REMEDIAL ACTION WORK PLAN

Prepared for the

Beacon Terminal Site

NYSDEC Brownfield Program Site: C314117

Located at

555 South Avenue
City of Beacon
Dutchess County, New York

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CERTIFICATION

I Jolanda G. Jansen certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

1/7/2014

NYS Professional Engineer #068972-1 Date Signature/Stamp

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LIST OF ACRONYMS

AST	Aboveground storage tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
Bsg	below surface grade
BTA	Beacon Terminal Associates, LLP
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
COC	Certificate of Completion
CPP	Citizen Participation Plan
DSHM	Division of Solid & Hazardous Materials
ESCP	Erosion and Sedimentation Control Plan
ECL	Environmental Conservation Law
ECs	Engineering Controls
FER	Final Engineering Report
HASP	Health and Safety Plan
ICs	Institutional Controls
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOL	New York State Department of Labor
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbons
PBS	Petroleum Bulk Storage
PCBs	Polychlorinated Biphenyls
PID	Photoionization detector
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RE	Remedial Engineer
RI	Remedial Investigation
RIR	Remedial Investigation Report
RRUSCOs	Restricted Residential Use Soil Cleanup Objectives
SAP	Sampling and Analysis Plan
SCOs	Soil Cleanup Objectives
SEQRA	State Environmental Quality Review Act
SMP	Site Management Plan
SoMP	Soil/Materials Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-slab Depressurization System
SVOCs	Semi-volatile Organic Compounds
SWPPP	Stormwater Pollution Prevention Plan
TAL Metals	Target Analyte List Metals
TCE	Trichloroethene
TCL	Target Compound List
QHHEA	Qualitative Human Health Exposure Assessment
UST	Underground Storage Tank
UUSCOs	Unrestricted Use Soil Cleanup Objectives
VOCs	Volatile Organic Compounds

Executive Summary

SITE LOCATION AND DESCRIPTION

The Site consists of an 11.07-acre parcel located in the City of Beacon, Dutchess County, New York, which adjoins and occupies Fishkill Creek, approximately 2,000 feet east of the Hudson River. The property is presently improved with several vacant industrial buildings, paved parking areas and roadways, with peripheral areas of undeveloped woodland. A walking path (Fisherman's Trail) extends along the southern margin near the watercourse. A Site Location Map and a Tax Map are provided as Figure 1 and Figure 2, and an Existing Site Features Map is provided as Figure 3, in Appendix A.

SITE HISTORY

The Site has a long history of known industrial use and is the former location of a hat works, fiber-reclamation business and several facilities handling and/or manufacturing chemical products. On-site buildings have been vacant since 1995. Beacon Terminal Associates, LLP (BTA) entered into a Brownfield Cleanup Agreement (BCA) with NYSDEC as a Volunteer on June 1, 2007 (Site ID: C314117).

SUMMARY OF REMEDIAL INVESTIGATION

Ecosystems Strategies, Inc. (ESI) conducted a limited subsurface investigation in the vicinity of former underground storage tanks (USTs) in 1996, which documented the presence of contamination by toluene and other volatile organic compounds (VOCs). The Site was subsequently enrolled under the Voluntary Cleanup Program (Site #V00443-3) and five USTs, several aboveground storage tanks (ASTs) and containerized materials were removed in 2000 (under the supervision of a different environmental consulting firm). Post-excavation sampling documented continuing impacts from toluene in deeper soils in the vicinity of the former USTs. Excavated soils were stockpiled on-site pending disposal; sampling of the stockpile in 2002 documented an absence of VOC contamination and the material was later relocated to the northwestern portion of the Site in 2005.

The following fieldwork was performed by ESI during the Remedial Investigation (RI) from 2008 to 2011, to document Site integrity and delineate known impacted areas:

- Extension of 24 test pits and 38 soil borings;
- Collection of soil samples from test pits, borings and from twenty 20 surface locations;
- Completion of 3 borings as additional permanent monitoring wells (to supplement existing monitoring wells), and 3 rounds of groundwater sampling;
- Soil vapor sampling at 14 interior and 2 exterior locations; and,
- Collection of 2 sediment samples and 2 water samples from Fishkill Creek.

The RI documents the presence of contaminants above Restricted Residential Use Soil Cleanup Objectives (RRUSCOs); areas with significant impacts from prior industrial uses, however, are generally restricted to well-defined portions of the Site.

The primary compound of concern is toluene, which is present at high levels beneath the sub-slab of building B-5B and in subsurface soils at the northwest corner of the Site (lower levels of toluene are present beneath the northwest corner of building B-5A and the northeast corner of building B-5B). Elevated concentrations of metals and PCBs were also detected in near-surface soils located to the southwest of building B-7, in the vicinity of Fisherman's Trail. An elevated concentration of trichloroethene (TCE) was detected in soil gas beneath building B-7 (low levels of VOCs were detected in soil gas at sampling locations throughout the Site). Low-level contamination by polycyclic aromatic hydrocarbons (PAHs) and metals is documented in surface and subsurface soils throughout the Site, with limited hot-spots in surface and near-surface soil.

Documented Site contamination has not significantly impacted groundwater, or the surface water or sediment of the Fishkill Creek.

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The NYSDEC and NYSDOH have determined that contamination at the Site does not represent a significant threat to the public. Areas of significant surface and near-surface soil contamination, which are not covered by buildings and/or pavement, are limited in areal extent, and heavy vegetation covers surface soils in the area near the walking trails. These conditions are likely to minimize exposure to contaminants in surface soils, although acute exposure may exist if surface soils were to be uncovered. Contaminated subsurface soils are also present at well-defined portions of the Site; there are, however, no ongoing exposures to these contaminants. Groundwater, and surface water and sediment in the Fishkill Creek, do not contain contaminants at levels likely to represent a health risk.

Direct contact and/or inhalation of contaminated soils, soil vapors or dust generated during future soil excavation are the most likely exposure pathways. Ingestion of contaminated media is another possible exposure pathway (ingestion of contaminated water is not a reasonable route of exposure as the Site is served by the public water supply). On-site workers (or trespassers) present during future remediation and/or development activities are the most likely receptor population, through dermal contact with soil or groundwater during such activities. The implementation of a Health and Safety Plan (incorporating a Community Health and Safety Plan), and Community Air-Monitoring Plan, will mitigate possible impacts to any potential receptor populations. Any Site-specific remedial designs that involve soil disturbance will be monitored, and mitigation plans to address potential dust generation and increased contaminant migration will be implemented.

Removal of significantly contaminated soil, installation of a barrier soil layer and the use of engineering controls to mitigate contaminated soil vapor at this Site will prevent migration of the contamination from the soil and protect groundwater. Low-level residual contamination remaining in Site soils is likely to be relatively non-mobile and will be physically sequestered from surface areas.

SUMMARY OF REMEDY

The proposed remedy is a Track 4 (Restricted Residential Use) cleanup consisting of the following elements:

- Excavation of accessible soils or other materials known or suspected to be contaminant source areas, which have resulted in on-site contamination by toluene, PCBs, PAHs, and/or metals at concentrations above RRUSCOs;
- Confirmatory endpoint sampling to document the integrity of remaining soils in excavation areas;
- Characterization and appropriate off-site disposal of all contaminated and/or regulated excavated material, in accordance with all Federal, State, and local rules and regulations for handling, transport and disposal;
- Back-filling excavated areas (as required) with certified clean fill soils;
- Importation and placement of a protective cover layer of certified clean fill overlying a demarcation layer in areas of remaining contamination not covered with new structures.
- Installation of a sub-slab depressurization system (SSDS) where proposed on-site structures will overlie or be in close proximity to toluene impacted soils or areas of known TCE soil vapor impacts;
- Post-remediation monitoring to document acceptable groundwater quality;
- Implementation of a Site Management Plan to manage and document the integrity of the soil cover, and to ensure proper operation and maintenance of the SSDS and/or any other Engineering Controls required for completion of the remedial activities and the long-term management of any residual contamination, including all operation, maintenance and monitoring plans.; and,
- Imposition of Institutional Controls (a deed restriction) to restrict future use of the site.

All responsibilities associated with the Remedial Action, including permitting requirements, will be addressed in accordance with all applicable Federal, State, and local rules and regulations.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

Beacon Terminal Associates (BTA) has entered into a Brownfield Cleanup Agreement (BCA) with NYSDEC to investigate and remediate an 11.07-acre property located at 555 South Avenue, City of Beacon, Dutchess County, New York. BTA has entered into the Brownfield Cleanup Program (BCP) as a Volunteer. The application to enroll the site under the BCP was submitted on November 28, 2006 and accepted on December 12, 2006. The BCA for the site was executed on June 1, 2007. Residential use is proposed for the property. When completed, the Site is proposed to consist of 19 buildings, with a total of 159 residential units and a clubhouse.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the RI and documented in the Remedial Investigation Report (RIR), and presents the design elements for the selected remedy as identified in the Remedial Alternative Analysis (RAA). The remedy described in this document is consistent with the procedures defined in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), complies with all applicable standards, criteria and guidance, and complies with all applicable Federal, State, and local laws, regulations and requirements.

The RI for this Site included a partial Fish and Wildlife Impact Analysis (FWIA), which identified specific resources requiring mitigation measures. This RAWP describes precautions to be taken during remediation that will avoid impacting threatened plant species and will prevent disturbance to the banks of the Fishkill Creek.

1.1 Site Location and Description

The Site consists of 11.07 acres located in the City of Beacon, Dutchess County, New York (tax parcel: Section 5954, Block 16, Lot 751258). The Site is located adjacent to the northern edge of Fishkill Creek (the southeast corner of the Site includes a portion of the creek and the southern bank), approximately 2,000 feet east of the Hudson River, and has overall southerly slopes towards the watercourse. The northwest portion of the site slopes towards the west and adjacent lands. Those adjacent lands slope towards the waters of the Fishkill Creek. The surrounding area is comprised primarily of residential, recreational and vacant properties. Madam Brett Park adjoins the property to the east and west. A Site Location Map and Tax Map are provided as Figure 1 and Figure 2 in Appendix A.

The Site is presently improved with eight vacant industrial buildings (B-1, B-2, B-3, B-4, B-5 [A and B], B-6, B-7, and B-8) formerly used for various manufacturing and warehousing purposes. These buildings occupy approximately fifty percent of the Site; the remainder of the property includes paved parking areas, paved drives, and undeveloped grassland and woodlands. An Existing Site Features Map is provided as Figure 3 in Appendix A.

1.2 Site History

The Site has a long history of known industrial use. A Site sketch and description, obtained from the Beacon Historical Society, depicts three buildings (now buildings B-1 and B-2), originally constructed in 1878 as the Tioranda Hat Works. Building B-1 is described as an engine room and boiler house, and building B-2 is described as the main factory, housing felting, dyeing, carding and wool sorting operations. Review of historic Sanborn Fire Insurance Maps indicates that the Tioranda Hat Works was present until at least 1919. Three of the present-day buildings (B-1, B-2, and B-4) were on-site at that time, with dyeing operations in the portions of buildings B-2 and B-4 most proximal to Fishkill Creek. Sanborn maps depict on-site hat-works facilities until at least 1946. The complex (comprising all buildings currently on Site) is called "Beacon Terminal" by 1962. Six of the buildings are depicted as used by the Atlas Fiber Company, a fiber reclaimer, one building (B-5A and B-5B) is occupied by Chemical Rubber Products, Inc. and one building (B-7) is occupied by BASF Colors & Chemicals. From approximately 1972 to 1995, the buildings were used for storage by various occupants. The buildings have remained vacant since 1995.

1.3 Contemplated Redevelopment Plan

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment.

The proposed redevelopment is anticipated to include construction of 18 new buildings (townhouses, duplex and triplex units) with associated roadways and parking areas, and partial redevelopment of existing building B-2. No below grade residential units are proposed. A Proposed Site Plan is provided as Figure 4 in Appendix A.

The new buildings and paved areas, which will cover approximately 90% of the Site, will serve as a protective barrier layer over any residual on-site contamination (paved areas will be constructed with a minimum one-foot thick sub-base of certified clean fill). Buildings will be constructed, as necessary, to prevent entry of VOC-containing soil vapors. The remaining areas of the Site will contain peripheral landscaping, with pedestrian trails and forested areas along the western and southern margins of the property. A two-foot thick layer of certified clean fill will be placed in this portion of the Site, over any soils containing residual contamination above RRUSCOs.

Site redevelopment plans have not been finalized as of the date of this RAWP. Full details of the soil cover system will be submitted to NYSDEC in a separate Soil Cover Plan, which will include:

1. A figure showing the aerial extent of all building footprints, paved areas, landscaping, pedestrian trials, forested areas and all areas not receiving the two-foot layer of clean fill.
2. A sampling plan to demonstrate that areas not receiving the two-foot layer of clean fill meet RRUSCOs.

Given the use of these mitigation measures, no exposures to residual contamination are likely to occur after Site development.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

Environmental investigations and remedial activities at the Site have been conducted by various consultants from the mid-1990s to the present. Data from these historical investigations, together with data generated during the RIR, document the on-Site presence of organic and inorganic contaminants at concentrations above RRUSCOs, including toluene, PCBs, metals and PAHs in soils, and VOCs in soil gas. Site groundwater has not been significantly impacted (groundwater is not currently used at the Site) and no significant contamination was encountered in the surface-water or sediment of Fishkill Creek.

The RIR was approved by the NYSDEC in March 2013. A summary of the findings of the RIR is provided below.

2.1 Summary of Remedial Investigations

Prior to the fieldwork described in the RIR, historical investigative work had been conducted at the Site to evaluate impacts resulting from historic storage of petroleum products and other chemicals. Four USTs used for the storage of toluene are likely to have been installed in the early 1950s, when building B-5A was constructed. Six ASTs used for the storage of lubricating oil and acids, and at least ten USTs used for the storage of fuel oil, toluene, and other chemicals were documented on the Site in 1993. Neither these tanks nor their closures appear to have been properly documented. In addition, storage drums of varying sizes were found at a number of interior locations.

Two test pits were excavated west of the parking area and east of the City of Beacon sewer line in August 1995; laboratory results, however, are not available.

ESI conducted a limited subsurface investigation in the vicinity of the toluene USTs (now removed, see below) in 1996. Ten borings were completed to depths ranging from 7 feet below surface grade (bsg) to 11 feet bsg. Elevated concentrations of VOCs (benzene, toluene and xylene) were detected in soil samples and a spill event was reported to NYSDEC (#9600893, currently closed).

Work conducted at the Site in October 2000, as part of the Voluntary Cleanup Program (Site #V00443-3) included the removal of the four toluene USTs located just beyond the northern wall of building B-5A, at the junction with building B-5B. Post-excavation inspections documented water with a product sheen and numerous small holes in the tanks, and a second spill event was reported to NYSDEC (#0008142, currently closed). Post-excavation soil sampling documented elevated levels of toluene in sixteen of twenty-four confirmatory samples (levels ranging from 3,220 to 326,000 ppb). The majority of the samples with elevated toluene levels (ten of sixteen) were drawn from the bottom of the excavation, suggesting deep penetration of the contaminant. Soils from the excavation of the toluene USTs were stockpiled on-site on the parking area located to the west of building B-7.

All ASTs (with the exception of the four chemical holding tanks located in building B-2) were cleaned and removed from the Site, miscellaneous containerized liquids and solids were

repackaged and removed, and a 550-gallon UST was removed from the western side of building B-5B. The UST was reported to be full of water, with no observed sheen or odor. Post-excavation sampling did not reveal detectable organic compounds. However, somewhat elevated metals were found in this area (lead at 470 ppm).

The stockpiled soils (from the removal of the toluene USTs) were sampled in May 2001 and found to contain elevated levels of toluene, with concentrations ranging from non-detect to 2,020,000 ppb. Subsequent stockpile sampling, in October 2002, did not find detectable levels of toluene or other organic compounds, indicating the volatization of toluene over time. The stockpile was relocated in 2005 to the northwestern corner of the Site, following a NYSDEC-approved work plan (soil was placed in a trench on top of geotextile fabric and then covered by a demarcation layer and a minimum of 24 inches of clean cover soil).

Staining was observed to the east of building B-2 in June 2009, just outside of a former loading dock. Subsequent investigations determined that this staining resulted from water contaminated with transformer oil, which ran over the ground surface (asphalt and bare soil). Booms and absorbent pads were utilized to prevent further migration of the oil from the area, and the transformer was covered to prevent further releases (water was entering from the leaking roof). A spill was reported to the NYSDEC by ESI (#0904692) and an additional spill was reported by a concerned citizen (#0904705).

No PCBs were detected in the transformer oil. Impacted water and oil from the transformer and inside the building, and all visually impacted material (soil and asphalt) were disposed of off-Site, and residual oil staining inside of the building was cleaned. Clean end points were obtained in the soil excavation area and both spill files were subsequently closed by NYSDEC.

These historical investigations and remedial activities provided a partial representation of Site conditions. The environmental investigation documented in the RIR was performed in order to provide comprehensive documentation of Site integrity by:

- Documenting the extent of impacts to on-Site media (soil, groundwater, soil vapor, surface water and sediment), including the potential for movement of contaminants onto adjoining or nearby properties; and,
- Providing guidance on the need for and the extent of warranted response actions to address identified environmental conditions.

The following fieldwork was performed during the RI from 2008 to 2011 in order to document Site integrity and delineate known impacted areas:

- Extension of 24 test pits and 38 soil borings;
- Collection of soil samples from test pits, borings and from twenty 20 surface locations;
- Completion of 3 borings as additional permanent monitoring wells (to supplement existing monitoring wells), and 3 rounds of groundwater sampling;
- Soil vapor sampling at 14 interior and 2 exterior locations; and,
- Collection of 2 sediment samples and 2 water samples from Fishkill Creek.

Significantly elevated concentrations of toluene were found at the northwestern portion of the Site, in the vicinity of the abandoned rail spur and tree line. Low concentrations of toluene (at or below guidance levels) were detected in subsurface soils beneath the northwest corner of building B-5A and the northeast corner of building B-5B.

Elevated concentrations of PCBs and metals were found at the southwest corner of the Site, primarily in the areas where degraded fabric was observed at both sides of the Fisherman's Trail, suggesting that impacted soils could extend off-site. In addition, an elevated concentration of lead was detected southwest of building B-5B.

Elevated levels of PAHs were detected in surface soils throughout the Site and in subsurface soils in and near the area of the macadam parking lot. Low levels of pesticides (below guidance levels) were detected in surface soils throughout the Site. An elevated concentration of TCE was detected in soil gas in the vicinity of building B-7.

Site groundwater has not been significantly impacted by on-site soil contamination. No significant contamination was encountered in the surface-water or sediment of Fishkill Creek.

These findings support the conclusion that former commercial and industrial uses have impacted Site soils; areas with significantly elevated contaminant levels, however, are generally restricted to well-defined portions of the Site.

2.2 Significant Threat

The NYSDEC and the NYSDOH have determined that this Site does not pose a significant threat to the environment or to public health.

2.3 Site Geology and Topographic Features

The Site is located in an area with overall gentle to moderate downward slopes to the south, toward Fishkill Creek, except for the northwest quadrant, which slopes towards the westerly property line. Elevations range from approximately 20 feet to 50 feet throughout most of the Site, with the bulk of the buildings and pavement between elevations 30 and 40 feet, and with steeper downward slopes along the western and southern margins. The western edge of the Site includes the banks of Fishkill Creek, and a portion of the waterway and far shoreline. A Survey Map depicting Site topography is provided as Figure 5 in Appendix A.

State maps indicate that soils at the Site consist of lacustrine silt and clay deposits, and outwash sand and gravel, overlying sandstone and shale. The local soil survey indicates that the Nassau-Cardigan Complex and the Knickerbocker fine sandy loam soil types are located on the Site. The Nassau series consists of shallow, somewhat excessively drained soils formed in till. The Cardigan series consists of moderately deep, well drained soils formed in till or colluvium. These soils are underlain by folded interbedded phyllite, slate, shale and schist. The Knickerbocker series consists of very deep, well drained and somewhat excessively drained soils formed in sandy glacio-fluvial deposits.

Subsurface soils encountered in soil borings at the northeastern portion of the Site generally consisted of brown clay with gravel and fragments of brick (fill) underlain by moist to wet grey silty clay. Subsurface soils in the western portion of the Site generally consisted of brown and grey-brown silty clay with sand. The western portion of the Site (west of the parking lot) contains variable fill materials to depths of up to 5 feet bsg, including construction debris (e.g., concrete blocks, bricks, scrap metal, wood fragments, etc.), fabric (likely from former Site activities), and miscellaneous trash. Bedrock (weathered shale) was encountered at depths ranging from 3 to 25 feet bsg.

The southeastern corner of the Site is submerged under the Fishkill Creek and the remaining southern property border adjoins Fishkill Creek. Fishkill Creek is mapped as a federal wetland. No other wet areas or mapped wetlands are present at the Site. The mouth of Fishkill Creek at the Hudson River, located west of the Site, is mapped as both a federal and a state wetland.

2.4 Site Hydrology

Monitoring wells are located on the northern (upland) portion of the Site (MW-01, MW-03, 2MW-04, 2MW-05, and 2MW-06), directly north of Fishkill Creek in the lowland portion of the Site (MW-02) and near the northwestern corner of the Site in an area of relative shallow bedrock (MW-03). Depth to groundwater has been documented during several groundwater monitoring events in 2008 and 2009. Gauging data from June 2009 shows depth to groundwater ranging from approximately 7 to 20 feet bsg at the northern upland monitoring wells and at approximately 4 feet bsg near MW-02. MW-03 was dry during the last two monitoring events. The overall direction of groundwater flow is in a southern direction, towards Fishkill Creek. A Groundwater Flow Map is provided as Figure 6 in Appendix A.

2.5 Contamination Conditions

Fieldwork Maps and Data tables summarizing the findings of the RI are presented in Appendices A and B, respectively.

2.5.1 Soil

Significant VOC contamination is limited to elevated concentrations of toluene to the northwest of building B-7, west of the abandoned railroad spur. The areal extent of contamination extends primarily along the abandoned spur and from 10 to 30 feet into the wooded area located on the northwest corner of the Site. Toluene impacts generally extend to approximately 3 feet bsg in the south (near 2B-01C) and from 2 to 13 feet bsg in the north along the abandoned rail spur.

Elevated levels of PCBs and metals were detected in soil samples collected from several test pits on the southwestern side of the Site (east of the sewer easement), and in surface soil sample 4SS-2, located at the extreme southwestern corner of the Site. The proximity of 4SS-2 to the western property boundary raises the potential that soils containing elevated PCBs and metals extend off-site. Elevated contaminant levels were limited to areas where degraded fabric (presumably from historic on-site fabric reclamation activities) was observed, and contaminated

soil is generally limited to the surface and near surface (0-2 feet). Debris and intermixed soils are proximal to the publically accessible walking path.

Low-level exceedances of RRUSCOs for SVOCs and metals were detected in surface soils located throughout the Site, consistent with the historic use of the Site for industrial purposes. The majority of the eastern portion of the Site is covered with buildings, roadways and/or asphalt parking areas limiting access to contaminated soils. Generally, surface soils across the Site will be disturbed during demolition and construction; however, plans will be implemented (health and safety, community air monitoring, stormwater protection, erosion control, etc.) to protect construction workers and the environment during construction activities. Subsequent to re-development, a majority of these soils will be covered with buildings, drives, and parking areas, or will be covered by a protective barrier layer of imported clean soil.

Detected concentrations of toluene, and analyte concentrations above RRUSCOs for total PCBs and individual metals and SVOCs, are presented on Figures 7 through 10 in Appendix A.

2.5.2 Groundwater

No significant groundwater contamination was detected on-site. Although elevated concentrations of total metals have been documented, concentrations of dissolved metals are generally non-detect, and SVOCs are only detected in trace amounts. No VOCs or PCBs have been detected in groundwater. These findings support the conclusion that groundwater flow is not likely to have a significant impact in the horizontal and vertical movement of contamination throughout the Site.

2.5.3 Soil Gas

Low-level VOCs were detected in soil gas throughout the Site. With the exception of elevated concentrations TCE detected beneath the northern portion of building B-7, which is potentially associated with a source area, these trace to low-level VOC concentrations are consistent with general impacts from historic use of the Site for industrial purposes. Detected concentrations of TCE in soil gas are presented on Figure 11 in Appendix A.

2.5.4 Sediment

Low levels of metals and PCBs have been documented in the sediment samples from both on-site and upstream locations. These contaminant concentrations are not indicative of significant contamination.

2.5.5 Surface Water

A slightly elevated level of aluminum, unlikely to be related to Site contamination, was detected in surface water. No other significant contaminants were detected in surface water.

2.6 Qualitative Human Health Exposure Assessment (QHHEA)

An exposure assessment was conducted to qualitatively assess the potential impacts of known Site contaminants on human health. Potential exposure pathways (i.e. ingestion, inhalation and direct contact) were considered for both current (existing conditions) and future use (proposed multi-unit residential and/or commercial development) scenarios.

The primary contaminant present in Site soils is toluene, located in subsurface soils beneath the sub-slab of building B-5B and at the northwest corner of the Site. In addition, PAHs, metals and PCBs have been detected at the Site, primarily in surface and near-surface soils.

Low-level impacts have been detected in soil gas, groundwater and sediment. No significant contamination was detected in surface water. All potential exposure pathways for each media were identified in the current and future scenario.

In conjunction with construction activities, remedial activities will take place at the Site in order to address soil contamination. Remedial activities are expected to remove and reduce contamination at the Site (see Section 4.0, below). Trespassers, construction workers, remediation personnel and users of adjoining properties are likely the receptor populations.

Soil

Contaminated soils are a potential source of concern during development activities. Site clearing, soil excavation and removal, and soil grading activities are the most likely release and transport mechanism for contaminants. Inhalation of dust and direct contact with soils, are the likely routes of exposure. The implementation of a Health and Safety Plan (HASP, incorporating a Community Health and Safety Plan), and a Community Air Monitoring Plan (CAMP) will mitigate possible impacts to the on-site and off-site receptor populations. In addition, security fencing and signage will discourage site access to trespassers. Any development activity that involves soil disturbance will require monitoring and mitigation plans to address potential dust generation and contaminant migration.

The potential exist for low-level contamination in soil to remain on-site after development activities. Access to low-level contamination in surface soils will be limited by building footprints, by paved areas with a sub-base of clean fill, and by a barrier layer of at least two feet of soil (in specified areas). No potential exposure pathways through direct contact or ingestion for low-level contamination in subsurface soils are anticipated, as subsurface soils will not be disturbed following remediation and construction.

Groundwater

Direct contact with on-site groundwater during construction excavation and periodic sampling is a potential route of exposure for receptor populations. During Site development activities, groundwater exposure will be controlled by strict health and safety protocols. No current use of groundwater exits and no future uses are proposed.

Soil Gas

Inhalation is the most likely route of exposure for receptor populations. The implementation of a HASP and CAMP will mitigate possible impacts to the on-site and off-site receptor populations.

The potential exist for low-level VOC contamination in soil to remain on-site after development activities. Inhalation of soil vapors is a potential route of exposure for receptor populations (on-site workers, users and users of adjoining properties). A SSDS is proposed for selected new on-site structures in order to remove any accumulating vapors.

Sediments

Ingestion and direct contact are the most likely routes of exposure to low-level TAL metals and PCB contamination in sediments along the Fishkill Creek. Receptor populations could come into contact with sediments if they come into contact with off-shore sediment during recreational activities (any such exposures is likely to be both limited and transient). No significant migration of contaminants into sediments, or significant disturbance of sediments, is anticipated during either the current or future scenarios.

Surface Water

No significant contamination is present in surface water. No significant migration of contaminants into surface water is expected during either the current or future scenarios.

2.7 Interim Remedial Actions

Remediation of a spill event reported at an on-site transformer was conducted in 2009; no other interim remedial actions have occurred at the Site since implementation of the RI. Several USTs and waste materials were removed, and toluene contaminated soil was excavated and stockpiled, prior to the RI (see Section 2.1, above).

2.8 Remedial Action Objectives

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site.

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.
- Prevent off-site migration of contaminated groundwater.

Soil

RAOs for Public Health Protection

- Prevent inhalation, ingestion or direct contact with contaminated soil or dust.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in impacts to groundwater or surface water, or that would impact non-contaminated areas.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

- Prevent inhalation of or exposure to contaminated vapors.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in air contamination (movement of contaminated vapors into the air due to on-site soil excavation).
- Prevent impacts to biota due to inhalation of, or exposure to, contaminated vapors.
- Prevent off-site migration of contaminated soil vapor.

Sediments

RAOs for Public Health Protection

- Prevent ingestion or direct contact with contaminated sediments.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated sediment that would cause toxicity or bioaccumulation through the food chain.

Surface Water

RAOs for Public Health Protection

- Prevent ingestion or direct contact with surface water runoff, or temporary ponded surface water, encountered during remediation and construction activities.

RAOs for Environmental Protection

- Prevent surface water runoff during remediation and construction activities from entering Fishkill Creek.

3.0 REMEDIAL ACTION PROGRAM

3.1 Governing Documents

All remedial work performed under this plan will be in full compliance with the governing documents described in this section of the RAWP.

3.1.1 Site Specific Health and Safety Plan (HASP)

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. The Volunteer and associated parties preparing the remedial documents submitted to the State, and those performing the construction work, are completely responsible for the preparation of an appropriate HASP and for the appropriate performance of work according to that plan and applicable laws.

The site-specific HASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion (COC). A copy of the HASP is provided as Appendix B of this report.

The site-specific HASP will be reviewed with Site personnel and appropriate sub-contractors prior to the initiation of fieldwork. All proposed work will be performed in “Level D” personal protective equipment unless field condition warrant additional protection.

The Site Safety Coordinator for environmental matters will be Paul H. Ciminello. A resume is included in Appendix E.

Confined space entry, if required, will comply with all OSHA requirements, including addressing the potential risk posed by combustible and toxic gasses.

3.1.2 Quality Assurance Project Plan (QAPP)

A QAPP, detailing procedures necessary to generate data of sufficient quality and quantity to represent successful performance of the Remedial Action at the Site, has been provided as Appendix D of this report. The QAPP includes a Sampling and Analysis Plan (SAP), detailing sampling and analysis of all media (endpoint samples, waste characterization samples, fill and soil cover samples, etc.), and which identifies methods for sample collection and handling.

3.1.3 Soil/Materials Management Plan (SoMP)

Contaminated soils will be removed from the Site. Soil will be removed following the soil/materials management plan (SoMP) provided in Section 4.5 of this RAWP. The SoMP includes provisions for: screening by a qualified individual; stockpiling prior to removal from the Site; excavation and load out; materials transport and off-site disposal; soil reuse on-site; fluids management; demarcation of any remaining contaminated material; importation of clean fill for

on-site use; stormwater control; managing unknown conditions; managing odors and dust, nuisance control; and, implementing air monitoring.

3.1.4 Stormwater Pollution Prevention Plan (SWPPP)

The Volunteer is responsible for ensuring that a storm water pollution prevention plan (SWPPP) will be prepared for the Site prior to demolition and soil removal activities. The plan will accommodate the construction sequencing and staging areas. The erosion and sediment controls will be in conformance with requirements presented in The New York Standard and Specifications for Erosion and Sediment Control, and will specifically address the issue of properly protecting the Fishkill Creek. The SWPPP is described further in Section 4.4.10.

3.1.5 Community Air Monitoring Plan (CAMP)

The NYSDOH Generic CAMP (provided in Appendix C) will be initiated during all ground intrusive activities, and during any other fieldwork that is reasonably likely to generate significant dust or vapors. The implementation of the CAMP will document the presence or absence of VOCs and dust in the air surrounding the work zone, which may migrate off-site due to fieldwork activities. This plan provides guidance on the need for implementing more stringent dust and emission controls based on air quality data.

Mitigation measures may include reducing the surface area of contaminated soil being disturbed at one time, watering exposed soils to reduce fugitive dust and odors, or stopping excavation activities. Dust suppression activities will be conducted during construction activities that will disturb on-site soils and may include misting, reduction in soil movement, or cessation of excavation.

3.1.6 Contractors Site Operations Plan

The Remedial Engineer (RE) has reviewed all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and confirms that they are in compliance with this RAWP. The RE is responsible to ensure that all later document submittals for this remedial project, including contractor and sub-contractor site operation plans and/or other document submittals are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

3.1.7 Community Participation Plan

A Citizen Participation Plan (CPP) including an overview of the BCP program, background of the Site, a summary of the investigative findings for the Site, and citizen participation activities is included as Appendix F.

A certification of mailing will be sent by the Volunteer to the NYSDEC Project Manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients

(contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to the approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

Document repositories have been established at the following locations and contain all applicable project documents:

Howland Public Library
313 Main Street
City of Beacon, New York 12508
(845)-831-1134

NYSDEC - Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1620
(845) 256-3154

3.2 General Remedial Construction Information

3.2.1 Project Organization

Resumes of key personnel involved in the Remedial Action are included in Appendix E.

3.2.2 Key Personnel

3.2.2.1 Remedial Engineer

The Remedial Engineer for this project will be Jolanda G. Jansen, P.E. of Jansen Engineering, PLLC. The RE is a registered professional engineer licensed by the State of New York and will have primary direct responsibility for implementation of the remedial program for the Beacon Terminal Site (NYSDEC BCA Index No. W2-1123-08-09, Site No. C314117). The RE will certify in the Final Engineering Report (FER) that the remedial activities were observed by qualified environmental professionals under the supervision of the RE, and that the remediation requirements set forth in the RAWP, the SWPPP and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other RE certification requirements are listed later in this RAWP.

The RE will coordinate the schedule and services of remedial subcontractors only. Remedial services include: contaminated soil excavation, stockpiling, characterization, removal and disposal; endpoint sampling of remaining soils; air monitoring; emergency spill response services; management of waste transport and disposal; in-situ treatment of groundwater; import of clean back fill material; installation of a vapor barrier; and, implementation of a SMP (as needed) for remaining Site controls after the certificate of completion is issued. The RE will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The RE will review all plans submitted by contractors for compliance with this RAWP and will certify compliance in the FER. The RE will provide the certifications listed in Section 9.1 in the FER.

3.2.2.2 Qualified Environmental Professional

The Qualified Environmental Professional (QEP) for this project will be Paul Ciminello. The QEP will oversee environmental remedial activities on the Site, document the proper removal of contaminated soils, collect waste characterization as well as site integrity samples, inspect and certify the proper importation of approval fill sols, and assist the Remedial Engineer in the preparation of documents including the FER, the SMP, and periodic status reports.

3.2.3 Remedial Action Construction Schedule

A schedule for the performance of remedial work is provided in Section 7 of this RAWP.

3.2.4 Work Hours

Remedial work will be conducted between the hours of 7 AM and 5 PM Monday through Friday. No remedial work will be conducted on the weekend (Saturday or Sunday) unless expressly permitted by NYSDEC. Construction activities not related to site remediation may occur on weekends and holidays.

3.2.5 Site Security

The Site will be secured at a minimum with a six foot fence and locking gates to protect the public during all construction activities.

3.2.6 Traffic Control

Traffic control will be provided by the contractor during equipment entrance and egress from the Site. Trucks will follow the approved truck route in Section 4.5.4.

3.2.7 Contingency Plan

If unknown conditions are encountered on-site during sub-grade removal (e.g., discovery of a previously unidentified UST), the Contingency Plan (provided in Section 4.6) and all applicable NYSDEC guidelines will be followed to address the condition(s).

3.2.8 Worker Training and Monitoring

The Volunteer is responsible for insuring that all Site contractors provide their workers with applicable training (i.e. HAZWOPER, site safety training and medical monitoring, as necessary).

3.2.9 Agency Approvals

The Volunteer has addressed all State Environmental Quality Review Act (SEQRA) requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site will be in conformance with City of Beacon zoning requirements for the property. A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

3.2.10 NYSDEC BCP Signage

A project sign will be erected at the main entrance to the Site prior to the start of any remedial activities. The sign will indicate that the project is being performed under the New York State Brownfield Cleanup Program. The sign will meet the detailed specifications provided by the NYSDEC Project Manager.

3.2.11 Pre-Construction Meeting with NYSDEC

A pre-construction meeting among NYSDEC, the Volunteer, ESI, the RE and the designated Contractor will take place prior to the start of major construction activities.

3.2.12 Emergency Contact Information

An emergency contact list with names and telephone numbers that will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency is provided below.

Table: Emergency Contact Information

Emergency Contact	Phone Number
EMERGENCY	**911**
St. Luke's Hospital, 70 Dubois Street, Newburgh	(845) 561-4400
Beacon Police Department	(845) 831-4111 or 911
Beacon Fire Department	(845) 569-7415 or 911
Beacon City Hall	(845) 838-5000
Beacon City Water/Sewer	(845) 834-5008
Beacon Water and Sewer Maintenance Department	(845) 831-3136
Site Health and Safety Officer, Paul Ciminello, ESI	(845) 452-1658
Remedial Engineer, Jolanda G. Jansen, PE	(845) 505-0324
NYSDEC Project Manager, Parag Amin	(518) 402-9662
NYSDOH Project Manager, Anthony Perretta	(518) 402-7880
Construction Manager	TBD

3.2.13 Remedial Action Costs

The total estimated cost of the Remedial Action is $2,664,263 (Track 4). An itemized and detailed summary of estimated costs for all remedial activities is provided in Appendix G. This will be revised based on actual costs and submitted as an Appendix to the Final Engineering Report.

3.3 Site Preparation

3.3.1 Mobilization

Site mobilization will be conducted in a manner such that erosion and sedimentation control, utility marker and easement layout, and other site preparation tasks are fully instituted before construction begins.

3.3.2 Erosion and Sedimentation Controls

This section describes preventative measures that will be taken to protect the Site and adjacent property from soil erosion and sedimentation during remedial activities. A preliminary Erosion and Sedimentation Control Plan (ESCP) developed for the Site is provided in Appendix H. An updated final ESCP, reflecting final Site development plans and any approved modifications to the scope of remedial work, will be submitted to the NYSDEC for review and approval prior to the start of construction activities.

The final ESCP will include the following elements:

- A location map including the proximity of the Site to relevant off-site features;
- An Existing Conditions Site Plan;
- A grading plan and construction timetable including finished elevations and addressing the sequencing of the project; and,
- The location and type of all erosion and sediment control measures (e.g., silt fence, hay bale checks, stabilized construction entrance, etc.) and sequencing of the measures, if needed.

No remedial work will occur in the bed of the Fishkill Creek or on the sloping bank immediately surrounding the watercourse; excavation, however, occurring in areas south of Fisherman's Trail will be close to the banks of the Fishkill Creek. The ESCP describes control measures and restoration activities to protect Fishkill Creek, discusses specific measures to control surface water runoff to Fishkill Creek, and specifies that such measures shall remain in place until the appropriate cover system is constructed.

3.3.3 Stabilized Construction Entrance

A stabilized construction entrance will be included as part of the erosion and sedimentation control for the Site. This stabilized construction entrance will be designed such that there is

continuity between the truck wash and the stone-based egress path so that trucks do not become re-contaminated prior to departure from the Site. A design specification for the stabilized construction entrance is included on the Erosion Control Plan in Appendix H

3.3.4 Utility Marker and Easements Layout

The Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP, and implementation of all required, appropriate or necessary health and safety measures during performance of work under this RAWP. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Volunteer and its contractors must obtain any local, State, or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the RE. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

3.3.5 Sheeting and Shoring

Appropriate management of structural stability of on-site or off-site structures during on-site activities, including excavation, is the sole responsibility of the Volunteer and its contractors. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this plan. The Volunteer and its contractors must obtain any local, State, or Federal permits or approvals that may be required to perform work under this Plan. Further, the Volunteer and its contractors are solely responsible for the implementation of all required, appropriate or necessary health and safety measures during performance of work under the approved Plan, in accordance with all applicable federal OSHA regulations.

3.3.6 Equipment and Material Staging

Specific Site areas will be designated for the staging of equipment and materials. Staging areas will be located and managed such that: a) non-contaminated materials do not contact or become intermixed with contaminated materials; and, b) the likelihood of worker and/or visitor exposures to contaminated media is minimized.

3.3.7 Decontamination Area

Decontamination of field equipment will be conducted to prevent Site cross-contamination, minimize the potential for off-site contamination and to reduce exposures to contaminated media. All decontamination activities will be documented in field logbooks.

Trucks and other heavy equipment remaining on-site will be brushed to remove easily accessible gross accumulations of soil at the end of each work day, and prior to moving between excavation areas or moving toward the Site exit. A dedicated decontamination area will be provided as part

of the erosion and sedimentation control for vehicles exiting the Site, and will be designed such that there is continuity between the equipment wash area and the stone-based egress path. Heavy equipment will be brushed and sprayed with high-pressure water and/or steam to remove soil adhering to surfaces (including wheels and vehicle undercarriages), prior to exiting the Site.

Any non-disposable sampling equipment or personal protective equipment requiring decontamination will be conducted on a decontamination line setup on plastic sheeting, proceeding from dirty to clean. All items (disassembled as needed) will be washed/brushed thoroughly in an Alconox (or similar) solution, then rinsed with clean water (and/or nitric acid and methanol, as appropriate) per established USEPA decontamination protocols. All down-hole gauging and pumping equipment will be allowed to run fully submerged in both soapy and clean water. Rinse blanks will be collected as per the requirements of the QAPP.

All decontamination stations will be placed in areas that will subsequently be covered by a barrier layer (likely to consist of both buildings/pavement and imported clean soil); no decontamination activities will occur in areas where soil meets RRUSCOs and is not subject to an engineering control. Equipment known or suspected to be impacted by petroleum or solvent contamination, grossly contaminated media or materials subject to conditions specified in the Contingency Plan (Section 4.6), will be decontaminated on an engineered pad designed to capture and contain wash water, which will be containerized and characterized prior to off-site disposal at a permitted facility. Based on known contaminant conditions and the requirement for installation of a barrier layer, decontamination rinse water generated during other decontamination activities will be allowed to infiltrate into on-site soils, either directly to the surface (for minor quantities of water that are not likely to exhibit sheet flow) or to the subsurface via engineered discharge pits (see Section 4.5.7).

A design specification for construction of a decontamination pad is included on the Erosion Control Plan in Appendix H.

3.3.8 Site Fencing

Site fencing (6 feet in height with a locking gate) will be installed as part of Site preparation, as necessary.

3.3.9 Well Decommissioning

Existing monitoring wells located within construction areas will be properly decommissioned according to technical guidance provided in NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy. The monitoring well casing will be exposed to a depth corresponding to the depth of planned excavation in the immediate vicinity of the well, the exposed casing will be cut off at the level of the excavation floor and the remaining subsurface portion of the casing will be grouted in-place, as per CP-43 Section 6.0.

3.3.10 Demobilization

Demobilization will address (as applicable):

- Restoration of areas that may have been disturbed to accommodate support areas (e.g. staging, decontamination, storage, temporary water management, and access;
- Removal of temporary access areas (whether on-site or off-site) and restoration of disturbed access areas to pre-remediation conditions;
- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations;
- Equipment decontamination; and,
- General refuse disposal.

3.4 Reporting

All written communications and reports, documenting ongoing remedial activities, will be included in the FER. The NYSDEC assigned project number will appear on all reports.

3.4.1 Weekly Reports

Weekly reports will be submitted to NYSDEC and NYSDOH Project Managers by the end Tuesday following the completed work week, and will include:

- An update of progress made during the reporting week;
- Locations of work and quantities of material imported and exported from the Site;
- References to an alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including excursions; and,
- An explanation of notable Site conditions.

Weekly reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the weekly reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

Weekly reports will include a description of daily activities keyed to an alpha-numeric map for the Site that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

A Site map that shows a predefined alpha-numeric grid for use in identifying locations described in reports submitted to NYSDEC is attached as Figure 12, Appendix A.

3.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within ten days following the end of the month of the reporting period, detailing:

- Site activities during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed;
- Approved activity modifications, including changes of scope and/or schedule;
- Any sampling results following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

3.4.3 Other Reporting

Photographs of acceptable quality will be taken to document all remedial program elements, including representative pre-remediation conditions and all remedial activities, and submitted to NYSDEC in digital (JPEG) format. Representative photographs will be provided of each contaminant source, source area and Site structure before, during and after remediation. Submission to NYSDEC will be on compact disk (CD) or other acceptable electronic media, and will be sent to the NYSDEC Project Manager (2 copies) and to the NYSDOH Project Manager (1 copy). CD's will have a label and a general file inventory structure that separates photographs into directories and sub-directories according to logical remedial action components. A log keyed to file ID numbers will be prepared to provide an explanation for all representative photographs. Submission will be on a monthly basis or another agreed upon time interval.

Job site record keeping for all remedial work will be appropriately documented. These records will be maintained on-site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

3.4.4 Complaint Management Plan

Any complaints from the public regarding nuisances or other Site conditions will be handled as follows:

- Information from the person making the complaint (name, phone number, address, etc.) will be obtained, if possible, so follow-up can be completed.
- The nature of the complaint as well as the date, time, and weather conditions will be noted.
- The complaint will be addressed by on-site personnel.
- The person logging the complaint will be re-contacted (if contact information was provided), so that the resolution of the complaint can be documented.
- In the event that the complaint cannot be resolved, the NYSDEC project manager will be contacted in writing.

3.4.5 Deviations from the Remedial Action Work Plan

It is not anticipated that Site development will be conducted in a manner that deviates from the RAWP; however, if conditions are encountered that require deviation from the RAWP, the following approval process will be followed:

- Immediate notification of the NYSDEC by telephone for conditions requiring immediate action (e.g., conditions judged to be a danger to on-site personnel or the surrounding community).
- For all other changes/editions to the RAWP, a formal request (by letter or memorandum) will be submitted to the NYSDEC for review and approval prior to implementation at the Site.

4.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

4.1 Overview of Proposed Work

The RI has documented the presence of toluene-contaminated subsurface soil and surface and near-surface soil containing elevated levels of PCBs, PAHs and/or metals. Additionally, fill materials have been encountered in subsurface soil in test pits at the western portion of the Site. Contaminated soil (and any excavated fill materials) will be removed from the Site.

All excavated materials will be handled in accordance with the Soil/Materials Management Plan (SoMP, see Section 4.5, below). All excavated material requiring management as regulated waste will be properly characterized and disposed of off-site at a permitted facility. All appropriate disposal documentation will be maintained by the Volunteer for inclusion in the FER. The location of known contaminated soils subject to the removal procedures detailed below is provided on the Proposed Site Remediation Overview Map, Figure 13 in Appendix A and on Figures 14 through 17, which provide details for four specific excavation areas.

Material removal from the Site will generally be conducted as follows:

1. On-site buildings will be demolished prior to any significant soil removal actions, in accordance with all applicable regulations, including pre-demolition surveys for asbestos containing materials (ACM) and lead-based paint. [The demolition contractor will be responsible for the proper handling and off-site disposal of debris, including debris containing ACM and any building materials containing lead above regulatory thresholds. The demolition contractor will manage and dispose ACM and/or lead-impacted materials in accordance with all applicable local, state and federal regulations]. Building slabs may be left in place until immediately before soil excavation commences, to provide continuing cover over known contaminant areas.

2. Any previously unknown contaminated material(s), USTs, demolition debris, or other unknown unidentifiable materials will be handled according to a Contingency Plan (see Section 4.6, below), including proper Agency notification.

3. All soils likely to be contaminant source areas (i.e., grossly contaminated material), or exhibiting total SVOC concentrations above 500 ppm, will be removed, consistent with NYSDEC Remedial Program goals. Grossly contaminated materials will be stockpiled separately from other materials, and will be direct loaded to trucks for off-site disposal if a permitted facility has been previously secured.

4. Soils not exhibiting significant field evidence of contamination will be segregated, stockpiled, sampled, and characterized prior to final disposition.

5. Any groundwater entering excavated areas will be handled following the provisions of the SoMP

6. Excavation will be conducted in order to remove impacted soil or other materials that are serving as source areas of contamination. Excavation will be determined to be complete when fieldwork observations indicate an absence of overt contamination and confirmatory endpoint sampling documents specific analytes of concern at concentrations in compliance with RRUSCOs. All remaining soils in excavation areas will be subject to the implementation of engineering controls as specified in Section 5.2, which call for the installation of a protective barrier layer over soils with residual contamination above RRUSCOs.

7. Excavated areas will be backfilled using imported certified clean fill overlying a demarcation layer (see Section 5.2.1).

4.1.1 Excavation Area 1 - Toluene-Contaminated Subsurface Soil

Excavation Area 1, located at the northwest portion of the Site, contains approximately 3,600 cubic yards of toluene-contaminated subsurface soil. The areal extent of contamination (both field evidence of contamination and detectable concentrations of toluene) extends primarily along the abandoned spur and from 10 to 30 feet into the wooded area located on the northwest corner of the Site. Toluene concentrations above the RRUSCO are well delineated and extend to approximately 13 feet bsg in the vicinity of 3B-08, 4 feet bsg at 3B-07 and to 3 feet bsg at 2B-01C. Soil excavation in Area 1 will be guided by the depth of previously documented contamination above RRUSCOs, and by field evidence indicating VOC impacts (odors and PID readings). The maximum depth of excavation is expected to be approximately 14 to 18 feet bsg near 3B-08 and to taper upward to between 4 and 6 feet bsg until endpoint samples are documented to contain VOCs at concentrations meeting RRUSCOs.

4.1.2 Excavation Area 2 – Low-Level Toluene Contamination

The areal extent of contamination at Excavation Area 2 (both field evidence of contamination and detectable concentrations of toluene) includes sub-slab soils beneath the northern portion of building B-5B and the northwestern portion of building B-5A. Toluene was detected at the RRUSCO at 2B-15A at a depth of 8 feet bsg, and at concentrations below the RRUSCO at nearby sampling locations. The purpose of excavation in this area is to document the presence or absence of a toluene source area (suggested by the borderline toluene concentration present at 2B-15A). Soil excavation in Area 2 will be guided by the depth of previously documented toluene concentrations and by field evidence indicating significant VOC impacts. The maximum depth of excavation is expected to be approximately 10 feet bsg near 2B-15A and to taper upward to between 4 and 6 feet bsg until endpoint samples are documented to contain VOCs at concentrations meeting RRUSCOs.

4.1.3 Excavation Area 3 – PCB and Metals in Surface Soil

Excavation Area 3, located at the southwest portion of the Site, contains an unknown quantity of surface soil (0 to 2 feet bsg) containing concentrations of PCBs and metals above RRUSCOs (documented at 4SS-2, TP-11 and TP-15). The maximum areal extent of contamination extends no farther than a west-to-east arc extending from 4SS-1 to 2HB-13. Soil to a maximum depth of 2 feet bsg will be removed from immediately south of Fisherman's Trail to the top of the slope at

Fishkill Creek. Additional soil samples will be collected prior to the start of excavation to guide the eastward extent of excavation, which will extend parallel to the trail and the watercourse. The location and number of samples to be collected will be reviewed and approved by NYSDEC.

Data from test pits to the north of Fisherman's Trail document concentrations of PCBs below 10 parts per million and therefore are acceptable for placement under two feet of clean fill. Certified clean fill material will be imported onto the Site and the elevation of the PCB and metal impacted soil to the north of Fisherman's Trail (including the Trail itself) will be raised two feet in areas where buildings and/or impervious surfaces are not proposed as part of Site development, as specified in Section 5.2, Engineering Controls. Surface and near-surface soil will be grubbed to remove any degraded fabric (or other debris) prior to installation of the cover layer (all such material removed from this Excavation Area will be properly characterized and managed as a regulated waste per 6NYCRR, Part 360 regulations).

4.1.4 Excavation Area 4 – Metals in Surface Soil

Excavation Area 4, located at the southwest exterior corner of building B-5B, contains elevated concentrations of several metals, and low-level exceedances of SVOCs, in surface soil (0 to 4 inches). The extent of contamination is unknown, with the exception of data from 3HB-02 to the south, which documents metal and SVOC concentrations below RRUSCOs. Excavation in this area is expected to be limited to 0 to 2 feet bsg. The primary contaminants of concern are metals, primarily lead. Additional soil sampling prior to excavation or the use of field instruments (e.g., XRF detector) will be required to guide the extent of excavation.

4.2 Soil Cleanup Objectives

The RRUSCOs for this Site are provided in 6 NYCRR Subpart 375, Table 375-6.8(b) and are identified in the Sampling and Analysis Plan (QAPP, Appendix D). All soil samples exceeding the RRUSCOs for the proposed remedial action are identified on Figures 7 through 10 in Appendix A.

4.3 Remedial Performance Evaluation (Post Excavation End-Point Sampling)

Post excavation end-point sampling will be conducted to document the integrity of remaining soils subsequent to excavation activities. Soil sampling will be conducted according to protocols outlined below and presented in the Sampling and Analysis Plan (QAPP, Appendix D).

4.3.1 End-Point Sampling Frequency

Excavation end-point sampling will be performed in accordance with DER-10, Section 4.4, sample frequency requirements, following a Quality Assurance Project Plan (see Section 4.3.4). Discreet grab samples will be collected from side-walls (minimum of one sample every 30 linear feet) and from the excavation base (one sample for every 900 square feet of floor area), unless otherwise modified with the consent of the NYSDEC Project Manager. End-point samples will be biased towards the potentially highest contaminated location determined by fieldwork observations and/or previous sampling data.

All endpoint samples will be analyzed for the specific constituent(s) of concern dictating the need for soil removal. Samples collected in Excavation Areas 1 and 2, where toluene contamination has been documented, will be analyzed for TCL VOCs plus 10 (USEPA Method 8260). Samples collected in Excavation Area 3, which contains areas of debris materials, will be analyzed for TCL VOCs plus 10, TCL SVOCs plus 20 (USEPA Method 8270), pesticides/PCBs (USEPA Methods 8081/8082), and TAL metals (USEPA Methods 6010C/7471A). Samples collected in Excavation Area 4 will be analyzed for TAL metals. A subset of the confirmatory endpoint samples collected at each excavation area will be analyzed for all parameters: VOCs, SVOCs, pesticides/PCBs and metals (the number of such samples will be determined by the NYSDEC Project Manager, based on encountered field conditions and the requirements of DER-10).

The FER will provide a tabular and map summary of all end-point sample results, and exceedances of applicable SCOs.

4.3.2 Methodology

All samples will be properly characterized and field screened, and findings will be recorded in logbooks. Material selected for sampling will be obtained in a manner consistent with NYSDEC and USEPA sample collection protocols. Disposable plastic trowels, or other appropriate sampling equipment, and dedicated disposable gloves will be used at each sample location to place the material into laboratory-supplied glassware. Samples will be handled such that the potential for cross-contamination, and contamination of exterior surfaces of collection containers, is minimized (placement of media into glassware will take place in a clean area remote from the excavation, as possible). Samples will be collected directly from exposed soil in the excavation, or from material collected from the excavator bucket if access to an excavation wall is considered impracticable or dangerous. Prior to and after the collection of each material sample, any non-disposable sample collection instrument will be properly decontaminated to avoid cross-contamination between samples. Laboratories used for all end point samples and contingency sampling will be ELAP certified.

4.3.3 Reporting of Results

End-point sampling results and all fieldwork observations will be reported in the FER. End-point sampling data will include summary tables and figures that will highlight all exceedances of SCOs. Fieldwork observations will comprise all data documenting the presence or absence of contamination, including visual, olfactory and instrument (e.g., PID) indications of contamination, and data generated during implementation of the CAMP.

4.3.4 Quality Assurance / Quality Control

A Quality Assurance Project Plan (QAPP) has been included as Appendix D of this RAWP. The QAPP includes a list of the major participants in the project, sampling methods, sampling handling and custody procedures, analytical methods, quality control samples, field equipment calibration and maintenance, and data validation and verification methods.

4.3.5 Data Usability Summary Reports

Complete laboratory data packages will provided to an independent, third-party data validator. A summary of the findings in the Data Usability Summary Reports (DUSRs) will be provided in the FER.

4.4 Estimated Removal Quantities

The estimated quantity of soil/fill to be removed from the Site is 4,600 cy, which will require management as a contaminated waste. The maximum depth of excavation in areas of known contamination is estimated to be 14 feet bsg.

4.5 Soil/Materials Management Plan (SoMP)

All soil removal will follow the SoMP plan as specified in Sections 4.5.1 through 4.5.14, below. All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the FER.

4.5.1 Soil Screening Methods

Visual, olfactory, and PID soil screening and assessment will be performed by qualified professionals with experience in environmental remediation, under the supervision of the RE, during all remedial and development excavations into known or potentially contaminated material (Residual Contamination Zone). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during the development phase, such as excavations for foundations and utility work, prior to issuance of the COC. Resumes are provided in Appendix E for all personnel (representing the RE) responsible for field screening of invasive work for unknown contaminant sources during remediation and development work.

Grossly contaminated soil will be identified by the presence of: non-aqueous phase liquids (NAPL); visual indications of staining, discoloration or the presence of other obvious signs of contamination; noticeable odors associated with petroleum, solvents or other chemicals; and/or elevated PID readings compared to background levels.

Soil screening will be used to establish temporary excavation end-points by: 1) establishing the absence of soil exhibiting significant field evidence of contamination (grossly contaminated media) or debris materials likely to be associated with contaminants of concern (e.g., degraded fabric in areas of PCB contamination); and, 2) identifying the presence of non-disturbed native soils. The use of direct-reading hand-held screening devices (e.g., portable XRF spectrometer) will be employed, as appropriate, to determine likely excavation boundaries; final endpoints, however, will only be established through laboratory analysis of confirmatory samples.

4.5.2 Stockpile Methods

Stockpiles will be located in areas not subject to flooding or excessive sheet flow during storm events. Material to be stockpiled will be placed within an area designed and constructed to contain the materials from all sides and prevent runoff and dispersion. All stockpiles will be underlain with six (6) mil plastic with seams overlapping by one foot (minimum). All stockpiles will be bermed to prevent any liquids from exiting or entering the containment area. A design specification for construction of a typical soil stockpile is included on the Erosion Control Plan in Appendix H.

Stockpiles will be inspected at a minimum of once each week and after every storm event. Results of inspections will be recorded in a logbook maintained at the Site and available for inspection by NYSDEC.
Stockpiles will be kept covered at all times with appropriately anchored tarps (or equivalent material). Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Soil stockpiles will be continuously encircled with silt fences. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

A dedicated water truck equipped with water cannon, or functionally similar equipment, will be available on-site for dust control if on-site water supplies are not available.

4.5.3 Materials Excavation and Load Out

The RE/QEP will oversee all invasive work and the excavation and load-out (as appropriate) of all excavated material. Site entrances and exits, including truck routes and decontamination areas will be established prior to the start of on-site demolition/excavation. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP.

The presence of utilities and easements on the Site has been investigated by the RE. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site. The RE/QEP will be responsible for ensuring that all outbound trucks are washed at the truck wash before leaving the Site until the remedial construction is complete.

Handling and disposal requirements may vary among stockpiles; load out equipment, therefore, will be properly washed between the handling of differing stockpiles (based on chemical composition and final repository destination) in order to avoid potential cross-contamination during loading activities.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site sediment tracking.

The RE/QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

The Volunteer and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The RE/QEP will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

Each hotspot and structure to be remediated (e.g., USTs, vaults and associated piping, transformers, etc.) will be removed and end-point remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill and contaminated soil on-site is prohibited, unless otherwise authorized by NYSDEC.

4.5.4 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

All trucks loaded with Site materials will exit the vicinity of the Site using only the approved truck routes (described below). This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive Sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and, (f) overall safety in transport.

Trucks will enter and exit the Site from South Avenue, travelling to and from NY State Route 9D via Tioronda Avenue. Truck staging will occur on South Avenue directly in front of the Site. Trucks will be prohibited from stopping and idling on Tioronda Avenue or in the neighborhood outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Material transported by trucks exiting the Site will be secured with covers to prevent accidental releases during transport. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site.

4.5.5 Materials Disposal Off-Site

Waste disposal locations, to be established at a later date, will be reported to the NYSDEC Project Manager prior to the start of remedial excavation. The total quantity of material (excluding debris from building demolition) expected to be disposed off-site as a regulated waste is 4,600 cy. Several separate disposal facilities may be secured, based on the expected composition of known contaminated soils. Information from the disposal facilities will be sent to the NYSDEC before the initiation of soil removal at the Site.

All soil/fill excavated and removed from the Site will be disposed in accordance with all local, State (including 6 NYCRR Part 360), and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC Project Manager. Unregulated off-site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 Unrestricted Use SCOs is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360-16 Registration Facility).

The following documentation will be obtained and reported by the RE/QEP for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the RE or BCP Volunteer to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the RE/QEP. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and, (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR Part 360-1.2. Historical fill and contaminated soils from the Site are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the NYSDEC Division of Solid and Hazardous Materials (DSHM) to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D

processing facility without permit modifications only upon prior notification of NYSDEC Region 3 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DSHM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-site or off-site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the RE/QEP. The letter will include as an attachment a summary of all chemical data for the material being transported.

The FER will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

A Bill of Lading system or equivalent will be used for off-site movement of non-hazardous wastes and contaminated soils. This information will be reported in the FER.

Hazardous wastes (listed and/or characteristic materials as defined in DER-10 Section 1.3(b)25) derived from on-site will be stored, transported and disposed of in full compliance with applicable local, State, and Federal regulations.

Appropriately licensed haulers will be used for material removed from this Site and will be in full compliance with all applicable local, State, and Federal regulations.

Waste characterization will be performed for off-site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

4.5.6 Materials Reuse On-Site

Materials from on-site are not anticipated to be reused as fill. It is anticipated that on-site demolition materials and soils will not be reused; however, if the decision is made to reuse materials from the Site the material will meet all criteria of this RAWP and NYSDEC approval will be obtained before re-use is allowed. NYSDEC approval for reuse of any materials will require appropriate sampling and analysis, and must meet all requirements specified in DER-10 Section 5.4(e).

Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on-site.

Contaminated on-site material, including historic fill and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressly stated in the final SMP.

4.5.7 Fluids Management/Excavation Dewatering

Unknown and/or improperly closed USTs may be present on the Site. Prior to the excavation and removal of any tank found to contain liquid product, all fluids will be pumped into a vacuum truck by a licensed hauler, manifested, and will be transported, and disposed of in full compliance with applicable local, State, and Federal regulations.

All liquids to be removed from the Site will be handled, transported and disposed of in accordance with applicable local, State, and Federal regulations.

Discharge of water generated during remedial construction to surface waters is prohibited without a State Pollutant Discharge Elimination System (SPDES) permit.

Site groundwater has been shown to be free of significant dissolved contamination and groundwater elevation data suggest that soil removal activities will not require dewatering. If dewatering is needed, however, the following procedures are anticipated:

- Excavation shall be conducted in a manner so that water entering the excavation can be collected and removed from the excavation area.
- The Contractor shall control surface water to prevent entry into excavations.
- The dewatering operations shall be directed to a suitable sediment filtration system (settling tank, filtration, etc.) at a rate that does not exceed the capacity of the system to removed suspended particulates. The RE will provide a design specification to NYSDEC for approval prior to system implementation.
- Water released from the filtration system will be discharged back to the Site into an excavated recharge pit, following proper erosion and runoff controls, at a suitable recharge rate (an appropriate permit will be sought prior to any discharges). The recharge area will be located at least 100 feet from the Fishkill Creek. A design specification for construction of a typical recharge pit is shown on the Erosion Control Plan in Appendix H.
- Sediment removed from the filtration system will be handled following the protocols established for contaminated soil (unless otherwise characterized as meeting unrestricted use SCOs).
- The dewatering system shall remain active during all excavation activities, as necessary.
- Upon completion of the dewatering activities the Contractor shall remove all dewatering measures.

In the event that any overt indications of contamination are observed in groundwater entering excavations (odors, sheens, PID readings, etc.), water removed from the excavation area will be collected in a frac tank (or other equivalent equipment). Water in the collection tank will be characterized and the results provided to NYSDEC and NYSDOH for review and consultation, pending a final decision regarding either off-site disposal at a permitted facility, or on-site discharge after sediment removal and treatment (e.g., activated carbon to remove organic compounds).

4.5.8 Demarcation

A physical demarcation layer, consisting of orange snow fencing or equivalent non-biodegradable material will be placed on all areas that are targeted for the placement of the barrier layer. This demarcation layer will constitute the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated residual soils defined in the SMP. A map showing the location(s) of the installed demarcation layer will be included in the FER and the SMP.

4.5.9 Backfill from Off-Site Sources

All imported fill or soils will meet NYSDEC approved backfill quality objectives for this Site. All materials proposed for import onto the Site will be approved by the NYSDEC in accordance with Part 375-6.7(d) and DER-10 5.4(e) prior to receipt at the Site. Imported fill or soil will be sampled at the frequency specified in DER-10 Table 5.4(e)10 and will not exceed allowable constituent levels as specified in DER-10 Appendix 5 (Restricted-Residential Use category).

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this RAWP should be construed as an approval for this purpose.

Solid waste will not be imported onto the Site.

Soils imported to the Site shall be from an acceptable source that is free from potential sources of chemical or petroleum contamination. In order to certify that soil from a specific source is free of contamination, a representative number of samples (as determined by soil volume) will be analyzed. All analyses will be performed by a NYSDOH ELAP certified laboratory.

Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The FER will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan."

4.5.10 Stormwater Pollution Prevention Plan (SWPPP)

A complete Erosion Control Plan (ECP) will be developed by the Contractor and approved by the RE that conforms to the requirements of the NYSDEC Division of Water guidelines and NYS regulations. This plan will be provided to the NYSDEC prior to any remedial or development construction activities.

Accumulated sediments will be removed as required to keep the silt fence barrier and hay bale check functional. All undercutting or erosion of the silt fence shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

4.5.11 Contingency Plan

A Contingency Plan has been included as Section 4.6 of this RAWP. The Contingency Plan includes actions that must occur upon the discovery of previously unknown contaminated material(s), USTs, demolition debris, or other unknown unidentifiable materials. Indications of unknown or unexpected contaminated media, identified by screening during invasive Site work, will be promptly communicated by phone to the NYSDEC Project Manager. These findings will be also included in periodic reports.

4.5.12 Community Air Monitoring Plan

The locations of the mobile air monitoring stations will vary, based on the location of fieldwork and direction of the wind.

The NYSDOH Generic CAMP (provided as Appendix C) will be initiated during all ground intrusive activities, and during any fieldwork that is reasonably likely to generate significant dust or vapors. The implementation of this Plan will document the presence or absence of VOCs and dust in the air surrounding the work zone, which may migrate off-site due to fieldwork activities. This plan provides guidance on the need for implementing more stringent dust and emission controls based on air quality data.

Mitigation measures may include reducing the surface area of contaminated soil being disturbed at one time, watering exposed soils to reduce fugitive odors, or stopping excavation activities. Dust suppression activities will be conducted during construction activities that will disturb on-site soils, including misting, reduction in soil movement, or cessation of excavation.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Weekly Report.

4.5.13 Odor, Dust and Nuisance Control Plan

The FER will include the following certification by the Remedial Engineer: “I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan.”

4.5.13.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include spraying excavations generating petroleum odors with chemical-based odor suppressants. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halting of work, will be the responsibility of the RE/QEP.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in the surrounding area.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

4.5.13.2 Dust Suppression Plan

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

4.5.14 Precautions to Protect Natural Resources

A small population of Davis' sedge (Carex davisii), a NYSDEC-listed threatened Natural Heritage Program rare plant species, was identified at the northwest corner of Site in the 2009 Fish and Wildlife Impact Analysis. Plants will be identified prior to the start of any soil disturbance and either be protected (where possible) or relocated to off-site areas with a compatible habitat (e.g., adjoining natural areas managed by Scenic Hudson, Inc. for passive recreation and natural protection).

The southern portion of the Site both includes and adjoins the Fishkill Creek. Control measures that serve to protect the Fishkill Creek are included in the ESCP and the SWPPP. Additionally,

all site operations plans submitted by contractors will be reviewed by the RE to ensure that construction sequencing, methodology and the staging of materials and equipment is conducted in a manner that protects the shoreline and banks of the waterway. All excavation and placement of any required backfill will be conducted such that the existing bank grade is properly maintained, and all disturbed surface areas will be protected and promptly re-vegetated.

4.5.15 Precautions to Protect Existing Stockpile Cover

A stockpile of toluene-impacted soil is located at the northwestern corner of the Site beneath a demarcation layer and a minimum of 24 inches of clean cover materials. Precautions will be taken to avoid or minimize disturbance to this area during construction, including proper mark-out and pre-construction meetings with all contractors. Any breeches of the cover system will be promptly repaired utilizing approved clean cover materials. Any soil exposed beneath the demarcation layer will be managed as contaminated material. Should the final redevelopment plan call for construction activities in this area, the stockpiled material will be disposed of off-site in accordance with Section 4.5.5 of the SoMP.

4.6 Contingency Plan

This section of the RAWP describes actions that must occur upon the discovery of previously unknown contaminated material(s), USTs, demolition debris or other unknown unidentifiable material that requires special handling. On-site personnel should be prepared to respond appropriately if the following previously unknown materials are encountered (if encountered, this material could result in a recommendation from the RE/QEP for an immediate, temporary shutdown of construction activities):

- Previously unknown tanks (including drums) containing a liquid product that is not likely to be water and is likely to present a threat to worker health or safety;
- Previously unknown demolition debris, which could contain significant quantities of asbestos, the disturbance of which is determined, based on field observations, to violate or likely to violate Federal, State, or local asbestos regulations; and,
- Material which cannot be readily identified.

4.6.1 Procedures for Encountered Underground Storage Tanks

Closure of all USTs at the Site will be in accordance with the requirements of DER-10, Section 5.5. Any encountered, previously unknown USTs will be visually inspected to determine if liquids are present in the tank. Significant quantities of liquid remaining in the tanks will be drummed on the Site or removed by a properly licensed disposal company and the particular product (e.g., fuel oil, diesel, etc.) will be identified prior to off-site disposal at a permitted facility. All encountered USTs will be disposed of pursuant to applicable Petroleum Bulk Storage (PBS) and hazardous waste regulations.

4.6.2 Procedures for Encountered Demolition Debris

To the extent practical, all clearly identifiable material suspected of containing asbestos will be removed from the waste stream and handled separately (if encountered). The RE/QEP will recommend that asbestos material visible in the waste stream be separated and analyzed to determine the percent of asbestos present. All applicable Federal, State and local asbestos handling regulations will be followed.

Depending on the amount of asbestos material identified in the waste stream, the RE/QEP may recommend to the Volunteer's Representative that a licensed and accredited asbestos inspector be retained to manage the handling and disposition of asbestos material. Approval to retain an asbestos inspector will be made by the Volunteer's Representative. Samples will be collected by a properly licensed asbestos inspector and submitted to a NYSDOH ELAP- certified laboratory for analysis, depending on the amount and type of material encountered.

Minor amounts of asbestos may be removed from the waste stream and disposed of in accordance with applicable State and local asbestos remediation requirements. An asbestos abatement firm will be retained to properly handle and remove minor amounts of asbestos.

The presence of significant quantities of asbestos will result in a temporary shutdown of the Site.

4.6.3 Procedures for Encountered Unknown Material

Material which cannot be readily identified but which is considered, based on field observations, to be material that needs further investigation before disposal will be properly stockpiled (as per the SoMP) in an area separate from all other stockpiled material.

4.6.4 Screening and Laboratory Analysis

Unknown material will be screened with a photo-ionization detector (PID) and all recorded levels will be documented. Samples will be collected and analyzed to identify the compounds present and to assist in determining appropriate disposal practices. Until determined by laboratory analysis otherwise, this material will be considered a hazardous substance. Specific materials known to require sampling and analysis prior to final disposition include all building components and debris containing painted surfaces and/or caulk. A plan to describe the handling and disposal of such materials will be submitted to NYSDEC for review and approval.

If previously unknown underground tanks or other previously unidentified contaminant sources are found during on-site remedial excavation or development related construction, sampling will be performed on product, sediment, and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals, TCL volatiles and semi-volatiles, TCL pesticides, and PCBs). These analyses will not be limited to CP-51 petroleum list parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

5.0 POST-REMEDIATION MONITORING AND SITE CONTROL

5.1 Groundwater Monitoring

The selected remedy for the Site calls for post-remediation groundwater monitoring to document the continued absence of VOCs. It is anticipated that all existing monitoring wells will be destroyed during remedial and Site development activities and that 6 new wells will need to be installed. Once building plans have been finalized, and soil removal and demolition have been completed, the Volunteer will propose the location and depth of replacement monitoring wells for NYSDEC approval.

5.1.1 Installation of Monitoring Wells

Boreholes will be extended using truck-mounted equipment and be completed as two-inch diameter bedrock groundwater monitoring wells. Any overtly contaminated soil exposed during boring operations will be containerized for characterization and proper disposition. The containers will be stored on-site pending proper off-site disposal.

- Each well will be constructed of two-inch PVC casing with a ten foot length of 0.01-inch slotted PVC well screening across the water table. No glue will be used to thread the casing lengths. Wells will be constructed such that a minimum of 2.0 foot of screening will extend above the water table; approximately 8.0 feet of screening will extend below the water level.
- The annular space between the well screen and the borehole will be backfilled with clean #1 silica sand to a depth of one to two feet above the well screen. A minimum one-foot thick bentonite seal will be poured down the borehole above the sand pack and allowed to hydrate before filling the remaining annular space.
- A locked cap with vent will be installed at the top of the PVC riser and all wells will be protected by secure “drive-over” metal covers.

5.1.2 Monitoring Well Development

All new monitoring wells will be developed with a properly decontaminated mechanical pump and dedicated polyethylene tubing in order to clear fine-grained material that may have settled around the well screen and to enhance the natural hydraulic connection between the well screen and the surrounding soils. Prior to development, the monitoring well casing will be opened and the well column immediately screened with a PID to document the presence of any volatile organic vapors. Water removed from the monitoring well will be visually inspected for overt indications of contamination. Based on existing data, water removed in the course of development that does not exhibit overt evidence of contamination will be discharged on-site.

Well development will begin at the top of the saturated portion of the screening to prevent clogging of the pump within the casing. The pump will be raised and lowered one to two feet within various portions of the screened interval to force water back and forth through the screen. Repeated surging and pumping (at intervals of less than five feet) will be performed to the bottom of the screen until the discharged water appears clear. Upon completion, the pump assembly will

be removed while the pump is still running to avoid discharge of purged water back into the well. The well will be considered developed when discharge from the well is visually clear.

5.1.3 Groundwater Sampling and Analysis

Groundwater samples will be collected following the completion of soil removal, and at subsequent quarterly intervals until such monitoring is deemed unnecessary by the NYSDEC.

Groundwater will be sampled utilizing USEPA "low-flow" methodology. Samples will be submitted for laboratory analysis of TCL VOCs (plus 10) via USEPA Method 8260, TCL SVOCs plus 20 (USEPA Method 8270), pesticides/PCBs (USEPA Methods 8081/8082), and TAL metals (USEPA Methods 6010C/7471A). Based on the results of the first sampling round, and on final post-remedial soil data, a request may be made to NYSDEC to limit subsequent groundwater analysis to TCL VOCs, only. Quarterly groundwater monitoring will be conducted (for at least four quarters) to document acceptable groundwater quality, based on NYSDEC TOGS 1.1.1 ambient water quality standards (AWQS). Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. Monitoring activities will be outlined in the Monitoring Plan of the SMP.

The QAPP includes a Sampling and Analysis Plan, detailing the proposed sampling protocol for groundwater sampling and analysis.

5.2 Engineering Controls

Engineering controls for residual contamination have been selected to render the Site protective of public health and the environment. The remedial action for the Site calls for:

- Importation and placement of a protective barrier layer of certified clean fill over contaminated soils in areas not otherwise protected by an approved barrier; and,
- Installation of a SSDS where proposed structures will overlie or be in close proximity to toluene impacted soils or areas of known TCE soil vapor impacts.

5.2.1 Installation of Barrier Soil Layer

A cover of clean soil will be placed as a barrier layer at all areas that contain remaining contamination at concentrations above RRUSCOs. Placement of the barrier layer will be in conformance with the SoMP specified in Section 4.5. All imported materials must meet the allowable constituent levels for Restricted-Residential Use specified in Appendix 5 of DER-10, and be placed over a demarcation layer at a minimum depth of 12 inches in areas to be covered by structures and other impervious surfaces, and a minimum depth of 24 inches in all other areas. Cover material will be placed and compacted in lifts not exceeding 12 inches compacted depth. For all covered areas having exposed soils, the upper six inches of the cover will be comprised of material with sufficient organic matter to permit re-vegetation. This upper layer may be replaced with topsoil in areas where final landscaping has been determined. All finished grades that receive topsoil shall be raked smooth, seeded and mulched, and water periodically as necessary to insure proper stabilization of soil areas. Figure 18 in Appendix A illustrates a generic cross section of the cover system.

A grading and cover plan illustrating the locations of structures, parking areas, landscaping and clean fill or equivalent substitute as well as the depth to contaminated soil will be provided to the NYSDEC after site development plans have been finalized.

5.2.2 Installation of Sub-slab Depressurization System

A SSDS will be installed at each proposed building that may potentially be impacted by soil vapor containing VOCs, including any building placed over the location of the existing stockpile of toluene-impacted soil at the northwestern corner of the Site. The designation of proposed structures specifically requiring a SSDS will be made with the guidance and approval of NYSDEC and NYSDOH, once building plans have been finalized, and fieldwork observations and analytical data generated during soil removal and other remedial activities has been reviewed.

The SSDS will include the placement of a vapor barrier across the bottom of the building slab, consisting of a minimum 15 mil plastic liner (or equivalent), properly sealed at the interior joints, and installation of an appropriate depressurization/venting system. The RE will submit detailed remedial design documents for NYSDEC and NYSDOH review following initial agency approval of building selection.

Operation, maintenance and monitoring of any installed SSDS will conducted according to the SMP.

5.3 Institutional Controls

Institutional Controls have been selected to ensure continual and proper management of any residual contamination in perpetuity: an Environmental Easement and a Site Management Plan. A Site-specific Environmental Easement will be recorded with Dutchess County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. The grantor of the Environmental Easement and the grantor's successors and assigns will be required to adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy.

ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The Site Management Plan describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

5.3.1 Environmental Easement

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions then an Environmental Easement is required. As part of this remedy, an Environmental Easement

approved by NYSDEC will be filed and recorded with the Dutchess County Clerk. The Environmental Easement will be submitted as part of the Final Remediation Report.

The Environmental Easement renders the Site a Controlled Property and must be recorded with the Dutchess County Clerk before the Certificate of Completion can be issued by NYSDEC. A series of Institutional Controls are required under this remedy to implement, maintain and monitor the Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to Unrestricted Residential use(s) only. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors, and required adherence to of all elements of the SMP;
- All Engineering Controls must be operated and maintained as specified in the SMP;
- Any soil vapor mitigation systems must be inspected, certified, and maintained as required by the SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Groundwater, soil vapor, and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-site environmental monitoring devices, including but not limited to, groundwater monitor wells and soil vapor probes, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP; and,
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the Site is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements.

The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;

- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the Site Management Plan;
- The Controlled Property may be used for restricted residential use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan are employed;
- The Controlled Property may not be used for a higher level of use without an amendment or extinguishment of the Environmental Easement; and,
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.
- Grantor agrees to certify specific statement/forms, etc. in connection with the IC/EC if required by the Department.

5.3.2 Site Management Plan

Site management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion for the Remedial Action. The Site Management Plan is submitted as part of the FER but will be written in a manner that allows its removal and use as a complete and independent document. Site management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site management responsibilities defined in the Environmental Easement and the SMP are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Institutional Control and Engineering Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management

Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC DER-10, Sections 6.2 and 6.3, and with guidance provided by NYSDEC.

Site management activities, reporting and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The certification will be based on a calendar year and the initial certification and periodic review report will be due for submission to NYSDEC 18 months following issuance of the COC.

The SMP in the FER will include a monitoring plan for groundwater (at locations approved by NYSDEC and NYSDOH) to evaluate Site-wide performance of the remedy.

No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

A sample Table of Contents, based on the NYSDEC generic SMP template (February 2013) is reproduced below:

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

- **1.1 INTRODUCTION**
  - 1.1.1 General
  - 1.1.2 Purpose
  - 1.1.3 Revisions
- **1.2 SITE BACKGROUND**
  - 1.2.1 Site Location and Description
  - 1.2.2 Site History
  - 1.2.3 Geologic Conditions
- **1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS**
- **1.4 SUMMARY OF REMEDIAL ACTIONS**
  - 1.4.1 Removal of Contaminated Materials from the Site
  - 1.4.2 Site-Related Treatment Systems
  - 1.4.3 Remaining Contamination

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

- **2.1 INTRODUCTION**
  - 2.1.1 General
  - 2.1.2 Purpose
- **2.2 ENGINEERING CONTROLS**
  - 2.2.1 Engineering Control Systems
  - 2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems
- **2.3 INSTITUTIONAL CONTROLS**
  - 2.3.1 Excavation Work Plan
  - 2.3.2 Soil Vapor Intrusion Evaluation
- **2.4 INSPECTIONS AND NOTIFICATIONS**
  - 2.4.1 Inspections
  - 2.4.2 Notifications
- **2.5 CONTINGENCY PLAN**
  - 2.5.1 Emergency Telephone Numbers
  - 2.5.2 Map and Directions to Nearest Health Facility
  - 2.5.3 Response Procedures

LIST OF FIGURES

LIST OF APPENDICES

6.0 FINAL ENGINEERING REPORT

A Final Engineering Report will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan.

6.1 Components of the FER

The FER will be in accordance with DER-10, Section 5.8, including:

- A comprehensive account of the locations and characteristics of all material removed from the Site, including surveyed map(s) of all source areas;
- As-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan;
- A description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents;
- A tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action;
- Written and photographic documentation of all remedial work performed under this remedy;
- Test results demonstrating that all mitigation and remedial systems are functioning properly;
- An Itemized tabular description of actual costs incurred during all aspects of the Remedial Action

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the Final Engineering Report review.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste (i.e. soils that meet the definition of characteristic hazardous wastes per 6 NYCRR Part 370), non-regulated material and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

A sample Table of Contents, based on the NYSDEC generic FER template (March 2011) is reproduced below:

FINAL ENGINEERING REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

2.1.1 Groundwater RAOs
2.1.2 Soil RAOs
2.1.3 Surface Water RAOs
2.1.4 Sediment RAOs

2.2 DESCRIPTION OF SELECTED REMEDY

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

3.1 INTERIM REMEDIAL MEASURES
3.2 OPERABLE UNITS
3.3 REMEDIAL CONTRACTS

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

4.1 GOVERNING DOCUMENTS

4.1.1 Site Specific Health & Safety Plan (HASP)
4.1.2 Quality Assurance Project Plan (QAPP)
4.1.3 Construction Quality Assurance Plan (CQAP)
4.1.4 Soil/Materials Management Plan (S/MMP)
4.1.5 Storm-Water Pollution Prevention Plan (SWPPP)
4.1.6 Community Air Monitoring Plan (CAMP)
4.1.7 Contractors Site Operations Plans (SOPs)
4.1.8 Community Participation Plan

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Contractors and Consultants
4.2.2 Site Preparation
4.2.3 General Site Controls
4.2.4 Nuisance controls
4.2.5 CAMP results
4.2.6 Reporting

4.3 CONTAMINATED MATERIALS REMOVAL

4.3.[x] [Name of contaminated media/material removed]

4.4 REMEDIAL PERFORMANCE/DOCUMENTATION SAMPLING
4.5 IMPORTED BACKFILL
4.6 CONTAMINATION REMAINING AT THE SITE
4.7 SOIL COVER [OR CAP] SYSTEM
4.8 OTHER ENGINEERING CONTROLS
4.9 INSTITUTIONAL CONTROLS
4.9 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

LIST OF TABLES

6.2 Certifications

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer, Jolanda G. Jansen, who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I, I Jolanda G. Jansen, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Work Plan and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Jolanda G. Jansen, of Jansen Engineering, am certifying as Owner’s Designated Site Representative for the site.

NYS Professional Engineer #068972-1 Date Signature/Stamp

7.0 SCHEDULE

The schedule below is for all services necessary to implement the selected remedial remedy. A more detailed schedule will be submitted to NYSDEC prior to the commencement of fieldwork, specifying all demolition and remediation activities (currently scheduled to occur from April 2014 to November 2014).

January 2014:	Submit final RAWP to NYSDEC
February 2014:	NYSDEC Approval of RAWP, and distribution of RAWP and Fact Sheet
April 2014:	Submission of remaining pre-construction design documents (ESCP, SWPPP and construction specifications [as required])
April – October 2014:	Demolition, soil excavation and importation of backfill and cover soils
July 2014:	Submission of Draft Environmental Easement
August 2014:	Submission of draft SMP
September 2014:	Submission of draft FER to NYSDEC
September – November 2014:	NYSDEC review of FER
November 2014:	Installation and development of monitoring wells, and first round of post-remediation groundwater sampling
December 2014:	NYSDEC approval of SMP and FER NYSDEC issues Certificate of Completion

APPENDIX A

Figures

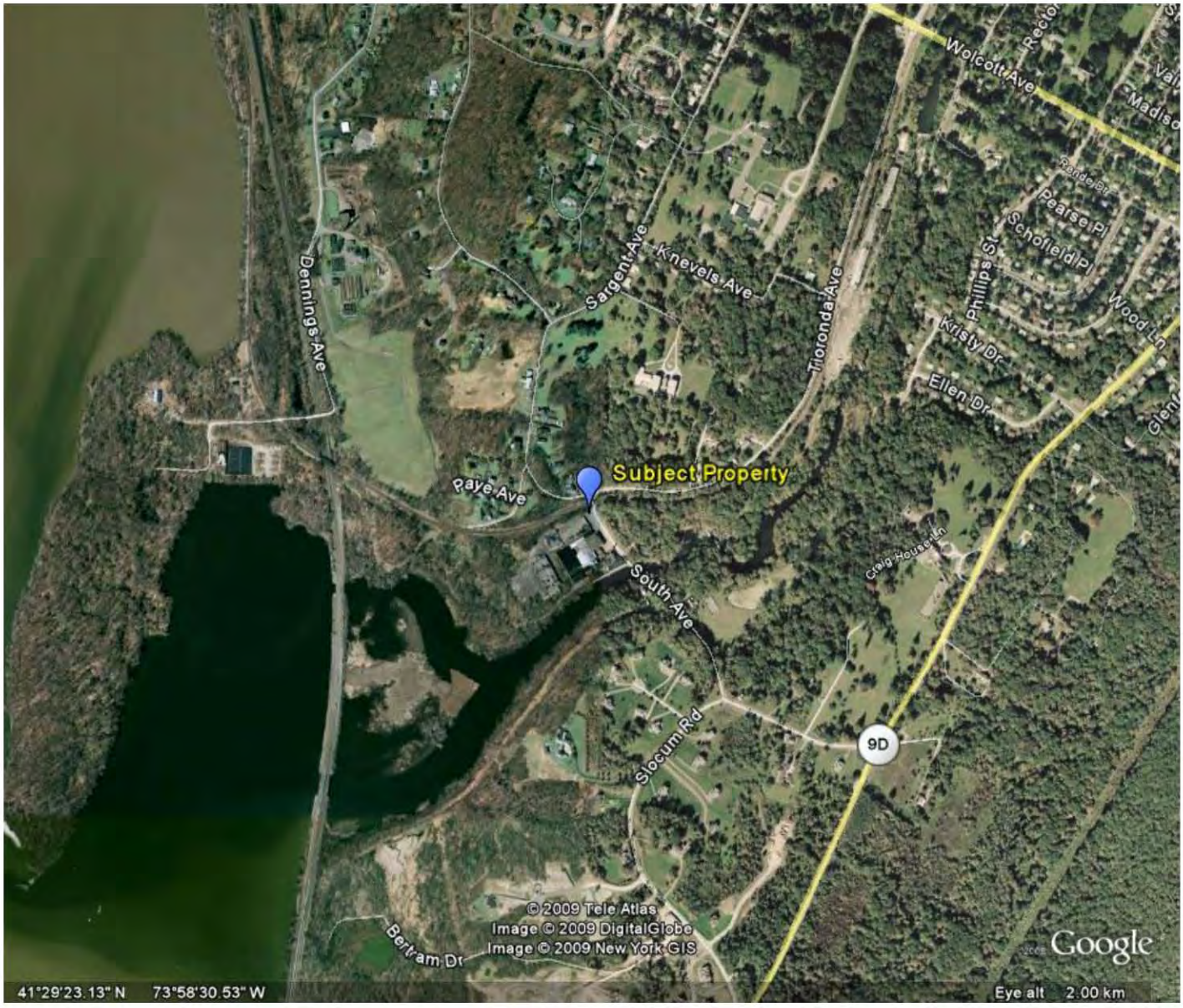

Figure 1 - Site Location Map
Beacon Terminal Site
Site ID C314117
555 South Avenue
City of Beacon
Dutchess County, New York

N

ESI File: BB04157.51

January 2014

Appendix A

All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 2 - Tax Map

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

Legend:

Site border

ESI File: BB04157.51

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Appendix A

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Figure 3 - Existing Site Features Map

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

January 2014

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N

SITE ANALYSIS

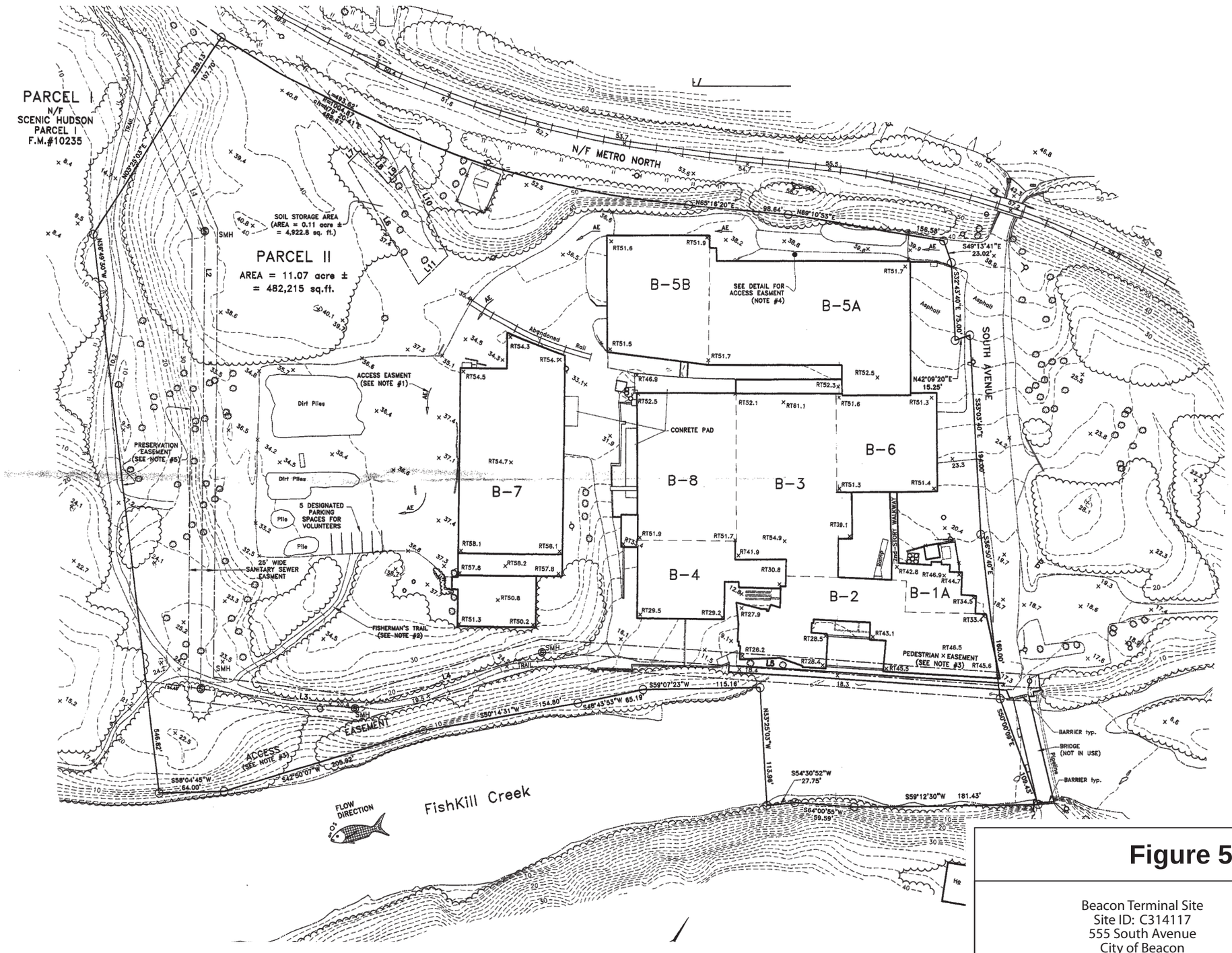
- 24' W Front Load Town House : 40 Units
- 20' W Rear Load Town House: 26 Units
- TRIPLEX : 18 Units
- Multi-Family : 60 Units
- Flat Units : 15 Units

TOTAL : 159 Units

Site Plan by Lessard Group Inc. - March 10, 2008.

Figure 4 - Proposed Site Plan

Beacon Terminal Site Site ID: C314117 555 South Avenue City of Beacon Dutchess County, New York	ESI File: BB04157.51	
	January 2014	Appendix A



Based on a Survey by Peter R. Hustis LLS - October 2005.

Figure 5 - Survey Map

Beacon Terminal Site Site ID: C314117 555 South Avenue City of Beacon Dutchess County, New York	ESI File: BB04157.51	
	Scale as shown	
	January 2014	Appendix A

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Figure 6 - Groundwater Flow Map

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100′

January 2014

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3B-07				
	3-4'	6-8'	11-12'	15-16'
Toluene	140,000	3,400	14,000	5,600

3B-08				
	2-4'	5.5' - 6'	13'	18'
Toluene	**970,000**	**230,000**	**120,000**	4,700

2B-15 (4-5')	
Toluene	22,000

2B-15C (5-6')	
Toluene	1,600

2B-15A (7-8')	
Toluene	100,000

3B-09 (5-6')	
Toluene	29,000

3B-10 (16')	
Toluene	850

3B-04 (9-10')	
Toluene	2,900

2B-01C (1-3')	
Toluene	**4,600,000**

3B-03		
	3'	4-6'
Toluene	86,000	13,000

Sampling Dates

2008

1/30/08:	1/31/08:	2/4/08:	2/5/08:	2/6/08:	2/25/08:
2TP-2	2B-05	2B-01C	2B-02	2B-14	2HB-1
2TP-8	2B-07	2B-04	2B-09	2B-15	2HB-12
2TP-11	2B-08	2B-06	2B-10	2B-15A	
2TP-15	2MW-04		2B-11	2B-15C	
	2MW-06		2B-12	2MW-05	
			2B-13		
			2MW-09		

2009

1/19/09:	1/27/09:	6/1/09:	6/2/09:	6/3/09:
3B-02	3B-07	3HB-03	3HB-01	3B-01
3B-03	3B-08	3HB-04	3HB-02	3B-09
3B-04	4B-01	3HB-05		3B-10
3B-05				
3B-06				

2011

6/29/11:
4SS-1
4SS-2

wet weather creek (former rail spur)
area of relocated soil
abandoned railroad tracks
wooded area
approximate extent of wooded area
SOUTH AVENUE
elevated walkway
Fishkill Creek
Fishermans Trail

3HB-05, 3B-10, 3B-11, 3B-09, 3B-08, 3B-07, 3B-05, 3B-04, 3B-02, 2B-01C, 3B-03, 3B-06, 3B-01, 2B-02, 2TP-8, 4SS-1, 2SST-1, 2TP-2, 2B-05, 2B-04, 2B-06, 2HB-01, 2TP-15, 2TP-11, 3HB-04, 2HB-13, 2MW-09, 4SS-2, 2HB-03, 2HB-02, 3HB-02, 2MW-6, 4B-01, 4B-02, 2B-15A, 2B-15, 2B-15C, 2B-12, 2B-14, 2MW-05, 2B-13, 2B-11, 2B-09, 2B-10, 2HB-08, 2MW-4, 2HB-11, 2HB-12, 2B-08, 2HB-06, 2B-07, 3B-01, 2HB-07, 2HB-05, 2HB-04, 3HB-03, 2HB-09, 2HB-10

N

Legend:

- site boundary
- test pit location
- boring location
- surface sample location

all results in ug/kg

Figure 7 - Detected Concentrations of Toluene in Soil

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

January 2014

Appendix A

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Sampling Dates

2008

2/6/08:
2B-14
2B-15

2/25/08:
2HB-01 thru 2HB-13

2009

1/19/09:
3B-03
3B-05

1/27/09:
4B-01
4B-02

6/1/09:
3HB-3
3HB-4
3HB-5

6/2/09:
3HB-1
3HB-2

2011

6/29/11:
4SS-1
4SS-2

Legend:

- site boundary
- test pit location
- boring location
- surface sample location

all results in ug/kg

Figure 8 - PCBs Above RRUSCOs in Soil

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

January 2014

Appendix A

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2HB-02 (0-4")	
Arsenic	**19.1**
Chromium	**491**
Lead	**2,830**

2HB-12 (0-4")	
Arsenic	**25.4**
Barium	**480**

2HB-10 (0-4")	
Mercury	**1.6**

2 TP-15	
Copper	**842**

2TP-11 (0-6")	
Chromium	**788**
Copper	**4,530**
Lead	**531**
Mercury	**4**

2TP-11B (6"-1')	
Copper	**1,210**

4SS-2 (0-3")	
Barium	**1,620**
Chromium	**692**
Copper	**1,070**

Sampling Dates

2008

1/27/08:	1/31/08:	2/4/08:	2/5/08:	2/25/08:
4B-01	2B-05	2B-01C	2B-02	2HB-1 thru 2HB-13
4B-02	2B-07	2B-04	2B-09	
	2B-08	2B-06	2B-10	
			2B-11	
			2B-12	
			2B-13	
			2B-14	
			2B-15	
			2MW-09	

2009

1/19/09:	6/1/09:	6/2/09:
3B-03	3HB-3	3HB-1
3B-05	3HB-4	3HB-2
	3HB-5	

2011

6/29/11:
4SS-1
4SS-2

Legend:

- site boundary
- test pit location
- boring location
- surface sample location

all results in mg/kg

Figure 9 - Metals Above RRUSCOs in Soil

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

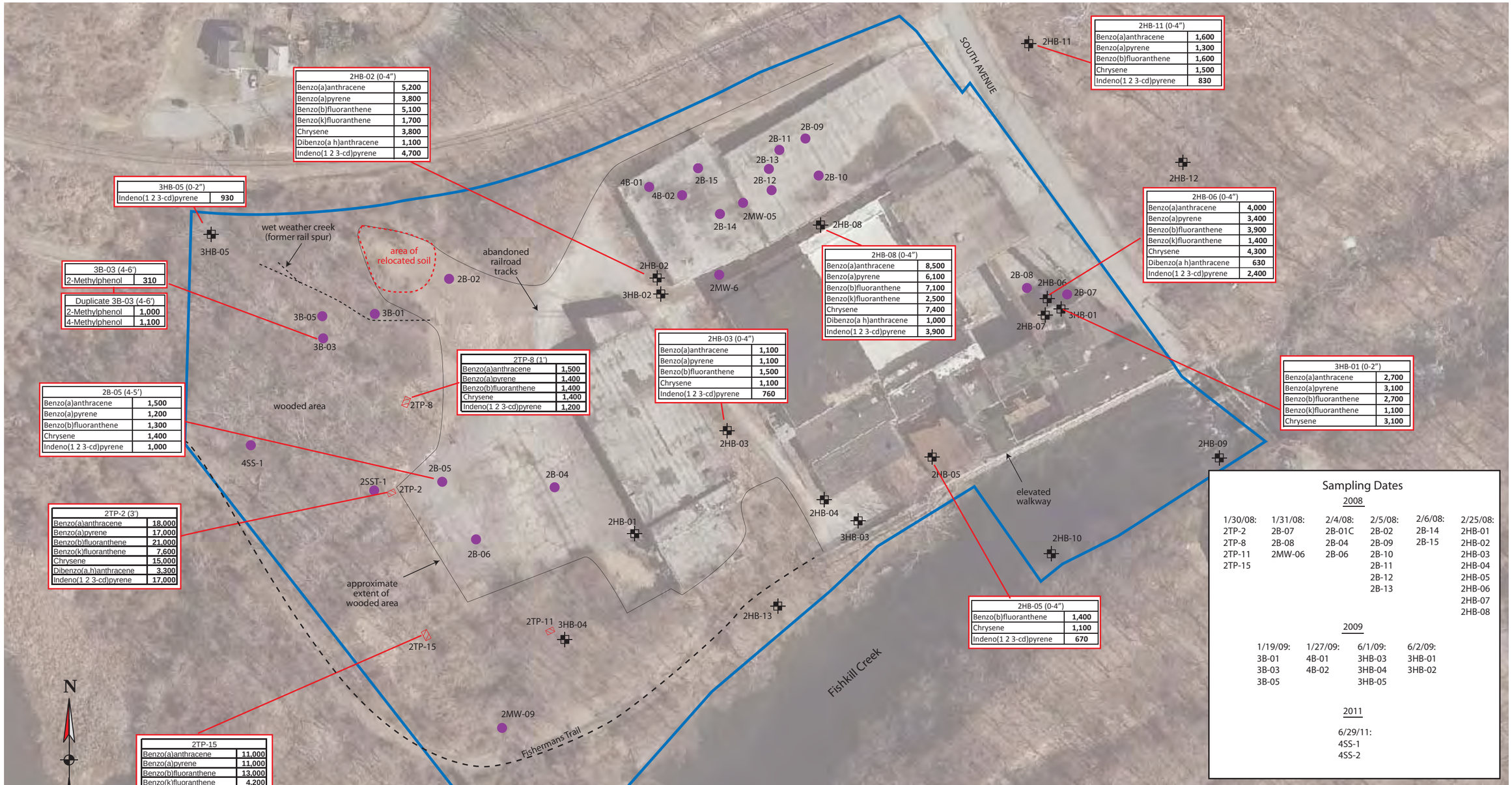
ESI File: BB04157.51

Scale: 100'

January 2014

Appendix A

Ecosystems Strategies, Inc.



Sampling Dates

2008

1/30/08:	1/31/08:	2/4/08:	2/5/08:	2/6/08:	2/25/08:
2TP-2	2B-07	2B-01C	2B-02	2B-14	2HB-01
2TP-8	2B-08	2B-04	2B-09	2B-15	2HB-02
2TP-11	2MW-06	2B-06	2B-10		2HB-03
2TP-15			2B-11		2HB-04
			2B-12		2HB-05
			2B-13		2HB-06
					2HB-07
					2HB-08

2009

1/19/09:	1/27/09:	6/1/09:	6/2/09:
3B-01	4B-01	3HB-03	3HB-01
3B-03	4B-02	3HB-04	3HB-02
3B-05		3HB-05	

2011

6/29/11:
4SS-1
4SS-2

Legend:

- site boundary
- test pit location
- boring location
- surface sample location

all results in ug/kg

Figure 10 - SVOCs Above RRUSCOs in Soil

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

January 2014

Appendix A

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Figure 11- Detected Concentrations of TCE in Soil Gas

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

January 2014

Appendix A

Ecosystems Strategies, Inc.

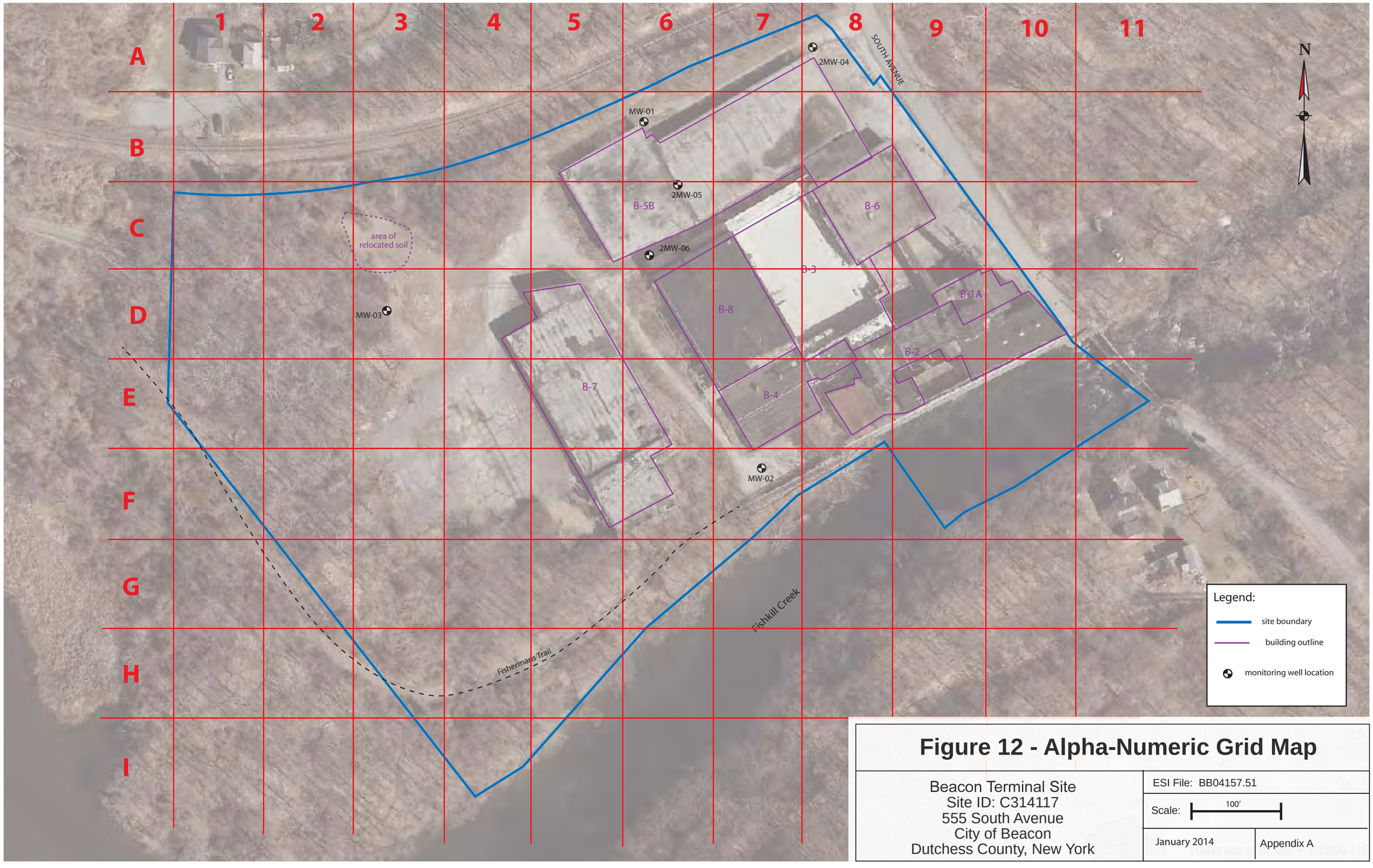

Figure 12 - Alpha-Numeric Grid Map

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

January 2014

Appendix A

Ecosystems Strategies, Inc.

3B-07				
	3-4'	6-8'	11-12'	15-16'
Toluene	140,000	3,400	14,000	5,600

3B-08				
	2-4'	5.5' - 6'	13'	18'
Toluene	**970,000**	**230,000**	**120,000**	4,700

3B-09 (5-6')	
Toluene	29,000

2B-15 (4-5')	
Toluene	22,000

2B-15C (5-6')	
Toluene	1,600

2B-15A (7-8')	
Toluene	100,000

3B-10 (16')	
Toluene	850

3B-04 (9-10')	
Toluene	2,900

2B-01C (1-3')	
Toluene	**4,600,000**

2HB-02 (0-4")	
Arsenic	**19.1**
Chromium	**491**
Lead	**2,830**

2HB-02 (0-4")	
Benzo(a)anthracene	**5,200**
Benzo(a)pyrene	**3,800**
Benzo(b)fluoranthene	**5,100**
Benzo(k)fluoranthene	**1,700**
Chrysene	**3,800**
Dibenzo(a h)anthracene	**1,100**
Indeno(1 2 3-cd)pyrene	**4,700**

3B-03		
	3'	4-6'
Toluene	86,000	13,000

3B-03 (4-6')	
2-Methylphenol	**310**

Duplicate 3B-03 (4-6')	
2-Methylphenol	**1,000**
4-Methylphenol	**1,100**

4SS-2 (0-3")	
PCB, 1262	**8,530**

4SS-2 (0-3")	
Barium	**1,620**
Chromium	**692**
Copper	**1,070**

Area 1
Area 2
Area 3
Area 4
wet weather creek (former rail spur)
area of relocated soil
abandoned railroad tracks
wooded area
approximate extent of wooded area
SOUTH AVENUE
elevated walkway
Fishkill Creek
Fishermans Trail

Legend:
- site boundary
- test pit location
- boring location
- surface sample location
- monitoring well location
- 1 - 4 Excavtion area # of inset maps
- SVOCs above RRUSCOs in soil in proposed site remediation area results in ug/kg
- Detected Toluene in soil in proposed site remediation area results in ug/kg
- PCBs above RRUSCOs in soil in proposed site remediation area results in ug/kg
- Metals above RRUSCOs in soil in proposed site remediation area results in mg/kg
- Proposed site remediation areas

Figure 13 - Proposed Site Remediation Map - Overview

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 100'

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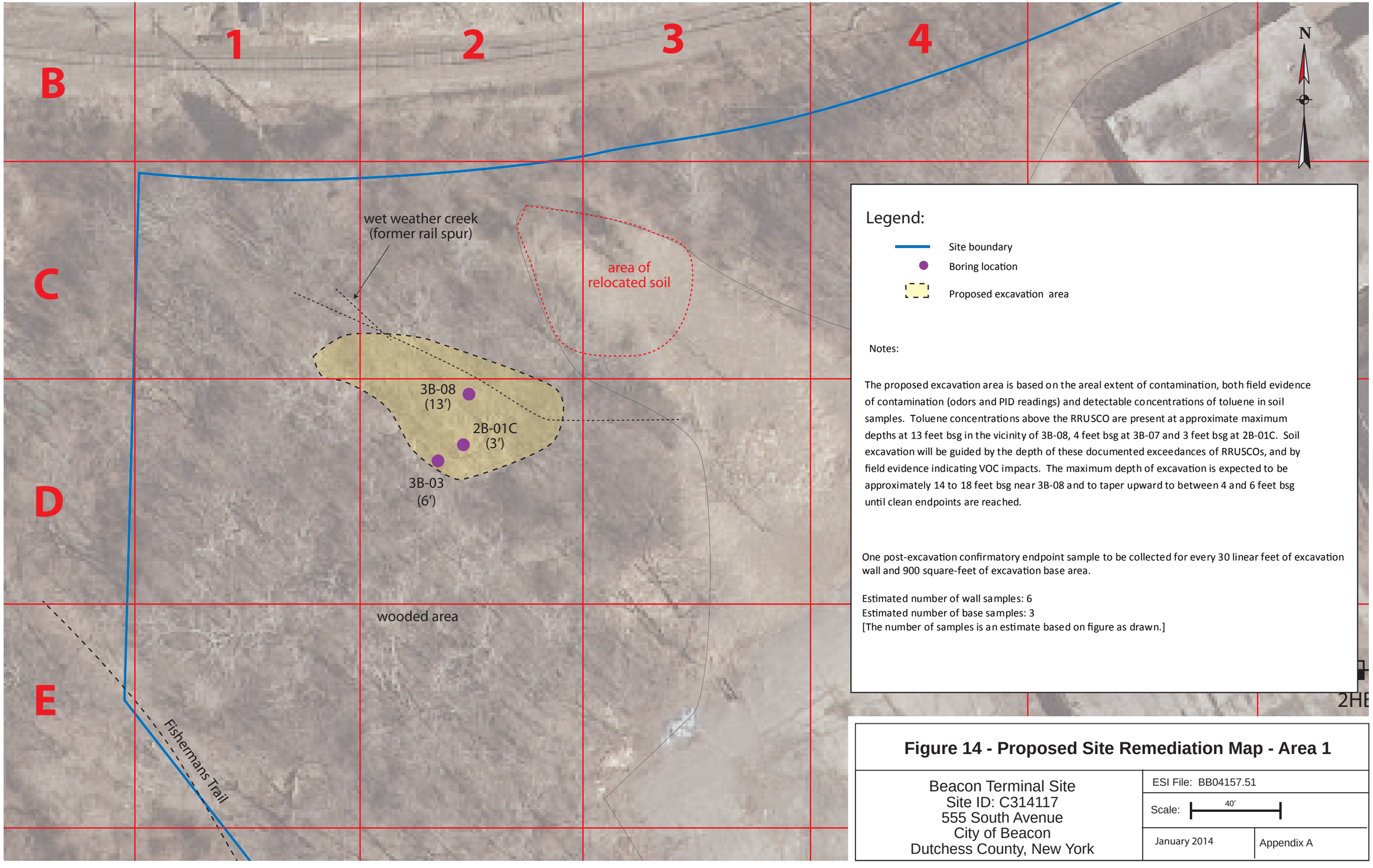
Ecosystems Strategies, Inc.



Legend:

- Site boundary
- Boring location
- Proposed excavation area

Notes:

The proposed excavation area is based on the areal extent of contamination, both field evidence of contamination (odors and PID readings) and detectable concentrations of toluene in soil samples. Toluene concentrations above the RRUSCO are present at approximate maximum depths at 13 feet bsg in the vicinity of 3B-08, 4 feet bsg at 3B-07 and 3 feet bsg at 2B-01C. Soil excavation will be guided by the depth of these documented exceedances of RRUSCOs, and by field evidence indicating VOC impacts. The maximum depth of excavation is expected to be approximately 14 to 18 feet bsg near 3B-08 and to taper upward to between 4 and 6 feet bsg until clean endpoints are reached.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 6
Estimated number of base samples: 3
[The number of samples is an estimate based on figure as drawn.]

Figure 14 - Proposed Site Remediation Map - Area 1

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 40′

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Legend:

- Site boundary
- Boring location
- Monitoring well location
- Proposed excavation area
- NEC and no significant Toluene concentrations
- Detectable Toluene concentrations at or below RRUSCO

Notes:

The proposed excavation area is based on the known areal extent of contamination, both field evidence of contamination (odors and PID readings) and detectable concentrations of toluene in soil samples. Toluene is present at concentrations at or below the RRUSCO in sub-slab soils beneath the northern portion of building B-5B and the northwestern portion of building B-5A. Soil excavation will be guided by the depth of the documented toluene concentrations and by field evidence indicating VOC impacts. The maximum depth of excavation is expected to be approximately 10 feet bsg, based on field evidence of contamination, and will taper upward to between 4 and 6 feet bsg until clean endpoints are reached.

The excavation will start in the vicinity of 2SB-15A and expand outward laterally. Previous sampling points with no field evidence of contamination or significant detectable concentrations of toluene provide guidance for the extent of excavation to the west, south and east. Excavation will extend north of the building footprints, as warranted, based on field evidence of contamination and endpoint sampling data.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 5
Estimated number of base samples: 2
[The number of samples is an estimate based on figure as drawn.]

Figure 15 - Proposed Site Remediation Map - Area 2

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 40'

January 2014

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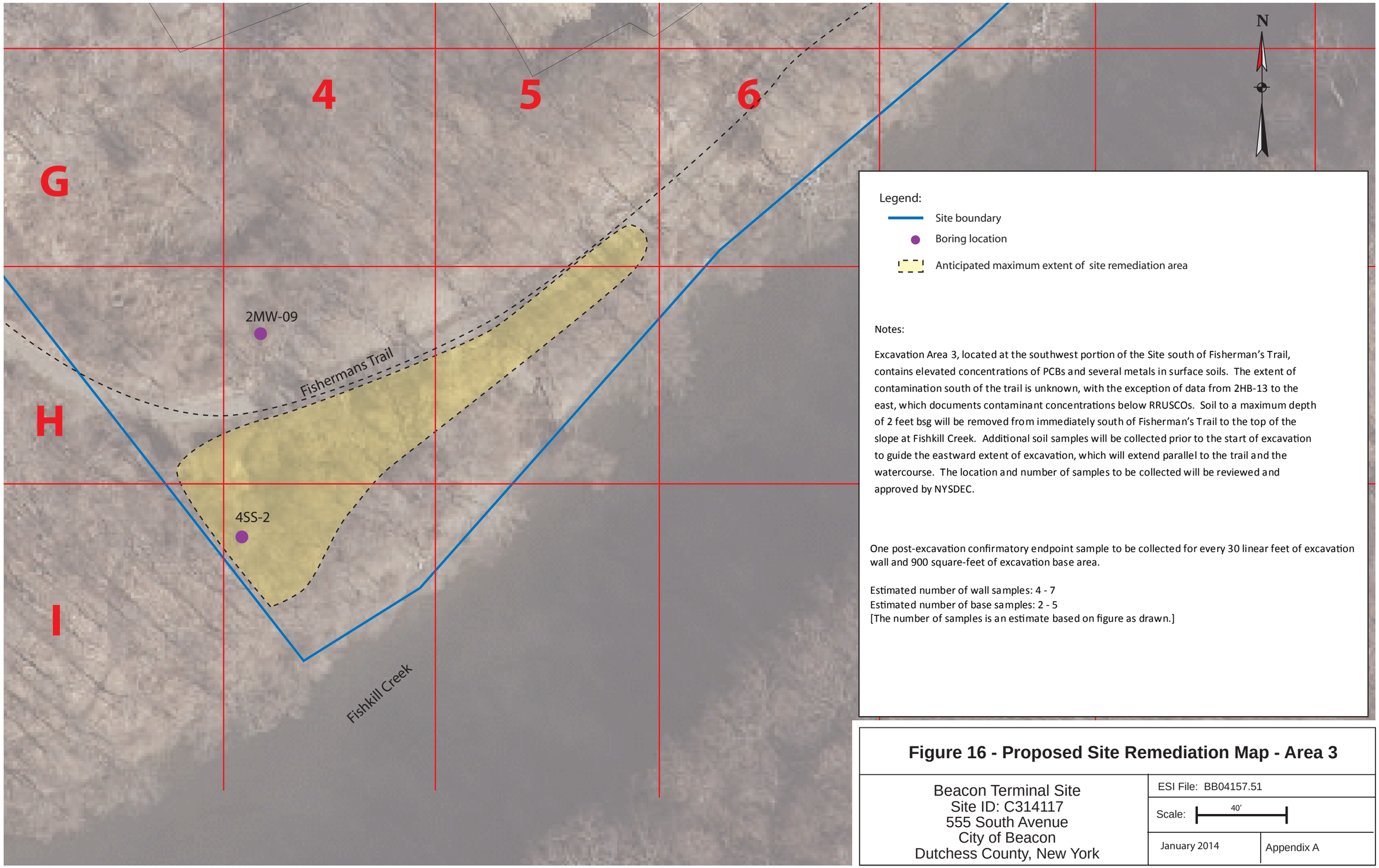

Legend:

- Site boundary
- Boring location
- Anticipated maximum extent of site remediation area

Notes:

Excavation Area 3, located at the southwest portion of the Site south of Fisherman's Trail, contains elevated concentrations of PCBs and several metals in surface soils. The extent of contamination south of the trail is unknown, with the exception of data from 2HB-13 to the east, which documents contaminant concentrations below RRUSCOs. Soil to a maximum depth of 2 feet bsg will be removed from immediately south of Fisherman's Trail to the top of the slope at Fishkill Creek. Additional soil samples will be collected prior to the start of excavation to guide the eastward extent of excavation, which will extend parallel to the trail and the watercourse. The location and number of samples to be collected will be reviewed and approved by NYSDEC.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 4 - 7
Estimated number of base samples: 2 - 5
[The number of samples is an estimate based on figure as drawn.]

Figure 16 - Proposed Site Remediation Map - Area 3

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 40'

January 2014

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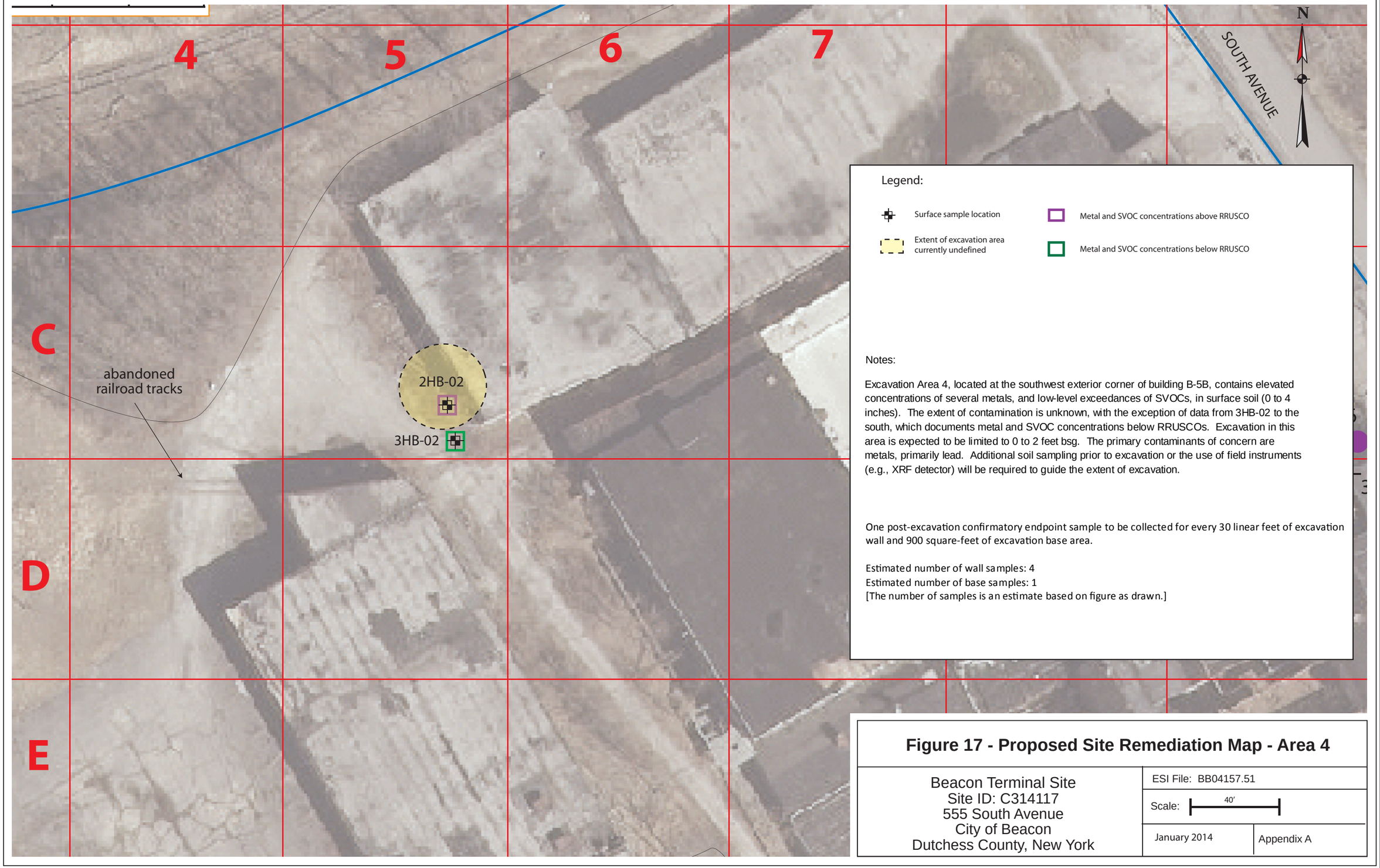

Legend:

- Surface sample location
- Extent of excavation area currently undefined
- Metal and SVOC concentrations above RRUSCO
- Metal and SVOC concentrations below RRUSCO

Notes:

Excavation Area 4, located at the southwest exterior corner of building B-5B, contains elevated concentrations of several metals, and low-level exceedances of SVOCs, in surface soil (0 to 4 inches). The extent of contamination is unknown, with the exception of data from 3HB-02 to the south, which documents metal and SVOC concentrations below RRUSCOs. Excavation in this area is expected to be limited to 0 to 2 feet bsg. The primary contaminants of concern are metals, primarily lead. Additional soil sampling prior to excavation or the use of field instruments (e.g., XRF detector) will be required to guide the extent of excavation.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 4
Estimated number of base samples: 1
[The number of samples is an estimate based on figure as drawn.]

Figure 17 - Proposed Site Remediation Map - Area 4

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 40′

January 2014

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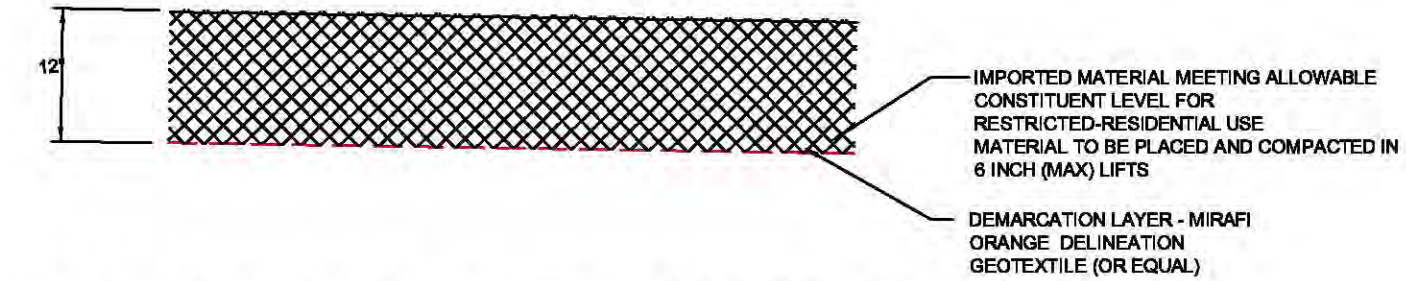
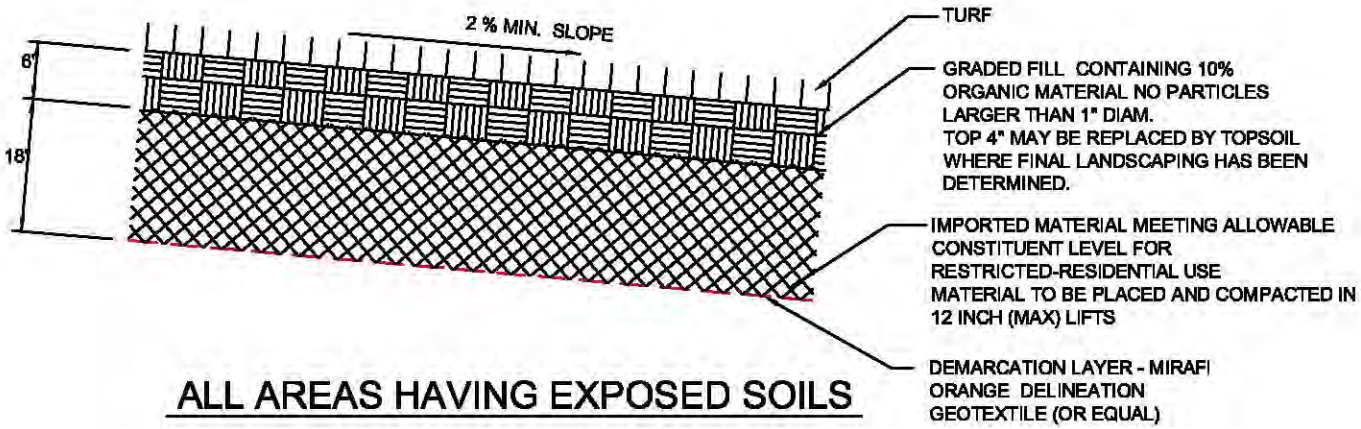


UNDER STRUCTURES AND OTHER IMPERVIOUS SURFACES



ALL AREAS HAVING EXPOSED SOILS

BARRIER SOIL LAYER

N.T.S.

Figure 18- Generic Cross-Section of Cover System

APPENDIX B

Health and Safety Plan (HASP)

HEALTH AND SAFETY PLAN

FOR

SITE REMEDIATION

(INCORPORATING COMMUNITY HEALTH AND SAFETY PLAN)

NYSDEC Brownfield Program Site: C314117

555 South Avenue
City of Beacon
Dutchess County, New York

January 2014

ESI File: BB04157.51

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1.0 INTRODUCTION

1.1 Purpose

This Health and Safety Plan for Site Remediation (HASP) has been developed to provide the requirements and general procedures to be followed by Ecosystems Strategies, Inc. (ESI) and on-site subcontractors while performing remedial services at the site located at 555 South Avenue, City of Beacon, Dutchess County, New York.

This HASP incorporates policies, guidelines and procedures that have the objective of protecting the public health of the community during the performance of fieldwork activities, and therefore serves as a Community Health and Safety Plan (CHASP). The objectives of the CHASP are met by establishing guidelines to minimize community exposure to hazards during fieldwork, and by planning for and responding to emergencies affecting the public.

This HASP describes the responsibilities, training requirements, protective equipment and standard operating procedures to be utilized by all personnel while on the Site. All on-site personnel and visitors shall follow the guidelines, rules, and procedures contained in this safety plan. The Project Manager or Site Health and Safety Officer (SHSO) may impose any other procedures or prohibitions believed to be necessary for safe operations. This HASP incorporates by reference the applicable Occupational Safety and Health Administration (OSHA) requirements in 29 CFR 1910 and 29 CFR 1926.

The requirements and guidelines in this HASP are based on a review of available information and evaluation of potential on-site hazards. This HASP will be discussed with Site personnel and will be available on-site for review while work is underway. On-site personnel will report to the Site Health and Safety Officer (SHSO) in matters of health and safety. The on-site project supervisor(s) are responsible for enforcement and implementation of this HASP, which is applicable to all field personnel, including contractors and subcontractors.

This HASP is specifically intended for the conduct of activities within the defined scope of work in specified areas of the Site. Changes in site conditions and future actions that may be conducted at the Site may necessitate the modification of the requirements of the HASP. Although this HASP can be made available to interested persons for informational purposes, ESI has no responsibility over the interpretations or activities of any other persons or entities other than employees of ESI or ESI's subcontractors.

1.2 Site Location and Description

The Site as defined in this HASP is the property located at 280 555 South Avenue, City of Beacon, Dutchess County, New York. A Proposed Remediation Map (illustrating the configuration of the Site as well as the areas of proposed fieldwork activities) is included as an Attachment to this HASP.

1.3 Work Activities

Environmental remediation activities are detailed in the Remedial Action Work Plan (RAWP), dated January 2014. The specific tasks detailed in the RAWP are wholly incorporated by reference into this HASP. The RAWP was prepared to remediate documented soil and soil gas contamination on the property located at 555 South Avenue and describes tasks required for remediation and post-remediation documentation and management of on-site environmental conditions.

The Remedial Investigation documented the presence of approximately 3,600 cy of toluene-contaminated subsurface soil (northwest and north central portions of the Site) and approximately 1,000 cy of additional surface and near-surface soil (various distinct locations throughout the Site) containing elevated levels of PCBs, PAHs, and/or metals. Additionally, fill materials have been encountered in subsurface soil in test

pits at the western portion of the Site. Contaminated soil (and any excavated fill materials) will be removed from the Site. The location of known contaminated soils subject to the removal procedures is provided on the attached Proposed Site Remediation Map.

Material removal from the Site will generally be conducted as follows:

- On-site buildings will be demolished prior to any significant soil removal actions.
- Any previously unknown contaminated material(s), USTs, demolition debris or other unknown unidentifiable materials will be handled according to a Contingency Plan.
- All soils likely to be contaminant source areas (i.e., grossly contaminated material) will be removed. Grossly contaminated materials will be stockpiled separately from other materials, and will be direct loaded to trucks for off-site disposal if a permitted facility has been previously secured.
- Soils not exhibiting significant field evidence of contamination will be segregated, stockpiled, sampled, and characterized prior to final disposition.
- Any groundwater entering excavated areas will be handled following the provisions of the Soil Management Plan (SoMP).

Confirmatory endpoint sampling will be conducted to document the integrity of remaining soils in excavation areas, and waste materials will be characterized for appropriate off-site disposal. Excavated areas will be back-filled (as required), and a layer of certified clean soils will be installed over areas of remaining contamination not otherwise covered by buildings. A sub-slab depressurization system (SSDS) will be installed at any buildings that potentially overlie soil with significant residual soil vapor. Post-remediation groundwater monitoring will be conducted to document the continued absence of VOCs.

2.0 HEALTH AND SAFETY HAZARDS

2.1 Hazard Overview for On-Site Personnel

The potential exists for the presence of elevated levels of organic compounds and metals in on-site soils and groundwater, and organic compounds in soil gas. The possibility exists for on-site personnel to have contact with contaminated soils, groundwater and/or vapor during site remediation work. Contact with contaminated substances may present a skin contact, inhalation and/or ingestion hazard. These potential hazards are addressed in Sections 3.0 through 11.0, below.

2.2 Potential Hazards to the Public from Fieldwork Activities

The potential exists for the public to be exposed to contaminated soils, groundwater and/or vapor, which may present a skin contact, inhalation and/or ingestion hazard. Additional potential hazards to the public that are associated with fieldwork activities include mechanical/physical hazards, traffic hazards from fieldwork vehicles, and noise impacts associated with operation of mechanical equipment.

Impacts to public health and safety are expected to be limited to hazards that could directly affect on-site visitors and/or trespassers. These effects will be mitigated through site access and control measures (see Section 6.0, below). Specific actions taken to protect the public health (presented in Sections 3.0 through 11, below) are anticipated to minimize any potential off-site impacts from contaminant migration, noise and traffic hazards.

3.0 PERSONAL PROTECTIVE EQUIPMENT

The levels of protection identified for the services specified in the RIWP represent a best estimate of exposure potential and protective equipment needed for that exposure. Determination of levels was based on data provided by previous studies of the Site and information reviewed on current and past Site usage. The SHSO may recommend revisions to these levels based on an assessment of actual exposures and may at any time require Site workers, supervisors and/or visitors to use specific safety equipment.

The level of protective clothing and equipment selected for this project is Level D. Level D PPE provides minimal skin protection and no respiratory protection, and is used when the atmosphere contains no known hazard, oxygen concentrations are not less than 19.5%, and work activities exclude splashes, immersion or the potential for unexpected inhalation or contact with hazardous levels of chemicals. Workers will wear Level D protective clothing including, but not limited to, a hard hat, steel-toed boots, nitrile gloves (when handling soils and/or groundwater), hearing protection (foam ear plugs or ear muffs, as required), and safety goggles (in areas of exposed groundwater and when decontaminating equipment). Personal protective equipment (PPE) will be worn at all times, as designated by this HASP.

Disposable gloves will be changed immediately following the handling of contaminated soils, water, or equipment. Tyvek suits will be worn during activities likely to excessively expose work clothing to contaminated dust or soil (chemically-resistant over garments will be required in situations where exposures could lead to penetration of clothing and direct dermal contact by contaminants).

The requirement for the use of PPE by official on-site visitors shall be determined by the SHSO, based on the most restrictive PPE requirement for a particular Work Zones (see Section 6 for Work Zone definitions). All on-site visitors shall, at a minimum, be required to wear an approved hardhat and be provided with appropriate hearing protection as necessary.

The need for an upgrade in PPE will be determined based upon encountered Site conditions, including measurements taken in the breathing zone of the work area using a photo-ionization detector (PID). An upgrade to a higher level of protection (Level C) will begin when specific action levels are reached (see Section 5.0, below), or as otherwise required by the SHSO. Level C PPE includes a full-face or half-mask air-purifying respirator (NIOSH approved for the compound[s] of concern), hooded chemical-resistant clothing, outer and inner chemical-resistant gloves, and (as needed) coveralls, outer boots/boot covers, escape mask, and face shield. Level C PPE may be used only when: oxygen concentrations are not less than 19.5%; contaminant contact will not adversely affect any exposed skin; types of air contaminants have been identified, concentrations measured, and a cartridge or canister is available that can remove the contaminant; atmospheric contaminant concentrations do not exceed immediately dangerous to life or health (IDLH) levels; and job functions do not require self-contained breathing apparatus (SCBAs). The need for Level B or Level A PPE is not anticipated for the planned remedial activities at this Site.

If any equipment fails and/or any employee experiences a failure or other alteration of their protective equipment that may affect its protective ability, that person will immediately leave the work area. The Project Manager and the SHSO will be notified and, after reviewing the situation, determine the effect of the failure on the continuation of on-going operations. If the failure affects the safety of personnel, the work site, or the surrounding environment, personnel will be evacuated until appropriate corrective actions have been taken.

4.0 CONTAMINANT CONTROL

Precautions will be taken during dry weather (e.g., wetting or covering exposed soils) to avoid generating and breathing dust-generated from soils. A PID (or equivalent equipment) will be used to monitor potential contaminant levels. Response to the monitoring will be in accordance with the action levels provided in Section 5.0.

5.0 MONITORING AND ACTION LEVELS

Concentrations of petroleum compounds in the air are expected to be below the OSHA Permissible Exposure Limits (PELs). Air monitoring will be conducted for VOCs and dust according to the NYSDOH Generic Community Air Monitoring Plan (CAMP). Monitoring will be conducted at all times that fieldwork activities which are likely to generate emissions are occurring. PID and dust readings consistently in excess of CAMP limits will be used as an indication of the need to initiate personnel monitoring, increase worker protective measures, and/or modify or cease on-site operations in order to mitigate off-site community exposure.

PID readings that consistently exceed background in the breathing zone (during any of the proposed tasks) will necessitate moving away from the source or implementing a higher PPE level.

6.0 SITE CONTROL/WORK ZONES

Site control procedures will be established to reduce the possibility of worker/visitor contact with compounds present in the soil, to protect the public in the area surrounding the Site and to limit access to the Site to only those persons required to be in the work zone. Notices will be placed near the Site warning the public not to enter fieldwork areas and directing visitors to report to the Project Manager or SHSO. Measures will be taken to limit the entry of unauthorized personnel into the specific areas of field activity and to safely direct and control all vehicular traffic in and near the Site (e.g., placement of traffic cones and warning tape).

The following Work Zone will be established:

Exclusion Zone ("Hot Zone") - The exclusion zone will be that area immediately surrounding the work being performed for remediation purposes (i.e. the area where contaminated media are being handled). It is anticipated that much of the work will be accomplished with heavy equipment in the exclusion zone. Only individuals with appropriate PPE and training are allowed into this zone. It is the responsibility of the Site Health and Safety Officer to prevent unauthorized personnel from entering the exclusion zone. When necessary, such as in high traffic areas, the exclusion zone will be delineated with barricade tape, cones and/or barricades.

Decontamination Area - A decontamination area for personnel and equipment is not anticipated being required during completion of the RAWP; however, care will be taken to remove gloves, excess soil from boots, and soiled clothing (if necessary) before entering the Intermediate Zone.

Contamination Reduction Zone and Support Zone - Not anticipated being required during the completion of the RAWP.

Intermediate Zone (Decontamination Zone) - The intermediate zone, also known as the decontamination zone, is where patient decontamination should take place, if necessary. A degree of contamination still is found in this zone; thus, some PPE is required, although it is usually of a lesser degree than that required for the hot zone.

Command Zone - The command zone is located outside the decontamination zone. All exposed individuals and equipment from the "hot zone" and decontamination zone should be decontaminated before entering the command zone. Access to all zones must be controlled. Keeping the media and onlookers well away from the Site is critical and will be the responsibility of both the SSHO and the Project Manager, and other Site personnel as appropriate.

7.0 NOISE CONTROL

All fieldwork activities will be conducted in a manner designed to reduce unnecessary noise generation, and to minimize the potential for both on-site and off-site harmful noise levels. The Project Manager and SHSO will establish noise reduction procedures (as appropriate to the Site and the work) to meet these requirements.

8.0 PERSONNEL TRAINING

Work zones that will accomplish the general objective stated above will be established by the Project Manager and the SHSO. Site access will be monitored by the SHSO, who will maintain a log-in sheet for personnel that will include, at the minimum, personnel on the Site, their arrival and departure times and their destination on the Site. All workers will be properly trained in accordance with OSHA requirements (29 CFR 1910). Personnel exiting the work zone(s) will be decontaminated prior to exiting the Site.

Site-specific training will be provided to each employee. Personnel will be briefed by the SHSO as to the potential hazards to be encountered. Topics will include:

- Availability of this HASP;
- General site hazards and specific hazards in the work areas, including those attributable to known of suspect on-site contaminants;
- Selection, use, testing, and care of the body, eye, hand, and foot protection being worn, with the limitations of each;
- Decontamination procedures for personnel, their personal protective equipment, and other equipment used on the Site;
- Emergency response procedures and requirements;
- Emergency alarm systems and other forms of notification, and evacuation routes to be followed; and,
- Methods to obtain emergency assistance and medical attention.

9.0 DECONTAMINATION

The SHSO will establish a decontamination system and decontamination procedures (appropriate to the Site and the work) that will prevent potentially hazardous materials from leaving the Site. Trucks will be brushed to remove materials adhering to their surfaces. Sampling equipment will be segregated and, after decontamination, stored separately from splash protection equipment. Decontaminated or clean sampling equipment not in use will be covered with plastic and stored in a designated storage area in the work zone.

10.0 EMERGENCY RESPONSE

10.1 Notification of Site Emergencies

In the event of an emergency, the SHSO will be immediately notified of the nature and extent of the emergency (the names and contact information for key site safety and management personnel, as well as other site safety contact telephone numbers, shall be posted at the Site).

Table 1 in this HASP contains Emergency Response Telephone Numbers, and immediately following is a map detailing the directions to the nearest hospital emergency room. This information will be maintained at the work Site by the SHSO. The location of the nearest telephone will be determined prior to the initiation of on-site activities. In addition to any permanent phone lines, a cellular phone will be in the possession of the SHSO, or an authorized designee, at all times.

10.2 Responsibilities

Prior to the initiation of on-site work activities, the SHSO will:

- Notify individuals, authorities and/or health care facilities of the potentially hazardous activities and potential wastes that may develop as a result of the remedial activities.
- Confirm that first aid supplies and a fire extinguisher are available on-site.
- Have a working knowledge of safety equipment available.
- Confirm that a map detailing the most direct route to the hospital is prominently posted with the emergency telephone numbers.

The SHSO will be responsible for directing notification, response and follow-up actions and for contacting outside response personnel (ambulance, fire department, or others). In the case of an evacuation, the SHSO will account for personnel. A log of individuals entering and leaving the Site will be kept so that everyone can be accounted for in an emergency.

Upon notification of an exposure incident, the SHSO will contact the appropriate emergency response personnel for recommended medical diagnosis and, if necessary, treatment. The SHSO will determine whether and at what levels exposure actually occurred, the cause of such exposure, and the means to prevent similar incidents from occurring.

10.3 Accidents and Injuries

In the event of an accident or injury, measures will be taken to assist those who have been injured or exposed and to protect others from hazards. If an individual is transported to a hospital or doctor, a copy of the HASP will accompany the individual.

The SHSO will be notified and will respond according to the severity of the incident. The SHSO will perform an investigation of the incident and prepare a signed and dated report documenting the investigation. An exposure-incident report will also be completed by the SHSO and the exposed individual. The form will be filed with the employee's medical and safety records to serve as documentation of the incident and the actions taken.

10.4 Communication

No special hand signals will be utilized within the work zone. Field personnel will utilize standard hand signals during the operation of heavy equipment.

10.5 Safe Refuge

Vehicles and on-site structures will serve as the immediate place of refuge in the event of an emergency. If evacuation from the area is necessary, project vehicles will be used to transport on-site personnel to safety.

10.6 Site Security and Control

Site security and control during emergencies, accidents and incidents will be monitored by the SHSO. The SHSO is responsible for limiting access to the Site to authorized personnel and for oversight of reaction activities.

10.7 Emergency Evacuation

In case of an emergency, personnel will evacuate to the safe refuge identified by the SHSO, both for their personal safety and to prevent the hampering of response/rescue efforts.

10.8 Resuming Work

A determination that it is safe to return to work will be made by the SHSO and/or any personnel assisting in the emergency, e.g., fire department, police department, utility company, etc. No personnel will be allowed to return to the work areas until a full determination has been made by the above-identified personnel that all field activities can continue unobstructed. Such a determination will depend upon the nature of the emergency (e.g., downed power lines -- removal of all lines from the property; fire -- extinguished fire; injury -- safe transport of the injured party to a medical facility with either assurance of acceptable medical care present or completion of medical care; etc.). Before on-site work is resumed following an emergency, necessary emergency equipment will be recharged, refilled or replaced. Government agencies will be notified as appropriate. An Incident Report Form will be filed.

10.9 Fire Fighting Procedures

A fire extinguisher will be available in the work zone during on-site activities. This extinguisher is intended for small fires. When a fire cannot be controlled with the extinguisher, the area will be evacuated immediately. The SHSO will be responsible for directing notification, response and follow-up actions and for contacting ambulance and fire department personnel.

10.10 Emergency Decontamination Procedure

The extent of emergency decontamination depends on the severity of the injury or illness and the nature of the contamination. Whenever possible, minimum decontamination will consist of washing, rinsing and/or removal of contaminated outer clothing and equipment. If time does not permit decontamination, the person will be given first aid treatment and then wrapped in plastic or a blanket prior to transport.

10.11 Emergency Equipment

The following on-site equipment for safety and emergency response will be maintained in the on-site vehicle of the SHSO:

- Fire extinguisher;
- First-aid kit; and,
- Extra copy of this Health and Safety Plan.

11.0 SPECIAL PRECAUTIONS AND PROCEDURES

The activities associated with this remediation may involve potential risks of exposure to both chemical and physical hazards. The potential for chemical exposure to hazardous or regulated substances will be significantly reduced through the use of monitoring, personal protective clothing, engineering controls, and implementation of safe work practices.

11.1 Heat/Cold Stress

Training in prevention of heat/cold stress will be provided as part of the site-specific training. The timing of this project is such that heat/cold stress may pose a threat to the health and safety of personnel. Work/rest regimens will be employed, as necessary, so that personnel do not suffer adverse effects from heat/cold stress. Special clothing and appropriate diet and fluid intake regimens will be recommended to personnel to further reduce this temperature-related hazard. Rest periods will be recommended in the event of high/low temperatures and/or humidity to counter the negative effects of heat/cold stress.

11.2 Heavy Equipment

Working in the vicinity of heavy equipment is the primary safety hazard at the Site. Physical hazards in working near heavy construction equipment include the following: overhead hazards, slips/trip/falls, hand and foot injuries, moving part hazards, improper lifting/back injuries and noise. All workers will be properly trained in accordance with OSHA requirements (29 CFR 1910). No workers will be permitted within any excavated areas without proper personal protective equipment (PPE), including, as warranted, any necessary Level C equipment (e.g., respirators and protective suits). Air monitoring in excavation areas will be conducted for VOCs in accordance with Section 5.0.

11.3 Additional Safety Practices

The following are important safety precautions which will be enforced during the remedial activities:

- Medicine and alcohol can aggravate the effect of exposure to certain compounds. Controlled substances and alcoholic beverages will not be consumed during remedial activities. Consumption of prescribed drugs will only be at the discretion of a physician familiar with the person's work.
- Eating, drinking, chewing gum or tobacco, smoking, or other practices that increase the probability of hand-to-mouth transfer and ingestion of material is prohibited except in areas designated by the SHSO.
- Contact with potentially contaminated surfaces will be avoided whenever possible. Workers will not unnecessarily walk through puddles, mud or other discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, vehicles, or the ground.
- Personnel and equipment in the work areas will be minimized, consistent with effective site operations.
- Unsafe equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.
- Work areas for various operational activities will be established.

11.4 Daily Log Contents

The SHSO will establish a system appropriate to the Site, the work and the work zones that will record, at a minimum, the following information:

- Personnel on the Site, their arrival and departure times and their destination on the Site.
- Incidents and unusual activities that occur on the Site such as, but not limited to, accidents, spills, breaches of security, injuries, equipment failures and weather-related problems.
- Changes to the HASP.
- Daily information generated such as: changes to work and health and safety plans; work accomplished and the current Site status; and monitoring results.

12.0 TABLE AND FIGURES

Table 1: Emergency Contact Information

Emergency Contact	Phone Number
EMERGENCY	**911**
St. Luke's Hospital, 70 Dubois Street, Newburgh	(845) 561-4400
Beacon Police Department	(845) 831-4111 or 911
Beacon Fire Department	(845) 569-7415 or 911
Beacon City Hall	(845) 838-5000
Beacon City Water/Sewer	(845) 834-5008
Beacon Water and Sewer Maintenance Department	(845) 831-3136
Site Health and Safety Officer, Paul Ciminello, ESI	(845) 452-1658
Remedial Engineer, Jolanda G. Jansen, PE	(845) 505-0324
NYSDEC Project Manager, Parag Amin	(518) 402-9648
NYSDOH Project Manager, Anthony Perretta	(518) 402-7880
Construction Manager	TBD

Figure 1: Directions to Hospital

1. Turn left onto South Avenue, toward Tioronda Avenue
2. Turn left to stay on South Avenue
3. Follow South Avenue north
4. Turn left onto Wolcott Avenue/New York 9D North
5. Follow New York 9D North
6. Turn left to merge onto I-84/NY-52 West
7. Take exit 10S for NY-32 toward US-9W South/Newburgh
8. Turn right onto NY-32 South/North Plank Rd
9. Turn right onto Albany Post Rd/North Robinson Avenue
10. Turn left onto South Street
11. Take the 1st right onto Dubois Street

Saint Luke's Cornwall Hospital will be on the left

Figure 2: Map to Hospital (overview)

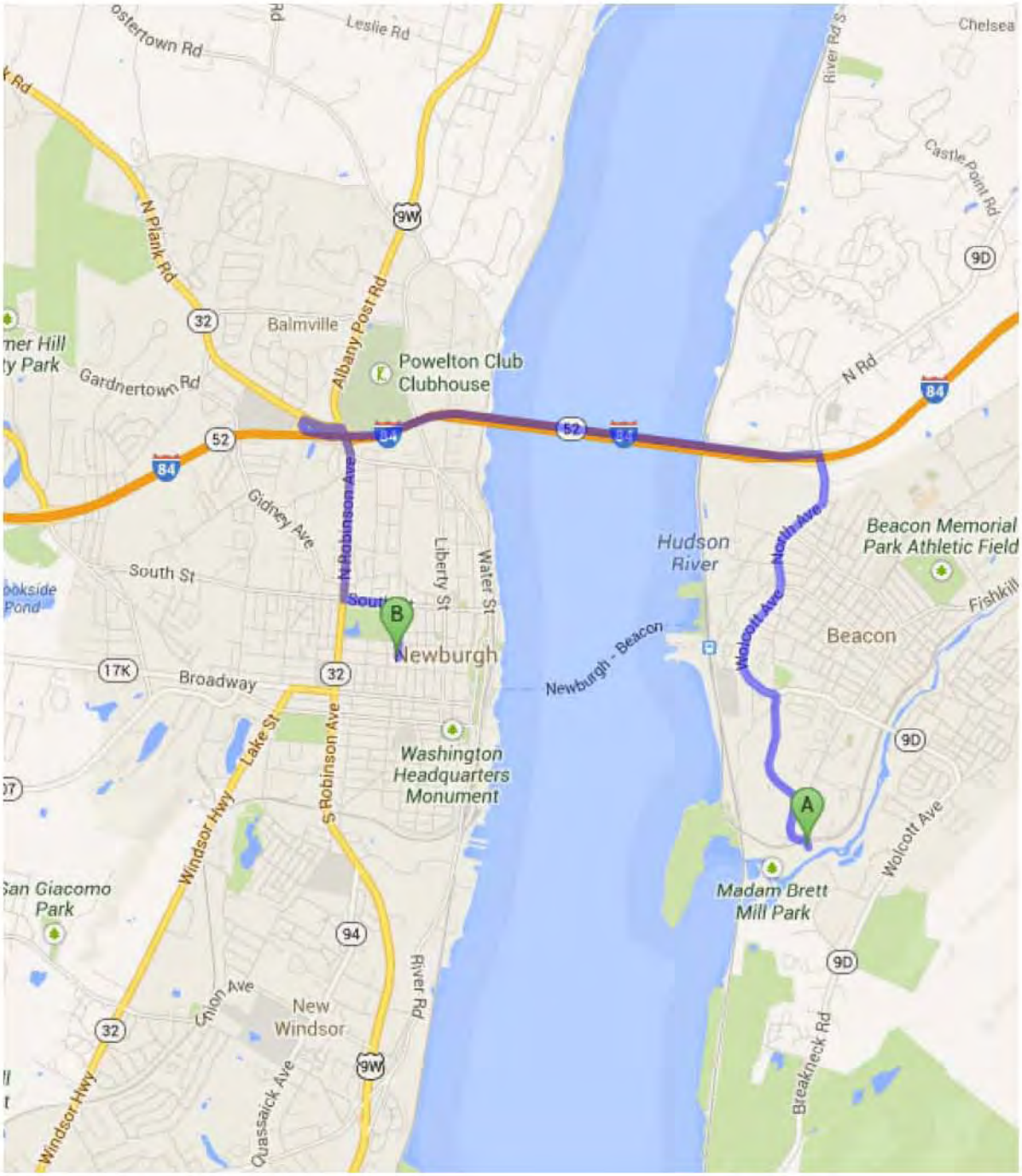
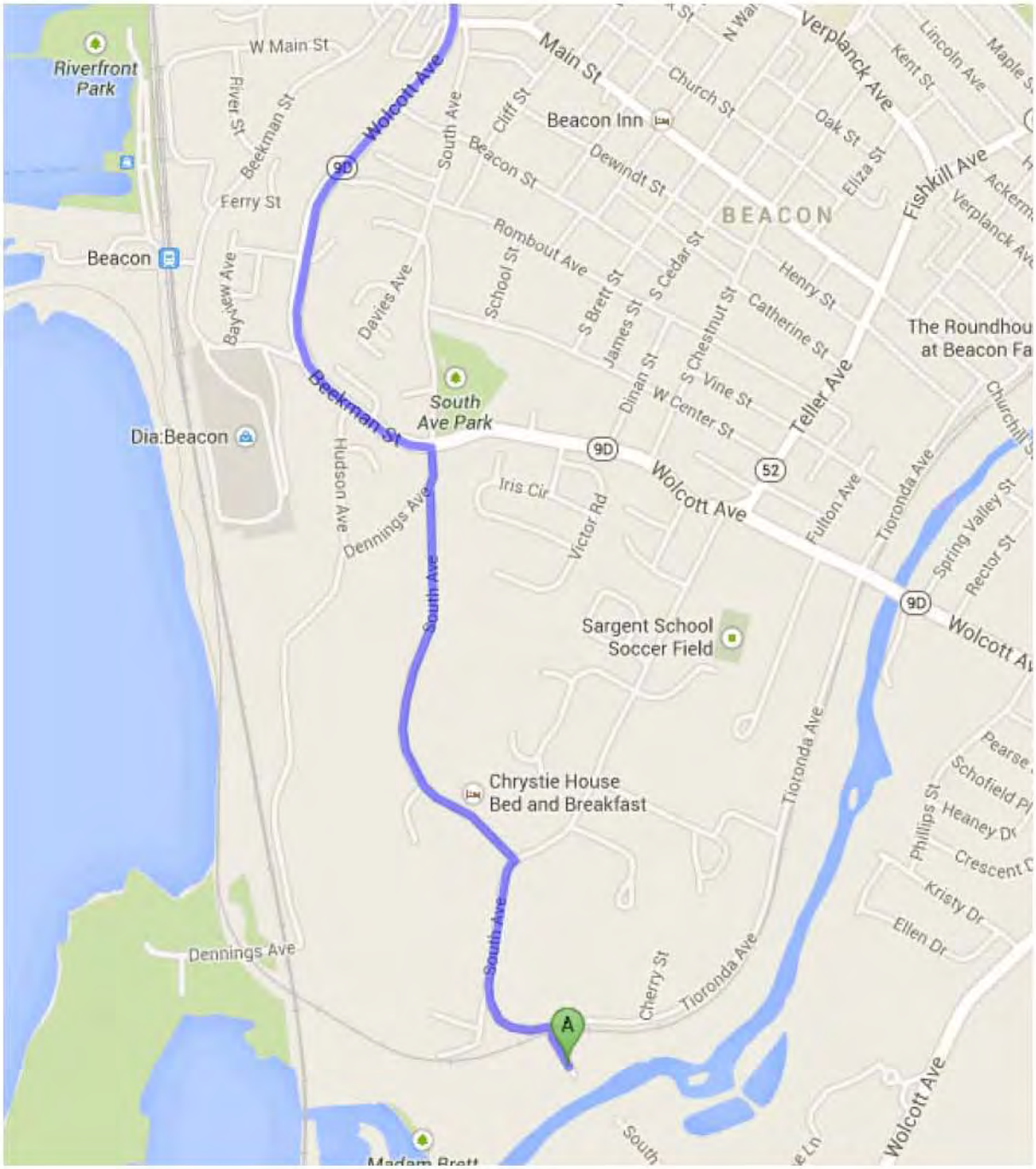
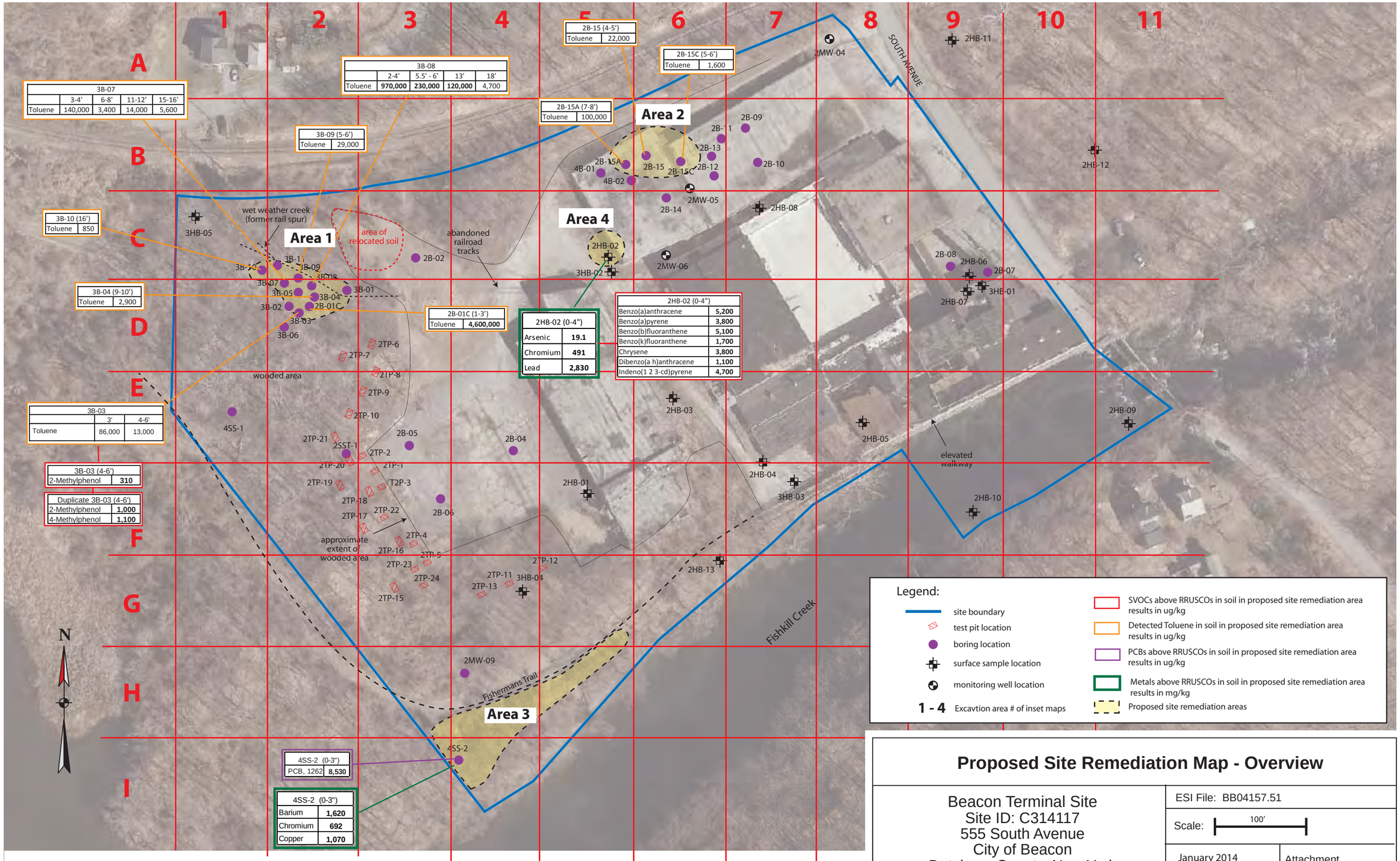


Figure 3: Map to Hospital (detail - Beacon)



Ecosystems Strategies, Inc.



Legend:

- site boundary
- test pit location
- boring location
- surface sample location
- monitoring well location
- 1 - 4 Excavtion area # of inset maps
- SVOCs above RRUSCOs in soil in proposed site remediation area results in ug/kg
- Detected Toluene in soil in proposed site remediation area results in ug/kg
- PCBs above RRUSCOs in soil in proposed site remediation area results in ug/kg
- Metals above RRUSCOs in soil in proposed site remediation area results in mg/kg
- Proposed site remediation areas

Proposed Site Remediation Map - Overview

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

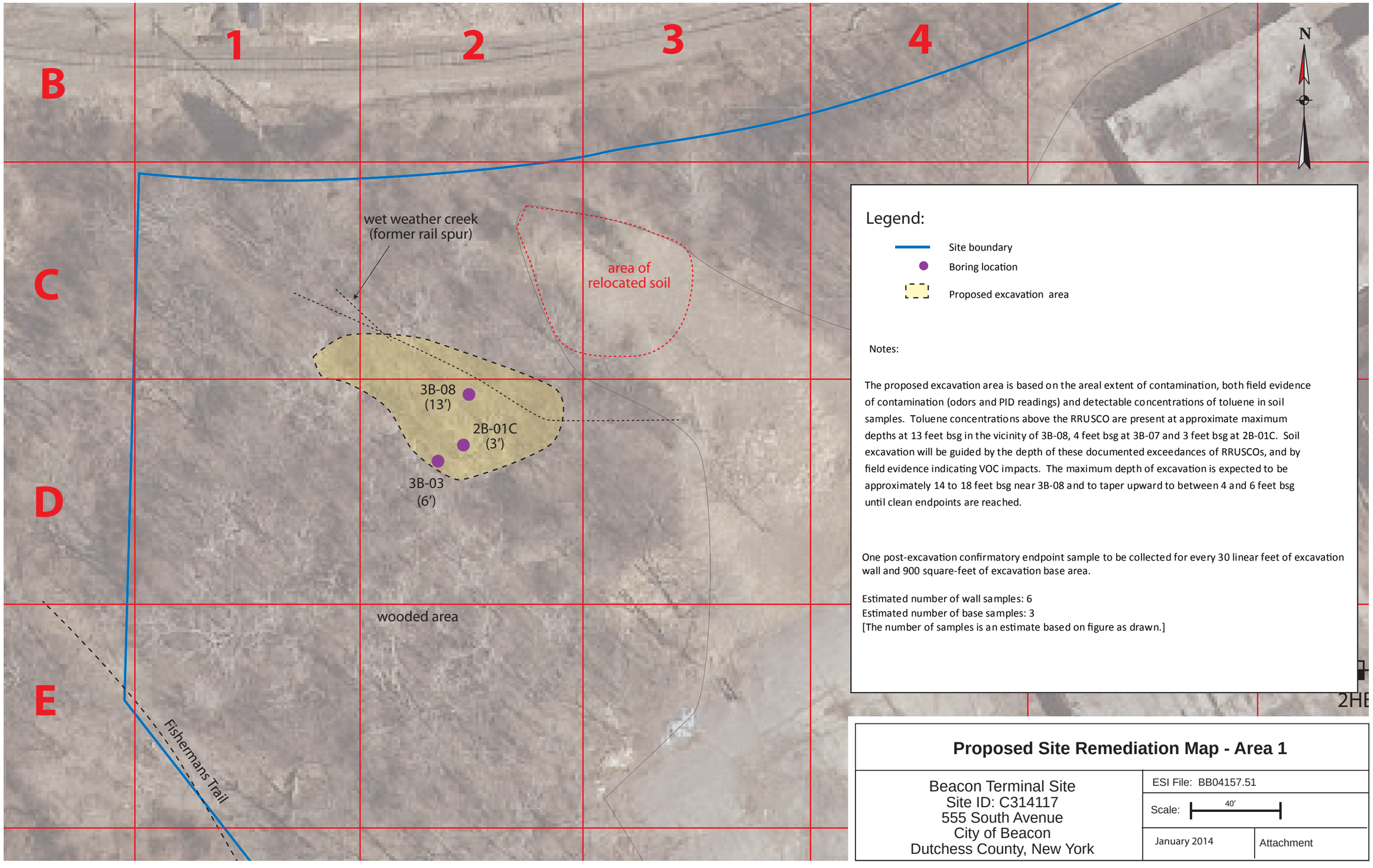
ESI File: BB04157.51

Scale: 100'

January 2014

Attachment

Ecosystems Strategies, Inc.



Legend:

- Site boundary
- Boring location
- Proposed excavation area

Notes:

The proposed excavation area is based on the areal extent of contamination, both field evidence of contamination (odors and PID readings) and detectable concentrations of toluene in soil samples. Toluene concentrations above the RRUSCO are present at approximate maximum depths at 13 feet bsg in the vicinity of 3B-08, 4 feet bsg at 3B-07 and 3 feet bsg at 2B-01C. Soil excavation will be guided by the depth of these documented exceedances of RRUSCOs, and by field evidence indicating VOC impacts. The maximum depth of excavation is expected to be approximately 14 to 18 feet bsg near 3B-08 and to taper upward to between 4 and 6 feet bsg until clean endpoints are reached.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 6
Estimated number of base samples: 3
[The number of samples is an estimate based on figure as drawn.]

Proposed Site Remediation Map - Area 1

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 40′

January 2014

Attachment

Ecosystems Strategies, Inc.

Legend:

- Site boundary
- Boring location
- Monitoring well location
- Proposed excavation area
- NEC and no significant Toluene concentrations
- Detectable Toluene concentrations at or below RRUSCO

Notes:

The proposed excavation area is based on the known areal extent of contamination, both field evidence of contamination (odors and PID readings) and detectable concentrations of toluene in soil samples. Toluene is present at concentrations at or below the RRUSCO in sub-slab soils beneath the northern portion of building B-5B and the northwestern portion of building B-5A. Soil excavation will be guided by the depth of the documented toluene concentrations and by field evidence indicating VOC impacts. The maximum depth of excavation is expected to be approximately 10 feet bsg, based on field evidence of contamination, and will taper upward to between 4 and 6 feet bsg until clean endpoints are reached.

The excavation will start in the vicinity of 2SB-15A and expand outward laterally. Previous sampling points with no field evidence of contamination or significant detectable concentrations of toluene provide guidance for the extent of excavation to the west, south and east. Excavation will extend north of the building footprints, as warranted, based on field evidence of contamination and endpoint sampling data.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 5
Estimated number of base samples: 2
[The number of samples is an estimate based on figure as drawn.]

Proposed Site Remediation Map - Area 2

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

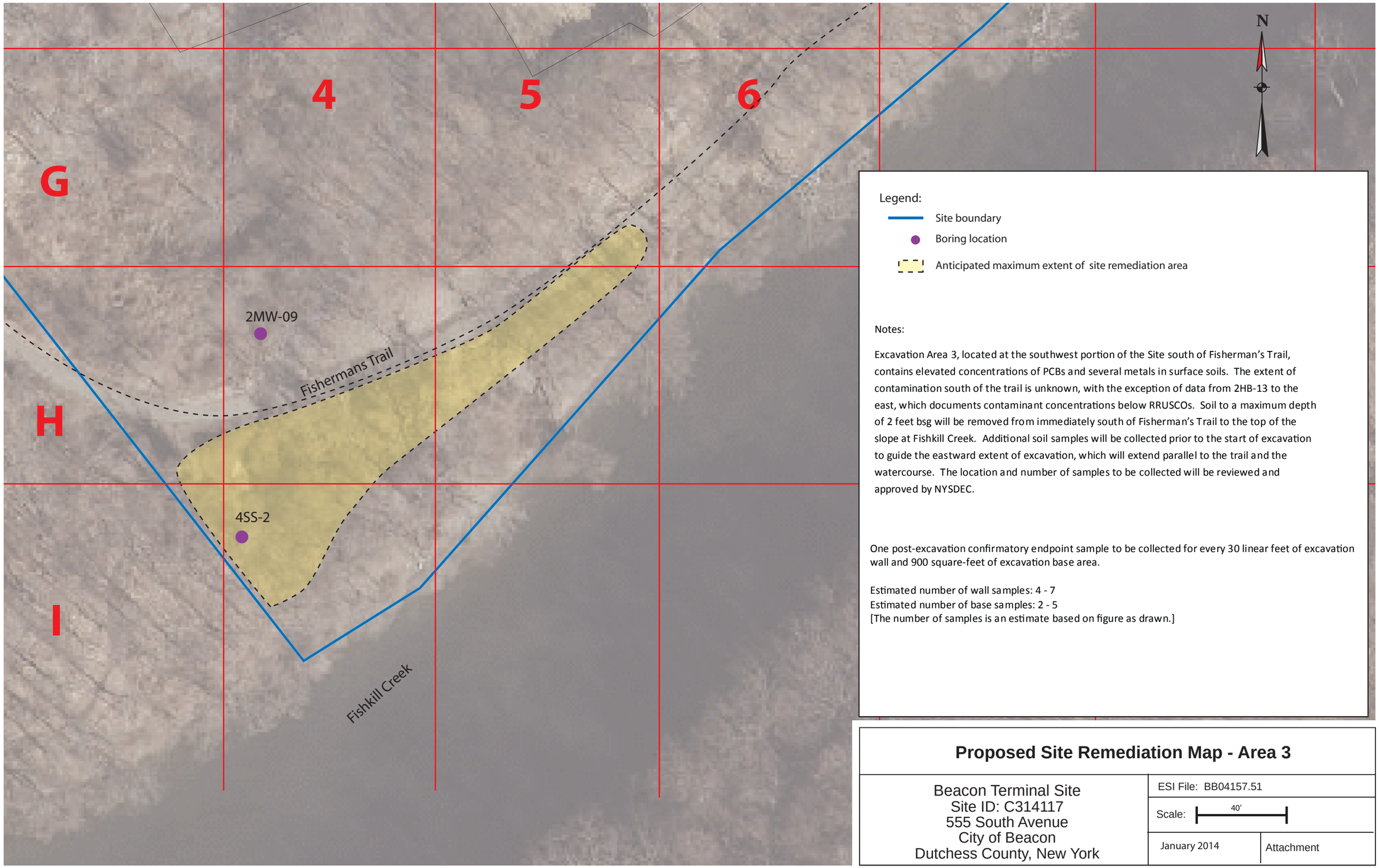
ESI File: BB04157.51

Scale: 40'

January 2014

Attachment

Ecosystems Strategies, Inc.



Legend:

- Site boundary
- Boring location
- Anticipated maximum extent of site remediation area

Notes:

Excavation Area 3, located at the southwest portion of the Site south of Fisherman's Trail, contains elevated concentrations of PCBs and several metals in surface soils. The extent of contamination south of the trail is unknown, with the exception of data from 2HB-13 to the east, which documents contaminant concentrations below RRUSCOs. Soil to a maximum depth of 2 feet bsg will be removed from immediately south of Fisherman's Trail to the top of the slope at Fishkill Creek. Additional soil samples will be collected prior to the start of excavation to guide the eastward extent of excavation, which will extend parallel to the trail and the watercourse. The location and number of samples to be collected will be reviewed and approved by NYSDEC.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 4 - 7
Estimated number of base samples: 2 - 5
[The number of samples is an estimate based on figure as drawn.]

Proposed Site Remediation Map - Area 3

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

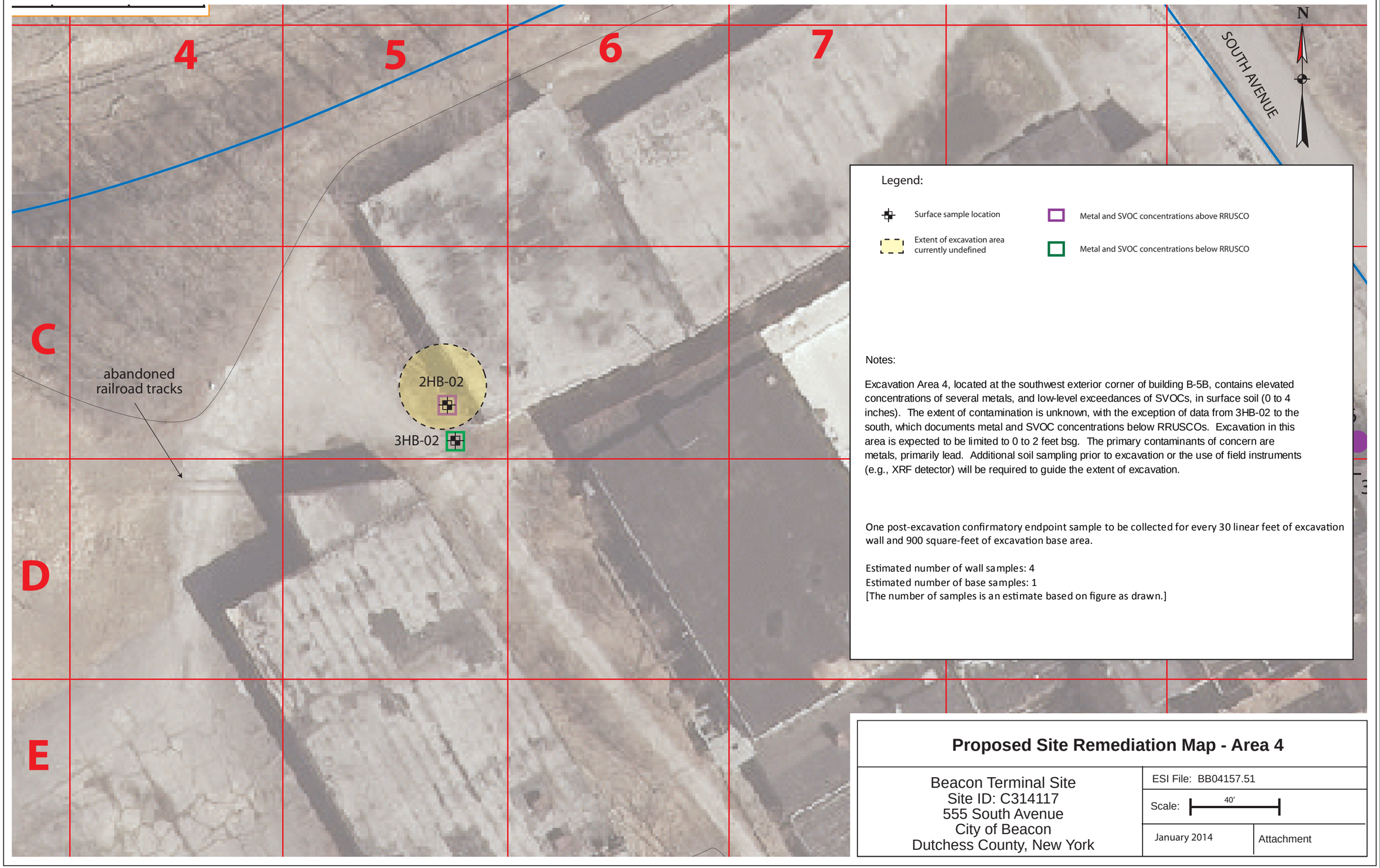
ESI File: BB04157.51

Scale: 40'

January 2014

Attachment

Ecosystems Strategies, Inc.



Legend:

- Surface sample location
- Extent of excavation area currently undefined
- Metal and SVOC concentrations above RRUSCO
- Metal and SVOC concentrations below RRUSCO

Notes:

Excavation Area 4, located at the southwest exterior corner of building B-5B, contains elevated concentrations of several metals, and low-level exceedances of SVOCs, in surface soil (0 to 4 inches). The extent of contamination is unknown, with the exception of data from 3HB-02 to the south, which documents metal and SVOC concentrations below RRUSCOs. Excavation in this area is expected to be limited to 0 to 2 feet bsg. The primary contaminants of concern are metals, primarily lead. Additional soil sampling prior to excavation or the use of field instruments (e.g., XRF detector) will be required to guide the extent of excavation.

One post-excavation confirmatory endpoint sample to be collected for every 30 linear feet of excavation wall and 900 square-feet of excavation base area.

Estimated number of wall samples: 4
Estimated number of base samples: 1
[The number of samples is an estimate based on figure as drawn.]

Proposed Site Remediation Map - Area 4

Beacon Terminal Site
Site ID: C314117
555 South Avenue
City of Beacon
Dutchess County, New York

ESI File: BB04157.51

Scale: 40′

January 2014

Attachment

APPENDIX C

Generic Community Air Monitoring Plan

New York State Department of Health
Generic Community Air Monitoring Plan

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 volatile organic compounds (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 NYSDEC/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. 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.

- 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.

- 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.

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

All 15-minute readings must be recorded and be available for State (DEC and DOH) 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.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/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 mcg/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, downwind PM-10 particulate levels are greater than 150 mcg/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 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX D

Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

Prepared for the

Beacon Terminal Site

NYSDEC Brownfield Program Site: C314117

Located at

555 South Avenue
City of Beacon
Dutchess County, New York

January 2014

ESI File: BB04157.51

Prepared By:

Jansen Engineering, PLLC

and

Ecosystems Strategies, Inc.

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1.0 PROJECT MANAGEMENT

1.1 Project/Task Organization

The following individuals are major participants in the project. Following each project participant is their specific responsibilities and authorities for the project. Resumes for Ecosystem Strategies, Inc. personnel are provided as an Attachment to this Quality Assurance Project Plan (QAPP). [To *be provided in Final RAWP*]

Parag Amin, P.E. New York State Department of Environmental Conservation
Parag Amin is the Project Manager for the NYSDEC. He is responsible for review and approval of all project submittals.

Jolanda G. Jansen, P.E. Jansen Engineering, PLLC
Jolanda G. Jansen will be the Remedial Engineer, responsible for preparing and implementing the Remedial Action Work Plan (RAWP), Final Engineering Report (FER), Site Management Plan (SMP) and all certifications, with general oversight for all project activities.

Paul Ciminello President, Ecosystems Strategies, Inc. (ESI)
Paul Ciminello, a Qualified Environmental Professional (QEP), will be responsible for overview of all project activities, including overall project management and allocation of staff and other resources required to complete the project within the specified schedule and budget.

Scott Spitzer Senior Project Manager, ESI
Scott Spitzer will act as Project Manager, and will be responsible for managing all project activities in consultation with the Remedial Engineer. Mr. Spitzer will review all project documents and ensure that project plans are followed, manage day-to-day project operations and administrative aspects, and will function as the client and regulatory contact for the project. Mr. Spitzer has authority to direct the activities of the field team (OSC and drilling subcontractor).

Richard Hooker Quality Assurance Officer, ESI
Richard Hooker will be responsible for reviewing all sampling procedures and certifying that the data was collected and analyzed using the appropriate procedures and will act in conjunction with the Project Manager in the development of the sampling and analytical portion of a site-specific quality assurance project plan (QAPP).

TBD On-Site Coordinator (OSC) ESI
The OSC will be responsible for the completion of all on-site fieldwork, collection of all samples, completion of the field log, and chains of custody. The OSC will have authority over all on-site subcontractors.

Drilling Subcontractor
The drilling subcontractor will be responsible for the operation of drilling equipment.

Laboratory Subcontractor
The laboratory subcontractor will be responsible for the analysis of samples. The laboratory subcontractor will be New York State Department of Health Environmental Laboratory Approved Program (ELAP) certified in the appropriate categories.

Data Validator (TBD)
An independent, third-party data validator will be responsible for reviewing and evaluating all analytical data packages and preparing Data Usability Reports in accordance with DER-10. A current resume outlining education and experience of the data validator will be provided to DER for review and approval (once the data validator has been selected).

1.2 Principal Data Users

The principal users of the generated data in this project are listed below.

- Residents of Beacon, NY, especially those residing at the Site (in the future) and in the vicinity of the Site
- Beacon Terminal Associates and subsequent owners (if any)
- NYSDEC and NYSDOH

1.3 Problem Definition/Background

The Site consists of an 11.07-acre parcel located in the City of Beacon, Dutchess County, New York, which adjoins and occupies Fishkill Creek, approximately 2,000 feet east of the Hudson River. The property is presently improved with several vacant industrial buildings, paved parking areas and roadways, with peripheral areas of undeveloped woodland. A walking path (Fisherman's Trail) extends along the southern margin near the watercourse. The Site has a long history of known industrial use and is the former location of a hat works, fiber-reclamation business and several facilities handling and/or manufacturing chemical products. On-site buildings have been vacant since 1995.

Multiple environmental investigations performed at the Site since the 1990s have documented impacts from releases at former storage tanks, and from historic Site usage and fill materials. The Remedial Investigation (RI) performed by ESI from 2008 to 2011 documents the presence of contaminants above Restricted Residential Use Soil Cleanup Objectives (RRUSCOs); areas with significant impacts from prior industrial uses, however, are generally restricted to well-defined portions of the Site.

The primary compound of concern is toluene, which is present at high levels beneath the sub-slab of building B-5B and in subsurface soils at the northwest corner of the Site (lower levels of toluene are present beneath the northwest corner of building B-5A and the northeast corner of building B-5B). Elevated concentrations of metals and PCBs were also detected in near-surface soils located to the southwest of building B-7, in the vicinity of Fisherman's Trail. An elevated concentration of trichloroethene (TCE) was detected in soil gas beneath building B-7 (low levels of VOCs were detected in soil gas at sampling locations throughout the Site). Low-level contamination by polycyclic aromatic hydrocarbons (PAHs) and metals is documented in surface and subsurface soils throughout the Site, with limited hot-spots in surface and near-surface soil. Documented Site contamination has not significantly impacted groundwater, or the surface water or sediment of the Fishkill Creek.

1.4 Project/Task Description

The project will meet its objective through the following actions:

- Compliance with DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010; and,
- Compliance with the approved RAWP.

1.5 Quality Objectives and Criteria

The data collected in this project will be used to characterize contaminated media prior to off-site disposal, provide confirmatory data indicating effective remedial actions and document (as required) the integrity of materials imported to the Site.

In order to meet the data quality objectives of precision, accuracy, representation, comparability and completeness the following actions will be taken:

- Duplicate samples will be collected and analyzed in order to determine the degree to which measurements obtained under the same protocols are consistent and reproducible (Section 2.4).
- Matrix spike samples will be collected and analyzed in order to determine accuracy for the samples (Section 2.4).
- A trip blank sample will also be analyzed in order to detect potential contamination during sample transport of VOC groundwater samples (Section 2.4)
- A rinse blank will be prepared and analyzed for each non-dedicated piece of sampling equipment, as applicable (Section 2.4).
- Data generated during the completion of the RAWP will be submitted for review by a third, independent party (Section 3.2.1).

Prior to field activities, the Project Manager and the OSC will review the RAWP to ensure that the data quality objectives of precision, accuracy, representation, comparability and completeness will be met during the field activities. At the completion of field activities, the Project Manager will review field logs and chains of custody to ensure that field activities met the intent of the RAWP. If a problem is identified, Mr. Paul Ciminello and the Project Manager will meet to determine corrective measures necessary to meet data quality objectives.

1.6 Documents and Records

Electronic and paper copies of all measurements will be retained by Ecosystems Strategies, Inc. Documentation of sufficient quality and quantity to represent environmental conditions at the Site will be provided to the NYSDEC in the FER.

2.0 SAMPLING AND ANALYSIS PLAN

This section of the QAPP details sampling and analysis of all media (endpoint samples, waste characterization samples, fill and soil cover samples, etc.), and identifies methods for sample collection and handling.

2.1 Sampling Overview

Sampling will be conducted to document the integrity of:

- Existing soil conditions prior to excavation (as warranted);
- Confirmatory endpoint samples;
- Unknown materials encountered during Site remediation;
- Stockpiled material requiring characterization prior to off-site disposal;
- Fill and soil to be imported to the Site (backfill and barrier cover layer); and,
- Post-remedial groundwater quality.

2.2 Sampling Methods

2.2.1 General Methodology

Material selected for sampling will be obtained in a manner consistent with NYSDEC sample collection protocols. All samples will be properly characterized and field screened, and findings will be recorded in logbooks.

Samples will be collected into appropriately-sized and preserved laboratory-supplied containers, using either disposable or properly decontaminated sampling equipment. The field technician will wear a new pair of disposable gloves during the collection of each sample, and will handle samples such that the potential for cross-contamination, and contamination of exterior surfaces of collection containers, is minimized (placement of media into containers will take place in a clean area remote from contaminant sources, as possible). PPE and sampling equipment will be decontaminated (as warranted) between sampling locations.

2.2.2 Soil

Soil samples will be collected directly from exposed excavation areas or from material in the excavator bucket if access to an excavation area is considered impracticable or dangerous. Soil may also be collected from boring or drilling equipment for the purpose of providing additional pre-excavation contaminant delineation. Soil samples will be collected using disposable plastic trowels or properly decontaminated stainless steel instruments, or may be manually collected directly from exposed soil or the sampling instrument using dedicated disposable latex gloves.

Soil sampling for VOC analysis will be conducted following USEPA Method 5035 protocols, using disposable 5 gram Terra Core samplers (or similar equipment) to place material into laboratory-supplied glass vials with appropriate preservatives and stir bars.

2.2.3 Groundwater

Groundwater sampling will be conducted using the following protocol:

- Basic climatological data (e.g., temperature, precipitation, etc.) and all field observations will be recorded in a field logbook. Groundwater sampling will begin at the potentially least contaminated well (as determined from well location and/or previous data) and proceed to the potentially most contaminated well. New latex gloves will be worn by the sampler at each well location.

- The protective casing on the well will be unlocked, the air in the well head will be screened with a PID, and the static water level (relative to the top of the casing) will be measured with a decontaminated water-level meter. The water level meter will be decontaminated with Alconox solution after gauging each well.

- A peristaltic pump and Teflon or Teflon-lined polyethylene tubing (or equivalent) will be used to sample the well. The tubing will be slowly lowered until reaching two to three feet off of the bottom to prevent disturbance and re-suspension of any residual sediment. Dedicated disposable tubing will be used at each monitoring well to eliminate the potential for cross contamination.

- The water level will be measured before the pump is started. Each well will be pumped at a rate of 200 to 500 milliliters per minute. The water level will be measured approximately every three to five minutes to ensure that stabilization (drawdown of 0.3' or less) is achieved.

- A Horiba U-22 water quality analyzer (or similar equipment) will be used during pumping to measure field indicator parameters (turbidity, temperature, specific conductance, pH, redox potential, and dissolved oxygen), which will be monitored and recorded approximately every three to five minutes. The well will be considered stabilized when the indicator parameters have stabilized for three consecutive readings.

- Sampling will occur following stabilization of parameters by directing a gentle flow of water from the tubing directly into the sample container.

2.2.4 Other Materials

Non-soil solid materials requiring laboratory analysis will be placed into laboratory supplied glassware when possible, or will alternatively be placed into double locking plastic bags and then boxed in order to prevent a tear or other breach in the bags. Samples to be collected from liquids present in excavations, collection pits, or drums/tanks, etc., will be sampled using a dedicated disposal sampling device.

2.3 Sample Handling and Custody

2.3.1 Sample Containers

The following laboratory-supplied containers will be used for sample collection:

Media Sample	Collection Container
Soil – VOA	USEPA 5035 VOA kit (4, 40-ml glass vials)
Soil – all other analyses (metals, PCBs, SVOCs)	1, 8-oz glass jar
Soil – duplicate and MS/MSD samples	1 additional 8-oz glass jar
Water – groundwater quality samples	3, 40-ml prepared glass vials (HCl) – VOCs 1, 250-ml HDPE – metals 1, 1-liter glass – SVOCs, pesticides/PCBs
Water – equipment rinse blank	3, 40-ml prepared glass vials (HCl) – VOCs 1, 250-ml HDPE – metals 1, 1-liter glass – SVOCs, pesticides/PCBs
Water – trip blank	3, 40-ml prepared glass vials (HCl)

2.3.2 Sampling Frequency

Excavation end-point sampling will be performed in accordance with DER-10, Section 4.4, sample frequency requirements. Discreet grab samples will be collected from side-walls (minimum of one sample every 30 linear feet) and from the excavation base (one sample for every 900 square feet of floor area), unless otherwise modified with the consent of the NYSDEC Project Manager. End-point samples will be biased towards the potentially highest contaminated location determined by fieldwork observations and/or previous sampling data.

Additional delineation samples may be collected prior to excavation activities. The need for, and number of, any additional samples will be determined in consultation with NYSDEC.

All endpoint samples will be analyzed for the specific constituent(s) of concern dictating the need for soil removal. Samples collected in Excavation Areas 1 and 2, where toluene contamination has been documented, will be analyzed for TCL VOCs plus 10 (USEPA Method 8260). Samples collected in Excavation Area 3, which contains areas of debris materials, will be analyzed for TCL VOCs plus 10, TCL SVOCs plus 20 (USEPA Method 8270), pesticides/PCBs (USEPA Methods 8081/8082), and TAL metals. Samples collected in Excavation Area 4 will be analyzed for TAL metals. A subset of the confirmatory endpoint samples collected at each excavation area will be analyzed for all parameters: VOCs, SVOCs, pesticides/PCBs and metals (the number of such samples will be determined in consultation with the NYSDEC Project Manager).

The estimated approximate number of samples to be collected is outlined below (the actual number of samples per each area of investigation and excavation will be determined in the field based on encountered conditions and guidance form NYSDEC).

Area of Investigation	Analyte(s)	Number of Samples
Excavation Area-1	VOCs, SVOCs, metals, pesticides/PCBs	Pre-excavation delineation: not required Confirmatory endpoint – wall: 6 Confirmatory endpoint – base: 3
Excavation Area-2	VOCs, SVOCs, metals, pesticides/PCBs	Pre-excavation delineation: not required Confirmatory endpoint – wall: 5 Confirmatory endpoint – base: 2
Excavation Area-3	VOCs, SVOCs, metals, pesticides/PCBs	Pre-excavation delineation: 4 to 5 Confirmatory endpoint – wall: 4 to 7 Confirmatory endpoint – base: 2 to 5
Excavation Area-4	VOCs, SVOCs, metals, pesticides/PCBs	Pre-excavation delineation: 4 to 5 Confirmatory endpoint – wall: 4 Confirmatory endpoint – base: 1
Groundwater Monitoring	VOCs, SVOCs, metals, pesticides/PCBs	One sample per monitoring well for each sampling event (total number of post-remediation wells TBD)
QA/QC	Trip Blank (VOCs) Equipment Rinse Blank (VOCs, SVOCs, metals, pesticides/PCBs) Duplicates & MS/MSD	One/day (when samples are collected) One/20 samples collected from each non-dedicated piece of sampling equipment2 One/20 samples collected (minimum one/week)

2.3.3 Sample Custody

Samples will be handled by the OSC. After each sample is collected, it will be placed in a sample cooler that is maintained at 4 (+/-2) °C. For each sampling day, sampling personnel will be required to complete a sampling custody worksheet indicating all pertinent information about the samples collected, handling methods, name of the collector, and chain of custody (which will require a Category B Data Deliverable). Upon the completion of each day of sample collection activities, all samples will be shipped via either courier or overnight delivery (per laboratory requirements) to a NYSDOH ELAP certified laboratory. Laboratory personnel will record the cooler temperature upon receipt and analyze the samples prior to the expiration of the hold times as specified in the NYSDEC Analytical Service Protocol.

2.4 Analytical Methods

Confirmatory endpoint soil samples and post-remediation groundwater samples will be analyzed for the following:

Matrix	Sample Analysis (& Holding Times)	Analytical Method	Container (per sample)	Preservative
Soil	TCL VOCs+10 (14 days)	8260C	4, 40-ml vials	Preserved per Method 5035
Soil	TCL SVOCs+20 (14 days)	8270B	1, 8 oz glass jar**	None
Soil	PCBs/Pesticides (7 days)	8082	1, 8 oz glass jar**	None
Soil	TAL Metals (6 months)	6010C and 7471A	1, 8 oz glass jar**	None
Water	TCL VOCs+10 (14 days)	8260C	2, 40-ml vials	HCl
Water	TCL SVOCs+20 (14 days)	8270B	1, 1-liter glass	None
Water	PCBs/Pesticides (7 days)	8082	1, 1-liter glass	None
Water	TAL Metals (6 months)	6010C and 7471A	1, 250-ml HDPE	HNO_3

** Note: soil for SVOC, PCB/Pesticide and TAL metal analysis may be combined in a single 8-oz. jar.

Soil (or other media) samples collected for waste characterization purposes will be analyzed according to the requirements of the repository.

2.5 Quality Control

Accuracy and precision will be determined by repeated analysis of laboratory standards, and matrix effects and recovery will be determined through use of spiked samples. With each sample run, standards, blanks and spiked samples will be run.

One duplicate sample will be collected for every 20 matrix samples (or one per week). One in 20 samples will also be submitted for Matrix spike (MS) and Matrix Spike Duplicate (MSD) analysis. One rinse blank will be prepared for each non-dedicated piece of sampling equipment for every 20 analytical samples collected using that piece of equipment. For each day of sampling, a trip blank will be included with each sample cooler and analyzed for VOCs only. Equipment blanks and duplicate samples will be analyzed for all parameters.

Samples will be identified using a unique ID number. This ID will be recorded on the sampling log and/or field record and the sampling container. Samples for each day of fieldwork will be assigned to a Sample Delivery Group (SDG) for that day and will be shipped via either courier or overnight delivery to the laboratory following proper chain of custody procedure, as described above.

3.0 Quality Assurance

3.1 Instrument/Equipment, Testing, Inspection, and Maintenance

Field measurements will be collected using a PID during all sampling. The PID will be stored at Ecosystems Strategies, Inc. offices when not in use. The instrument will be calibrated in accordance with the manufacturer's instructions. Instrument malfunction is normally apparent during calibration. In the event of malfunction, equipment will be cleaned and tested. Equipment testing, inspection and maintenance will be the responsibility of the Project Manager and/or the OSC for the project. Any other equipment selected for field measurements (e.g., XRF detector) will be similarly managed, as per above.

3.2 Inspection/Acceptance of Supplies and Consumables

All supplies and consumables will be inspected and tested (if necessary) by either the Project Manager or the OSC upon receipt. The following supplies and consumables will be used:

The following supplies and consumables will be used:

- Soil samples: One 8-oz clear glass jar will be used for each sample collected for analysis of SVOCs, pesticides/PCBs and/or metals, and four 40-ml vials will be used for each sample collected for analysis of VOCs. Duplicate samples will each require one additional sample volume.
- Water samples: Two 40-ml glass vials (preserved with HCl) will be used for each sample submitted for analysis of VOCs, one 250-ml HDPE jar (preserved with HNO_3) will be used for each sample collected for analysis of metals, and one 1-liter glass jar will be used for each sample collected for analysis of SVOCs, pesticides and PCBs.
- Disposable gloves (nitrile or equivalent).
- Distilled water (for decontamination and the preparation of rinse blanks).

3.3 Data Management

For the purpose of data management, the data can be divided into field and laboratory data. Field data will be recorded at the time of measurement on written field logs. Laboratory data will be reviewed upon receipt and summarized in data summary tables.

4.0 DATA VALIDATION AND USABILITY

4.1 Data Review, Verification and Validation

Data generated by this project will be reviewed, verified and validated as follows

4.1.1 Field Measurements

If field instruments are determined to be functioning correctly through calibration and measurements of standards, and if there are no inconsistencies between written records and data recorded in the meters, the data will be assumed to be valid and will be accepted as an indication of field conditions. If instruments malfunction prior to field measurement, they will be restored to proper function prior to re-use. If they malfunction immediately after field measurements are taken, the measurements will be retaken as soon as possible. Inconsistencies between written

records and recorded meter data will be resolved by re-testing the material, if possible. If re-testing is not possible, (i.e. the sample has been shipped to the laboratory), the inconsistency will be described in the RIR and the laboratory analysis will be utilized to classify the material. In addition, all field data will be reviewed by the Project Manager for consistency and plausibility.

4.1.2 Laboratory Analysis

A NYSDOH ELAP-certified laboratory will provide a NYSDEC ASP Category B data package for the determinative sample analyses, as described in Section 2 of DER-10 and the July 2005 NYSDEC ASP.

4.1.3 Soil Cleanup Objectives (SCOs)

The SCOs for this Site are provided in 6 NYCRR Subpart 375, Table 375-6.8(b) Restricted Use, Restricted-Residential category, and supplemental SCOs and Soil Cleanup Levels presented in NYSDEC CP-51 (Soil Cleanup Guidance, October 2010), Tables 2 and 3 for gasoline and fuel-oil contaminated soils, respectively. Copies of these tables are provided as an attachment to this QAPP.

4.2 Verification and Validation Methods

4.2.1 Verification Method

Once collected, all data will go to the Project Manager for review and verification. Review will involve determining that all data has been collected at the proper locations by the proper persons and that all field and laboratory logs are complete. In addition, a Data Usability Summary Report (DUSR) in accordance with DER-10, Appendix 2B, will be prepared by a third, independent party, which maintains NYSDOH ELAP CLP Certification (the DUSR will also include a current resume for the person who prepared it).

4.2.2 Authority for Verification

Authority for verification, validation and resolution of data issues will be distributed among the investigators. Authority to resolve issues regarding verification of field measurements will rest with the Project Manager and Mr. Paul Ciminello.

4.2.3 Project Reports

Following review, validation and verification, all data will be conveyed to users via the FER. This report will include the following:

- All laboratory analytical results obtained from the sampling event(s), summarized in tables and provided in NYSDEC EDD format (EquIS).
- A detailed account of any deviations from field procedures specified in the RAWP.
- A complete set of field notes and/or Field Observation Tables.
- Results of the DUSR review of all laboratory results.

Ecosystems Strategies, Inc.

Paul H. Ciminello, CEM, CAQS
PRESIDENT
paul@ecosystemsstrategies.com

EDUCATION

Master of Environmental Management, 1986
School of the Environment, Duke University, Durham, North Carolina

Master of Arts in Public Policy Sciences, 1986
Institute of Policy Sciences and Public Affairs, Duke University, Durham, North Carolina

Bachelor of Arts, 1980
Tufts University, Medford, Massachusetts

CERTIFICATIONS AND TRAINING

Certified Environmental Manager, Environmental Assessment Association, 2006
Certified Air Quality Specialist, Environmental Assessment Association, 2007
NJ Dept. of Environmental Protection Licensed Subsurface Evaluator (License Number: 0014686)
NYS Dept. of Labor Certified Asbestos Building Inspector (Cert. Number: AH92-14884)
NYS Department of State, Division of Licensing Services, Real Estate Instructor
In compliance with OSHA Hazardous Materials Safety (29 CFR 1910) requirements (updated 2012)

PROFESSIONAL EXPERIENCE

President, Ecosystems Strategies, Inc., Poughkeepsie, New York *1992 to present*

Coordinates corporate strategic planning, financial management and marketing activities. Oversees corporate work on state and federal superfund sites and manages education/training services. Responsible for technical services in areas of pollution prevention, contaminant delineation and site remediation. Twenty years experience in the investigation and remediation of petroleum contamination at commercial and residential properties. Major recent projects of relevance include:

- Irvington Waterfront Park (Irvington, NY): Project Manager for site investigation and remedial design of abandoned industrial riverfront properties. Documented soil and groundwater contamination and designed remediation including soil removal and site capping. Project completed in 2000; project awarded the 2000 Gold Medal Award by Consulting Engineers Council of New York State.

- Greyston Bakery Site (Yonkers, NY): Project Manager for site investigation and remedial design of former manufactured gas plant site for future use as a bakery. Documented soil, groundwater and soil gas contamination. Remedial systems included installations of a DNAPL collection system, a barrier layer, a subslab depressurization system under the building, and groundwater monitoring. Project completed in 2004.

- 400 Block Redevelopment (Poughkeepsie, NY): Project Manager for site investigation and remedial design of multi-use industrial development property (boiler repair, clothing manufacturer, auto repair) for future retail/residential use. Documented soil (petroleum, PCBs, metals) and groundwater (petroleum) contamination. Remedial systems include: soil (and tank) removal, installation of a barrier, and groundwater monitoring. Project completed in 2006.

- Prospect Court Housing Site (Bronx, NY): Project Manager for site investigation and remediation of a former gas station/auto repair facility. Documented contamination included both dissolved and free-phase petroleum hydrocarbons, dissolved halogenated solvents, and metals contamination in soil. Remedial systems consisted of In-Situ Chemical Oxidation, soil excavation, vapor interception systems, and on-going groundwater monitoring. Project anticipates securing Certificate of Completion from the NYSDEC in December 2012.

- Parkview Commons Site (Bronx, NY): Project Manager for site investigation and remedial design of former gas station/auto repair facility for future use as a residential/commercial building. Certificate of Completion was secured from the NYSDEC in 2007.

Senior Hazardous Waste Specialist, U.S. Hydrogeologic, Inc., Poughkeepsie, New York 1986 to 1992

Supervisor for corporate hazardous and solid waste investigatory and remedial services. Major projects included:

- Coordination of subsurface investigations at a New York State Superfund site (former industrial facility); project manager in charge of site reclassification (delisted as of January, 1991).
- Coordination of petroleum storage tank management plan for Dutchess County (NY) Department of Public Works, including an assessment of regulatory compliance, product utilization and physical conditions of more than 100 tanks at over 20 facilities.
- Environmental compliance Audit of 42,000-square foot printing facility with specific remediations for solvent handling/disposal, inks storage and metal recovery processes.

Adjunct Professor, (various institutions) *1991 to Present*

Dutchess Community College, Poughkeepsie, New York
*M*arist College, Poughkeepsie, New York
Vassar College, Poughkeepsie, New York

Courses: Macroeconomics, Environmental Economics (DCC)
Introduction to Environmental Issues (Marist)
Environmental Geology (Vassar)

Policy Intern, Southern Growth Policies Board, North Carolina *1985*

Prepared several in-depth and short analyses of environmental and economic issues, with specific concern for their impact on Southern state policies. Analyses included: hazardous waste facility setting policies and environmental impacts of "high tech" industries on host communities.

Research Assistant, University of Oregon, Eugene, Oregon *1983*

Analyzed (with Dr. John Baldwin, Chairman of the Department of Planning, Public Policy and Management, U. of Oregon) the "Oregon Riparian Tax Incentive Program". Designed survey, conducted interviews and analyzed data. Summary paper with programmatic recommendations, was presented at the Annual Conference of the National Association of Environmental Educators.

PRESENTATIONS

- "Environmental Risks in Lending" Training Session for Pawling Savings Bank employees, December 18 and 19, 1989; and July 1, 1993.
- "Identifying Environmental Concerns in Appraisals", Workshops for Lakewood Appraisal Corporation, October, and November, 1989 and April, 1990.
- "State and Local Groundwater Protection Strategies", Annual meeting of the New York State Association of Towns, February, 1990.
- "Environmental Audits on Orchards and Agricultural Properties", Resource Education Institute, Inc., Real Estate Site Assessment and Environmental Audits Conference, December 4, 1990.

- "Environmental Audits on Orchards and Agricultural Properties", National Water Well Association Annual Conference, July 29-31, 1991.
- "Principles of Environmental Economics for Ground Water Professionals", National Groundwater Association Outdoor Action Conference, May 27, 1993.
- "Impact of Environmental Liabilities on Real Estate Transactions", a NYS Department of Education approved course for licensed real estate professionals, March 1995; April 1995; May 1995; October 1995.
- "Brownfields Redevelopment in New York: A Discussion of Two Case Studies", New England Environmental Conference 1996, March, 1996.
- "Quantifying Environmental Liabilities", a NYS Department of Education approved course for licensed real estate professionals, March 1997.
- "Environmental Assessments in Urban Settings", Vassar College, Fall 1999 and Fall 2000.
- "Navigating Property Contaminant Problems", Land Trust Alliance Rally 2001, Oct 2001.

ARTICLES

Ciminello, P. 1993. A Primer on Petroleum Bulk Storage Tanks and Petroleum Contamination of Property, ASHI Technical Journal, Volume 3, No. 1

Ciminello, P. 1991. Environmental Audits on Orchard and Other Agricultural Properties, Proceedings of the National Water Well Association Annual Conference

Ciminello, P. 1991. Property Managers Should Carefully Examine Current Fuel Storage Practices, NYS Real Estate Journal, Vol. 3, No. 9

Ciminello, P. 1991. New DEC Regulations Affect Development of Agricultural Lands, NYS Real Estate Journal, Vol. 3, No. 6

Ciminello, P., Hodges-Copple, J. 1986. Managing Toxic Risks From High Tech Manufacturing, Growth and Environmental Management Series (Southern Growth Policies Board)

Ciminello, P. 1986. State Assistance in Financing Water Treatment Facilities, Growth and Environmental Management Series (Southern Growth Policies Board)

Ciminello, P. 1985. Plants Amid Plantings: The Future Role of Environmental Factors in Business Climate Ratings, Southern Growth ALERT (Southern Growth Policies Board)

Ciminello, P., J. Baldwin, N. Duhnkrack,1984, An Incentive Approach to Riparian Lands Conservation, Monographs in Environmental Education and Environmental Studies (North American Association of Environmental Educators)

PROFESSIONAL AFFILIATIONS

American Water Resources Association
National Groundwater Association
Hazardous Materials Control Research Institute
Environmental Assessment Association

ADDITIONAL INFORMATION

Member, Dutchess County (NY) Youth Board (1987-1992); Chairman, 1992
Member, City of Poughkeepsie (NY) School District Ad Hoc Committee on Teen Parents and Pregnancy Prevention (1991)
Member, City of Poughkeepsie School District Budget Advisory Committee (1994 to 2000)
Member, City of Poughkeepsie PTA and Middle School Building Level Team

Scott Spitzer
Senior Project Manager
scott@ecosystemsstrategies.com

PROFESSIONAL EXPERIENCE

Director of Environmental Investigations, Ecosystems Strategies, Inc., Poughkeepsie, NY 2013 - present

Management and quality review of environmental site assessments, technical environmental investigations, and remedial projects including Brownfield sites. Conducts research to obtain field and regulatory information about the environmental status of a designated area. Reviews all documents prepared by ESI to ensure consistency and technical accuracy. Responsibilities associated with the preparation of site assessments include: investigating site histories, conducting facility inspections, reviewing regulatory agency records, documenting facility compliance with relevant State and Federal regulations, and preparing reports. Management of complex technical environmental investigations (including sites currently on the NYSDEC Registry of Inactive Hazardous Waste Sites), including coordinating subcontractors, overseeing fieldwork, designing and implementing sampling plans, preparing technical reports, and interfacing with regulatory agency personnel.

Senior Project Manager, Long-Form Reports, The 451 Group, Inc., New York, NY 2008-2011

- Managed the production of over 150 technical white papers.

Senior Project Manager, Ecosystems Strategies, Inc., Poughkeepsie, NY 2001 - 2008

- Conducted Environmental Site Investigations and prepared final site assessment reports. Over 300 Investigations and Final Reports completed as lead manager.
- Investigated site histories.
- Conducted facility inspections.
- Reviewed regulatory agency records.
- Documented facility compliance with relevant State and Federal regulations.
- Conducted Phase II Technical Environmental Investigations and prepared technical reports.
- Researched field and regulatory information.
- Managed tank removals.
- Coordinated subcontractors.
- Oversaw fieldwork and handled collection of material, soil and water samples.

Select Projects

Scenic Hudson Land Trust, Inc., Beacon Waterfront Project, Beacon, NY

ESI conducted soil and groundwater investigations on a former MOSF and adjacent scrap yard. Projects involved soil remediation of both petroleum and PCB-contaminated soils and long-term groundwater monitoring. Both projects were classified as Voluntary Clean-Up projects by the NYSDEC and closure status was attained.

Sakmann Restaurant Corporation Site, Fort Montgomery, NY

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigations for former filling station and automotive repair garage contaminated by solvent and waste-oil discharges to an on-site drywell.

Designed and implemented a sampling plan for soils impacted by chlorinated hydrocarbons, petroleum, and metals. Created Workplan (in coordination with the NYSDEC Voluntary Cleanup Program) for remediation of on-site contamination and long-term sampling of on-site groundwater monitoring wells.

Staten Island Marina Site, Staten Island, NY

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigation for an active marine facility engaged in boat painting and engine maintenance activities. Coordinated the delineation of metals contamination over a three-acre area and analyzed potential impacts from on-site fill materials. Submitted remedial and budgetary analysis in support of regulatory agency approval for conversion of boatyard into a public park.

Octagon House Development Site, Roosevelt Island, NY

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigations at the former site of a large, urban hospital. Interpreted the results of geotechnical studies, extended test pits, and conducted extensive soil sampling, to document subsurface soil conditions in support of client's application to the U.S. Housing and Urban Development Agency (HUD). Created Workplan (in coordination with the NYCDEP Office of Environmental Planning and Assessment) for site-wide remediation of contaminated soils and secured NYCDEP approval for site remediation as required by HUD.

Camp Glen Gray Boy Scout Facility, Mahwah, NJ

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigations at an approximately 800-acre campground containing numerous structures. Documented subsurface soil conditions at the locations of aboveground and underground storage tanks, and delineated lead contamination at a former firing range. Assisted in design and implementation of remediation plans for removal of petroleum and lead contaminated soils, and obtained NJDEP approvals.

EDUCATION

SUNY at Stony Brook, Bachelor of Science - Biology, SUNY at Stony Brook *May 1992*
SUNY at Purchase, extensive studies in Environmental Science

PROFESSIONAL CERTIFICATIONS

OSHA Hazardous Waste Site Operations and Emergency Response (HAZWOPER) – 40 hr

Ecosystems Strategies, Inc.

Richard Hooker
Project Manager

PROFESSIONAL EXPERIENCE

Project Manager, Ecosystems Strategies, Inc., Poughkeepsie, NY *2001 - present*

- Conducts Environmental Site Investigations and prepares final site assessment reports. Over 300 Investigations and Final Reports completed to date.
- Investigates site histories.
- Conducts facility inspections.
- Reviews regulatory agency records.
- Documents facility compliance with relevant State and Federal regulations.
- Conducts Phase II Technical Environmental Investigations and prepares technical reports.
- Researches field and regulatory information.
- Manages tank removals.
- Coordinates subcontractors.
- Oversees fieldwork and handles collection of material, soil and water samples.

EDUCATION

Ph.D. from the University of St. Andrews, St. Andrews, Scotland *1997*
BA from Staffordshire University, Stoke-on-Trent, England *1989*

SELECT PROJECTS

Former Fur Processing Facility, Bronx, NY

Documented the presence of chlorinated hydrocarbon, petroleum, and metals contamination beneath and/or near a former industrial structure. Coordinated the sampling and removal of multiple drums of hazardous and non-hazardous material from the structure and secured NYCDEP approval. Developed a Workplan for site remediation and directed environmental restoration activities, including: excavation and removal of both aboveground and underground storage tanks, removal of contaminated soils, installation of a barrier layer soil cap, and pre-demolition removal of asbestos materials.

Jamaica Hospital Medical Center, Queens, NY

Coordinated and supervised the removal of two, large underground storage tanks and documented site conditions through soil and groundwater sampling. Secured NYSDEC approval of PBS tank closure and registration requirements.

The Point CDC, Bronx, NY

ESI assisted with the open space for community access to the waterfront in revitalization of a former fur processing plant. Activities included subsurface investigation, hazardous waste characterization/disposal program. Worked with architects, engineers, and demolition contractors to demolish existing structure and assisted with site redesign as a multi-purpose community access point to the Bronx River.

PROFESSIONAL CERTIFICATIONS

- OSHA Hazardous Waste Site Operations
- OSHA Emergency Response Training
- 29 CRF 1910.120 (e) – 40 Hour Hazwoper

RESUME

Jolanda G. Jansen, P.E. 72 Colburn Drive, Poughkeepsie, NY 12603

Education

Bachelor of Civil Engineering, University of Canterbury, Christchurch, New Zealand, 1975
Juris Doctor, Pace University School of Law, 2010, admitted in NYS

Engineering License

New York State #068972-1, 1992

Professional Experience

Owner, 2009 – present, **Jansen Engineering, PLLC**
Key Projects: RAR report for PCE cleanup.
Composting Facilities Plans.
Stormwater Facilities Design
Drinking Water Facilities Design
Senior Engineer, 2010 – present, **Sloan Architects, PC**
Key Projects: Sustainability Master Plan, Camphill Village
Construction Inspection, Anderson Center for Autism
Project Manager, 2007 – 2008, **Hudson Valley Development Group, LLC**
Key Projects: 26 Home Cluster Subdivision with Central Sewer
4-story School to Condo Conversion
Project Manager, 2001 – 2007, **Spectra Engineering, P.C.**
Key Projects: 130 Lot Subdivision with Central Water and Sanitary
Vassar College Student Housing, Site Plan
Bright Horizons Children's Center, Site Plan
Project Manager, 1996 – 2001, **Hayward and Pakan Associates**
Key Projects: Buddhist Monastery Master Plan
Seventh Day Adventist Camp, WWTF
Staff Engineer, 1994 – 1996, **Morris Associates**
Assistant Engineer, 1987 – 1994, **Hayward and Pakan Associates**
Assistant Surveyor, 1986 – 1987, **Kemble Surveying**

Special Skills & Training

40-hour Safety at Hazardous Materials Sites, Annual 8-hour Refreshers
AutoCAD, bilingual Dutch

Community Service

Coordinator, 2002 – 2009, **Hudson Valley Smart Growth Alliance**

Coordinated conferences on the following topics: SEQRA & Green Building; Sustainable Energy Infrastructure; Magnetizing Downtowns; Planning for Biodiversity; Building Green; Smart Growth – Smart Jobs; Transit Oriented Development; Wind Power; Transfer of Development Rights; Cost of Sprawl; Decentralized Wastewater Systems; Strengthening our Hamlets, Villages and Cities; Affordable Housing and Smart Growth Successes.

Public Speaking

Sustainability Knowledge Exchange with the Netherlands, 2009
Carbon Neutral Community Planning in the Netherlands, 2008
Reducing the Carbon Footprint of Used-Water Treatment, 2008
Innovative Wastewater Treatment in Dutchess County, 2007

References

Available upon request

Department of Environmental Conservation

Division of Environmental Remediation

6 NYCRR PART 375

Environmental Remediation Programs

Subparts 375-1 to 375- 4 & 375-6

Effective December 14, 2006

New York State Department of Environmental Conservation

375-6.8 Soil cleanup objective tables.

(a) Unrestricted use soil cleanup objectives.

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

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

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

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

Contaminant	CAS Number	Unrestricted Use
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8 [b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33 [b]
Pyrene [f]	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane [f]	71-55-6	0.68
1,1-Dichloroethane [f]	75-34-3	0.27
1,1-Dichloroethene [f]	75-35-4	0.33
1,2-Dichlorobenzene [f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 [c]
cis -1,2-Dichloroethene [f]	156-59-2	0.25
trans-1,2-Dichloroethene [f]	156-60-5	0.19
1,3-Dichlorobenzene [f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 [b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene [f]	104-51-8	12
Carbon tetrachloride [f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene [f]	100-41-4	1
Hexachlorobenzene [f]	118-74-1	0.33[b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether [f]	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 [f]	103-65-1	3.9
sec-Butylbenzene [f]	135-98-8	11
tert-Butylbenzene [f]	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 [f]	95-63-6	3.6
1,3,5-Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

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

Footnotes

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

[b] 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.

[c] 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.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] 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.

[f] 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		
Metals							
Arsenic	7440-38-2	16[f]	16[f]	16[f]	16[f]	13[f]	16[f]
Barium	7440-39-3	350[f]	400	400	10,000 [d]	433	820
Beryllium	7440-41-7	14	72	590	2,700	10	47
Cadmium	7440-43-9	2.5[f]	4.3	9.3	60	4	7.5
Chromium, hexavalent [h]	18540-29-9	22	110	400	800	1[e]	19
Chromium, trivalent [h]	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50-8	270	270	270	10,000 [d]	50	1,720
Total Cyanide [h]		27	27	27	10,000 [d]	NS	40
Lead	7439-92-1	400	400	1,000	3,900	63[f]	450
Manganese	7439-96-5	2,000[f]	2,000[f]	10,000 [d]	10,000 [d]	1600[f]	2,000[f]
Total Mercury		0.81[j]	0.81[j]	2.8[j]	5.7[j]	0.18[f]	0.73
Nickel	7440-02-0	140	310	310	10,000 [d]	30	130
Selenium	7782-49-2	36	180	1,500	6,800	3.9[f]	4[f]
Silver	7440-22-4	36	180	1,500	6,800	2	8.3
Zinc	7440-66-6	2200	10,000 [d]	10,000 [d]	10,000 [d]	109[f]	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	93-72-1	58	100[a]	500[b]	1,000[c]	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 [e]	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 [e]	136
4,4'- DDD	72-54-8	2.6	13	92	180	0.0033 [e]	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[g]	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[a]	100[a]	500[b]	1,000[c]	0.04[g]	0.25
Dibenzofuran	132-64-9	14	59	350	1,000[c]	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[i]	24[i]	200[i]	920[i]	NS	102
Endosulfan II	33213-65-9	4.8[i]	24[i]	200[i]	920[i]	NS	102
Endosulfan sulfate	1031-07-8	4.8[i]	24[i]	200[i]	920[i]	NS	1,000[c]
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
Semivolatiles							
Acenaphthene	83-32-9	100[a]	100[a]	500[b]	1,000[c]	20	98
Acenapthylene	208-96-8	100[a]	100[a]	500[b]	1,000[c]	NS	107
Anthracene	120-12-7	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Benz(a)anthracene	56-55-3	1[f]	1[f]	5.6	11	NS	1[f]
Benzo(a)pyrene	50-32-8	1[f]	1[f]	1[f]	1.1	2.6	22
Benzo(b)fluoranthene	205-99-2	1[f]	1[f]	5.6	11	NS	1.7
Benzo(g,h,i)perylene	191-24-2	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Benzo(k)fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1[f]	3.9	56	110	NS	1[f]
Dibenz(a,h)anthracene	53-70-3	0.33[e]	0.33[e]	0.56	1.1	NS	1,000[c]
Fluoranthene	206-44-0	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Fluorene	86-73-7	100[a]	100[a]	500[b]	1,000[c]	30	386
Indeno(1,2,3-cd)pyrene	193-39-5	0.5[f]	0.5[f]	5.6	11	NS	8.2
m-Cresol	108-39-4	100[a]	100[a]	500[b]	1,000[c]	NS	0.33[e]
Naphthalene	91-20-3	100[a]	100[a]	500[b]	1,000[c]	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[a]	100[a]	500[b]	1,000[c]	NS	0.33[e]
p-Cresol	106-44-5	34	100[a]	500[b]	1,000[c]	NS	0.33[e]
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8[e]	0.8[e]
Phenanthrene	85-01-8	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Phenol	108-95-2	100[a]	100[a]	500[b]	1,000[c]	30	0.33[e]
Pyrene	129-00-0	100[a]	100[a]	500[b]	1,000[c]	NS	1,000[c]
Volatiles							
1,1,1-Trichloroethane	71-55-6	100[a]	100[a]	500[b]	1,000[c]	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100[a]	100[a]	500[b]	1,000[c]	NS	0.33
1,2-Dichlorobenzene	95-50-1	100[a]	100[a]	500[b]	1,000[c]	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02[f]
cis-1,2-Dichloroethene	156-59-2	59	100[a]	500[b]	1,000[c]	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100[a]	100[a]	500[b]	1,000[c]	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[e]	0.1[e]
Acetone	67-64-1	100[a]	100[b]	500[b]	1,000[c]	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100[a]	100[a]	500[b]	1,000[c]	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100[a]	100[a]	500[b]	1,000[c]	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[e]	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100[a]	100[a]	500[b]	1,000[c]	100[a]	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[a]	500[b]	1,000[c]	NS	0.93
Methylene chloride	75-09-2	51	100[a]	500[b]	1,000[c]	12	0.05
n-Propylbenzene	103-65-1	100[a]	100[a]	500[b]	1,000[c]	NS	3.9
sec-Butylbenzene	135-98-8	100[a]	100[a]	500[b]	1,000[c]	NS	11
tert-Butylbenzene	98-06-6	100[a]	100[a]	500[b]	1,000[c]	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100[a]	100[a]	500[b]	1,000[c]	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[a]	100[a]	500[b]	1,000[c]	0.26	1.6

All soil cleanup objectives (SCOs) are in parts per million (ppm).
NS=Not specified. See Technical Support Document (TSD).

Footnotes

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

[b] The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

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

[d] The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

[f] 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.

[g] This SCO is derived from data on mixed isomers of BHC.

[h] 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.

[i] This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

[j] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

APPENDIX E

Resumes of Key Personnel

Ecosystems Strategies, Inc.

Paul H. Ciminello, CEM, CAQS
PRESIDENT
paul@ecosystemsstrategies.com

EDUCATION

Master of Environmental Management, 1986
School of the Environment, Duke University, Durham, North Carolina

Master of Arts in Public Policy Sciences, 1986
Institute of Policy Sciences and Public Affairs, Duke University, Durham, North Carolina

Bachelor of Arts, 1980
Tufts University, Medford, Massachusetts

CERTIFICATIONS AND TRAINING

Certified Environmental Manager, Environmental Assessment Association, 2006
Certified Air Quality Specialist, Environmental Assessment Association, 2007
NJ Dept. of Environmental Protection Licensed Subsurface Evaluator (License Number: 0014686)
NYS Dept. of Labor Certified Asbestos Building Inspector (Cert. Number: AH92-14884)
NYS Department of State, Division of Licensing Services, Real Estate Instructor
In compliance with OSHA Hazardous Materials Safety (29 CFR 1910) requirements (updated 2012)

PROFESSIONAL EXPERIENCE

President, Ecosystems Strategies, Inc., Poughkeepsie, New York *1992 to present*

Coordinates corporate strategic planning, financial management and marketing activities. Oversees corporate work on state and federal superfund sites and manages education/training services. Responsible for technical services in areas of pollution prevention, contaminant delineation and site remediation. Twenty years experience in the investigation and remediation of petroleum contamination at commercial and residential properties. Major recent projects of relevance include:

- Irvington Waterfront Park (Irvington, NY): Project Manager for site investigation and remedial design of abandoned industrial riverfront properties. Documented soil and groundwater contamination and designed remediation including soil removal and site capping. Project completed in 2000; project awarded the 2000 Gold Medal Award by Consulting Engineers Council of New York State.

- Greyston Bakery Site (Yonkers, NY): Project Manager for site investigation and remedial design of former manufactured gas plant site for future use as a bakery. Documented soil, groundwater and soil gas contamination. Remedial systems included installations of a DNAPL collection system, a barrier layer, a subslab depressurization system under the building, and groundwater monitoring. Project completed in 2004.

- 400 Block Redevelopment (Poughkeepsie, NY): Project Manager for site investigation and remedial design of multi-use industrial development property (boiler repair, clothing manufacturer, auto repair) for future retail/residential use. Documented soil (petroleum, PCBs, metals) and groundwater (petroleum) contamination. Remedial systems include: soil (and tank) removal, installation of a barrier, and groundwater monitoring. Project completed in 2006.

- Prospect Court Housing Site (Bronx, NY): Project Manager for site investigation and remediation of a former gas station/auto repair facility. Documented contamination included both dissolved and free-phase petroleum hydrocarbons, dissolved halogenated solvents, and metals contamination in soil. Remedial systems consisted of In-Situ Chemical Oxidation, soil excavation, vapor interception systems, and on-going groundwater monitoring. Project anticipates securing Certificate of Completion from the NYSDEC in December 2012.

- Parkview Commons Site (Bronx, NY): Project Manager for site investigation and remedial design of former gas station/auto repair facility for future use as a residential/commercial building. Certificate of Completion was secured from the NYSDEC in 2007.

Senior Hazardous Waste Specialist, U.S. Hydrogeologic, Inc., Poughkeepsie, New York 1986 to 1992

Supervisor for corporate hazardous and solid waste investigatory and remedial services. Major projects included:

- Coordination of subsurface investigations at a New York State Superfund site (former industrial facility); project manager in charge of site reclassification (delisted as of January, 1991).
- Coordination of petroleum storage tank management plan for Dutchess County (NY) Department of Public Works, including an assessment of regulatory compliance, product utilization and physical conditions of more than 100 tanks at over 20 facilities.
- Environmental compliance Audit of 42,000-square foot printing facility with specific remediations for solvent handling/disposal, inks storage and metal recovery processes.

Adjunct Professor, (various institutions) *1991 to Present*

Dutchess Community College, Poughkeepsie, New York
*M*arist College, Poughkeepsie, New York
Vassar College, Poughkeepsie, New York

Courses: Macroeconomics, Environmental Economics (DCC)
Introduction to Environmental Issues (Marist)
Environmental Geology (Vassar)

Policy Intern, Southern Growth Policies Board, North Carolina *1985*

Prepared several in-depth and short analyses of environmental and economic issues, with specific concern for their impact on Southern state policies. Analyses included: hazardous waste facility setting policies and environmental impacts of "high tech" industries on host communities.

Research Assistant, University of Oregon, Eugene, Oregon *1983*

Analyzed (with Dr. John Baldwin, Chairman of the Department of Planning, Public Policy and Management, U. of Oregon) the "Oregon Riparian Tax Incentive Program". Designed survey, conducted interviews and analyzed data. Summary paper with programmatic recommendations, was presented at the Annual Conference of the National Association of Environmental Educators.

PRESENTATIONS

- "Environmental Risks in Lending" Training Session for Pawling Savings Bank employees, December 18 and 19, 1989; and July 1, 1993.
- "Identifying Environmental Concerns in Appraisals", Workshops for Lakewood Appraisal Corporation, October, and November, 1989 and April, 1990.
- "State and Local Groundwater Protection Strategies", Annual meeting of the New York State Association of Towns, February, 1990.
- "Environmental Audits on Orchards and Agricultural Properties", Resource Education Institute, Inc., Real Estate Site Assessment and Environmental Audits Conference, December 4, 1990.

- "Environmental Audits on Orchards and Agricultural Properties", National Water Well Association Annual Conference, July 29-31, 1991.
- "Principles of Environmental Economics for Ground Water Professionals", National Groundwater Association Outdoor Action Conference, May 27, 1993.
- "Impact of Environmental Liabilities on Real Estate Transactions", a NYS Department of Education approved course for licensed real estate professionals, March 1995; April 1995; May 1995; October 1995.
- "Brownfields Redevelopment in New York: A Discussion of Two Case Studies", New England Environmental Conference 1996, March, 1996.
- "Quantifying Environmental Liabilities", a NYS Department of Education approved course for licensed real estate professionals, March 1997.
- "Environmental Assessments in Urban Settings", Vassar College, Fall 1999 and Fall 2000.
- "Navigating Property Contaminant Problems", Land Trust Alliance Rally 2001, Oct 2001.

ARTICLES

Ciminello, P. 1993. A Primer on Petroleum Bulk Storage Tanks and Petroleum Contamination of Property, ASHI Technical Journal, Volume 3, No. 1

Ciminello, P. 1991. Environmental Audits on Orchard and Other Agricultural Properties, Proceedings of the National Water Well Association Annual Conference

Ciminello, P. 1991. Property Managers Should Carefully Examine Current Fuel Storage Practices, NYS Real Estate Journal, Vol. 3, No. 9

Ciminello, P. 1991. New DEC Regulations Affect Development of Agricultural Lands, NYS Real Estate Journal, Vol. 3, No. 6

Ciminello, P., Hodges-Copple, J. 1986. Managing Toxic Risks From High Tech Manufacturing, Growth and Environmental Management Series (Southern Growth Policies Board)

Ciminello, P. 1986. State Assistance in Financing Water Treatment Facilities, Growth and Environmental Management Series (Southern Growth Policies Board)

Ciminello, P. 1985. Plants Amid Plantings: The Future Role of Environmental Factors in Business Climate Ratings, Southern Growth ALERT (Southern Growth Policies Board)

Ciminello, P., J. Baldwin, N. Duhnkrack,1984, An Incentive Approach to Riparian Lands Conservation, Monographs in Environmental Education and Environmental Studies (North American Association of Environmental Educators)

PROFESSIONAL AFFILIATIONS

American Water Resources Association
National Groundwater Association
Hazardous Materials Control Research Institute
Environmental Assessment Association

ADDITIONAL INFORMATION

Member, Dutchess County (NY) Youth Board (1987-1992); Chairman, 1992
Member, City of Poughkeepsie (NY) School District Ad Hoc Committee on Teen Parents and Pregnancy Prevention (1991)
Member, City of Poughkeepsie School District Budget Advisory Committee (1994 to 2000)
Member, City of Poughkeepsie PTA and Middle School Building Level Team

Scott Spitzer
Senior Project Manager
scott@ecosystemsstrategies.com

PROFESSIONAL EXPERIENCE

Director of Environmental Investigations, Ecosystems Strategies, Inc., Poughkeepsie, NY 2013 - present

Management and quality review of environmental site assessments, technical environmental investigations, and remedial projects including Brownfield sites. Conducts research to obtain field and regulatory information about the environmental status of a designated area. Reviews all documents prepared by ESI to ensure consistency and technical accuracy. Responsibilities associated with the preparation of site assessments include: investigating site histories, conducting facility inspections, reviewing regulatory agency records, documenting facility compliance with relevant State and Federal regulations, and preparing reports. Management of complex technical environmental investigations (including sites currently on the NYSDEC Registry of Inactive Hazardous Waste Sites), including coordinating subcontractors, overseeing fieldwork, designing and implementing sampling plans, preparing technical reports, and interfacing with regulatory agency personnel.

Senior Project Manager, Long-Form Reports, The 451 Group, Inc., New York, NY 2008-2011

- Managed the production of over 150 technical white papers.

Senior Project Manager, Ecosystems Strategies, Inc., Poughkeepsie, NY 2001 - 2008

- Conducted Environmental Site Investigations and prepared final site assessment reports. Over 300 Investigations and Final Reports completed as lead manager.
- Investigated site histories.
- Conducted facility inspections.
- Reviewed regulatory agency records.
- Documented facility compliance with relevant State and Federal regulations.
- Conducted Phase II Technical Environmental Investigations and prepared technical reports.
- Researched field and regulatory information.
- Managed tank removals.
- Coordinated subcontractors.
- Oversaw fieldwork and handled collection of material, soil and water samples.

Select Projects

Scenic Hudson Land Trust, Inc., Beacon Waterfront Project, Beacon, NY

ESI conducted soil and groundwater investigations on a former MOSF and adjacent scrap yard. Projects involved soil remediation of both petroleum and PCB-contaminated soils and long-term groundwater monitoring. Both projects were classified as Voluntary Clean-Up projects by the NYSDEC and closure status was attained.

Sakmann Restaurant Corporation Site, Fort Montgomery, NY

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigations for former filling station and automotive repair garage contaminated by solvent and waste-oil discharges to an on-site drywell.

Designed and implemented a sampling plan for soils impacted by chlorinated hydrocarbons, petroleum, and metals. Created Workplan (in coordination with the NYSDEC Voluntary Cleanup Program) for remediation of on-site contamination and long-term sampling of on-site groundwater monitoring wells.

Staten Island Marina Site, Staten Island, NY

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigation for an active marine facility engaged in boat painting and engine maintenance activities. Coordinated the delineation of metals contamination over a three-acre area and analyzed potential impacts from on-site fill materials. Submitted remedial and budgetary analysis in support of regulatory agency approval for conversion of boatyard into a public park.

Octagon House Development Site, Roosevelt Island, NY

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigations at the former site of a large, urban hospital. Interpreted the results of geotechnical studies, extended test pits, and conducted extensive soil sampling, to document subsurface soil conditions in support of client's application to the U.S. Housing and Urban Development Agency (HUD). Created Workplan (in coordination with the NYCDEP Office of Environmental Planning and Assessment) for site-wide remediation of contaminated soils and secured NYCDEP approval for site remediation as required by HUD.

Camp Glen Gray Boy Scout Facility, Mahwah, NJ

Conducted Phase I Environmental Site Assessment and Phase II Subsurface Investigations at an approximately 800-acre campground containing numerous structures. Documented subsurface soil conditions at the locations of aboveground and underground storage tanks, and delineated lead contamination at a former firing range. Assisted in design and implementation of remediation plans for removal of petroleum and lead contaminated soils, and obtained NJDEP approvals.

EDUCATION

SUNY at Stony Brook, Bachelor of Science - Biology, SUNY at Stony Brook *May 1992*
SUNY at Purchase, extensive studies in Environmental Science

PROFESSIONAL CERTIFICATIONS

OSHA Hazardous Waste Site Operations and Emergency Response (HAZWOPER) – 40 hr

Ecosystems Strategies, Inc.

Richard Hooker
Project Manager

PROFESSIONAL EXPERIENCE

Project Manager, Ecosystems Strategies, Inc., Poughkeepsie, NY *2001 - present*

- Conducts Environmental Site Investigations and prepares final site assessment reports. Over 300 Investigations and Final Reports completed to date.
- Investigates site histories.
- Conducts facility inspections.
- Reviews regulatory agency records.
- Documents facility compliance with relevant State and Federal regulations.
- Conducts Phase II Technical Environmental Investigations and prepares technical reports.
- Researches field and regulatory information.
- Manages tank removals.
- Coordinates subcontractors.
- Oversees fieldwork and handles collection of material, soil and water samples.

EDUCATION

Ph.D. from the University of St. Andrews, St. Andrews, Scotland *1997*
BA from Staffordshire University, Stoke-on-Trent, England *1989*

SELECT PROJECTS

Former Fur Processing Facility, Bronx, NY

Documented the presence of chlorinated hydrocarbon, petroleum, and metals contamination beneath and/or near a former industrial structure. Coordinated the sampling and removal of multiple drums of hazardous and non-hazardous material from the structure and secured NYCDEP approval. Developed a Workplan for site remediation and directed environmental restoration activities, including: excavation and removal of both aboveground and underground storage tanks, removal of contaminated soils, installation of a barrier layer soil cap, and pre-demolition removal of asbestos materials.

Jamaica Hospital Medical Center, Queens, NY

Coordinated and supervised the removal of two, large underground storage tanks and documented site conditions through soil and groundwater sampling. Secured NYSDEC approval of PBS tank closure and registration requirements.

The Point CDC, Bronx, NY

ESI assisted with the open space for community access to the waterfront in revitalization of a former fur processing plant. Activities included subsurface investigation, hazardous waste characterization/disposal program. Worked with architects, engineers, and demolition contractors to demolish existing structure and assisted with site redesign as a multi-purpose community access point to the Bronx River.

PROFESSIONAL CERTIFICATIONS

- OSHA Hazardous Waste Site Operations
- OSHA Emergency Response Training
- 29 CRF 1910.120 (e) – 40 Hour Hazwoper

RESUME

Jolanda G. Jansen, P.E. 72 Colburn Drive, Poughkeepsie, NY 12603

Education

Bachelor of Civil Engineering, University of Canterbury, Christchurch, New Zealand, 1975
Juris Doctor, Pace University School of Law, 2010, admitted in NYS

Engineering License

New York State #068972-1, 1992

Professional Experience

Owner, 2009 – present, **Jansen Engineering, PLLC**
Key Projects: RAR report for PCE cleanup.
Composting Facilities Plans.
Stormwater Facilities Design
Drinking Water Facilities Design
Senior Engineer, 2010 – present, **Sloan Architects, PC**
Key Projects: Sustainability Master Plan, Camphill Village
Construction Inspection, Anderson Center for Autism
Project Manager, 2007 – 2008, **Hudson Valley Development Group, LLC**
Key Projects: 26 Home Cluster Subdivision with Central Sewer
4-story School to Condo Conversion
Project Manager, 2001 – 2007, **Spectra Engineering, P.C.**
Key Projects: 130 Lot Subdivision with Central Water and Sanitary
Vassar College Student Housing, Site Plan
Bright Horizons Children's Center, Site Plan
Project Manager, 1996 – 2001, **Hayward and Pakan Associates**
Key Projects: Buddhist Monastery Master Plan
Seventh Day Adventist Camp, WWTF
Staff Engineer, 1994 – 1996, **Morris Associates**
Assistant Engineer, 1987 – 1994, **Hayward and Pakan Associates**
Assistant Surveyor, 1986 – 1987, **Kemble Surveying**

Special Skills & Training

40-hour Safety at Hazardous Materials Sites, Annual 8-hour Refreshers
AutoCAD, bilingual Dutch

Community Service

Coordinator, 2002 – 2009, **Hudson Valley Smart Growth Alliance**

Coordinated conferences on the following topics: SEQRA & Green Building; Sustainable Energy Infrastructure; Magnetizing Downtowns; Planning for Biodiversity; Building Green; Smart Growth – Smart Jobs; Transit Oriented Development; Wind Power; Transfer of Development Rights; Cost of Sprawl; Decentralized Wastewater Systems; Strengthening our Hamlets, Villages and Cities; Affordable Housing and Smart Growth Successes.

Public Speaking

Sustainability Knowledge Exchange with the Netherlands, 2009
Carbon Neutral Community Planning in the Netherlands, 2008
Reducing the Carbon Footprint of Used-Water Treatment, 2008
Innovative Wastewater Treatment in Dutchess County, 2007

References

Available upon request

APPENDIX F

Citizen Participation Plan

New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

Beacon Terminal
NYSDEC Site # C314117

555 South Avenue
City of Beacon
Dutchess County, New York

MAY 2007
(Revised January 2014)

Contents

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Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Beacon Terminal Associates, LP ("Applicant")**
Site Name: **Beacon Terminal ("site")**
Site Address: **555 South Avenue, Beacon**
Site County: **Dutchess**
Site Number: **C314117**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

Notices and fact sheets help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

Public forums, comment periods and contact with project managers provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.
This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if a BCP site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
Application Process:	
Prepare site contact list Establish document repositories	At time of preparation of application to participate in the BCP.
Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period Publish above ENB content in local newspaper Mail above ENB content to site contact list Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

Potential issues of public concern include fugitive dust during building demolition activities, stormwater runoff/erosion and sediment control and increased commercial traffic due to the disposal of demolition material. Stakeholders for these issues include local residents, users of the Scenic Hudson Fisherman's Trail and the Town board. Additional issues of public concern may be identified after completion of the Remedial Investigation.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

Location: **555 South Avenue, City of Beacon, Dutchess County, New York**
Setting: **suburban**
Site Size: **11.07-acres**
Adjacent Properties: **residential, commercial, commuter railroad**

History of Site Use, Investigation, and Cleanup

Prior and Current Use(s):

The site is presently improved with eight vacant industrial buildings formerly used for various manufacturing and warehousing purposes (see Appendix C for a Site Location Map). These buildings occupy approximately fifty percent of the site; the remainder of the property includes paved parking areas, undeveloped grassland and woodlands, and a portion of Fishkill Creek.

The site has a long history of known industrial use. A site sketch and description, obtained from the Beacon Historical Society, depicts three buildings (now Buildings B-1 and B-2), originally constructed in 1878 as the Tioranda Hat Works. Building B-1 is described as an engine room and boiler house, and building B-2 is described as the main factory, containing felting, dyeing, carding and wool sorting operations. Review of historic Sanborn Fire Insurance Maps indicates that the Tioranda Hat Works was present until at least 1919. Three of the present-day buildings (B-1, B-2, and B-4) were on-site at that time, with dyeing operations in the portions of buildings B-2 and B-4 nearest to Fishkill Creek. Sanborn maps depict on-site hat-works facilities until at least 1946. The complex (comprising all buildings currently on site) is called "Beacon Terminal" by 1962. Six of the buildings are depicted as used by the Atlas Fiber Company, a fiber reclaimer, one building (B-5A and B-5B) is occupied by Chemical Rubber Products, Inc. and one building (B-7) is occupied by BASF Colors & Chemicals. From approximately 1972 to 1995, the

buildings were used for storage by various occupants. The buildings have remained vacant since 1995.

Petroleum products and other chemicals have historically been stored and used on-site. Four underground storage tanks (USTs) used for the storage of toluene were likely to have been installed in the early 1950s, when Building 5a was constructed. Six aboveground storage tanks (ASTs) used for the storage of lubricating oil and acids, and at least ten USTs used for the storage of fuel oil, toluene, and other chemicals were documented on the site in 1993. In addition, storage drums of varying sizes had been found at a number of interior locations.

Previous Environmental Investigations and Cleanup Activities Performed at the site:

A limited subsurface investigation conducted in 1996 in the vicinity of the former USTs documented the presence of contamination by toluene and other volatile organic compounds (VOCs). Five USTs, several aboveground storage tanks (ASTs) and chemicals in containers were removed in 2000. Post-excavation sampling documented continuing impacts from toluene in deeper soils in the vicinity of the former USTs. Excavated soils were stockpiled on-site pending disposal; sampling of the stockpile in 2002, however, documented an absence of VOC contamination and the material was later relocated and buried at the northwestern portion of the site in 2005.

Environmental investigation conducted from 2008 to 2011 included the digging of 24 test pits and completion of 38 soil borings, with soil samples collected from the test pits and borings, and from 20 surface locations. Several borings were used to construct permanent groundwater monitoring wells (to supplement existing monitoring wells) and 3 rounds of groundwater sampling were conducted. Soil vapor samples were collected at 14 interior and 2 exterior locations, and 2 sediment samples and 2 water samples were collected from Fishkill Creek. This investigative work documented the presence of contamination at levels above the Soil Cleanup Objectives (SCOs) required by NYSDEC for Restricted-Residential Use at BCP sites; the areas with significant impacts from prior industrial uses, however, are generally restricted to well-defined portions of the site.

The primary compound of concern is toluene, which is present at high levels beneath the concrete slab of building B-5B and in subsurface soils at the northwest corner of the site. Elevated concentrations of several metals and polychlorinated biphenyls (PCBs) were also found in near-surface soils located to the southwest of building B-7, in the vicinity of Fisherman's Trail. An elevated concentration of the solvent trichloroethene (TCE) was detected in soil gas beneath building B-7 (low levels of VOCs were detected in soil gas at sampling locations throughout the site). Low-level contamination by polycyclic aromatic hydrocarbons (PAHs) and metals is documented in surface and subsurface soils throughout the site, with limited hot-spots in surface and near-surface soil.

Documented site contamination has not significantly impacted groundwater, or the surface water or sediment of the Fishkill Creek.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted purposes.

To achieve this goal, the Applicant has conducted investigation at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant has conducted an investigation of the site officially called a "remedial investigation" (RI). This investigation was performed with NYSDEC oversight and followed a remedial investigation workplan, which was subject to public comment.

The site investigation had several goals:

1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

Following completion of the investigation the Applicant prepared and submitted a report that summarized the results. This report also recommended that a cleanup action be performed to address site-related contamination. The investigation report was reviewed and approved by NYSDEC.

NYSDEC used the information in the investigation report to determine that the site does not pose a significant threat to public health or the environment.

Remedy Selection

The investigation of the site has been determined to be complete and the Applicant has recommended in its investigation report that action needs to be taken to address site contamination. The Applicant has developed a cleanup plan, officially called a ”Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits the proposed Remedial Work Plan for approval, NYSDEC will announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An institutional control is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used

when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Parag Amin
Project Manager
NYSDEC
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014
518-402-9648
pbamin@gw.dec.state.ny.us

New York State Department of Health (NYSDOH):
Anthony Perretta
Project Manager
NYSDOH
Empire State Plaza Corning Tower, Room #
1787
Albany, NY 12237
518-402-7880
acp06@health.state.ny.us

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Howland Public Library
313 Main Street
City of Beacon, New York 12508
Attn: **Phyllis Keaton**
Phone: **845-831-1134**
Hours: **Mon-Wed-Fri 9:30am – 5:30pm**
Tue-Thur 9:30am – 8:00pm
Sat 10:00am – 4pm
Sun 12:00pm –4pm

NYSDEC Region 3
21 S. Putt Corners Road
New Paltz, New York 12561
Phone: **845-256-3154**
Hours: **Mon-Fri 9am – 4pm**
(Please call for appointment)

Appendix B - Site Contact List

GOVERNMENT OFFICIALS

Martin Brand Regional Director
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Wendy Rosenbach Public Affairs Officer
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Ed Moore
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Dan Whitehead
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Tom Rudolph
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Michael J. Knipfing
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Bill Rudge
NYSDEC
21 South Putt Corners Road
New Paltz, NY 12561

Parag Amin
NYSDEC
625 Broadway
Albany, NY 12233

Dave Crosby
NYSDEC
625 Broadway
Albany, NY 12233

Bob Schick
NYSDEC
625 Broadway
Albany, NY 12233

George Heitzman
NYSDEC
625 Broadway
Albany, NY 12233

Mary Young
NYSDEC
625 Broadway
Albany, NY 12233

Karl Berger
NYSDEC
625 Broadway
Albany, NY 12233

Larry Ennist
NYSDEC
625 Broadway
Albany, NY 12233

Michael Ryan
NYSDEC
625 Broadway
Albany, NY 12233

Sharon McLelland
NYSDOH
ESP Corning Tower Rm 1787
Albany, NY 12237

Charlotte Bethoney
NYSDOH
ESP Corning Tower Rm 1787
Albany, NY 12237

Anthony Perretta
NYSDOH
ESP Corning Tower Rm 1787
Albany, NY 12237

Gary Litwin
NYSDOH
ESP Corning Tower Rm 1787
Albany, NY 12237

Ben Conlon
NYSDEC
625 Broadway
Albany, NY 12233

Fran Dunwell
NYSDEC
625 Broadway
Albany, NY 12233

Betsy Blair
NYSDEC
625 Broadway
Albany, NY 12233

Meredith Robson, City Administrator
City of Beacon
One Municipal Plaza Suite 1
Beacon, NY 12508

Rebecca Quial
NYSDEC
625 Broadway
Albany, NY 12233

Randy Cassale Mayor
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Tim Dexter, Building Inspector
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Kealy Salomon Commissioner
Dutchess County Dept. of Planning and Development
27 High Street
Poughkeepsie, NY 12601

Marc Molinaro Executive
Dutchess County
22 Market Street
Poughkeepsie, NY 12601

Dr. Michael Caldwell Commissioner
D.C. Health Department
387-391 Main Mall
Poughkeepsie, NY 12601

Anne Conroy President
D.C. Economic Development Corp.
3 Neptune Road
Poughkeepsie, NY 12601

Chris Ericson Chairman
Conservation Advisory Committee
22 Layfayette Avenue
Beacon, NY 12508

John Clarke
D.C. Planning & Development
24 High Street
Poughkeepsie, NY 12601

Chief of Police
City of Beacon
1 Municipal Plaza
Beacon, NY 12601

LOCAL/ELECTED OFFICIALS

Hon Kirsten Gilibrand
US Senate
Washington, DC 20510

Hon Charles Schumer
US Senate
Washington, DC 20510

Hon Sean Patrick Maloney
US Houseof Representatives
Washington, DC 20515

Hon Terry Gibson NY State Senate
41st District
Albany, NY 12247

Hon Frank Skardatos NYS Assembly
190 S. Plank Road
Newburgh, NY 12550

Hon Robert LaColla Supervisor
Town of Fishkill
807 Route 52
Fishkill, NY 12524

Hon Darlene Bellis Clerk
Town of Fishkill
807 Route 52
Fishkill, NY 12524

Hon Alison MacAvery County Legislator
10 Driscoll Road
Fishkill, NY 12524

Noel Knille Commissioner
Dutchess County Public Works
626 Dutchess Turnpike
Poughkeepsie, NY 12603

Phil Shea 3rd Ward
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Hon Darlene Bellis Clerk
Town of Fishkill
807 Route 52
Fishkill, NY 12524

Chris Ericson Chairman
Conservation Advisory Committee
22 Layfayette Avenue
Beacon, NY 12508

Iola Taylor Clerk
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Elizabeth Foster 1st Ward
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Charles Kelly 2nd Ward
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Etha Grogan
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

John Forman Legislator
Duchess County
60 E Willow Street
Beacon, NY 12508

Brian Kelly
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Kari Reiber, MD
County Health Department
85 Civic Center Plaza, Suite 106
Poughkeepsie, NY 12601

Bradford Kendall Chairman of Legislature
Dutchess County
22 Market Street
Poughkeepsie, NY 12601

Catherine Maloney, President
Economic Development Corporation
3 Neptune Road
Poughkeepsie, NY 12603

Steve Gold 4th Ward
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

MEDIA

City Editor
Hudson Valley Black Press
PO Box 2160
Newburgh, NY 12550

City Editor
Southern Dutchess News
84 E. Main Street
Wappingers Falls, NY 12590

News Director
Time Warner Cablevision
27 Industrial Drive
Middletown, NY 10940

City Editor
Hudson Valley Business Journal
86 E. Main Street
Wappingers Falls, NY 12590

City Editor
Beacon Free Press
84 E. Main Street
Beacon, NY 12590

Hank Gross
Mid Hudson News Network
42 Marcy Lane
Middletown, NY 10941

City Editor
Poughkeepsie Journal
PO Box 1231
Poughkeepsie, NY 12601

City Editor
Beacon Light
PO Box 608
Mahopac, NY 10541

City Editor
East Fishkill Record
PO Box 608
Mahopac, NY 10541

City Editor
Fishkill Standard
PO Box 608
Mahopac, NY 10541

City Editor
LaGrange Independent
PO Box 608
Mahopac, NY 10541

City Editor
Poughkeepsie Beat
1 Garden Street
Poughkeepsie, NY 12601

City Editor
Spackenkill Sentinel
84 E. Main Street
Wappingers Falls, NY 12590

City Editor
Wappingers Falls Shopper
84 E. Main Street
Wappingers Falls, NY 12590

News Director
WAXB/WPUT
1004 Federal Road
Brookfield, CT 6804

News Director
WBNR/WHUD/WLNA/WSPK
PO Box 310
Beacon, NY 12508

News Director
WEOK/WPDH/WCZX
PO Box 416
Poughkeepsie, NY 12602

News Director
WHVW
316 Main Mall
Poughkeepsie, NY 12603

News Director
WKIP/WRNQ/WRWD/WBWZ
20 Tucker Drive
Poughkeepsie, NY 12603

News Director
WKZE
7 Main Street
Sharon, CT 6069

News Director
WLJP/WRPJ/WFGB
PO Box 777
Lake Katrine, NY 12449

News Director
WGNY
PO Box 2307
Newburgh, NY 12550

News Director
Women's e-News
6 Barclay Street 5th Floor
New York, NY 10007

News Director
News Center 6
38 Old Route 9
Wappingers Falls, NY 12590

News Director
WRNN TV
800 Westchester Avenue Suite S-640
Rye Brook, NY 10573

News Director
WTBY-TV
451 Fishkill Avenue
Pleasant Valley, NY 12569

Lisa Phillips Bureau Chief
WAMC
318 Central Avenue
Albany, NY 12206

Bill Connors
686 Traver Road
Pleasant Valley, NY 12569

WATER/SEWER

Water Supply
City of Beacon
1 Municipal Plaza
Beacon, NY 12508

Sewage Treatment Plant
City of Beacon
5 Dennings Avenue
Beacon, NY 12508

LOCAL SCHOOL/DAYCARE FACILITIES

Dr. Jean Parr Superintendent
Beacon City School District
10 Education Drive
Beacon, NY 12508

Administrator
Everlasting Covenant Christian School
40 Rector Street
Beacon, NY 12508

Director
Kids Place
64 Dinan Street
Beacon, NY 12508

ENVIRONMENTAL GROUPS

Clearwater, Inc.
724 Wolcott Avenue
Beacon, NY 12508-4173

Greenway Conservancy
625 Broadway 4th Floor
Albany, NY 12207

Sierra Club, Atlantic Chapter
353 Hamilton Street
Albany, NY 12210

Scenic Hudson
One Civic Plaza, Suite 200
Poughkeepsie, NY 12601

The Nature Conservancy Eastern NY Chapter
265 Chestnut Ridge Rd
Mt. Kisco, NY 10549

Karl Coplan, Esq. Pace/Riverkeeper
78 N. Broadway
White Plains, NY 10603

Citizens Environmental Coalition
119 Washington Avenue Suite #3
Albany, NY 12210

Laura Haight
NYPIRG
107 Washington Avenue
Albany, NY 12210

Executive Director
Dutchess County EMC
2715 Route 44 Suite 2
Millbrook, NY 12545

ADJACENT PROPERTY OWNERS
(deleted from PUBLIC COPIES)

LOCAL REPOSITORY

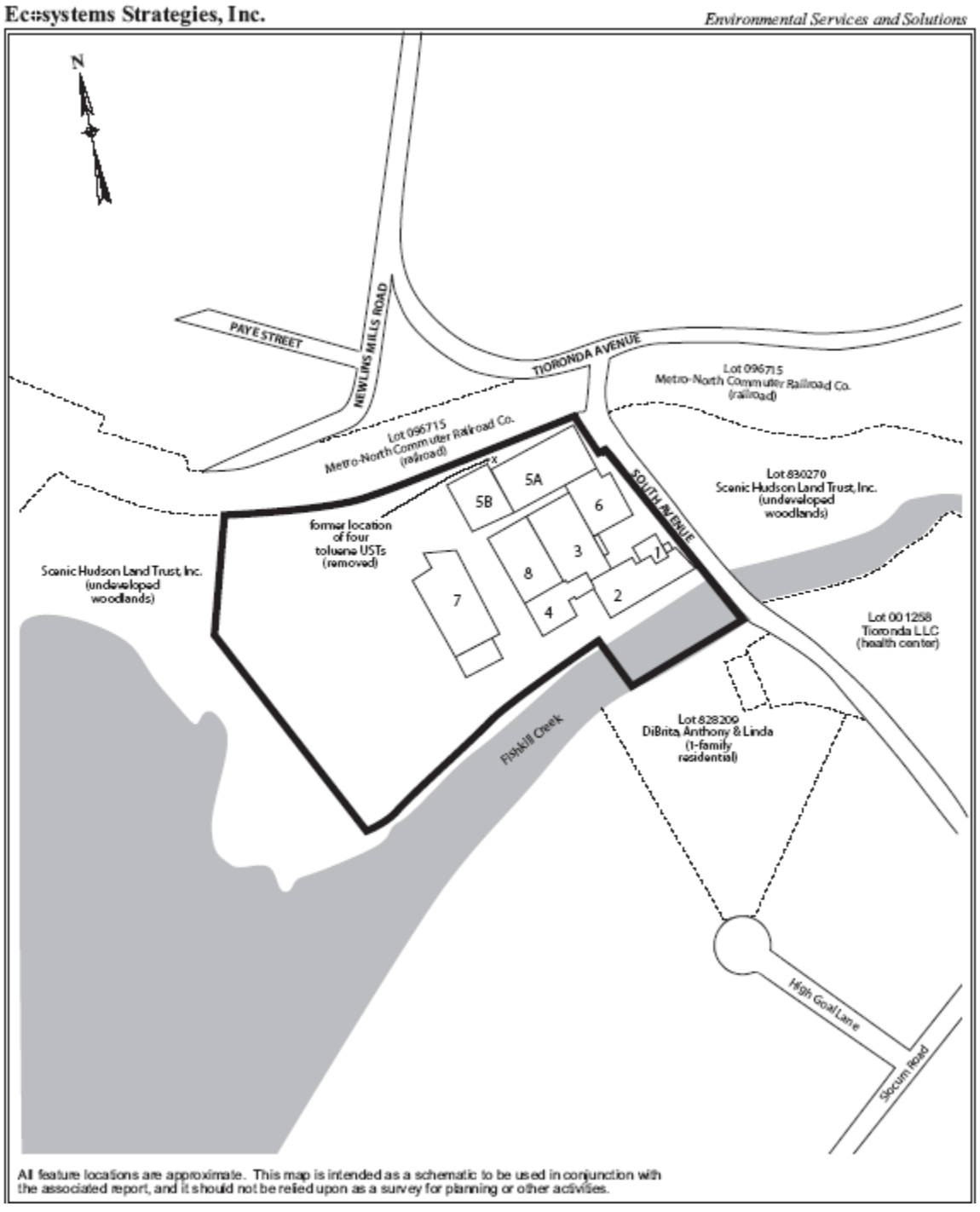
Janet Brown NYDEC Region 3
NYSDEC Division of Environmental Remediation
21 South Putt Corners Road
New Paltz, NY 12561

Peter Wessley Director/Ref. Desk
Howland Public Library
313 Main Street
Beacon, NY 12508

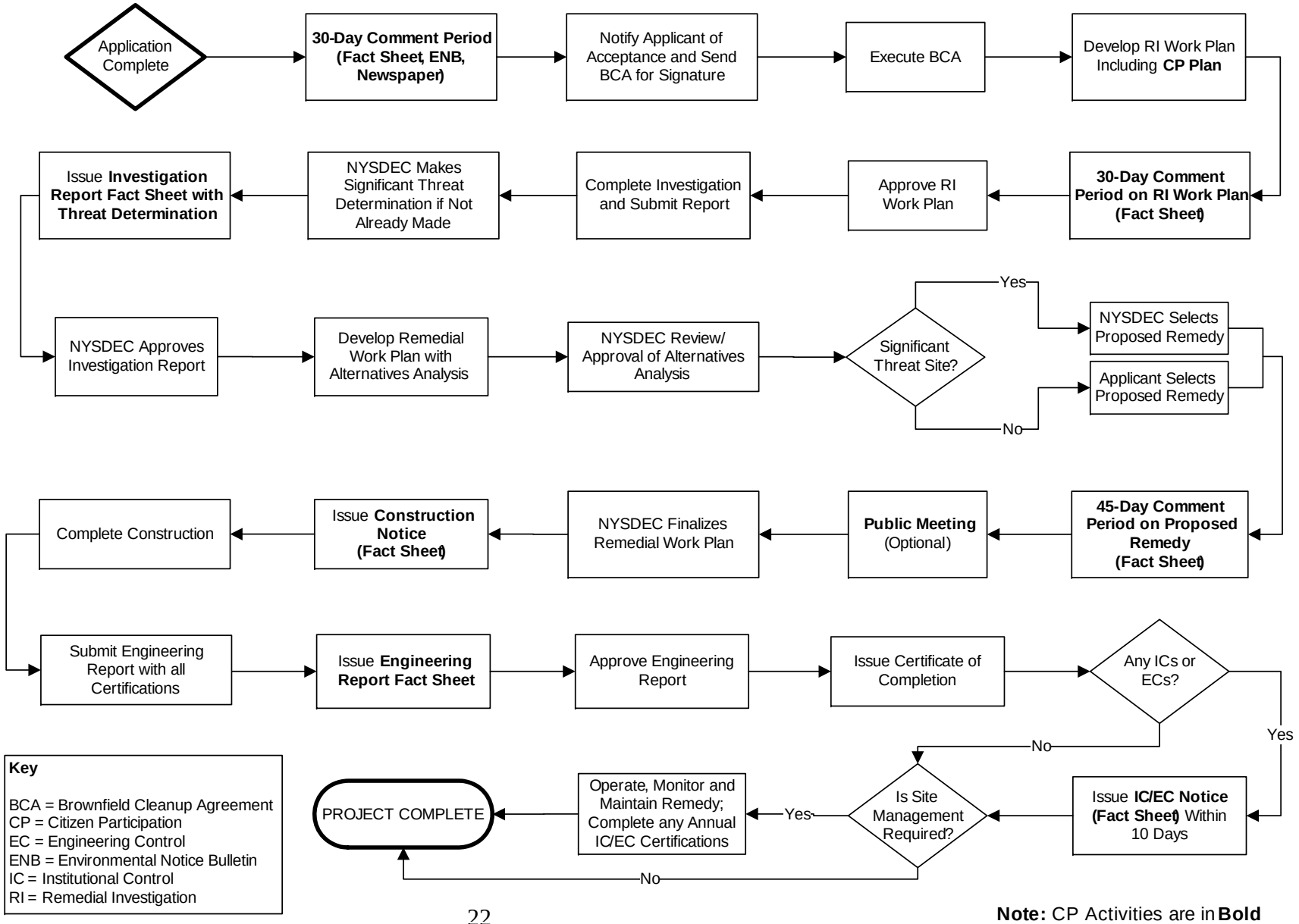
OTHER INTERESTED PARTIES

Mr. James Hayes
6 North Wodenethe Drive
Beacon, NY 12508

Appendix C- Site Location Map



Appendix D– Brownfield Cleanup Program Process



Note: CP Activities are in **Bold**

APPENDIX G

Cost Estimates

Appendix G: Environmental Remediation Costs
Remedial Action Work Plan, Beacon Terminal BCP Site C314117555

Ecosystems Strategies, Inc.

Cost Item	Unit Charge	Total Weight (tons) or Time	Total Charge
Soil Disposal			
Non Haz Metals Debris Soil	$70	1,500	$105,000
Excavation/Loading	$2,000	5 days	$10,000
Testing/Professional Oversight	$1,500	5 days	$7,500
Restoration Soils	$30	1,500	$45,000
Toluene Contaminated Soil	$90	1,125	$101,250
Excavation/Loading	$2,000	5 days	$10,000
Testing/Professional Oversight			$10,000
Restoration	$30	1,100	$33,000
Soil Cover			
Excavation/Loading	$2,000	30 days	$60,000
Testing/Professional Oversight	$1,000	30 days	$30,000
Restoration	$30	20,000	$600,000
Chemical Tank Removal			
3 upright tanks			$18,000
Building and Railroad Sweep (misc. drums)			$15,000
Building Demolition			TBD
Asbestos Removal			$1,000,000
Groundwater Monitoring			
Well installation	$4,000	5 wells	$20,000
Laboratory (8 events)	$2,000	8 sampling events	$16,000
Professional (8 events)	$2,000	8 sampling events	$16,000
Subslab Depressurization Systems			
Design/Approval	$10,000		$10,000
Installation (12 buildings)	$15,000	12 buildings	$180,000
Administrative Costs			
Communication with NYSDEC			$15,000
FER			$15,000
		Total	$2,316,750
		Contingency	$231,675
		Admin	$115,838
		Grand Total	$2,664,263

APPENDIX H

Preliminary Erosion and Sedimentation Control Plan

EROSION CONTROL PLAN

SCALE: 1" = 50'

EROSION CONTROL SEQUENCE

1. OVERALL SITE
   - INSTALL CONSTRUCTION ENTRANCE NEAR SOUTH ROAD
   - INSTALL SECURITY FENCING TO PROTECT WORK AREA
2. EXCAVATION AREA 1
   - INSTALL CONSTRUCTION ENTRANCE AND TRUCK DECONTAMINATION PAD
   - INSTALL DOWNHILL SILT FENCE BEFORE CLEARING AND GRUBBING WORK AREA.
   - PREPARE STOCKPILE LOCATIONS
3. EXCAVATION AREA 2
   - INSTALL EQUIPMENT DECONTAMINATION PAD NEAR BUILDING B-5B ENTRANCE THAT WILL BE USED FOR EQUIPMENT ACCESS.
4. EXCAVATION AREA 3
   - INSTALL DOWNHILL SILT FENCE BEFORE CLEARING AND GRUBBING WORK AREA.
   - INSTALL UPHILL DIVERSION SWALES
   - INSTALL CONSTRUCTION ENTRANCE AT TOP OF ACCESS DRIVE TO EXCAVATION AREA 2
5. EXCAVATION AREA 4
   - USE EQUIPMENT DECONTAMINATION PAD FROM WORK ON EXCAVATION AREA 2

EROSION CONTROL NOTES

1. THESE PLANS INDICATE THE PROPOSED CONTROLS TO BE FOLLOWED. DURING CONSTRUCTION FIELD CONDITIONS MAY REQUIRE THAT MODIFICATIONS TO THESE CONTROLS SHALL HAVE TO BE UTILIZED.
2. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN AND ANY REQUIRED MAINTENANCE SHALL BE DONE AT THAT TIME.
3. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL ALL PAVING AND SEED GERMINATION IS COMPLETE.
4. ALL STOCKPILES ARE TO BE SURROUNDED BY A SILT FENCE AND ALL PILES ARE TO BE STABILIZED WITH TEMPORARY SEEDING.
5. ALL DISTURBED AREAS WITH SLOPES GREATER THAN 10H:1V (10%), SHALL HAVE TEMPORARY SEEDING OF FAST GERMINATING RYE, 10 TO 15 #'S PER 1000 SQ. FT.
6. ALL DISTURBED AREAS WITH SLOPES GREATER THAN 4H:1V, SHALL BE MULCHED, SEEDED AND NETTED.
7. DISTURBED AREAS ARE TO BE PERMANENTLY STABILIZED BY ESTABLISHING A PERMANENT VEGETATIVE COVER. THE EXPOSED AREA WILL RECEIVE A MINIMUM OF 4 INCH TOPSOIL THAT IS TO BE SEEDED WITH EITHER THE FOLLOWING MIXTURES OR ANOTHER OWNER APPROVED MIXTURE.

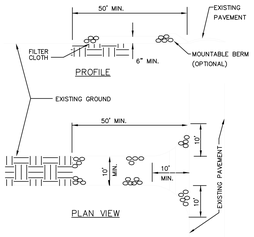
PERMANENT SPRING & FALL PLANTINGS:
(BEFORE MAY 15 AND AFTER AUGUST 15)
0.6 LBS/1000 S.F. FINE FESCUE
0.8 LBS/1000 S.F. PERENNIAL RYE GRASS
2.6 LBS/1000 S.F. KENTUCKY BLUEGRASS BLEND

TEMPORARY LATE SPRING & SUMMER PLANTINGS:
(BETWEEN MAY 15 AND AUGUST 15)
0.9 LBS/1000 S.F. SUDANGRASS
0.7 LBS/1000 S.F. ANNUAL RYE GRASS
0.7 LBS/1000 S.F. PERENNIAL RYE GRASS
(TO BE RE-SEWN WITH PERMANENT SEED MIXTURE)

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50 FEET.
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH – SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE– THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT THE TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY. MAINTENANCE SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

NOTE
1. STABILIZED CONSTRUCTION ENTRANCE SHALL BE USED AT ALL POINTS OF INGRESS/EGRESS TO UNPAVED LOCATIONS FROM PAVED PUBLIC RIGHT-OF-WAYS.



1 STABILIZED CONSTRUCTION ENTRANCE
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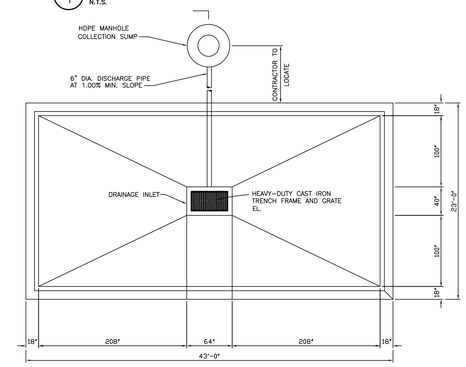
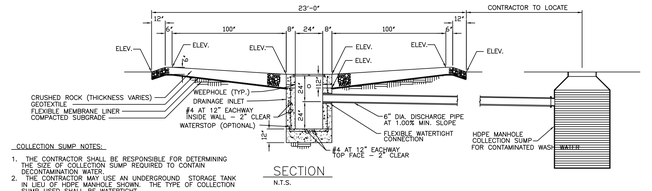


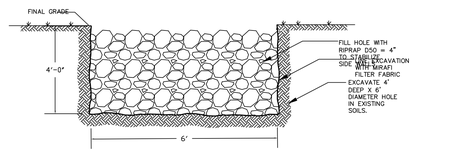
PLAN
N.T.S.



COLLECTION SUMP NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE SIZE OF COLLECTION SUMP REQUIRED TO CONTAIN DECONTAMINATION WATER.
2. THE CONTRACTOR MAY USE AN UNDERGROUND STORAGE TANK IN LIEU OF HDPE MANHOLE SHOWN. THE TYPE OF COLLECTION SUMP USED SHALL BE WATERTIGHT.
3. THE COLLECTION SUMP SHALL BE ANCHORED TO PREVENT FLOTATION AS NEEDED.

SECTION
N.T.S.

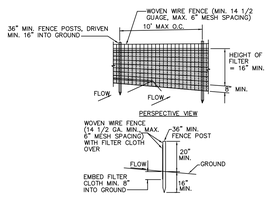
2 TRUCK DECONTAMINATION PAD
N.T.S.



NOTES FOR CONSTRUCTING RECHARGE PIT

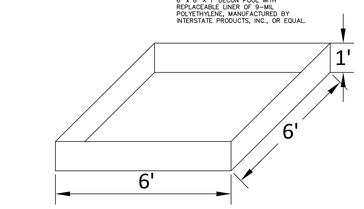
1. RECHARGE PIT MUST BE 100' FROM OPEN WATER SUCH AS A STREAM.
2. RECHARGE PIT MUST BE 30' FROM STORM SEWER OR CATCHBASIN.
3. EXISTING SOILS MUST BE SANDY LOAM OR COARSER, NOT SILT OR CLAY.
4. OUTFLOW FROM SEDIMENT TRAP MUST NOT EXCEED INFILTRATION RATE IN THE RECHARGE PIT.
5. IF SYSTEM STARTS TO OVERFLOW, CONSTRUCT A SECOND PIT.

3 INFILTRATION SYSTEM AND RECHARGE PIT
N.T.S.



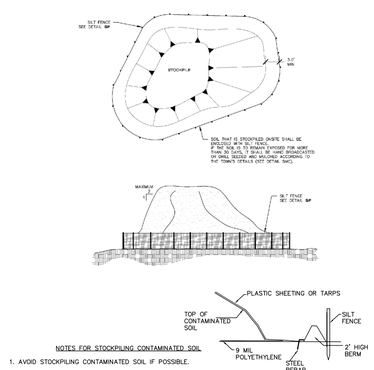
NOTES
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHERE TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

5 SILT FENCE
N.T.S.



1. DECON POOL MUST BE LOCATED ON A LEVEL, PAVED SURFACE FREE OF CONTAMINATION, AND WITH NO SHARP OBJECTS THAT MAY PENETRATE THE POOL LINER.
2. REPLACEMENT POOL LINER MUST BE ON HAND.
3. AT THE COMPLETION OF SITE ACTIVITIES ALL WASTE/RINSE WATER SHOULD BE PUMPED INTO CONTAINERS AND PROPERLY MANAGED AS INVESTIGATIVE DERIVED WASTE.
4. AFTER USE THE POOL LINER MUST BE FOLDED INWARDS AND DISPOSED OF IN A SEALED CONTAINER.

4 EQUIPMENT DECONTAMINATION PAD
N.T.S.



NOTES FOR STOCKPILING CONTAMINATED SOIL
1. AVOID STOCKPILING CONTAMINATED SOIL IF POSSIBLE.
2. PLACE 9 MILL POLYETHYLENE SHEETING UNDER THE STOCKPILE.
3. INSTALL SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE.
4. COVER THE STOCKPILE WITH PLASTIC SHEETING OR TARPS ANCHORED TO THE GROUND OUTSIDE THE BOTTOM SHEETING.
5. DO NOT STOCKPILE NEAR STORM DRAINS OR WATER COURSES.

6 SOIL STOCKPILE
N.T.S.

REVISIONS

NO.	DATE	DRN	APPR

REVISIONS

NO.	DATE	DRN	APPR

BEACON TERMINAL SITE
SITE ID: C314117
555 SOUTH AVENUE
CITY OF BEACON, NY 12508
DUTCHESS COUNTY, NEW YORK

EROSION CONTROL PLAN

JANSEN ENGINEERING, PLLC
72 COLBURN DRIVE
POUGHKEEPSIE, NY 12603
OFFICE (845) 505-0324
JGJANSEN@JANSEN-ENGINEERING.COM

DATE: OCTOBER 10, 2013

JOLANDA G. JANSEN, P.E.