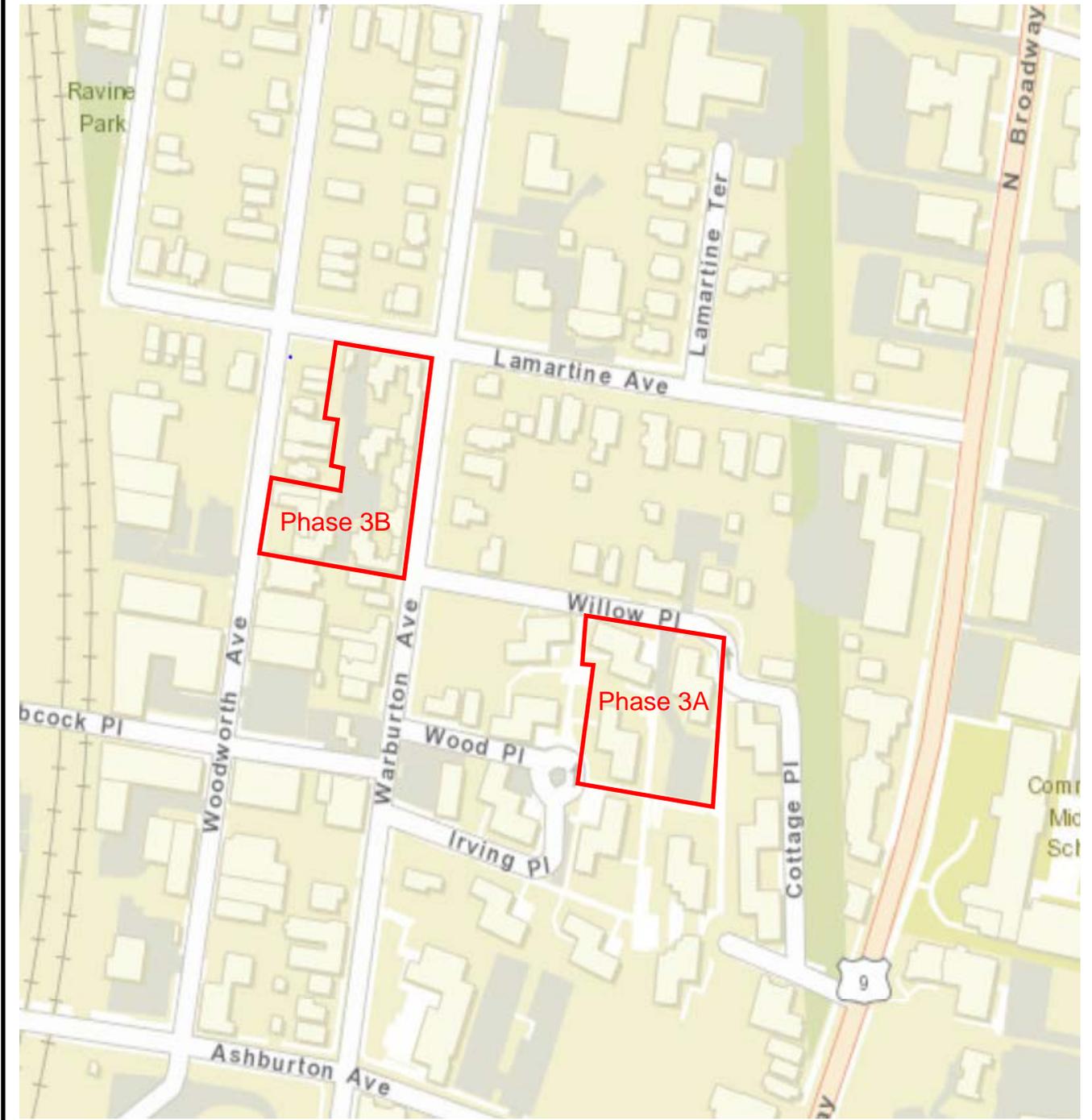
of the waste streams, the quantity of each waste stream, and the disposal location(s) for each waste stream.

- A list of the remedial action objectives applied to the remedial action.
- Tables and figures containing pre- and post-remedial data keyed appropriately so that completion of the remedial action is documented.
- A detailed description of the applicable areas of remedial action compliance.
- Drawings showing the excavation limits and the excavation end-point soil sampling locations.
- Fully executed manifests documenting off-site transport of the waste materials.
- Analytical results of the excavation end-point soil samples, including laboratory data sheets and the required laboratory data deliverables.

#### **8.4 Certificate of Completion**

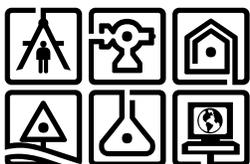
The Volunteer will be seeking a Certificate of Completion (COC) from DEC upon completion of the remedial action and DEC approval of the FER. It is anticipated that completion of the remedial action and the Volunteer's receipt of the COC will likely occur prior to completion of the entire construction project at the Site. The Volunteer anticipates obtaining a COC in 2018.

**APPENDIX A**  
**FIGURES**



**MAP REFERENCE**

Image from Environmental Data Resources, Inc.  
 The Site boundaries are approximate and do not represent a Site survey.



ENGINEERING  
 SURVEYING  
 ARCHITECTURE  
 LANDSCAPE ARCHITECTURE

**C.T. MALE ASSOCIATES**

50 CENTURY HILL DRIVE, LATHAM, NY 12110  
 PHONE (518) 786-7400 FAX (518) 786-7299

**FIGURE 1: SITE LOCATION MAP**

**Phase 3A and Phase 3B Parcels  
 Cottage Place Gardens**

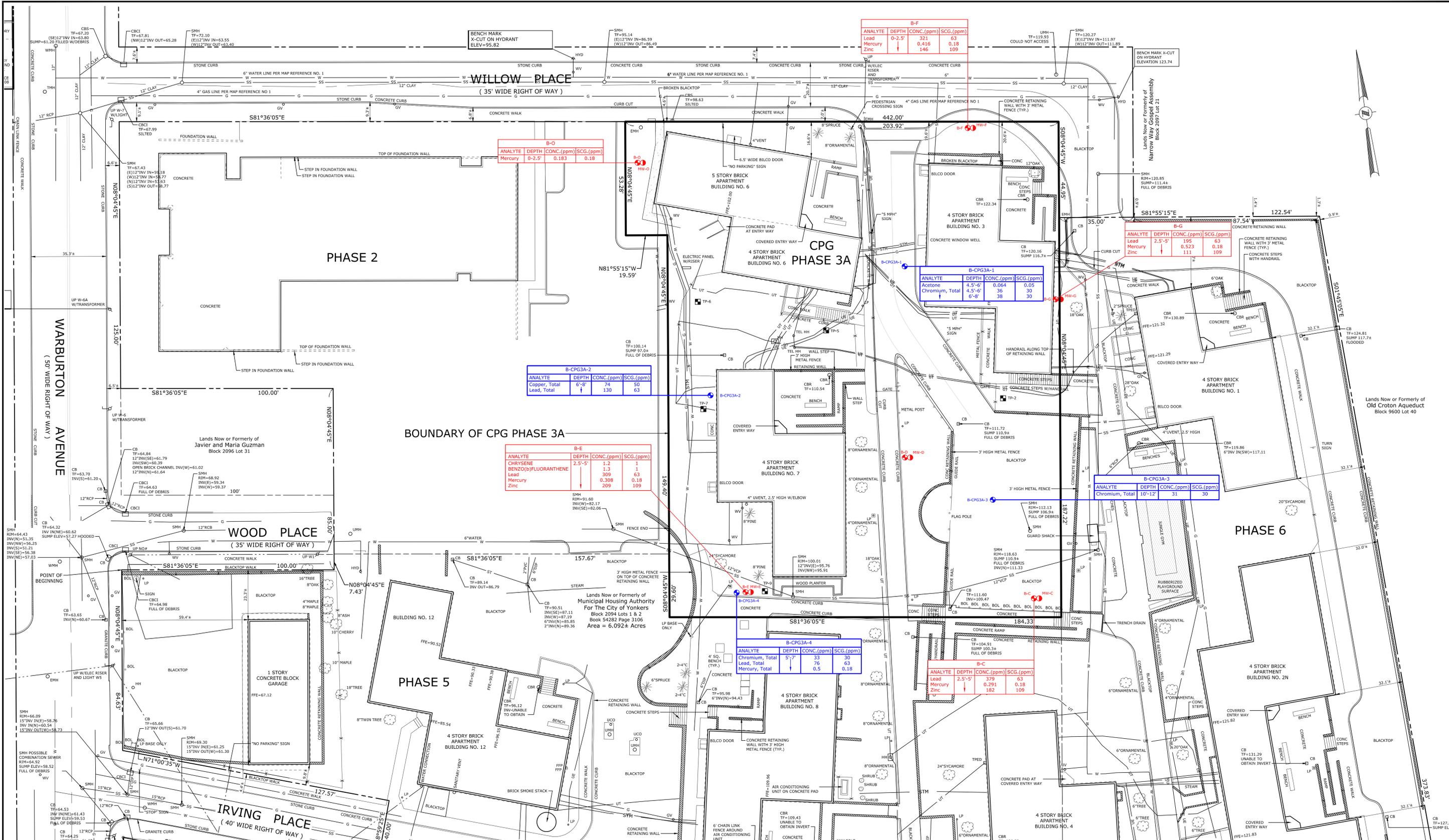
**CITY OF YONKERS**

**WESTCHESTER COUNTY, NY**

**SCALE: Not to Scale**

**DRAFTER: Bieber**

**PROJECT No. 15.5268**



- LEGEND**
- BOLL BOLLARD
  - CB CATCH BASIN
  - CBCTI CATCH BASIN CURB INLET
  - CBR CATCH BASIN ROUND
  - CO CLEANOUT
  - TREE CONIFEROUS TREE
  - TREE DECIDUOUS TREE
  - EMH ELECTRIC MANHOLE
  - FFE FINISHED FLOOR ELEVATION
  - RE+ ROOF ELEVATION
  - GV GAS VALVE
  - HH HAND HOLE
  - HYD HYDRANT
  - SMH SANITARY MANHOLE
  - TPED TELEPHONE PEDESTAL
  - UMH UNKNOWN MANHOLE TYPE
  - UP UTILITY POLE
  - WV WATER VALVE
  - T OVERHEAD TELEPHONE WIRES
  - UE UNDERGROUND ELECTRIC LINE MARKOUT
  - G UNDERGROUND GAS LINE MARKOUT
  - ST UNDERGROUND STEAM LINE
  - UT UNDERGROUND TELEPHONE LINE MARKOUT
  - W UNDERGROUND WATER LINE MARKOUT
  - SS UNDERGROUND SANITARY SEWER LINE MARKOUT
  - B-CPG3A-1 TO B-CPG3A-4
  - B-C, B-D, B-E, B-F, B-G, B-O
  - MW-C, MW-D, MW-E, MW-F, MW-G, MW-H
  - TP-2

**MAP REFERENCE:**

- "Boundary and Topographic Survey" Cottage Place, City of Yonkers, Westchester County, New York, Dated June 29, 2010. Prepared by Langan Engineers & Environmental Services.

APPROXIMATE LOCATION OF TEST BORINGS COMPLETED DURING THE REMEDIAL INVESTIGATION. SAMPLES COLLECTED OF NATIVE SOIL.

APPROXIMATE LOCATION OF TEST BORINGS COMPLETED DURING THE 2015 C.T. MALE PHASE II ESA. SAMPLES COLLECTED OF FILL/SOIL.

APPROXIMATE LOCATION OF MONITORING WELLS COMPLETED DURING THE 2015 C.T. MALE PHASE II ESA. TEST BORING AND MONITORING WELL SHOWN SIDE-BY-SIDE FOR VISUAL PURPOSES. THE TEST BORING WAS CONVERTED INTO A MONITORING WELL.

APPROXIMATE LOCATION OF TEST PIT COMPLETED DURING THE C.T. MALE GEOTECHNICAL EVALUATION.



DATE	REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.

**FIGURE 2**  
**ANALYTES IN SOIL AND FILL EXCEEDING SCGs**

**PHASE 3A PARCEL**  
**COTTAGE PLACE GARDENS**

CITY OF YONKERS WESTCHESTER COUNTY, NEW YORK

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APPROVED: J. MARX

DRAFTED: GLB

CHECKED: SB

PROJ. NO: 15.5268

SCALE: 1"=20'

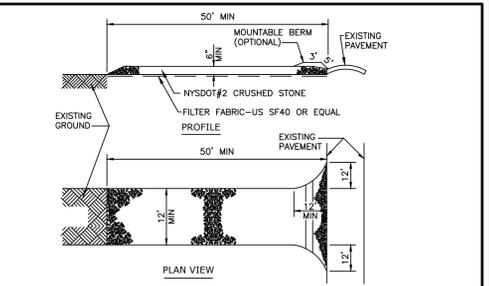
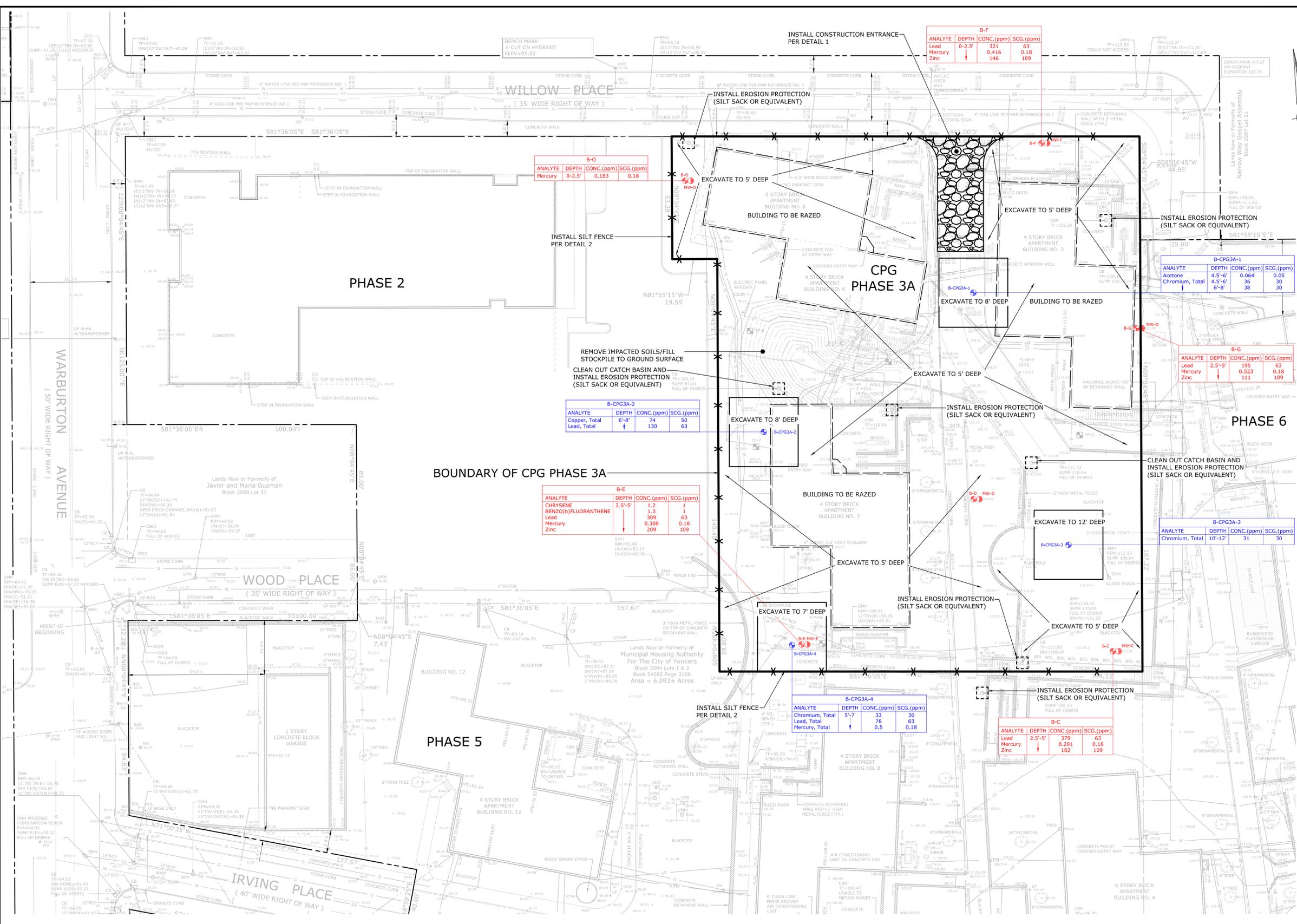
DATE: MARCH 1, 2017

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

**C.T. MALE ASSOCIATES**  
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.

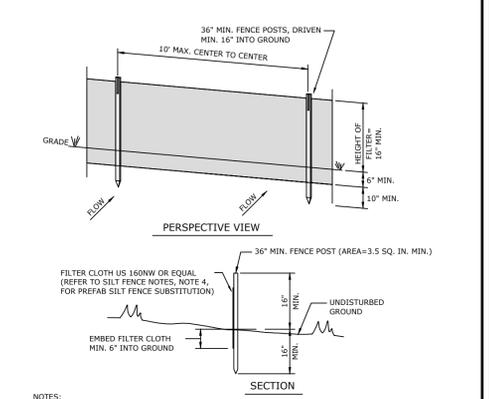
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SHEET 1 OF 2  
DWG. NO: 17-190



- NOTES:**
- USE 1"-4" STONE, OR RECLAIMED OR RECYCLED CONCRETE OR APPROVED EQUAL.
  - THE LENGTH SHALL NOT BE LESS THAN 50 FEET.
  - CRUSHED STONE SHALL BE MAINTAINED AT A MINIMUM OF 6" IN DEPTH.
  - ENTRANCE SHALL HAVE A 12 FOOT MINIMUM WIDTH, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. ENTRANCE SHALL BE AT LEAST 24 FEET WIDE IF SINGLE ENTRANCE TO SITE.
  - GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACING OF STONE.
  - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS NOT PRACTICAL, A MOUNTABLE BERM WITH 1:5 SLOPES WILL BE PERMITTED.
  - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
  - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

**1 STABILIZED CONSTRUCTION ENTRANCE DETAIL**  
 FIG 3 SCALE: NONE  
 CROSS REFERENCE: FIGURE 3



- NOTES:**
- FILTER CLOTH TO BE FASTENED SECURELY TO WOODEN STAKES
  - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIALS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
  - REFABRICATED SILT FENCE IS ACCEPTABLE AS LONG AS ALL MATERIAL SPECIFICATIONS ARE MET.

**2 STANDARD SILT FENCE DETAIL**  
 FIG 3 SCALE: NONE  
 CROSS REFERENCE: FIGURE 3

**LEGEND**

- MONITOR WELLS CONTAINING GROUNDWATER WILL BE ABANDONED PER DEC POLICY CP-43.
- APPROXIMATE LOCATION OF TEST BORINGS COMPLETED DURING THE REMEDIAL INVESTIGATION. SAMPLES COLLECTED OF NATIVE SOIL.
- APPROXIMATE LOCATION OF TEST BORINGS COMPLETED DURING THE 2015 C.T.MALE PHASE II ESA. SAMPLES COLLECTED OF FILL/SOIL.
- APPROXIMATE LOCATION OF MONITORING WELLS COMPLETED DURING THE 2015 C.T. MALE PHASE II ESA. TEST BORING AND MONITORING WELL SHOWN SIDE-BY-SIDE FOR VISUAL PURPOSES. THE TEST BORING WAS CONVERTED INTO A MONITORING WELL.
- APPROXIMATE LOCATION OF TEST PIT COMPLETED DURING THE C.T. MALE GEOTECHNICAL EVALUATION.

**MAP REFERENCE:**

- "Boundary and Topographic Survey" Cottage Place, City of Yonkers, Westchester County, New York, Dated June 29, 2010. Prepared by Langan Engineers & Environmental Services.

**MAP NOTES:**

- Construction entrance location is subject to change based on site use.
- Protect utility structures from damage during excavation.

**BAR SCALE**

1 inch = 20 ft.

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.

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 C.T. MALE ASSOCIATES

APPROVED: J. MARX

DRAFTED : GLB

CHECKED : SB

PROJ. NO : 15.5268

SCALE : 1"=20'

DATE : MARCH 1, 2017

**FIGURE 3**  
**REMEDIAL ACTION IMPLEMENTATION PLAN & DETAILS**

**PHASE 3A PARCEL**  
**COTTAGE PLACE GARDENS**

CITY OF YONKERS WESTCHESTER COUNTY, NEW YORK

**C.T. MALE ASSOCIATES**  
 Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.

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SHEET 2 OF 2  
 DWG. NO: 17-190

**APPENDIX B**

**TABLES**

**TABLE 1: SOIL SAMPLING ANALYTICAL SUMMARY  
REMEDIAL INVESTIGATION - PHASE 3A PARCEL  
COTTAGE PLACE GARDENS PHASE 3  
CITY OF YONKERS, WESTCHESTER COUNTY**

SAMPLE ID: LAB ID: COLLECTION DATE: SAMPLE DEPTH: SAMPLE MATRIX: Analyte	CAS #	6 NYCRR 375 UNRESTRICTED USE SCOs <sup>(1)</sup> (mg/kg)	B-CPG3A-1 (4.5-6')				B-CPG3A-1 (6-8')				B-CPG3A-1 (8-11.3')				B-CPG3A-2 (6-8')			
			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
<b>Volatile Organic Compounds</b>																		
1,4-Dichlorobenzene	106-46-7	1.8	ND		0.0054	0.00015	ND		0.0046	0.00013	0.00012	J	0.0043	0.00012	ND		0.005	0.00014
2-Butanone	78-93-3	0.12	0.001	J	0.011	0.0003	ND		0.0093	0.00025	ND		0.0086	0.00023	ND		0.01	0.00027
Acetone	67-64-1	0.05	<b>0.064</b>		0.011	0.0011	0.0044	J	0.0093	0.00096	0.003	J	0.0086	0.00089	0.0033	J	0.01	0.001
Methyl Acetate	79-20-9	No Standard	0.0087	J	0.022	0.00029	ND		0.019	0.00025	0.0016	J	0.017	0.00023	ND		0.02	0.00027
Total VOCs		No Standard	0.0737	-	-	-	0.0044	-	-	-	0.00472	-	-	-	0.0033	-	-	-
<b>Semi-Volatile Organic Compounds</b>																		
Anthracene	120-12-7	100	ND		0.11	0.035	ND		0.11	0.035	0.038	J	0.11	0.035	ND		0.11	0.035
Benzo(a)anthracene	56-55-3	1	ND		0.11	0.02	ND		0.11	0.02	0.08	J	0.11	0.02	0.021	J	0.11	0.02
Benzo(a)pyrene	50-32-8	1	ND		0.14	0.044	ND		0.14	0.044	0.062	J	0.14	0.043	ND		0.14	0.044
Benzo(b)fluoranthene	205-99-2	1	ND		0.11	0.03	ND		0.11	0.03	0.079	J	0.11	0.03	ND		0.11	0.031
Benzo(ghi)perylene	191-24-2	100	ND		0.14	0.021	ND		0.14	0.021	0.029	J	0.14	0.021	ND		0.14	0.021
Benzo(k)fluoranthene	207-08-9	0.8	ND		0.11	0.028	ND		0.11	0.029	0.028	J	0.11	0.028	ND		0.11	0.029
Chrysene	218-01-9	1	ND		0.11	0.018	ND		0.11	0.019	0.068	J	0.11	0.018	0.02	J	0.11	0.019
Fluoranthene	206-44-0	100	0.02	J	0.11	0.02	0.026	J	0.11	0.021	0.18		0.11	0.02	0.04	J	0.11	0.021
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	ND		0.14	0.025	ND		0.14	0.025	0.032	J	0.14	0.025	ND		0.14	0.025
Phenanthrene	85-01-8	100	ND		0.11	0.022	ND		0.11	0.022	0.1	J	0.11	0.022	0.04	J	0.11	0.022
Pyrene	129-00-0	100	0.018	J	0.11	0.018	0.021	J	0.11	0.018	0.15		0.11	0.018	0.037	J	0.11	0.018
Total SVOCs		No Standard	0.038	-	-	-	0.047	-	-	-	0.846	-	-	-	0.158	-	-	-
<b>Pesticides</b>																		
cis-Chlordane	5103-71-9	0.094	ND		0.00212	0.000589	ND		0.00214	0.000595	0.00133	(J)	0.00206	0.000574	ND		0.0021	0.000585
trans-Chlordane	5103-74-2	No Standard	ND		0.00212	0.000558	ND		0.00214	0.000564	0.00075	(J)	0.00206	0.000544	ND		0.0021	0.000554
Chlordane	57-74-9	No Standard	ND		0.0137	0.0056	ND		0.0139	0.00566	0.0151	(J)	0.0134	0.00546	ND		0.0136	0.00556
<b>PCBs (None Detected)</b>																		
<b>Metals &amp; Cyanide</b>																		
Aluminum, Total	7429-90-5	No Standard	12000		8.6	2.3	10000		8.8	2.4	7800		8.3	2.2	9700		8.7	2.4
Antimony, Total	7440-36-0	No Standard	0.8	(J)	4.3	0.33	0.74	(J)	4.4	0.33	0.53	(J)	4.1	0.32	0.97	(J)	4.4	0.33
Arsenic, Total	7440-38-2	13	1		0.86	0.18	1		0.88	0.18	0.82	J	0.83	0.17	3		0.87	0.18
Barium, Total	7440-39-3	350	55		0.86	0.15	35		0.88	0.15	30		0.83	0.14	73		0.87	0.15
Beryllium, Total	7440-41-7	7.2	0.24	J	0.43	0.03	0.23	J	0.44	0.03	0.16	J	0.41	0.03	0.26	J	0.44	0.03
Cadmium, Total	7440-43-9	2.5	ND		0.86	0.09	ND		0.88	0.09	ND		0.83	0.08	ND		0.87	0.09
Calcium, Total	7440-70-2	No Standard	970		8.6	3	1900		8.8	3.1	1600		8.3	2.9	4200		8.7	3
Chromium, Total	7440-47-3	30	<b>36</b>		0.86	0.08	<b>38</b>		0.88	0.08	21		0.83	0.08	25		0.87	0.08
Cobalt, Total	7440-48-4	No Standard	7.1		1.7	0.14	6		1.8	0.14	6.4		1.6	0.14	6.6		1.7	0.14
Copper, Total	7440-50-8	50	27		0.86	0.22	25		0.88	0.22	22		0.83	0.21	<b>74</b>		0.87	0.22
Iron, Total	7439-89-6	No Standard	14000	(J)	4.3	0.78	14000	(J)	4.4	0.79	12000	(J)	4.1	0.75	16000	(J)	4.4	0.79
Lead, Total	7439-92-1	63	2	J	4.3	0.23	1.8	J	4.4	0.23	2.3	J	4.1	0.22	<b>130</b>		4.4	0.23
Magnesium, Total	7439-95-4	No Standard	2600		8.6	1.3	2800		8.8	1.3	2500		8.3	1.3	4000		8.7	1.3
Manganese, Total	7439-96-5	1,600	230		0.86	0.14	170		0.88	0.14	200		0.83	0.13	270		0.87	0.14
Mercury, Total	7439-97-6	0.18	ND		0.07	0.02	ND		0.07	0.02	ND		0.07	0.02	0.14		0.07	0.02
Nickel, Total	7440-02-0	30	21		2.2	0.21	17		2.2	0.21	17		2.1	0.2	16		2.2	0.21
Potassium, Total	7440-09-7	No Standard	710		220	12	850		220	13	840		210	12	1600		220	12
Sodium, Total	7440-23-5	No Standard	230	(J)	170	2.7	280	(J)	180	2.8	290	(J)	160	2.6	130	(J)	170	2.8
Vanadium, Total	7440-62-2	No Standard	28		0.86	0.18	27		0.88	0.18	21		0.83	0.17	32		0.87	0.18
Zinc, Total	7440-66-6	109	17		4.3	0.25	16		4.4	0.26	16		4.1	0.24	84		4.4	0.26

(1) Soil Cleanup Objectives (SCOs) for Unrestricted Use Sites promulgated at 6 NYCRR Part 375.

ND denotes Non Detect.

Q denotes the laboratory's data qualifier.

RL denotes the laboratory's Reporting Limit.

MDL denotes the laboratory's Method Detection Limit.

J denotes an estimated value. (J) denotes an amendment made to the qualifier by the data validator. □

U denotes that the analyte was not detected. (U) denotes an amendment made to the qualifier by the data validator.

**TABLE 1: SOIL SAMPLING ANALYTICAL SUMMARY  
REMEDIAL INVESTIGATION - PHASE 3A PARCEL  
COTTAGE PLACE GARDENS PHASE 3  
CITY OF YONKERS, WESTCHESTER COUNTY**

SAMPLE ID: LAB ID: COLLECTION DATE: SAMPLE DEPTH: SAMPLE MATRIX: Analyte	CAS #	6 NYCRR 375 UNRESTRICTED USE SCOs <sup>(1)</sup> (mg/kg)	B-CPG3A-2 (8-10')				B-CPG3A-2 (10-14')				B-CPG3A-3 (6-8')				B-CPG3A-3 (10-12')			
			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
<b>Volatile Organic Compounds</b>																		
1,4-Dichlorobenzene	106-46-7	1.8	ND		0.0044	0.00012	ND		0.0042	0.00012	ND		0.0044	0.00012	ND		0.0048	0.00013
2-Butanone	78-93-3	0.12	ND		0.0088	0.00024	ND		0.0084	0.00023	ND		0.0089	0.00024	ND		0.0097	0.00026
Acetone	67-64-1	0.05	0.0061	J	0.0088	0.00091	ND		0.0084	0.00087	ND		0.0089	0.00092	ND		0.0097	0.001
Methyl Acetate	79-20-9	No Standard	0.0045	J	0.018	0.00024	0.0016	J	0.017	0.00023	0.0012	J	0.018	0.00024	0.0017	J	0.019	0.00026
Total VOCs		No Standard	0.0106	-	-	-	0.0016	-	-	-	0.0012	-	-	-	0.0017	-	-	-
<b>Semi-Volatile Organic Compounds</b>																		
Anthracene	120-12-7	100	ND		0.11	0.035	ND		0.11	0.035	ND		0.11	0.036	ND		0.11	0.035
Benzo(a)anthracene	56-55-3	1	ND		0.11	0.02	ND		0.11	0.02	ND		0.11	0.021	ND		0.11	0.02
Benzo(a)pyrene	50-32-8	1	ND		0.14	0.044	ND		0.14	0.044	ND		0.15	0.045	ND		0.14	0.043
Benzo(b)fluoranthene	205-99-2	1	ND		0.11	0.03	ND		0.11	0.03	ND		0.11	0.031	ND		0.11	0.03
Benzo(ghi)perylene	191-24-2	100	ND		0.14	0.021	ND		0.14	0.021	ND		0.15	0.022	ND		0.14	0.021
Benzo(k)fluoranthene	207-08-9	0.8	ND		0.11	0.029	ND		0.11	0.029	ND		0.11	0.03	ND		0.11	0.028
Chrysene	218-01-9	1	ND		0.11	0.019	ND		0.11	0.019	ND		0.11	0.019	ND		0.11	0.018
Fluoranthene	206-44-0	100	ND		0.11	0.021	ND		0.11	0.02	ND		0.11	0.021	ND		0.11	0.02
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	ND		0.14	0.025	ND		0.14	0.025	ND		0.15	0.026	ND		0.14	0.025
Phenanthrene	85-01-8	100	ND		0.11	0.022	ND		0.11	0.022	ND		0.11	0.022	ND		0.11	0.022
Pyrene	129-00-0	100	ND		0.11	0.018	ND		0.11	0.018	ND		0.11	0.018	ND		0.11	0.018
Total SVOCs		No Standard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Pesticides</b>																		
cis-Chlordane	5103-71-9	0.094	ND		0.00218	0.000607	ND		0.00214	0.000595	ND		0.00224	0.000624	ND		0.00213	0.000593
trans-Chlordane	5103-74-2	No Standard	ND		0.00218	0.000575	ND		0.00214	0.000564	ND		0.00224	0.000592	ND		0.00213	0.000562
Chlordane	57-74-9	No Standard	ND		0.0142	0.00577	ND		0.0139	0.00566	ND		0.0146	0.00594	ND		0.0138	0.00564
<b>PCBs (None Detected)</b>																		
<b>Metals &amp; Cyanide</b>																		
Aluminum, Total	7429-90-5	No Standard	9900		8.4	2.3	7600		8.5	2.3	9900		8.6	2.3	9100		8.4	2.3
Antimony, Total	7440-36-0	No Standard	1.9	(J)	4.2	0.32	0.54	(J)	4.2	0.32	ND	(J)	4.3	0.32	ND	(J)	4.2	0.32
Arsenic, Total	7440-38-2	13	1.6		0.84	0.17	1.1		0.85	0.18	3.1		0.86	0.18	1.8		0.84	0.17
Barium, Total	7440-39-3	350	56		0.84	0.14	26		0.85	0.15	30		0.86	0.15	27		0.84	0.14
Beryllium, Total	7440-41-7	7.2	0.22	J	0.42	0.03	0.19	J	0.42	0.03	0.32	J	0.43	0.03	0.23	J	0.42	0.03
Cadmium, Total	7440-43-9	2.5	ND		0.84	0.08	ND		0.85	0.08	0.3	J	0.86	0.08	ND		0.84	0.08
Calcium, Total	7440-70-2	No Standard	960		8.4	2.9	1400	(J)	8.5	3	1000		8.6	3	1600		8.4	2.9
Chromium, Total	7440-47-3	30	29		0.84	0.08	23		0.85	0.08	17		0.86	0.08	31		0.84	0.08
Cobalt, Total	7440-48-4	No Standard	7		1.7	0.14	6.3		1.7	0.14	4.8		1.7	0.14	7.8		1.7	0.14
Copper, Total	7440-50-8	50	24		0.84	0.22	22		0.85	0.22	13		0.86	0.22	26		0.84	0.22
Iron, Total	7439-89-6	No Standard	12000	(J)	4.2	0.76	12000	(J)	4.2	0.77	15000		4.3	0.77	13000	(J)	4.2	0.76
Lead, Total	7439-92-1	63	2.6	J	4.2	0.22	4.1	J	4.2	0.23	8.2		4.3	0.23	3.4	J	4.2	0.22
Magnesium, Total	7439-95-4	No Standard	2200		8.4	1.3	2500	(J)	8.5	1.3	2300		8.6	1.3	2600		8.4	1.3
Manganese, Total	7439-96-5	1,600	310		0.84	0.13	260		0.85	0.14	250		0.86	0.14	350		0.84	0.13
Mercury, Total	7439-97-6	0.18	ND		0.08	0.02	ND		0.08	0.02	0.03	J	0.09	0.02	ND		0.07	0.02
Nickel, Total	7440-02-0	30	19		2.1	0.2	18		2.1	0.21	11		2.1	0.21	18		2.1	0.2
Potassium, Total	7440-09-7	No Standard	670		210	12	620		210	12	370		210	12	490		210	12
Sodium, Total	7440-23-5	No Standard	120	(J)	170	2.6	170	(J)	170	2.7	260		170	2.7	210	(J)	170	2.6
Vanadium, Total	7440-62-2	No Standard	25		0.84	0.17	21		0.85	0.17	19		0.86	0.17	27		0.84	0.17
Zinc, Total	7440-66-6	109	16		4.2	0.24	17		4.2	0.25	56		4.3	0.25	17		4.2	0.24

(1) Soil Cleanup Objectives (SCOs) for Unrestricted Use Sites promulgated at 6 NYCRR Part 375.

ND denotes Non Detect.

Q denotes the laboratory's data qualifier.

RL denotes the laboratory's Reporting Limit.

MDL denotes the laboratory's Method Detection Limit.

J denotes an estimated value. (J) denotes an amendment made to the qualifier by the data validator. □

U denotes that the analyte was not detected. (U) denotes an amendment made to the qualifier by the data validator.

**TABLE 1: SOIL SAMPLING ANALYTICAL SUMMARY  
REMEDIAL INVESTIGATION - PHASE 3A PARCEL  
COTTAGE PLACE GARDENS PHASE 3  
CITY OF YONKERS, WESTCHESTER COUNTY**

SAMPLE ID: LAB ID: COLLECTION DATE: SAMPLE DEPTH: SAMPLE MATRIX: Analyte	CAS #	6 NYCRR 375 UNRESTRICTED USE SCOs <sup>(1)</sup> (mg/kg)	B-CPG3A-3 (14-16') L1700204-14 1/5/2017 14'-16' SOIL				B-CPG3A-4 (5-7') L1700204-15 1/5/2017 5'-7' SOIL				B-CPG3A-4 (13-14.9') L1700204-16 1/5/2017 13'-14.9' SOIL				B-CPG3A-4 (14.9-15.6') L1700204-17 1/5/2017 14.9'-15.6' SOIL			
			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
<b>Volatile Organic Compounds</b>																		
1,4-Dichlorobenzene	106-46-7	1.8	ND		0.0042	0.00011	ND		0.0048	0.00013	ND		0.0044	0.00012	ND		0.0045	0.00012
2-Butanone	78-93-3	0.12	0.0011	J	0.0083	0.00022	ND		0.0097	0.00026	ND		0.0087	0.00024	ND		0.0089	0.00024
Acetone	67-64-1	0.05	0.024		0.0083	0.00086	ND		0.0097	0.001	ND		0.0087	0.0009	0.008	J	0.0089	0.00093
Methyl Acetate	79-20-9	No Standard	0.0035	J	0.017	0.00022	0.00098	J	0.019	0.00026	0.0012	J	0.017	0.00024	0.0016	J	0.018	0.00024
Total VOCs		No Standard	0.0286	-	-	-	0.00098	-	-	-	0.0012	-	-	-	0.0096	-	-	-
<b>Semi-Volatile Organic Compounds</b>																		
Anthracene	120-12-7	100	ND		0.1	0.034	ND		0.11	0.036	ND		0.1	0.034	ND		0.1	0.034
Benzo(a)anthracene	56-55-3	1	ND		0.1	0.02	ND		0.11	0.021	ND		0.1	0.02	ND		0.1	0.02
Benzo(a)pyrene	50-32-8	1	ND		0.14	0.042	ND		0.15	0.045	ND		0.14	0.043	ND		0.14	0.042
Benzo(b)fluoranthene	205-99-2	1	ND		0.1	0.029	ND		0.11	0.031	ND		0.1	0.029	ND		0.1	0.029
Benzo(ghi)perylene	191-24-2	100	ND		0.14	0.02	ND		0.15	0.022	ND		0.14	0.02	ND		0.14	0.02
Benzo(k)fluoranthene	207-08-9	0.8	ND		0.1	0.028	ND		0.11	0.03	ND		0.1	0.028	ND		0.1	0.028
Chrysene	218-01-9	1	ND		0.1	0.018	ND		0.11	0.019	ND		0.1	0.018	ND		0.1	0.018
Fluoranthene	206-44-0	100	ND		0.1	0.02	ND		0.11	0.021	ND		0.1	0.02	ND		0.1	0.02
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	ND		0.14	0.024	ND		0.15	0.026	ND		0.14	0.024	ND		0.14	0.024
Phenanthrene	85-01-8	100	ND		0.1	0.021	ND		0.11	0.022	ND		0.1	0.021	ND		0.1	0.021
Pyrene	129-00-0	100	ND		0.1	0.017	ND		0.11	0.018	ND		0.1	0.017	ND		0.1	0.017
Total SVOCs		No Standard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Pesticides</b>																		
cis-Chlordane	5103-71-9	0.094	ND		0.00208	0.000581	ND		0.0022	0.000613	ND		0.00208	0.000581	ND		0.002	0.000558
trans-Chlordane	5103-74-2	No Standard	ND		0.00208	0.00055	ND		0.0022	0.000581	ND		0.00208	0.00055	ND		0.002	0.000528
Chlordane	57-74-9	No Standard	ND		0.0136	0.00552	ND		0.0143	0.00583	ND		0.0135	0.00552	ND		0.013	0.0053
<b>PCBs (None Detected)</b>																		
<b>Metals &amp; Cyanide</b>																		
Aluminum, Total	7429-90-5	No Standard	5000		8.2	2.2	9800		8.8	2.4	4200		8.5	2.3	8300		8.4	2.3
Antimony, Total	7440-36-0	No Standard	ND	(J)	4.1	0.31	ND	(J)	4.4	0.33	0.85	(J)	4.2	0.32	0.69	(J)	4.2	0.32
Arsenic, Total	7440-38-2	13	1.2		0.82	0.17	3.2		0.88	0.18	0.82	J	0.85	0.18	0.63	J	0.84	0.17
Barium, Total	7440-39-3	350	20		0.82	0.14	51		0.88	0.15	17		0.85	0.15	18		0.84	0.14
Beryllium, Total	7440-41-7	7.2	0.14	J	0.41	0.03	0.29	J	0.44	0.03	0.14	J	0.42	0.03	0.09	J	0.42	0.03
Cadmium, Total	7440-43-9	2.5	ND		0.82	0.08	ND		0.88	0.09	ND		0.85	0.08	ND		0.84	0.08
Calcium, Total	7440-70-2	No Standard	1300		8.2	2.9	1700		8.8	3.1	1800		8.5	3	4700		8.4	2.9
Chromium, Total	7440-47-3	30	12		0.82	0.08	33		0.88	0.08	12		0.85	0.08	26		0.84	0.08
Cobalt, Total	7440-48-4	No Standard	4.7		1.6	0.14	7.3		1.8	0.15	4.7		1.7	0.14	13		1.7	0.14
Copper, Total	7440-50-8	50	14		0.82	0.21	30		0.88	0.23	18		0.85	0.22	41		0.84	0.22
Iron, Total	7439-89-6	No Standard	8600	(J)	4.1	0.74	15000	(J)	4.4	0.8	8300	(J)	4.2	0.77	9600	(J)	4.2	0.76
Lead, Total	7439-92-1	63	2.4	J	4.1	0.22	76		4.4	0.24	1.9	J	4.2	0.23	1.5	J	4.2	0.22
Magnesium, Total	7439-95-4	No Standard	1800		8.2	1.3	2400		8.8	1.4	1700		8.5	1.3	2900		8.4	1.3
Manganese, Total	7439-96-5	1,600	230		0.82	0.13	360		0.88	0.14	200		0.85	0.14	150		0.84	0.13
Mercury, Total	7439-97-6	0.18	ND		0.07	0.01	0.5		0.08	0.02	ND		0.08	0.02	ND		0.09	0.02
Nickel, Total	7440-02-0	30	12		2	0.2	17		2.2	0.21	11		2.1	0.2	15		2.1	0.2
Potassium, Total	7440-09-7	No Standard	370		200	12	700		220	13	430		210	12	530		210	12
Sodium, Total	7440-23-5	No Standard	160	(J)	160	2.6	220	(J)	180	2.8	400	(J)	170	2.7	920	(J)	170	2.6
Vanadium, Total	7440-62-2	No Standard	14		0.82	0.17	28		0.88	0.18	13		0.85	0.17	24		0.84	0.17
Zinc, Total	7440-66-6	109	13		4.1	0.24	53		4.4	0.26	11		4.2	0.25	13		4.2	0.24

(1) Soil Cleanup Objectives (SCOs) for Unrestricted Use Sites promulgated at 6 NYCRR Part 375.

ND denotes Non Detect.

Q denotes the laboratory's data qualifier.

RL denotes the laboratory's Reporting Limit.

MDL denotes the laboratory's Method Detection Limit.

J denotes an estimated value. (J) denotes an amendment made to the qualifier by the data validator. □

U denotes that the analyte was not detected. (U) denotes an amendment made to the qualifier by the data validator.

**TABLE 2: SOIL/FILL SAMPLING ANALYTICAL SUMMARY**  
**2015 PHASE II ESA - PHASE 3A PARCEL**  
**COTTAGE PLACE GARDENS PHASE 3**  
**CITY OF YONKERS, WESTCHESTER COUNTY**

Data Not Validated

Field Sample ID			B-C (2.5'-5')	B-D (2.5'-5')	B-E (2.5'-5')	B-F (0-2.5')	B-G (2.5'-5')	B-O (0-2.5')
Lab Sample Number		6 NYCRR 375	F4955-03	F4955-04	F4984-01	F4984-02	F4984-03	F4994-01
Sampling Date		UNRESTRICTED	12/3/2014	12/3/2014	12/3/2014	12/3/2014	12/3/2014	12/5/2014
ANALYTE	CAS #	USE SCOs <sup>(1)</sup>	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
<b>Volatile Organic Compounds</b>								
Acetone	67-64-1	0.05	0.0324 J	0.0226 U	0.0252 U	0.0361 U	0.0278 U	0.0103 J
Methylene Chloride	75-09-2	0.05	0.0081	0.0020 J	0.0050 U	0.0041 J	0.0012 J	0.0026 J
<b>Semi-Volatile Organic Compounds</b>								
Phenol	108-95-2	0.33	0.0958 J	0.360 U	0.120 J	0.0766 J	0.370 U	0.380 U
Naphthalene	91-20-3	12	0.390 U	0.360 U	0.48	0.380 U	0.370 U	0.380 U
2-Methylnaphthalene	91-57-6	No Standard	0.390 U	0.360 U	0.260 J	0.380 U	0.370 U	0.380 U
Dimethylphthalate	131-11-3	No Standard	0.310 J	0.260 J	0.0757 J	0.0938 J	0.150 J	0.110 J
Acenaphthylene	208-96-8	100	0.390 U	0.360 U	0.37	0.190 J	0.370 U	0.380 U
Acenaphthene	83-32-9	20	0.390 U	0.360 U	0.370 U	0.110 J	0.370 U	0.380 U
Dibenzofuran	132-64-9	7	0.390 U	0.360 U	0.45	0.380 U	0.370 U	0.380 U
Fluorene	86-73-7	30	0.390 U	0.360 U	0.230 J	0.110 J	0.370 U	0.380 U
Phenanthrene	85-01-8	100	0.390 U	0.360 U	3.90 D	0.92	0.230 J	0.380 U
Anthracene	120-12-7	100	0.390 U	0.360 U	0.120 J	0.250 J	0.370 U	0.380 U
Carbazole	86-74-8	No Standard	0.390 U	0.360 U	0.44	0.100 J	0.370 U	0.380 U
Fluoranthene	206-44-0	100	0.110 J	0.360 U	3.20 D	1.1	0.41	0.380 U
Pyrene	129-00-0	100	0.110 J	0.360 U	2.1	1.1	0.4	0.380 U
Benzo(a)anthracene	56-55-3	1	0.390 U	0.360 U	0.88	0.63	0.230 J	0.380 U
Chrysene	218-01-9	1	0.390 U	0.360 U	1.2	0.55	0.220 J	0.380 U
Bis(2-ethylhexyl)phthalate	117-81-7	No Standard	0.390 U	0.360 U	0.370 U	0.130 J	0.370 U	0.380 U
Benzo(b)fluoranthene	205-99-2	1	0.390 U	0.360 U	1.3	0.79	0.240 J	0.380 U
Benzo(k)fluoranthene	207-08-9	0.8	0.390 U	0.360 U	0.57	0.170 J	0.370 U	0.380 U
Benzo(a)pyrene	50-32-8	1	0.390 U	0.360 U	0.81	0.58	0.220 J	0.380 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.390 U	0.360 U	0.45	0.330 J	0.110 J	0.380 U
Dibenzo(a,h)anthracene	53-70-3	0.33	0.390 U	0.360 U	0.140 J	0.0877 J	0.370 U	0.380 U
Benzo(g,h,i)perylene	191-24-2	100	0.390 U	0.360 U	0.42	0.42	0.130 J	0.380 U

**TABLE 2: SOIL/FILL SAMPLING ANALYTICAL SUMMARY**  
**2015 PHASE II ESA - PHASE 3A PARCEL**  
**COTTAGE PLACE GARDENS PHASE 3**  
**CITY OF YONKERS, WESTCHESTER COUNTY**

Data Not Validated

Field Sample ID			B-C (2.5'-5')	B-D (2.5'-5')	B-E (2.5'-5')	B-F (0-2.5')	B-G (2.5'-5')	B-O (0-2.5')
Lab Sample Number		6 NYCRR 375	F4955-03	F4955-04	F4984-01	F4984-02	F4984-03	F4994-01
Sampling Date		UNRESTRICTED	12/3/2014	12/3/2014	12/3/2014	12/3/2014	12/3/2014	12/5/2014
ANALYTE	CAS #	USE SCOs <sup>(1)</sup>	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Pesticides (None Detected)	CAS #							
PCBs (None Detected)	CAS #							
Metals & Cyanide	CAS #							
Aluminum	7429-90-5	No Standard	7030	9260	9380	6810	7400	13500
Antimony	7440-36-0	No Standard	2.53 U	2.34 U	2.40 U	2.33 U	0.857 J	2.43 U
Arsenic	7440-38-2	13	3.96	1.59	2.44	3.55	5.07	2.7
Barium	7440-39-3	350	131	40.4	100	102	65.3	56.4
Beryllium	7440-41-7	7.2	0.291 J	0.336	0.355	0.348	0.416	0.537
Calcium	7440-70-2	No Standard	36600	1120	6570	2200	19000	2110
Chromium	7440-47-3	30	18.8	23.4	27.5	14.4	17.5	19
Cobalt	7440-48-4	No Standard	5.97	8.1	8.86	6.24	6.09	8.84
Copper	7440-50-8	50	25.7	19.5	27.2	22.8	18.2	5.85
Iron	7439-89-6	No Standard	11100	14200	16300	12100	23300	21100
Lead	7439-92-1	63	<b>379</b>	26.7	<b>309</b>	<b>321</b>	<b>195</b>	30.2
Magnesium	7439-95-4	No Standard	6730	3920	2800	2030	2040	2730
Manganese	7439-96-5	1,600	327	282	341	256	230	311
Mercury	7439-97-6	0.18	<b>0.291</b>	0.03	<b>0.308</b>	<b>0.416</b>	<b>0.523</b>	<b>0.183</b>
Nickel	7440-02-0	30	16.6	25.3	20	12.9	13.2	13.1
Potassium	7440-09-7	No Standard	763	688	872	440	515	540
Selenium	7782-49-2	3.9	0.510 J	0.386 J	0.518 J	0.461 J	0.744 J	0.821 J
Sodium	7440-23-5	No Standard	275	141	196	118	175	133
Vanadium	7440-62-2	No Standard	18.1	20.9	21.4	18.9	16.8	25.4
Zinc	7440-66-6	109	<b>182</b>	24.7	<b>209</b>	<b>146</b>	<b>111</b>	67.8
Cyanide	57-12-5	27	0.192 J	0.0720 J	0.128 J	0.218 J	0.121 J	0.121 J

Qualifiers and Notes

(1) NYSDEC 6 NYCRR PART 375 Environmental Remediation Programs, Subpart 375-6, Dated December 14, 2006

Concentrations denoted in mg/kg or parts per million (ppm)

U indicates that the compound was analyzed but not detected

J indicates and estimated value

Analytical results in bold and highlighted have exceeded their respective SCO

## 375-6.8

**Soil cleanup objective tables.**

(a) Unrestricted use soil cleanup objectives.

**Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives**

<b>Contaminant</b>	<b>CAS Number</b>	<b>Unrestricted Use</b>
<b>Metals</b>		
Arsenic	7440-38-2	13 <sup>c</sup>
Barium	7440-39-3	350 <sup>c</sup>
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 <sup>c</sup>
Chromium, hexavalent <sup>e</sup>	18540-29-9	1 <sup>b</sup>
Chromium, trivalent <sup>e</sup>	16065-83-1	30 <sup>c</sup>
Copper	7440-50-8	50
Total Cyanide <sup>e, f</sup>		27
Lead	7439-92-1	63 <sup>c</sup>
Manganese	7439-96-5	1600 <sup>c</sup>
Total Mercury		0.18 <sup>c</sup>
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9 <sup>c</sup>
Silver	7440-22-4	2
Zinc	7440-66-6	109 <sup>c</sup>
<b>PCBs/Pesticides</b>		
2,4,5-TP Acid (Silvex) <sup>f</sup>	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 <sup>b</sup>
4,4'-DDT	50-29-3	0.0033 <sup>b</sup>
4,4'-DDD	72-54-8	0.0033 <sup>b</sup>
Aldrin	309-00-2	0.005 <sup>c</sup>
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094

**Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives**

<b>Contaminant</b>	<b>CAS Number</b>	<b>Unrestricted Use</b>
delta-BHC <sup>g</sup>	319-86-8	0.04
Dibenzofuran <sup>f</sup>	132-64-9	7
Dieldrin	60-57-1	0.005 <sup>c</sup>
Endosulfan I <sup>d, f</sup>	959-98-8	2.4
Endosulfan II <sup>d, f</sup>	33213-65-9	2.4
Endosulfan sulfate <sup>d, f</sup>	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
<b>Semivolatile organic compounds</b>		
Acenaphthene	83-32-9	20
Acenaphthylene <sup>f</sup>	208-96-8	100 <sup>a</sup>
Anthracene <sup>f</sup>	120-12-7	100 <sup>a</sup>
Benz(a)anthracene <sup>f</sup>	56-55-3	1 <sup>c</sup>
Benzo(a)pyrene	50-32-8	1 <sup>c</sup>
Benzo(b)fluoranthene <sup>f</sup>	205-99-2	1 <sup>c</sup>
Benzo(g,h,i)perylene <sup>f</sup>	191-24-2	100
Benzo(k)fluoranthene <sup>f</sup>	207-08-9	0.8 <sup>c</sup>
Chrysene <sup>f</sup>	218-01-9	1 <sup>c</sup>
Dibenz(a,h)anthracene <sup>f</sup>	53-70-3	0.33 <sup>b</sup>
Fluoranthene <sup>f</sup>	206-44-0	100 <sup>a</sup>
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene <sup>f</sup>	193-39-5	0.5 <sup>c</sup>
m-Cresol <sup>f</sup>	108-39-4	0.33 <sup>b</sup>
Naphthalene <sup>f</sup>	91-20-3	12
o-Cresol <sup>f</sup>	95-48-7	0.33 <sup>b</sup>

**Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives**

<b>Contaminant</b>	<b>CAS Number</b>	<b>Unrestricted Use</b>
p-Cresol <sup>f</sup>	106-44-5	0.33 <sup>b</sup>
Pentachlorophenol	87-86-5	0.8 <sup>b</sup>
Phenanthrene <sup>f</sup>	85-01-8	100
Phenol	108-95-2	0.33 <sup>b</sup>
Pyrene <sup>f</sup>	129-00-0	100
<b>Volatile organic compounds</b>		
1,1,1-Trichloroethane <sup>f</sup>	71-55-6	0.68
1,1-Dichloroethane <sup>f</sup>	75-34-3	0.27
1,1-Dichloroethene <sup>f</sup>	75-35-4	0.33
1,2-Dichlorobenzene <sup>f</sup>	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 <sup>c</sup>
cis -1,2-Dichloroethene <sup>f</sup>	156-59-2	0.25
trans-1,2-Dichloroethene <sup>f</sup>	156-60-5	0.19
1,3-Dichlorobenzene <sup>f</sup>	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 <sup>b</sup>
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene <sup>f</sup>	104-51-8	12
Carbon tetrachloride <sup>f</sup>	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene <sup>f</sup>	100-41-4	1
Hexachlorobenzene <sup>f</sup>	118-74-1	0.33 <sup>b</sup>
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether <sup>f</sup>	1634-04-4	0.93
Methylene chloride	75-09-2	0.05

**Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives**

Contaminant	CAS Number	Unrestricted Use
n - Propylbenzene <sup>f</sup>	103-65-1	3.9
sec-Butylbenzene <sup>f</sup>	135-98-8	11
tert-Butylbenzene <sup>f</sup>	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene <sup>f</sup>	95-63-6	3.6
1,3,5-Trimethylbenzene <sup>f</sup>	108-67-8	8.4
Vinyl chloride <sup>f</sup>	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

All soil cleanup objectives (SCOs) are in parts per million (ppm).

**Footnotes**

<sup>a</sup> The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See [Technical Support Document \(TSD\)](#), section 9.3.

<sup>b</sup> For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

<sup>c</sup> For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

<sup>d</sup> SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

<sup>e</sup> The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

<sup>f</sup> Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with “NS”. Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

(b) Restricted use soil cleanup objectives.

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
<b>Metals</b>							
Arsenic	7440-38-2	16 <sup>f</sup>	16 <sup>f</sup>	16 <sup>f</sup>	16 <sup>f</sup>	13 <sup>f</sup>	16 <sup>f</sup>
Barium	7440-39-3	350 <sup>f</sup>	400	400	10,000 <sup>d</sup>	433	820
Beryllium	7440-41-7	14	72	590	2,700	10	47
Cadmium	7440-43-9	2.5 <sup>f</sup>	4.3	9.3	60	4	7.5
Chromium, hexavalent <sup>h</sup>	18540-29-9	22	110	400	800	1 <sup>e</sup>	19
Chromium, trivalent <sup>h</sup>	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50-8	270	270	270	10,000 <sup>d</sup>	50	1,720
Total Cyanide <sup>h</sup>		27	27	27	10,000 <sup>d</sup>	NS	40
Lead	7439-92-1	400	400	1,000	3,900	63 <sup>f</sup>	450
Manganese	7439-96-5	2,000 <sup>f</sup>	2,000 <sup>f</sup>	10,000 <sup>d</sup>	10,000 <sup>d</sup>	1600 <sup>f</sup>	2,000 <sup>f</sup>
Total Mercury		0.81 <sup>j</sup>	0.81 <sup>j</sup>	2.8 <sup>j</sup>	5.7 <sup>j</sup>	0.18 <sup>f</sup>	0.73
Nickel	7440-02-0	140	310	310	10,000 <sup>d</sup>	30	130
Selenium	7782-49-2	36	180	1,500	6,800	3.9 <sup>f</sup>	4 <sup>f</sup>
Silver	7440-22-4	36	180	1,500	6,800	2	8.3
Zinc	7440-66-6	2200	10,000 <sup>d</sup>	10,000 <sup>d</sup>	10,000 <sup>d</sup>	109 <sup>f</sup>	2,480
<b>PCBs/Pesticides</b>							
2,4,5-TP Acid (Silvex)	93-72-1	58	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 <sup>e</sup>	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 <sup>e</sup>	136
4,4'-DDD	72-54-8	2.6	13	92	180	0.0033 <sup>e</sup>	14
Aldrin	309-00-2	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	319-84-6	0.097	0.48	3.4	6.8	0.04 <sup>g</sup>	0.02
beta-BHC	319-85-7	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	5103-71-9	0.91	4.2	24	47	1.3	2.9

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
delta-BHC	319-86-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	0.04 <sup>g</sup>	0.25
Dibenzofuran	132-64-9	14	59	350	1,000 <sup>c</sup>	NS	210
Dieldrin	60-57-1	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	959-98-8	4.8 <sup>i</sup>	24 <sup>i</sup>	200 <sup>i</sup>	920 <sup>i</sup>	NS	102
Endosulfan II	33213-65-9	4.8 <sup>i</sup>	24 <sup>i</sup>	200 <sup>i</sup>	920 <sup>i</sup>	NS	102
Endosulfan sulfate	1031-07-8	4.8 <sup>i</sup>	24 <sup>i</sup>	200 <sup>i</sup>	920 <sup>i</sup>	NS	1,000 <sup>c</sup>
Endrin	72-20-8	2.2	11	89	410	0.014	0.06
Heptachlor	76-44-8	0.42	2.1	15	29	0.14	0.38
Lindane	58-89-9	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	1336-36-3	1	1	1	25	1	3.2
<b>Semivolatiles</b>							
Acenaphthene	83-32-9	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	20	98
Acenaphthylene	208-96-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	107
Anthracene	120-12-7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1,000 <sup>c</sup>
Benz(a)anthracene	56-55-3	1 <sup>f</sup>	1 <sup>f</sup>	5.6	11	NS	1 <sup>f</sup>
Benzo(a)pyrene	50-32-8	1 <sup>f</sup>	1 <sup>f</sup>	1 <sup>f</sup>	1.1	2.6	22
Benzo(b)fluoranthene	205-99-2	1 <sup>f</sup>	1 <sup>f</sup>	5.6	11	NS	1.7
Benzo(g,h,i)perylene	191-24-2	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1,000 <sup>c</sup>
Benzo(k)fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1 <sup>f</sup>	3.9	56	110	NS	1 <sup>f</sup>
Dibenz(a,h)anthracene	53-70-3	0.33 <sup>e</sup>	0.33 <sup>e</sup>	0.56	1.1	NS	1,000 <sup>c</sup>
Fluoranthene	206-44-0	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1,000 <sup>c</sup>
Fluorene	86-73-7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	30	386
Indeno(1,2,3-cd)pyrene	193-39-5	0.5 <sup>f</sup>	0.5 <sup>f</sup>	5.6	11	NS	8.2
m-Cresol	108-39-4	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.33 <sup>e</sup>
Naphthalene	91-20-3	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	12

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
o-Cresol	95-48-7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.33 <sup>e</sup>
p-Cresol	106-44-5	34	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.33 <sup>e</sup>
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8 <sup>e</sup>	0.8 <sup>e</sup>
Phenanthrene	85-01-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1,000 <sup>c</sup>
Phenol	108-95-2	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	30	0.33 <sup>e</sup>
Pyrene	129-00-0	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1,000 <sup>c</sup>
<b>Volatiles</b>							
1,1,1-Trichloroethane	71-55-6	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.33
1,2-Dichlorobenzene	95-50-1	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02 <sup>f</sup>
cis-1,2-Dichloroethene	156-59-2	59	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.19
1,3-Dichlorobenzene	541-73-1	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	106-46-7	9.8	13	130	250	20	1.8
1,4-Dioxane	123-91-1	9.8	13	130	250	0.1 <sup>e</sup>	0.1 <sup>e</sup>
Acetone	67-64-1	100 <sup>a</sup>	100 <sup>b</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	40	1.1
Chloroform	67-66-3	10	49	350	700	12	0.37
Ethylbenzene	100-41-4	30	41	390	780	NS	1
Hexachlorobenzene	118-74-1	0.33 <sup>e</sup>	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	100 <sup>a</sup>	0.12

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Methyl tert-butyl ether	1634-04-4	62	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	0.93
Methylene chloride	75-09-2	51	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	12	0.05
n-Propylbenzene	103-65-1	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	3.9
sec-Butylbenzene	135-98-8	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	11
tert-Butylbenzene	98-06-6	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	36	0.7
Trichloroethene	79-01-6	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	95-63-6	47	52	190	380	NS	3.6
1,3,5- Trimethylbenzene	108-67-8	47	52	190	380	NS	8.4
Vinyl chloride	75-01-4	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	1330-20-7	100 <sup>a</sup>	100 <sup>a</sup>	500 <sup>b</sup>	1,000 <sup>c</sup>	0.26	1.6

All soil cleanup objectives (SCOs) are in parts per million (ppm).

NS=Not specified. See [Technical Support Document \(TSD\)](#).

**Footnotes**

<sup>a</sup> The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

<sup>b</sup> The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

<sup>c</sup> The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

<sup>d</sup> The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

<sup>e</sup> For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

<sup>f</sup> For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

<sup>g</sup> This SCO is derived from data on mixed isomers of BHC.

<sup>h</sup> The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

<sup>i</sup> This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

<sup>j</sup> This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

**APPENDIX C**  
**GENERIC AND SPECIAL REQUIREMENTS CAMP**

**Appendix 1A**  
**New York State Department of Health**  
**Generic Community Air Monitoring Plan**

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

**Continuous monitoring** will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

**Periodic monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. **Periodic** monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

### VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

### Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter ( $\text{mcg}/\text{m}^3$ ) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed  $150 \text{ mcg}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \text{ mcg}/\text{m}^3$  above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \text{ mcg}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

## **SPECIAL REQUIREMENTS COMMUNITY AIR MONITORING PROGRAM**

### **Special Requirements for Work within 20 feet of Potentially Exposed Individuals or Structures**

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are likely to be lower, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m<sup>3</sup>, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m<sup>3</sup> or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary for each site.

### **Special Requirements for Indoor Work with Co-Located Residences or Facilities**

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential

vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evening) when building occupancy is at a minimum.